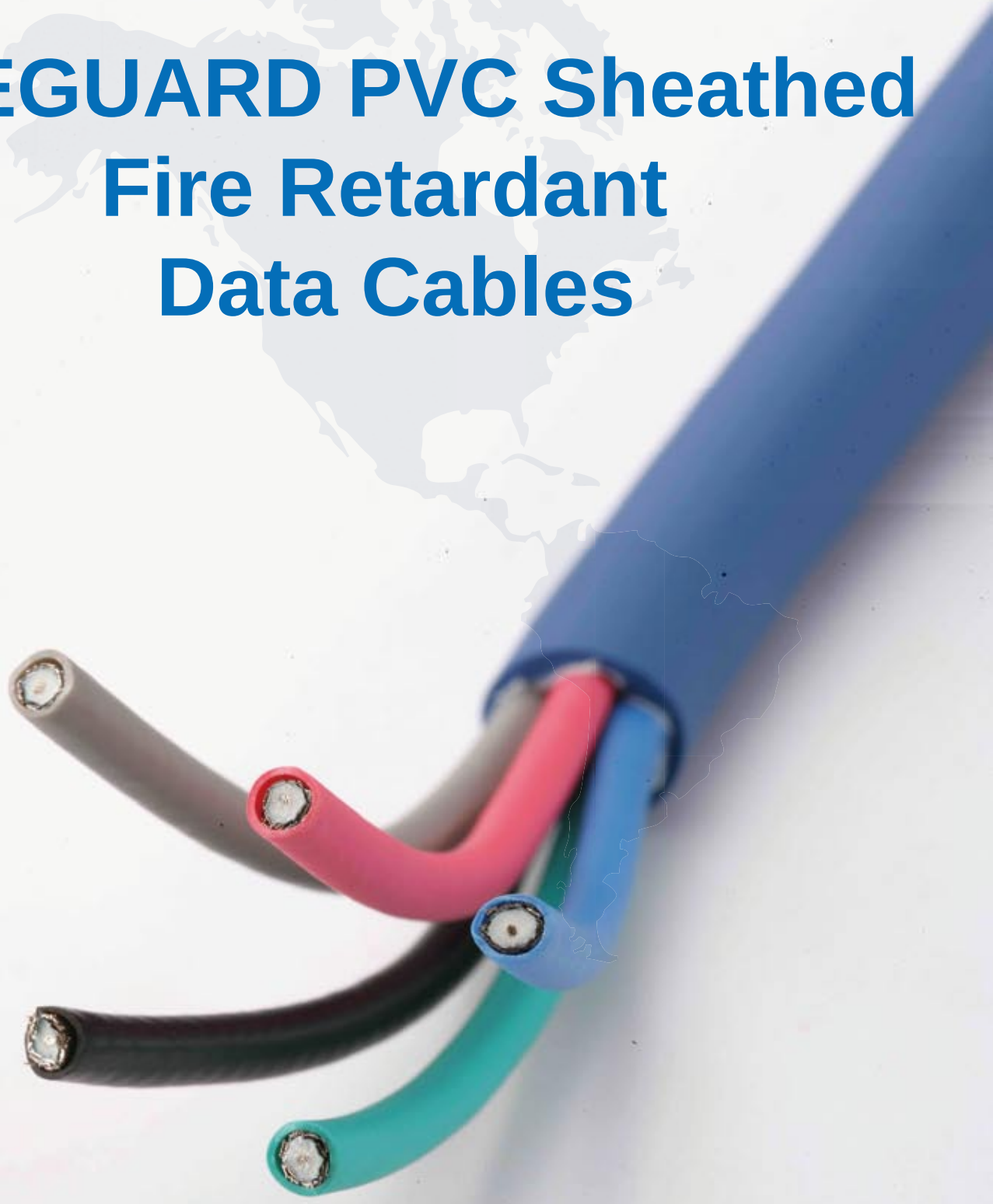
Caledonian

# FIREGUARD PVC Sheathed Fire Retardant Data Cables



Caledonian

## Caledonian FIREGUARD LSZH Sheathed Fire Retardatant Data Cables

# Company Profile

Caledonian. established in 1978.offers one of the most complete lines of fiber and copper cabling system solutions with over hundreds of different cabling system products. . Our superior products provide leading edge within every cable series and for every application.

Among the national and international standards with which our cables could comply are: BS - British Standard; LPCB Fire Performance Standard. ISO Standard etc. Caledonian Cables offers a comprehensive stock of cables and cabling products through its nationwide network of resellers and distributors. Caledonian Cables has continually expanded its global presence in Europe and Asia.

Caledonian & Addison. produces a wide range of cables for communication. power and electronics in its primary plants in UK. Italy and Spain. To stay in front. we continually keep expanding our manufacturing capabilities in more low cost region such as Romania. Taiwan. Malaysia etc. This low-cost manufacturing facilities enable us provide a flexible. scalable global system that delivers superior operational performance and optimal results for our customers.

Our extensive global network of manufacturing facilities gives us significant scale and the flexibility to fulfill our customer requirements. This global presence provides design and consultancy solutions that are combined with core cable manufacturing. logistic services. and vertically integrated with our ecommerce technologies. to optimize customer operations by lowering costs and reducing time to market.

Caledonian & Addison has been respected for its high standards of quality. excellent service level. competitive pricing and a unique and innovative spirit. With our latest technologies. we are both inspired and well-positioned to meet the changing needs of our customers. We have the resources to diversify and to enhance our product lines and services. We understand the need for change and with our accurate planning. we are ready for the future and the promise of new marketing opportunities. Our tradition of growth through excellence is assured.

Our Design Centers work closely with customers to constantly improve its standard range of products and technologies and to develop customized. country and industry-specific solutions. Caledonian & Addison has established an extensive network of design. manufacturing. and logistics facilities in the world's major markets to serve the growing outsourcing needs of both multinational and regional customers.

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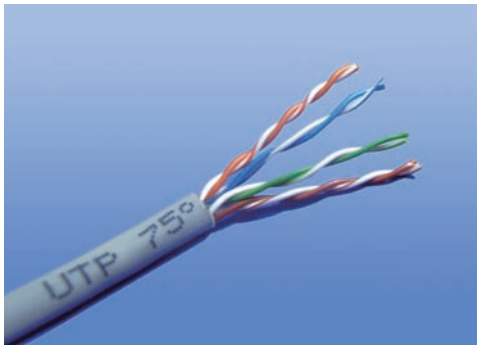
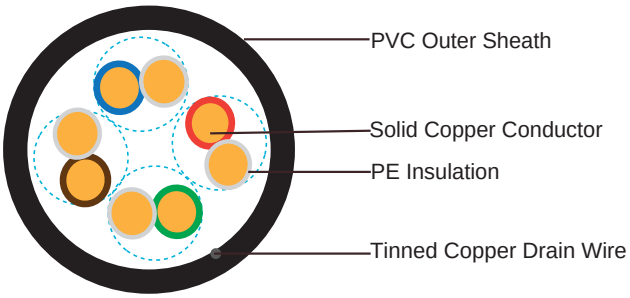
# Fire Retardant CAT5E Data Cables

## Fire Retardant CAT5E U/UTP Data Cables

### FGD-CAT5E U/UTP4P24




### APPLICATION

Cat5E is a cable standard for Gigabit Ethernet and other network protocol, suitable for basic voice and data installations up to 100 MHz. In addition, these cables can be offered with copper wire braid armoured & flame retardant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 24AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance

standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 24 |
| Nominal Conductor Diameter | mm | 0.5/0.51 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 5 |
| Maximum Mutual Capacitance | pF/m | 55.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 45 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 68.3/74.0/65.3 | 2.0 | 20.2/26.0/20.2 | 66.3/72.0/63.3 | 64.8/69.0/63.8 | 65.0/71.0/62.3 | 63.3/69.0/60.3 | 61.8/66.0/60.8 |
| 4 | 59.3/65.0/56.3 | 4.1 | 23.0/29.0/23.0 | 55.2/60.9/52.2 | 52.7/57.0/51.7 | 56.3/62.0/53.3 | 52.2/57.9/49.2 | 49.7/54.0/48.7 |
| 8 | 54.8/61.0/51.8 | 5.8 | 24.5/30.5/24.5 | 49.0/55.2/46.0 | 46.7/51.0/45.7 | 51.8/58.0/48.8 | 46.0/52.2/43.0 | 43.7/48.0/42.7 |
| 10 | 53.3/59.0/50.3 | 6.5 | 25.0/31.0/25.0 | 46.8/52.5/43.8 | 44.8/49.0/43.8 | 50.3/56.0/47.3 | 43.8/49.5/40.8 | 41.8/46.0/40.8 |
| 16 | 50.3/56.0/47.3 | 8.2 | 25.0/31.0/25.0 | 42.1/47.8/39.1 | 40.7/45.0/39.7 | 47.4/53.0/44.3 | 39.1/44.8/36.1 | 37.7/42.0/36.7 |
| 20 | 48.8/55.0/45.8 | 9.3 | 25.0/31.0/25.0 | 39.5/45.7/36.5 | 38.7/43.0/37.7 | 45.8/52.0/42.8 | 36.5/42.7/33.5 | 35.7/40.0/34.7 |
| 25 | 47.3/53.0/44.3 | 10.4 | 24.3/30.3/24.3 | 36.9/42.6/33.9 | 36.8/41.0/35.8 | 44.3/50.0/41.3 | 33.9/39.6/30.9 | 33.8/38.0/32.8 |
| 31.25 | 45.9/52.0/42.9 | 11.7 | 23.6/29.6/23.6 | 34.2/40.3/31.2 | 34.9/39.0/33.9 | 42.9/49.0/39.9 | 31.2/37.3/28.2 | 31.9/36.0/30.9 |
| 62.5 | 41.4/47.0/38.4 | 17.0 | 21.5/27.5/21.5 | 24.4/30.0/21.4 | 28.8/33.0/27.8 | 38.4/44.0/35.4 | 21.4/27.0/18.4 | 25.8/30.0/24.8 |
| 100 | 38.3/44.0/35.3 | 22.0 | 20.1/26.1/20.1 | 16.3/22.0/13.3 | 24.8/29.0/23.8 | 35.3/41.0/32.3 | 13.3/19.0/10.3 | 21.8/26.0/20.8 |
| 155 | 35.5/41.0/32.5 | 28.1 | 18.8/24.8/18.8 | 7.4/12.9/4.4 | 20.9/25.0/19.9 | 32.5/38.0/29.5 | 4.4/9.9/-1.4 | 17.9/22.0/16.9 |
| 200 | 33.7/40.0/30.7 | 32.4 | 18.0/24.0/18.0 | 1.3/7.6/-1.7 | 19.7/24.0/18.7 | 30.0/37.0/27.7 | -1.7/4.6/-4.7 | 16.7/21.0/15.7 |
| 310 | 32.3/38.0/29.3 | 41.8 | 17.3/23.3/17.3 | N/A | 11.0/15.0/10.0 | 29.3/35.0/26.3 | N/A | 14.0/18.0/13.0 |
| 350 | 30.1/36.0/27.1 | 44.9 | 17.3/23.3/17.3 | N/A | 8.1/12.0/7.1 | 27.1/33.0/24.1 | N/A | 11.1/15.0/10.1 |

## CONSTRUCTION PARAMETERS

| Cable Code | Conductor Diameter | Diameter Over Insulation | Pairs | Screen | Nominal Overall Diameter |
|---|---|---|---|---|---|
| | mm | mm | | | mm |
| FGD-Cat5E U/UTP | 0.5/0.51 | 0.91 | 4 | Nil | 5.1 |

Rated Voltage

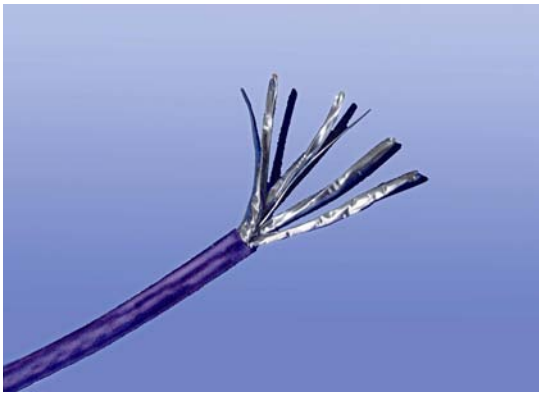
Standard

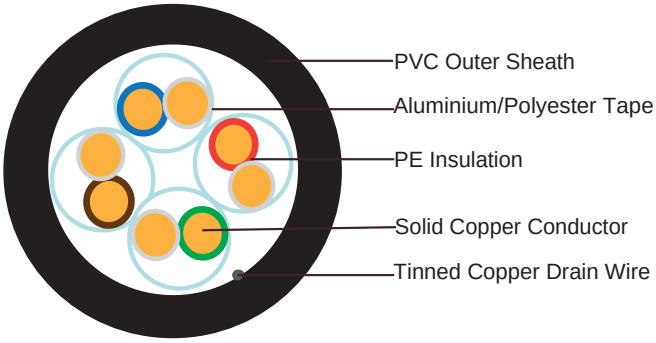
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT5E U/FTP Data Cables

### FGD-CAT5E U/FTP4P24






### APPLICATION

Cat5E is a cable standard for Gigabit Ethernet and other network protocol, suitable for basic voice and data installations up to 100 MHz. In addition, these cables can be offered with copper wire braid armoured & flame retardant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 24AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium/polyester tape with drain wire.
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance,

anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 24 |
| Nominal Conductor Diameter | mm | 0.5/0.51 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 5 |
| Maximum Mutual Capacitance | pF/m | 55.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 45 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 68.3/74.0/65.3 | 2.0 | 20.2/26.0/20.2 | 66.3/72.0/63.3 | 64.8/69.0/63.8 | 65.0/71.0/62.3 | 63.3/69.0/60.3 | 61.8/66.0/60.8 |
| 4 | 59.3/65.0/56.3 | 4.1 | 23.0/29.0/23.0 | 55.2/60.9/52.2 | 52.7/57.0/51.7 | 56.3/62.0/53.3 | 52.2/57.9/49.2 | 49.7/54.0/48.7 |
| 8 | 54.8/61.0/51.8 | 5.8 | 24.5/30.5/24.5 | 49.0/55.2/46.0 | 46.7/51.0/45.7 | 51.8/58.0/48.8 | 46.0/52.2/43.0 | 43.7/48.0/42.7 |
| 10 | 53.3/59.0/50.3 | 6.5 | 25.0/31.0/25.0 | 46.8/52.5/43.8 | 44.8/49.0/43.8 | 50.3/56.0/47.3 | 43.8/49.5/40.8 | 41.8/46.0/40.8 |
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| 20 | 48.8/55.0/45.8 | 9.3 | 25.0/31.0/25.0 | 39.5/45.7/36.5 | 38.7/43.0/37.7 | 45.8/52.0/42.8 | 36.5/42.7/33.5 | 35.7/40.0/34.7 |
| 25 | 47.3/53.0/44.3 | 10.4 | 24.3/30.3/24.3 | 36.9/42.6/33.9 | 36.8/41.0/35.8 | 44.3/50.0/41.3 | 33.9/39.6/30.9 | 33.8/38.0/32.8 |
| 31.25 | 45.9/52.0/42.9 | 11.7 | 23.6/29.6/23.6 | 34.2/40.3/31.2 | 34.9/39.0/33.9 | 42.9/49.0/39.9 | 31.2/37.3/28.2 | 31.9/36.0/30.9 |
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| 200 | 33.7/40.0/30.7 | 32.4 | 18.0/24.0/18.0 | 1.3/7.6/-1.7 | 19.7/24.0/18.7 | 30.0/37.0/27.7 | -1.7/4.6/-4.7 | 16.7/21.0/15.7 |
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| 350 | 30.1/36.0/27.1 | 44.9 | 17.3/23.3/17.3 | N/A | 8.1/12.0/7.1 | 27.1/33.0/24.1 | N/A | 11.1/15.0/10.1 |

## CONSTRUCTION PARAMETERS

| Cable Code | Conductor Diameter | Diameter Over Insulation | Pairs | Screen | Nominal Overall Diameter |
|---|---|---|---|---|---|
| | mm | mm | | | mm |
| FGD-Cat5E U/FTP | 0.5/0.51 | 0.91 | 4 | Individual Aluminium/Polyester Tape Screen | 5.6 |

Rated Voltage

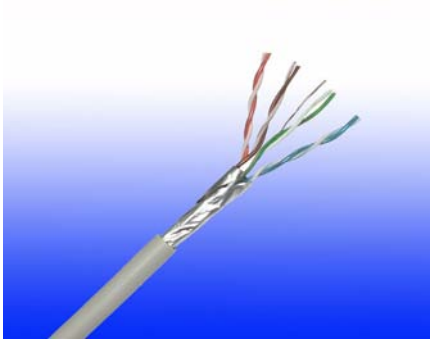
Standard

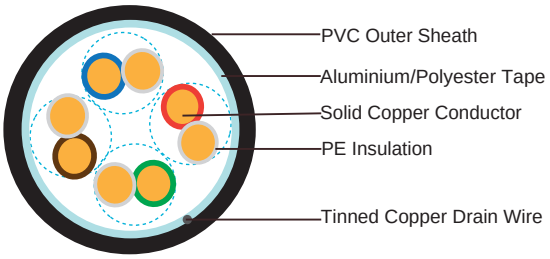
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT5E F/UTP Data Cables

### FGD-CAT5E F/UTP4P24






## APPLICATION

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## STANDARDS

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## FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

## VOLTAGE RATING

60V

## CABLE CONSTRUCTION

**Conductors:** 24AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Overall aluminium/polyester tape with drain wire screen.
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance,

anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 24 |
| Nominal Conductor Diameter | mm | 0.53 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 5 |
| Maximum Mutual Capacitance | pF/m | 55.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 45 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 68.3/74.0/65.3 | 2.0 | 20.2/26.0/20.2 | 66.3/72.0/63.3 | 64.8/69.0/63.8 | 65.0/71.0/62.3 | 63.3/69.0/60.3 | 61.8/66.0/60.8 |
| 4 | 59.3/65.0/56.3 | 4.1 | 23.0/29.0/23.0 | 55.2/60.9/52.2 | 52.7/57.0/51.7 | 56.3/62.0/53.3 | 52.2/57.9/49.2 | 49.7/54.0/48.7 |
| 8 | 54.8/61.0/51.8 | 5.8 | 24.5/30.5/24.5 | 49.0/55.2/46.0 | 46.7/51.0/45.7 | 51.8/58.0/48.8 | 46.0/52.2/43.0 | 43.7/48.0/42.7 |
| 10 | 53.3/59.0/50.3 | 6.5 | 25.0/31.0/25.0 | 46.8/52.5/43.8 | 44.8/49.0/43.8 | 50.3/56.0/47.3 | 43.8/49.5/40.8 | 41.8/46.0/40.8 |
| 16 | 50.3/56.0/47.3 | 8.2 | 25.0/31.0/25.0 | 42.1/47.8/39.1 | 40.7/45.0/39.7 | 47.4/53.0/44.3 | 39.1/44.8/36.1 | 37.7/42.0/36.7 |
| 20 | 48.8/55.0/45.8 | 9.3 | 25.0/31.0/25.0 | 39.5/45.7/36.5 | 38.7/43.0/37.7 | 45.8/52.0/42.8 | 36.5/42.7/33.5 | 35.7/40.0/34.7 |
| 25 | 47.3/53.0/44.3 | 10.4 | 24.3/30.3/24.3 | 36.9/42.6/33.9 | 36.8/41.0/35.8 | 44.3/50.0/41.3 | 33.9/39.6/30.9 | 33.8/38.0/32.8 |
| 31.25 | 45.9/52.0/42.9 | 11.7 | 23.6/29.6/23.6 | 34.2/40.3/31.2 | 34.9/39.0/33.9 | 42.9/49.0/39.9 | 31.2/37.3/28.2 | 31.9/36.0/30.9 |
| 62.5 | 41.4/47.0/38.4 | 17.0 | 21.5/27.5/21.5 | 24.4/30.0/21.4 | 28.8/33.0/27.8 | 38.4/44.0/35.4 | 21.4/27.0/18.4 | 25.8/30.0/24.8 |
| 100 | 38.3/44.0/35.3 | 22.0 | 20.1/26.1/20.1 | 16.3/22.0/13.3 | 24.8/29.0/23.8 | 35.3/41.0/32.3 | 13.3/19.0/10.3 | 21.8/26.0/20.8 |
| 155 | 35.5/41.0/32.5 | 28.1 | 18.8/24.8/18.8 | 7.4/12.9/4.4 | 20.9/25.0/19.9 | 32.5/38.0/29.5 | 4.4/9.9/-1.4 | 17.9/22.0/16.9 |
| 200 | 33.7/40.0/30.7 | 32.4 | 18.0/24.0/18.0 | 1.3/7.6/-1.7 | 19.7/24.0/18.7 | 30.0/37.0/27.7 | -1.7/4.6/-4.7 | 16.7/21.0/15.7 |
| 310 | 32.3/38.0/29.3 | 41.8 | 17.3/23.3/17.3 | N/A | 11.0/15.0/10.0 | 29.3/35.0/26.3 | N/A | 14.0/18.0/13.0 |
| 350 | 30.1/36.0/27.1 | 44.9 | 17.3/23.3/17.3 | N/A | 8.1/12.0/7.1 | 27.1/33.0/24.1 | N/A | 11.1/15.0/10.1 |

## CONSTRUCTION PARAMETERS

| Cable Code | Conductor Diameter | Diameter Over Insulation | Pairs | Screen | Nominal Overall Diameter |
|---|---|---|---|---|---|
| | mm | mm | | | mm |
| FGD-Cat5E F/UTP | 0.53 | 0.93 | 4 | Overall Aluminium/Polyester Tape Screen | 5.7 |

Rated Voltage

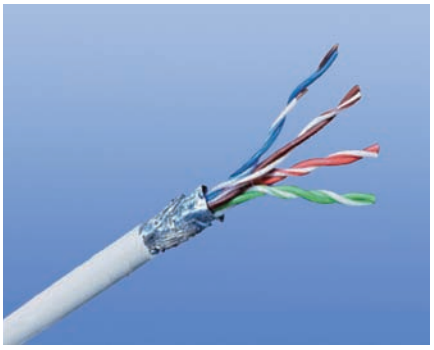
Standard

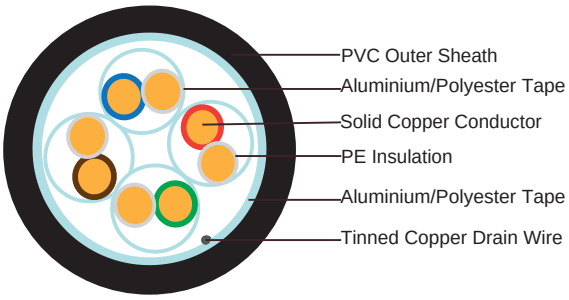
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT5E F/FTP Data Cables

### FGD-CAT5E F/FTP4P24






### APPLICATION

Cat5E is a cable standard for Gigabit Ethernet and other network protocol, suitable for basic voice and data installations up to 100 MHz. In addition, these cables can be offered with copper wire braid armoured & flame retardant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 24AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium/polyester tape with drain wire and overall aluminium/polyester tape with drain wire screen.

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 24 |
| Nominal Conductor Diameter | mm | 0.53 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 5 |
| Maximum Mutual Capacitance | pF/m | 55.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 45 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 68.3/74.0/65.3 | 2.0 | 20.2/26.0/20.2 | 66.3/72.0/63.3 | 64.8/69.0/63.8 | 65.0/71.0/62.3 | 63.3/69.0/60.3 | 61.8/66.0/60.8 |
| 4 | 59.3/65.0/56.3 | 4.1 | 23.0/29.0/23.0 | 55.2/60.9/52.2 | 52.7/57.0/51.7 | 56.3/62.0/53.3 | 52.2/57.9/49.2 | 49.7/54.0/48.7 |
| 8 | 54.8/61.0/51.8 | 5.8 | 24.5/30.5/24.5 | 49.0/55.2/46.0 | 46.7/51.0/45.7 | 51.8/58.0/48.8 | 46.0/52.2/43.0 | 43.7/48.0/42.7 |
| 10 | 53.3/59.0/50.3 | 6.5 | 25.0/31.0/25.0 | 46.8/52.5/43.8 | 44.8/49.0/43.8 | 50.3/56.0/47.3 | 43.8/49.5/40.8 | 41.8/46.0/40.8 |
| 16 | 50.3/56.0/47.3 | 8.2 | 25.0/31.0/25.0 | 42.1/47.8/39.1 | 40.7/45.0/39.7 | 47.4/53.0/44.3 | 39.1/44.8/36.1 | 37.7/42.0/36.7 |
| 20 | 48.8/55.0/45.8 | 9.3 | 25.0/31.0/25.0 | 39.5/45.7/36.5 | 38.7/43.0/37.7 | 45.8/52.0/42.8 | 36.5/42.7/33.5 | 35.7/40.0/34.7 |
| 25 | 47.3/53.0/44.3 | 10.4 | 24.3/30.3/24.3 | 36.9/42.6/33.9 | 36.8/41.0/35.8 | 44.3/50.0/41.3 | 33.9/39.6/30.9 | 33.8/38.0/32.8 |
| 31.25 | 45.9/52.0/42.9 | 11.7 | 23.6/29.6/23.6 | 34.2/40.3/31.2 | 34.9/39.0/33.9 | 42.9/49.0/39.9 | 31.2/37.3/28.2 | 31.9/36.0/30.9 |
| 62.5 | 41.4/47.0/38.4 | 17.0 | 21.5/27.5/21.5 | 24.4/30.0/21.4 | 28.8/33.0/27.8 | 38.4/44.0/35.4 | 21.4/27.0/18.4 | 25.8/30.0/24.8 |
| 100 | 38.3/44.0/35.3 | 22.0 | 20.1/26.1/20.1 | 16.3/22.0/13.3 | 24.8/29.0/23.8 | 35.3/41.0/32.3 | 13.3/19.0/10.3 | 21.8/26.0/20.8 |
| 155 | 35.5/41.0/32.5 | 28.1 | 18.8/24.8/18.8 | 7.4/12.9/4.4 | 20.9/25.0/19.9 | 32.5/38.0/29.5 | 4.4/9.9/-1.4 | 17.9/22.0/16.9 |
| 200 | 33.7/40.0/30.7 | 32.4 | 18.0/24.0/18.0 | 1.3/7.6/-1.7 | 19.7/24.0/18.7 | 30.0/37.0/27.7 | -1.7/4.6/-4.7 | 16.7/21.0/15.7 |
| 310 | 32.3/38.0/29.3 | 41.8 | 17.3/23.3/17.3 | N/A | 11.0/15.0/10.0 | 29.3/35.0/26.3 | N/A | 14.0/18.0/13.0 |
| 350 | 30.1/36.0/27.1 | 44.9 | 17.3/23.3/17.3 | N/A | 8.1/12.0/7.1 | 27.1/33.0/24.1 | N/A | 11.1/15.0/10.1 |

# FIREGUARD Fire Retardant CAT5E Data Cables

## CONSTRUCTION PARAMETERS

| Cable Code | Conductor Diameter | Diameter Over Insulation | Pairs | Screen | Nominal Overall Diameter |
|---|---|---|---|---|---|
| | mm | mm | | | mm |
| FGD-Cat5E F/FTP | 0.53 | 0.93 | 4 | Individual Aluminium/Polyester Tape & Overall Aluminium/Polyester Tape Screen | 5.9 |

Rated Voltage

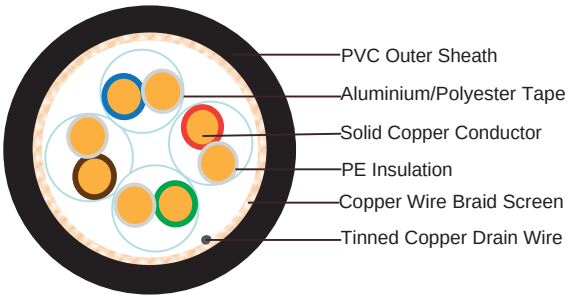
Standard

Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT5E S/FTP Data Cables

### FGD-CAT5E S/FTP4P24




### APPLICATION

Cat5E is a cable standard for Gigabit Ethernet and other network protocol, suitable for basic voice and data installations up to 100 MHz. In addition, these cables can be offered with copper wire braid armoured & flame retardant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 24AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium polyester tape with drain wire and copper wire braid screen.
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance,

anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 24 |
| Nominal Conductor Diameter | mm | 0.53 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 5 |
| Maximum Mutual Capacitance | pF/m | 55.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 45 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 68.3/74.0/65.3 | 2.0 | 20.2/26.0/20.2 | 66.3/72.0/63.3 | 64.8/69.0/63.8 | 65.0/71.0/62.3 | 63.3/69.0/60.3 | 61.8/66.0/60.8 |
| 4 | 59.3/65.0/56.3 | 4.1 | 23.0/29.0/23.0 | 55.2/60.9/52.2 | 52.7/57.0/51.7 | 56.3/62.0/53.3 | 52.2/57.9/49.2 | 49.7/54.0/48.7 |
| 8 | 54.8/61.0/51.8 | 5.8 | 24.5/30.5/24.5 | 49.0/55.2/46.0 | 46.7/51.0/45.7 | 51.8/58.0/48.8 | 46.0/52.2/43.0 | 43.7/48.0/42.7 |
| 10 | 53.3/59.0/50.3 | 6.5 | 25.0/31.0/25.0 | 46.8/52.5/43.8 | 44.8/49.0/43.8 | 50.3/56.0/47.3 | 43.8/49.5/40.8 | 41.8/46.0/40.8 |
| 16 | 50.3/56.0/47.3 | 8.2 | 25.0/31.0/25.0 | 42.1/47.8/39.1 | 40.7/45.0/39.7 | 47.4/53.0/44.3 | 39.1/44.8/36.1 | 37.7/42.0/36.7 |
| 20 | 48.8/55.0/45.8 | 9.3 | 25.0/31.0/25.0 | 39.5/45.7/36.5 | 38.7/43.0/37.7 | 45.8/52.0/42.8 | 36.5/42.7/33.5 | 35.7/40.0/34.7 |
| 25 | 47.3/53.0/44.3 | 10.4 | 24.3/30.3/24.3 | 36.9/42.6/33.9 | 36.8/41.0/35.8 | 44.3/50.0/41.3 | 33.9/39.6/30.9 | 33.8/38.0/32.8 |
| 31.25 | 45.9/52.0/42.9 | 11.7 | 23.6/29.6/23.6 | 34.2/40.3/31.2 | 34.9/39.0/33.9 | 42.9/49.0/39.9 | 31.2/37.3/28.2 | 31.9/36.0/30.9 |
| 62.5 | 41.4/47.0/38.4 | 17.0 | 21.5/27.5/21.5 | 24.4/30.0/21.4 | 28.8/33.0/27.8 | 38.4/44.0/35.4 | 21.4/27.0/18.4 | 25.8/30.0/24.8 |
| 100 | 38.3/44.0/35.3 | 22.0 | 20.1/26.1/20.1 | 16.3/22.0/13.3 | 24.8/29.0/23.8 | 35.3/41.0/32.3 | 13.3/19.0/10.3 | 21.8/26.0/20.8 |
| 155 | 35.5/41.0/32.5 | 28.1 | 18.8/24.8/18.8 | 7.4/12.9/4.4 | 20.9/25.0/19.9 | 32.5/38.0/29.5 | 4.4/9.9/-1.4 | 17.9/22.0/16.9 |
| 200 | 33.7/40.0/30.7 | 32.4 | 18.0/24.0/18.0 | 1.3/7.6/-1.7 | 19.7/24.0/18.7 | 30.0/37.0/27.7 | -1.7/4.6/-4.7 | 16.7/21.0/15.7 |
| 310 | 32.3/38.0/29.3 | 41.8 | 17.3/23.3/17.3 | N/A | 11.0/15.0/10.0 | 29.3/35.0/26.3 | N/A | 14.0/18.0/13.0 |
| 350 | 30.1/36.0/27.1 | 44.9 | 17.3/23.3/17.3 | N/A | 8.1/12.0/7.1 | 27.1/33.0/24.1 | N/A | 11.1/15.0/10.1 |

## CONSTRUCTION PARAMETERS

| Cable Code | Conductor Diameter | Diameter Over Insulation | Pairs | Screen | Nominal Overall Diameter |
|---|---|---|---|---|---|
| | mm | mm | | | mm |
| FGD-Cat5E S/FTP | 0.53 | 1.0 | 4 | Individual Aluminium/Polyester Tape & Copper Wire Braid Screen | 8.0 |

Rated Voltage

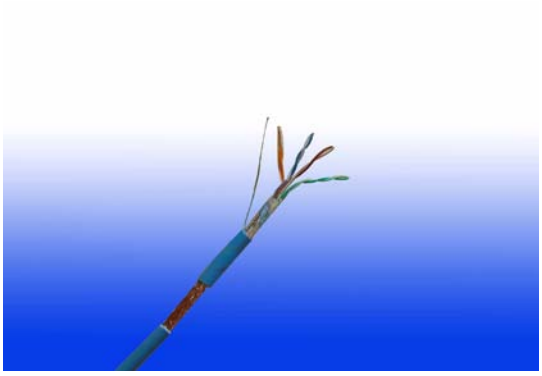
Standard

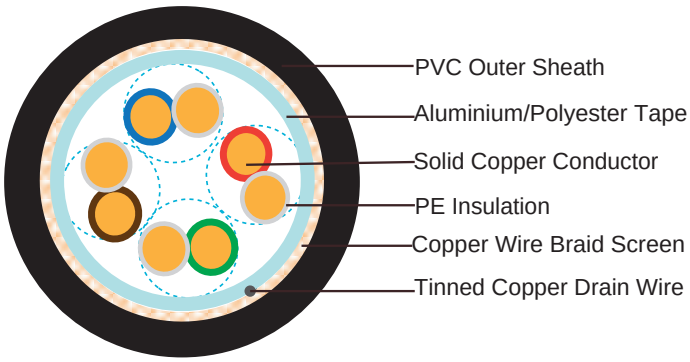
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT5E SF/UTP Data Cables

### FGD-CAT5E SF/UTP4P24






### APPLICATION

Cat5E is a cable standard for Gigabit Ethernet and other network protocol, suitable for basic voice and data installations up to 100 MHz. In addition, these cables can be offered with copper wire braid armoured & flame retardant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 24AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Overall aluminium/Polyester tape with drain wire and copper wire braid screen.

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 24 |
| Nominal Conductor Diameter | mm | 0.5/0.51/0.53 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 5 |
| Maximum Mutual Capacitance | pF/m | 55.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 45 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 68.3/74.0/65.3 | 2.0 | 20.2/26.0/20.2 | 66.3/72.0/63.3 | 64.8/69.0/63.8 | 65.0/71.0/62.3 | 63.3/69.0/60.3 | 61.8/66.0/60.8 |
| 4 | 59.3/65.0/56.3 | 4.1 | 23.0/29.0/23.0 | 55.2/60.9/52.2 | 52.7/57.0/51.7 | 56.3/62.0/53.3 | 52.2/57.9/49.2 | 49.7/54.0/48.7 |
| 8 | 54.8/61.0/51.8 | 5.8 | 24.5/30.5/24.5 | 49.0/55.2/46.0 | 46.7/51.0/45.7 | 51.8/58.0/48.8 | 46.0/52.2/43.0 | 43.7/48.0/42.7 |
| 10 | 53.3/59.0/50.3 | 6.5 | 25.0/31.0/25.0 | 46.8/52.5/43.8 | 44.8/49.0/43.8 | 50.3/56.0/47.3 | 43.8/49.5/40.8 | 41.8/46.0/40.8 |
| 16 | 50.3/56.0/47.3 | 8.2 | 25.0/31.0/25.0 | 42.1/47.8/39.1 | 40.7/45.0/39.7 | 47.4/53.0/44.3 | 39.1/44.8/36.1 | 37.7/42.0/36.7 |
| 20 | 48.8/55.0/45.8 | 9.3 | 25.0/31.0/25.0 | 39.5/45.7/36.5 | 38.7/43.0/37.7 | 45.8/52.0/42.8 | 36.5/42.7/33.5 | 35.7/40.0/34.7 |
| 25 | 47.3/53.0/44.3 | 10.4 | 24.3/30.3/24.3 | 36.9/42.6/33.9 | 36.8/41.0/35.8 | 44.3/50.0/41.3 | 33.9/39.6/30.9 | 33.8/38.0/32.8 |
| 31.25 | 45.9/52.0/42.9 | 11.7 | 23.6/29.6/23.6 | 34.2/40.3/31.2 | 34.9/39.0/33.9 | 42.9/49.0/39.9 | 31.2/37.3/28.2 | 31.9/36.0/30.9 |
| 62.5 | 41.4/47.0/38.4 | 17.0 | 21.5/27.5/21.5 | 24.4/30.0/21.4 | 28.8/33.0/27.8 | 38.4/44.0/35.4 | 21.4/27.0/18.4 | 25.8/30.0/24.8 |
| 100 | 38.3/44.0/35.3 | 22.0 | 20.1/26.1/20.1 | 16.3/22.0/13.3 | 24.8/29.0/23.8 | 35.3/41.0/32.3 | 13.3/19.0/10.3 | 21.8/26.0/20.8 |
| 155 | 35.5/41.0/32.5 | 28.1 | 18.8/24.8/18.8 | 7.4/12.9/4.4 | 20.9/25.0/19.9 | 32.5/38.0/29.5 | 4.4/9.9/-1.4 | 17.9/22.0/16.9 |
| 200 | 33.7/40.0/30.7 | 32.4 | 18.0/24.0/18.0 | 1.3/7.6/-1.7 | 19.7/24.0/18.7 | 30.0/37.0/27.7 | -1.7/4.6/-4.7 | 16.7/21.0/15.7 |
| 310 | 32.3/38.0/29.3 | 41.8 | 17.3/23.3/17.3 | N/A | 11.0/15.0/10.0 | 29.3/35.0/26.3 | N/A | 14.0/18.0/13.0 |
| 350 | 30.1/36.0/27.1 | 44.9 | 17.3/23.3/17.3 | N/A | 8.1/12.0/7.1 | 27.1/33.0/24.1 | N/A | 11.1/15.0/10.1 |

# FIREGUARD Fire Retardant CAT5E Data Cables

## CONSTRUCTION PARAMETERS

| Cable Code | Conductor Diameter | Diameter Over Insulation | Pairs | Screen | Nominal Overall Diameter |
|---|---|---|---|---|---|
| | mm | mm | | | mm |
| FGD-Cat5E SF/UTP | 0.53 | 1.0 | 4 | Overall Aluminium/Polyester Tape Screen & Copper Wire Braid Screen | 6.6 |

Rated Voltage

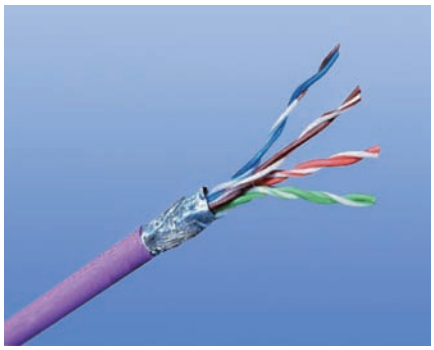
Standard

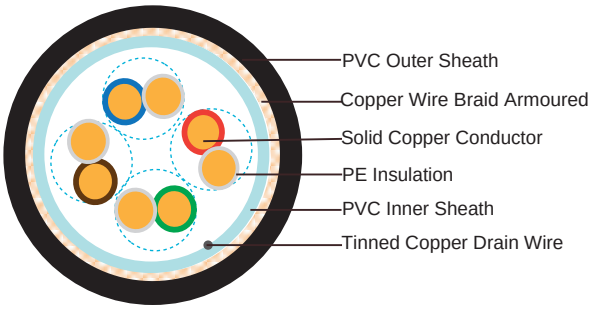
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT5E U/UTP CWB Armoured Data Cables

### FGD-CAT5E U/UTP4P24 CWB






### APPLICATION

Cat5E is a cable standard for Gigabit Ethernet and other network protocol, suitable for basic voice and data installations up to 100 MHz. In addition, these cables can be offered with copper wire braid armoured & flame retardant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 24AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Inner Sheath:** Thermoplastic PVC compound.

**Armouring:**
**CWB:** Copper Wire Braid
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 24 |
| Nominal Conductor Diameter | mm | 0.5/0.51 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 5 |
| Maximum Mutual Capacitance | pF/m | 55.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 45 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 68.3/74.0/65.3 | 2.0 | 20.2/26.0/20.2 | 66.3/72.0/63.3 | 64.8/69.0/63.8 | 65.0/71.0/62.3 | 63.3/69.0/60.3 | 61.8/66.0/60.8 |
| 4 | 59.3/65.0/56.3 | 4.1 | 23.0/29.0/23.0 | 55.2/60.9/52.2 | 52.7/57.0/51.7 | 56.3/62.0/53.3 | 52.2/57.9/49.2 | 49.7/54.0/48.7 |
| 8 | 54.8/61.0/51.8 | 5.8 | 24.5/30.5/24.5 | 49.0/55.2/46.0 | 46.7/51.0/45.7 | 51.8/58.0/48.8 | 46.0/52.2/43.0 | 43.7/48.0/42.7 |
| 10 | 53.3/59.0/50.3 | 6.5 | 25.0/31.0/25.0 | 46.8/52.5/43.8 | 44.8/49.0/43.8 | 50.3/56.0/47.3 | 43.8/49.5/40.8 | 41.8/46.0/40.8 |
| 16 | 50.3/56.0/47.3 | 8.2 | 25.0/31.0/25.0 | 42.1/47.8/39.1 | 40.7/45.0/39.7 | 47.4/53.0/44.3 | 39.1/44.8/36.1 | 37.7/42.0/36.7 |
| 20 | 48.8/55.0/45.8 | 9.3 | 25.0/31.0/25.0 | 39.5/45.7/36.5 | 38.7/43.0/37.7 | 45.8/52.0/42.8 | 36.5/42.7/33.5 | 35.7/40.0/34.7 |
| 25 | 47.3/53.0/44.3 | 10.4 | 24.3/30.3/24.3 | 36.9/42.6/33.9 | 36.8/41.0/35.8 | 44.3/50.0/41.3 | 33.9/39.6/30.9 | 33.8/38.0/32.8 |
| 31.25 | 45.9/52.0/42.9 | 11.7 | 23.6/29.6/23.6 | 34.2/40.3/31.2 | 34.9/39.0/33.9 | 42.9/49.0/39.9 | 31.2/37.3/28.2 | 31.9/36.0/30.9 |
| 62.5 | 41.4/47.0/38.4 | 17.0 | 21.5/27.5/21.5 | 24.4/30.0/21.4 | 28.8/33.0/27.8 | 38.4/44.0/35.4 | 21.4/27.0/18.4 | 25.8/30.0/24.8 |
| 100 | 38.3/44.0/35.3 | 22.0 | 20.1/26.1/20.1 | 16.3/22.0/13.3 | 24.8/29.0/23.8 | 35.3/41.0/32.3 | 13.3/19.0/10.3 | 21.8/26.0/20.8 |
| 155 | 35.5/41.0/32.5 | 28.1 | 18.8/24.8/18.8 | 7.4/12.9/4.4 | 20.9/25.0/19.9 | 32.5/38.0/29.5 | 4.4/9.9/-1.4 | 17.9/22.0/16.9 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 200 | 33.7/40.0/30.7 | 32.4 | 18.0/24.0/18.0 | 1.3/7.6/-1.7 | 19.7/24.0/18.7 | 30.0/37.0/27.7 | -1.7/4.6/-4.7 | 16.7/21.0/15.7 |
| 310 | 32.3/38.0/29.3 | 41.8 | 17.3/23.3/17.3 | N/A | 11.0/15.0/10.0 | 29.3/35.0/26.3 | N/A | 14.0/18.0/13.0 |
| 350 | 30.1/36.0/27.1 | 44.9 | 17.3/23.3/17.3 | N/A | 8.1/12.0/7.1 | 27.1/33.0/24.1 | N/A | 11.1/15.0/10.1 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor Diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT5E U/UTP CWB | 4×2×0.5/0.51 | 0.2 | 0.6 | 1.0 | 7.68 | 97 |

Rated Voltage

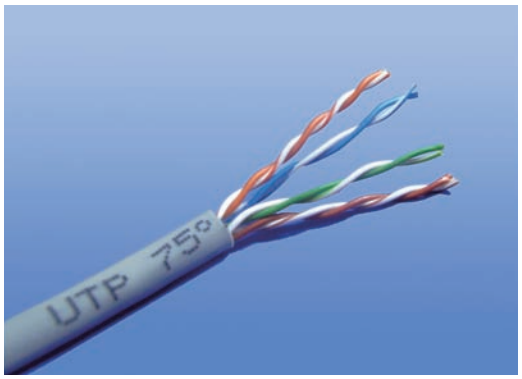
Standard

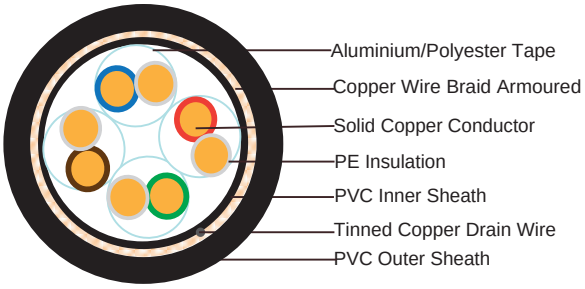
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT5E U/FTP CWB Armoured Data Cables

### FGD-CAT5E U/FTP4P24 CWB




### APPLICATION

Cat5E is a cable standard for Gigabit Ethernet and other network protocol, suitable for basic voice and data installations up to 100 MHz. In addition, these cables can be offered with copper wire braid armoured & flame retardant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 24AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium/polyester tape with drain wire.

**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**
**CWB:** Copper Wire Braid
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 24 |
| Nominal Conductor Diameter | mm | 0.5/0.51 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 5 |
| Maximum Mutual Capacitance | pF/m | 55.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 45 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 68.3/74.0/65.3 | 2.0 | 20.2/26.0/20.2 | 66.3/72.0/63.3 | 64.8/69.0/63.8 | 65.0/71.0/62.3 | 63.3/69.0/60.3 | 61.8/66.0/60.8 |
| 4 | 59.3/65.0/56.3 | 4.1 | 23.0/29.0/23.0 | 55.2/60.9/52.2 | 52.7/57.0/51.7 | 56.3/62.0/53.3 | 52.2/57.9/49.2 | 49.7/54.0/48.7 |
| 8 | 54.8/61.0/51.8 | 5.8 | 24.5/30.5/24.5 | 49.0/55.2/46.0 | 46.7/51.0/45.7 | 51.8/58.0/48.8 | 46.0/52.2/43.0 | 43.7/48.0/42.7 |
| 10 | 53.3/59.0/50.3 | 6.5 | 25.0/31.0/25.0 | 46.8/52.5/43.8 | 44.8/49.0/43.8 | 50.3/56.0/47.3 | 43.8/49.5/40.8 | 41.8/46.0/40.8 |
| 16 | 50.3/56.0/47.3 | 8.2 | 25.0/31.0/25.0 | 42.1/47.8/39.1 | 40.7/45.0/39.7 | 47.4/53.0/44.3 | 39.1/44.8/36.1 | 37.7/42.0/36.7 |
| 20 | 48.8/55.0/45.8 | 9.3 | 25.0/31.0/25.0 | 39.5/45.7/36.5 | 38.7/43.0/37.7 | 45.8/52.0/42.8 | 36.5/42.7/33.5 | 35.7/40.0/34.7 |
| 25 | 47.3/53.0/44.3 | 10.4 | 24.3/30.3/24.3 | 36.9/42.6/33.9 | 36.8/41.0/35.8 | 44.3/50.0/41.3 | 33.9/39.6/30.9 | 33.8/38.0/32.8 |
| 31.25 | 45.9/52.0/42.9 | 11.7 | 23.6/29.6/23.6 | 34.2/40.3/31.2 | 34.9/39.0/33.9 | 42.9/49.0/39.9 | 31.2/37.3/28.2 | 31.9/36.0/30.9 |
| 62.5 | 41.4/47.0/38.4 | 17.0 | 21.5/27.5/21.5 | 24.4/30.0/21.4 | 28.8/33.0/27.8 | 38.4/44.0/35.4 | 21.4/27.0/18.4 | 25.8/30.0/24.8 |
| 100 | 38.3/44.0/35.3 | 22.0 | 20.1/26.1/20.1 | 16.3/22.0/13.3 | 24.8/29.0/23.8 | 35.3/41.0/32.3 | 13.3/19.0/10.3 | 21.8/26.0/20.8 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 155 | 35.5/41.0/32.5 | 28.1 | 18.8/24.8/18.8 | 7.4/12.9/4.4 | 20.9/25.0/19.9 | 32.5/38.0/29.5 | 4.4/9.9/-1.4 | 17.9/22.0/16.9 |
| 200 | 33.7/40.0/30.7 | 32.4 | 18.0/24.0/18.0 | 1.3/7.6/-1.7 | 19.7/24.0/18.7 | 30.0/37.0/27.7 | -1.7/4.6/-4.7 | 16.7/21.0/15.7 |
| 310 | 32.3/38.0/29.3 | 41.8 | 17.3/23.3/17.3 | N/A | 11.0/15.0/10.0 | 29.3/35.0/26.3 | N/A | 14.0/18.0/13.0 |
| 350 | 30.1/36.0/27.1 | 44.9 | 17.3/23.3/17.3 | N/A | 8.1/12.0/7.1 | 27.1/33.0/24.1 | N/A | 11.1/15.0/10.1 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor Diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT5E U/FTP CWB | 4×2×0.5/0.51 | 0.2 | 0.6 | 1.0 | 8.29 | 107 |

Rated Voltage

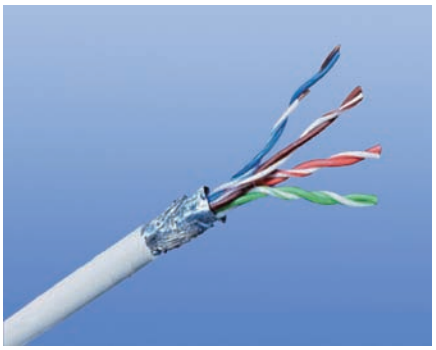
Standard

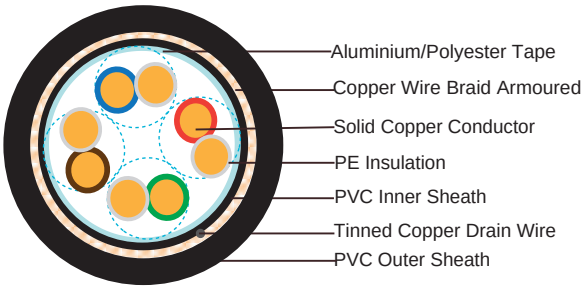
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT5E F/UTP CWB Armoured Data Cables

### FGD-CAT5E F/UTP4P24 CWB






### APPLICATION

Cat5E is a cable standard for Gigabit Ethernet and other network protocol, suitable for basic voice and data installations up to 100 MHz. In addition, these cables can be offered with copper wire braid armoured & flame retardant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 24AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Overall aluminium/polyester tape with drain wire screen.

**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**
**CWB:** Copper Wire Braid
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 24 |
| Nominal Conductor Diameter | mm | 0.53 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 5 |
| Maximum Mutual Capacitance | pF/m | 55.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 45 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 68.3/74.0/65.3 | 2.0 | 20.2/26.0/20.2 | 66.3/72.0/63.3 | 64.8/69.0/63.8 | 65.0/71.0/62.3 | 63.3/69.0/60.3 | 61.8/66.0/60.8 |
| 4 | 59.3/65.0/56.3 | 4.1 | 23.0/29.0/23.0 | 55.2/60.9/52.2 | 52.7/57.0/51.7 | 56.3/62.0/53.3 | 52.2/57.9/49.2 | 49.7/54.0/48.7 |
| 8 | 54.8/61.0/51.8 | 5.8 | 24.5/30.5/24.5 | 49.0/55.2/46.0 | 46.7/51.0/45.7 | 51.8/58.0/48.8 | 46.0/52.2/43.0 | 43.7/48.0/42.7 |
| 10 | 53.3/59.0/50.3 | 6.5 | 25.0/31.0/25.0 | 46.8/52.5/43.8 | 44.8/49.0/43.8 | 50.3/56.0/47.3 | 43.8/49.5/40.8 | 41.8/46.0/40.8 |
| 16 | 50.3/56.0/47.3 | 8.2 | 25.0/31.0/25.0 | 42.1/47.8/39.1 | 40.7/45.0/39.7 | 47.4/53.0/44.3 | 39.1/44.8/36.1 | 37.7/42.0/36.7 |
| 20 | 48.8/55.0/45.8 | 9.3 | 25.0/31.0/25.0 | 39.5/45.7/36.5 | 38.7/43.0/37.7 | 45.8/52.0/42.8 | 36.5/42.7/33.5 | 35.7/40.0/34.7 |
| 25 | 47.3/53.0/44.3 | 10.4 | 24.3/30.3/24.3 | 36.9/42.6/33.9 | 36.8/41.0/35.8 | 44.3/50.0/41.3 | 33.9/39.6/30.9 | 33.8/38.0/32.8 |
| 31.25 | 45.9/52.0/42.9 | 11.7 | 23.6/29.6/23.6 | 34.2/40.3/31.2 | 34.9/39.0/33.9 | 42.9/49.0/39.9 | 31.2/37.3/28.2 | 31.9/36.0/30.9 |
| 62.5 | 41.4/47.0/38.4 | 17.0 | 21.5/27.5/21.5 | 24.4/30.0/21.4 | 28.8/33.0/27.8 | 38.4/44.0/35.4 | 21.4/27.0/18.4 | 25.8/30.0/24.8 |
| 100 | 38.3/44.0/35.3 | 22.0 | 20.1/26.1/20.1 | 16.3/22.0/13.3 | 24.8/29.0/23.8 | 35.3/41.0/32.3 | 13.3/19.0/10.3 | 21.8/26.0/20.8 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 155 | 35.5/41.0/32.5 | 28.1 | 18.8/24.8/18.8 | 7.4/12.9/4.4 | 20.9/25.0/19.9 | 32.5/38.0/29.5 | 4.4/9.9/-1.4 | 17.9/22.0/16.9 |
| 200 | 33.7/40.0/30.7 | 32.4 | 18.0/24.0/18.0 | 1.3/7.6/-1.7 | 19.7/24.0/18.7 | 30.0/37.0/27.7 | -1.7/4.6/-4.7 | 16.7/21.0/15.7 |
| 310 | 32.3/38.0/29.3 | 41.8 | 17.3/23.3/17.3 | N/A | 11.0/15.0/10.0 | 29.3/35.0/26.3 | N/A | 14.0/18.0/13.0 |
| 350 | 30.1/36.0/27.1 | 44.9 | 17.3/23.3/17.3 | N/A | 8.1/12.0/7.1 | 27.1/33.0/24.1 | N/A | 11.1/15.0/10.1 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor Diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT5E F/UTP CWB | 4×2×0.53 | 0.2 | 0.6 | 1.0 | 8.28 | 116 |

Rated Voltage

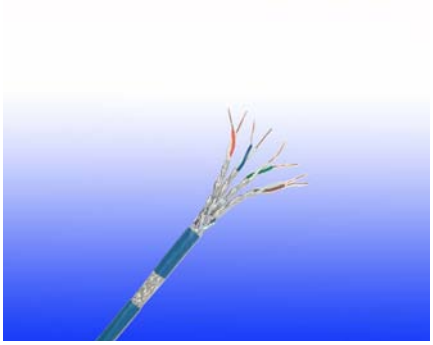
Standard

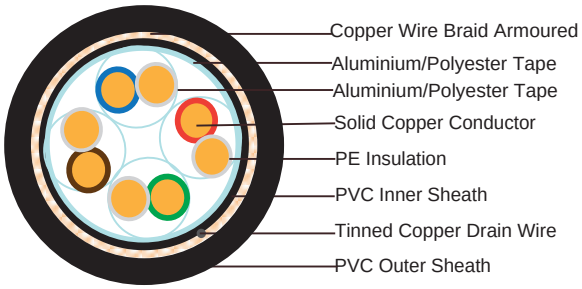
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT5E F/FTP CWB Armoured Data Cables

### FGD-CAT5E F/FTP4P24 CWB






### APPLICATION

Cat5E is a cable standard for Gigabit Ethernet and other network protocol, suitable for basic voice and data installations up to 100 MHz. In addition, these cables can be offered with copper wire braid armoured & flame retardant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 24AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium/polyester tape with drain wire and overall aluminium/polyester tape

with drain wire screen.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**
**CWB:** Copper Wire Braid
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 24 |
| Nominal Conductor Diameter | mm | 0.53 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 5 |
| Maximum Mutual Capacitance | pF/m | 55.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 45 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 68.3/74.0/65.3 | 2.0 | 20.2/26.0/20.2 | 66.3/72.0/63.3 | 64.8/69.0/63.8 | 65.0/71.0/62.3 | 63.3/69.0/60.3 | 61.8/66.0/60.8 |
| 4 | 59.3/65.0/56.3 | 4.1 | 23.0/29.0/23.0 | 55.2/60.9/52.2 | 52.7/57.0/51.7 | 56.3/62.0/53.3 | 52.2/57.9/49.2 | 49.7/54.0/48.7 |
| 8 | 54.8/61.0/51.8 | 5.8 | 24.5/30.5/24.5 | 49.0/55.2/46.0 | 46.7/51.0/45.7 | 51.8/58.0/48.8 | 46.0/52.2/43.0 | 43.7/48.0/42.7 |
| 10 | 53.3/59.0/50.3 | 6.5 | 25.0/31.0/25.0 | 46.8/52.5/43.8 | 44.8/49.0/43.8 | 50.3/56.0/47.3 | 43.8/49.5/40.8 | 41.8/46.0/40.8 |
| 16 | 50.3/56.0/47.3 | 8.2 | 25.0/31.0/25.0 | 42.1/47.8/39.1 | 40.7/45.0/39.7 | 47.4/53.0/44.3 | 39.1/44.8/36.1 | 37.7/42.0/36.7 |
| 20 | 48.8/55.0/45.8 | 9.3 | 25.0/31.0/25.0 | 39.5/45.7/36.5 | 38.7/43.0/37.7 | 45.8/52.0/42.8 | 36.5/42.7/33.5 | 35.7/40.0/34.7 |
| 25 | 47.3/53.0/44.3 | 10.4 | 24.3/30.3/24.3 | 36.9/42.6/33.9 | 36.8/41.0/35.8 | 44.3/50.0/41.3 | 33.9/39.6/30.9 | 33.8/38.0/32.8 |
| 31.25 | 45.9/52.0/42.9 | 11.7 | 23.6/29.6/23.6 | 34.2/40.3/31.2 | 34.9/39.0/33.9 | 42.9/49.0/39.9 | 31.2/37.3/28.2 | 31.9/36.0/30.9 |
| 62.5 | 41.4/47.0/38.4 | 17.0 | 21.5/27.5/21.5 | 24.4/30.0/21.4 | 28.8/33.0/27.8 | 38.4/44.0/35.4 | 21.4/27.0/18.4 | 25.8/30.0/24.8 |

# FIREGUARD Fire Retardant CAT5E Data Cables

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 100 | 38.3/44.0/35.3 | 22.0 | 20.1/26.1/20.1 | 16.3/22.0/13.3 | 24.8/29.0/23.8 | 35.3/41.0/32.3 | 13.3/19.0/10.3 | 21.8/26.0/20.8 |
| 155 | 35.5/41.0/32.5 | 28.1 | 18.8/24.8/18.8 | 7.4/12.9/4.4 | 20.9/25.0/19.9 | 32.5/38.0/29.5 | 4.4/9.9/-1.4 | 17.9/22.0/16.9 |
| 200 | 33.7/40.0/30.7 | 32.4 | 18.0/24.0/18.0 | 1.3/7.6/-1.7 | 19.7/24.0/18.7 | 30.0/37.0/27.7 | -1.7/4.6/-4.7 | 16.7/21.0/15.7 |
| 310 | 32.3/38.0/29.3 | 41.8 | 17.3/23.3/17.3 | N/A | 11.0/15.0/10.0 | 29.3/35.0/26.3 | N/A | 14.0/18.0/13.0 |
| 350 | 30.1/36.0/27.1 | 44.9 | 17.3/23.3/17.3 | N/A | 8.1/12.0/7.1 | 27.1/33.0/24.1 | N/A | 11.1/15.0/10.1 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor Diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT5E F/FTP CWB | 4×2×0.53 | 0.2 | 0.6 | 1.0 | 8.48 | 124 |

Rated Voltage

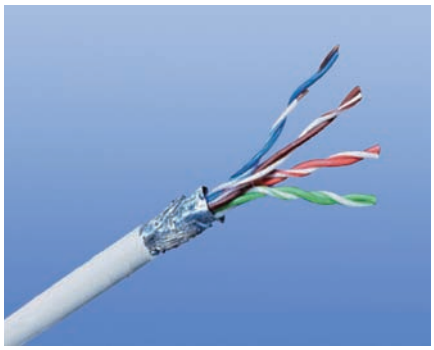
Standard

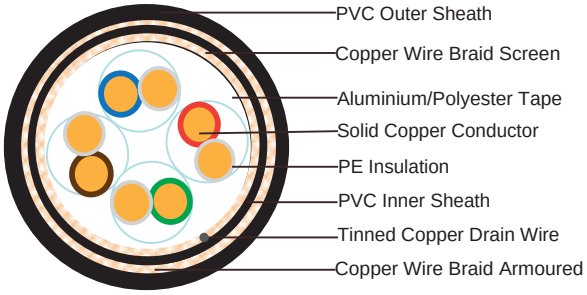
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT5E S/FTP CWB Armoured Data Cables

### FGD-CAT5E S/FTP4P24 CWB



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Basic design adapted to EN50173

### FIRE PERFORMANCE

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| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
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### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 24AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium/polyester tape with drain wire and copper wire braid screen.
**Inner Sheath:** Thermoplastic PVC compound.

**Armouring:**
**CWB:** Copper Wire Braid
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## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 24 |
| Nominal Conductor Diameter | mm | 0.5/0.51/0.53 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 5 |
| Maximum Mutual Capacitance | pF/m | 55.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
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|---|---|---|---|---|---|---|---|---|
| 1 | 68.3/74.0/65.3 | 2.0 | 20.2/26.0/20.2 | 66.3/72.0/63.3 | 64.8/69.0/63.8 | 65.0/71.0/62.3 | 63.3/69.0/60.3 | 61.8/66.0/60.8 |
| 4 | 59.3/65.0/56.3 | 4.1 | 23.0/29.0/23.0 | 55.2/60.9/52.2 | 52.7/57.0/51.7 | 56.3/62.0/53.3 | 52.2/57.9/49.2 | 49.7/54.0/48.7 |
| 8 | 54.8/61.0/51.8 | 5.8 | 24.5/30.5/24.5 | 49.0/55.2/46.0 | 46.7/51.0/45.7 | 51.8/58.0/48.8 | 46.0/52.2/43.0 | 43.7/48.0/42.7 |
| 10 | 53.3/59.0/50.3 | 6.5 | 25.0/31.0/25.0 | 46.8/52.5/43.8 | 44.8/49.0/43.8 | 50.3/56.0/47.3 | 43.8/49.5/40.8 | 41.8/46.0/40.8 |
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| 25 | 47.3/53.0/44.3 | 10.4 | 24.3/30.3/24.3 | 36.9/42.6/33.9 | 36.8/41.0/35.8 | 44.3/50.0/41.3 | 33.9/39.6/30.9 | 33.8/38.0/32.8 |
| 31.25 | 45.9/52.0/42.9 | 11.7 | 23.6/29.6/23.6 | 34.2/40.3/31.2 | 34.9/39.0/33.9 | 42.9/49.0/39.9 | 31.2/37.3/28.2 | 31.9/36.0/30.9 |
| 62.5 | 41.4/47.0/38.4 | 17.0 | 21.5/27.5/21.5 | 24.4/30.0/21.4 | 28.8/33.0/27.8 | 38.4/44.0/35.4 | 21.4/27.0/18.4 | 25.8/30.0/24.8 |
| 100 | 38.3/44.0/35.3 | 22.0 | 20.1/26.1/20.1 | 16.3/22.0/13.3 | 24.8/29.0/23.8 | 35.3/41.0/32.3 | 13.3/19.0/10.3 | 21.8/26.0/20.8 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 155 | 35.5/41.0/32.5 | 28.1 | 18.8/24.8/18.8 | 7.4/12.9/4.4 | 20.9/25.0/19.9 | 32.5/38.0/29.5 | 4.4/9.9/-1.4 | 17.9/22.0/16.9 |
| 200 | 33.7/40.0/30.7 | 32.4 | 18.0/24.0/18.0 | 1.3/7.6/-1.7 | 19.7/24.0/18.7 | 30.0/37.0/27.7 | -1.7/4.6/-4.7 | 16.7/21.0/15.7 |
| 310 | 32.3/38.0/29.3 | 41.8 | 17.3/23.3/17.3 | N/A | 11.0/15.0/10.0 | 29.3/35.0/26.3 | N/A | 14.0/18.0/13.0 |
| 350 | 30.1/36.0/27.1 | 44.9 | 17.3/23.3/17.3 | N/A | 8.1/12.0/7.1 | 27.1/33.0/24.1 | N/A | 11.1/15.0/10.1 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor Diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT5E S/FTP CWB | 4×2×0.53 | 0.2 | 0.6 | 1.0 | 7.96 | 118 |

Rated Voltage

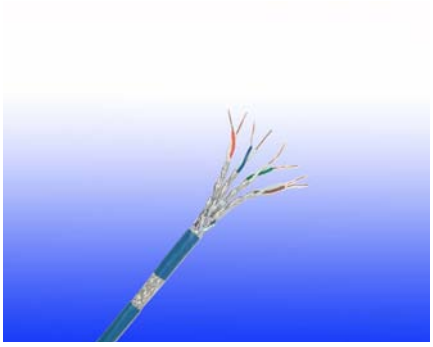
Standard

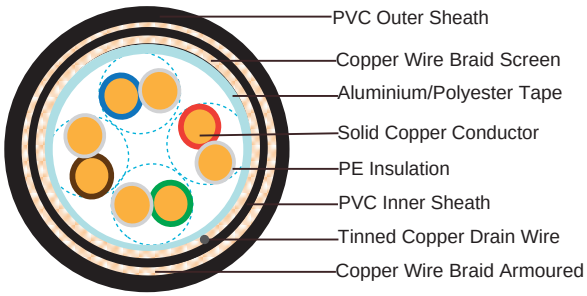
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT5E SF/UTP CWB Armoured Data Cables

### FGD-CAT5E SF/UTP4P24 CWB






### APPLICATION

Cat5E is a cable standard for Gigabit Ethernet and other network protocol, suitable for basic voice and data installations up to 100 MHz. In addition, these cables can be offered with copper wire braid armoured & flame retardant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 24AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Overall aluminium/polyester tape with drain wire and copper wire braid screen.
**Inner Sheath:** Thermoplastic PVC compound.

**Armouring:**
**CWB:** Copper Wire Braid
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 24 |
| Nominal Conductor Diameter | mm | 0.53 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 5 |
| Maximum Mutual Capacitance | pF/m | 55.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 45 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 68.3/74.0/65.3 | 2.0 | 20.2/26.0/20.2 | 66.3/72.0/63.3 | 64.8/69.0/63.8 | 65.0/71.0/62.3 | 63.3/69.0/60.3 | 61.8/66.0/60.8 |
| 4 | 59.3/65.0/56.3 | 4.1 | 23.0/29.0/23.0 | 55.2/60.9/52.2 | 52.7/57.0/51.7 | 56.3/62.0/53.3 | 52.2/57.9/49.2 | 49.7/54.0/48.7 |
| 8 | 54.8/61.0/51.8 | 5.8 | 24.5/30.5/24.5 | 49.0/55.2/46.0 | 46.7/51.0/45.7 | 51.8/58.0/48.8 | 46.0/52.2/43.0 | 43.7/48.0/42.7 |
| 10 | 53.3/59.0/50.3 | 6.5 | 25.0/31.0/25.0 | 46.8/52.5/43.8 | 44.8/49.0/43.8 | 50.3/56.0/47.3 | 43.8/49.5/40.8 | 41.8/46.0/40.8 |
| 16 | 50.3/56.0/47.3 | 8.2 | 25.0/31.0/25.0 | 42.1/47.8/39.1 | 40.7/45.0/39.7 | 47.4/53.0/44.3 | 39.1/44.8/36.1 | 37.7/42.0/36.7 |
| 20 | 48.8/55.0/45.8 | 9.3 | 25.0/31.0/25.0 | 39.5/45.7/36.5 | 38.7/43.0/37.7 | 45.8/52.0/42.8 | 36.5/42.7/33.5 | 35.7/40.0/34.7 |
| 25 | 47.3/53.0/44.3 | 10.4 | 24.3/30.3/24.3 | 36.9/42.6/33.9 | 36.8/41.0/35.8 | 44.3/50.0/41.3 | 33.9/39.6/30.9 | 33.8/38.0/32.8 |
| 31.25 | 45.9/52.0/42.9 | 11.7 | 23.6/29.6/23.6 | 34.2/40.3/31.2 | 34.9/39.0/33.9 | 42.9/49.0/39.9 | 31.2/37.3/28.2 | 31.9/36.0/30.9 |
| 62.5 | 41.4/47.0/38.4 | 17.0 | 21.5/27.5/21.5 | 24.4/30.0/21.4 | 28.8/33.0/27.8 | 38.4/44.0/35.4 | 21.4/27.0/18.4 | 25.8/30.0/24.8 |
| 100 | 38.3/44.0/35.3 | 22.0 | 20.1/26.1/20.1 | 16.3/22.0/13.3 | 24.8/29.0/23.8 | 35.3/41.0/32.3 | 13.3/19.0/10.3 | 21.8/26.0/20.8 |

# FIREGUARD Fire Retardant CAT5E Data Cables

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 155 | 35.5/41.0/32.5 | 28.1 | 18.8/24.8/18.8 | 7.4/12.9/4.4 | 20.9/25.0/19.9 | 32.5/38.0/29.5 | 4.4/9.9/-1.4 | 17.9/22.0/16.9 |
| 200 | 33.7/40.0/30.7 | 32.4 | 18.0/24.0/18.0 | 1.3/7.6/-1.7 | 19.7/24.0/18.7 | 30.0/37.0/27.7 | -1.7/4.6/-4.7 | 16.7/21.0/15.7 |
| 310 | 32.3/38.0/29.3 | 41.8 | 17.3/23.3/17.3 | N/A | 11.0/15.0/10.0 | 29.3/35.0/26.3 | N/A | 14.0/18.0/13.0 |
| 350 | 30.1/36.0/27.1 | 44.9 | 17.3/23.3/17.3 | N/A | 8.1/12.0/7.1 | 27.1/33.0/24.1 | N/A | 11.1/15.0/10.1 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor Diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT5E SF/UTP CWB | 4×2×0.53 | 0.2 | 0.6 | 1.0 | 6.56 | 123 |

Rated Voltage

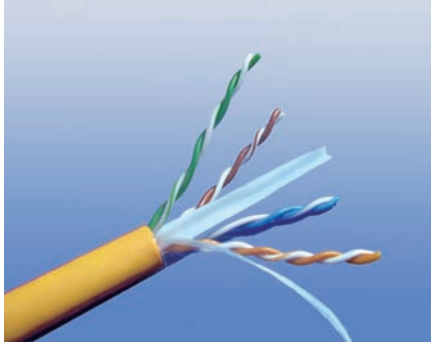
Standard

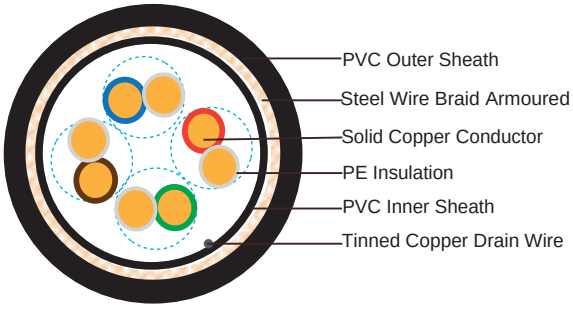
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT5E U/UTP SWB Armoured Data Cables

### FGD-CAT5E U/UTP4P24 SWB






### APPLICATION

Cat5E is a cable standard for Gigabit Ethernet and other network protocol, suitable for basic voice and data installations up to 100 MHz. In addition, these cables can be offered with copper wire braid armoured & flame retardant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 24AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**

**SWB:** Steel Wire Braid
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 24 |
| Nominal Conductor Diameter | mm | 0.5/0.51 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 5 |
| Maximum Mutual Capacitance | pF/m | 55.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 45 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 68.3/74.0/65.3 | 2.0 | 20.2/26.0/20.2 | 66.3/72.0/63.3 | 64.8/69.0/63.8 | 65.0/71.0/62.3 | 63.3/69.0/60.3 | 61.8/66.0/60.8 |
| 4 | 59.3/65.0/56.3 | 4.1 | 23.0/29.0/23.0 | 55.2/60.9/52.2 | 52.7/57.0/51.7 | 56.3/62.0/53.3 | 52.2/57.9/49.2 | 49.7/54.0/48.7 |
| 8 | 54.8/61.0/51.8 | 5.8 | 24.5/30.5/24.5 | 49.0/55.2/46.0 | 46.7/51.0/45.7 | 51.8/58.0/48.8 | 46.0/52.2/43.0 | 43.7/48.0/42.7 |
| 10 | 53.3/59.0/50.3 | 6.5 | 25.0/31.0/25.0 | 46.8/52.5/43.8 | 44.8/49.0/43.8 | 50.3/56.0/47.3 | 43.8/49.5/40.8 | 41.8/46.0/40.8 |
| 16 | 50.3/56.0/47.3 | 8.2 | 25.0/31.0/25.0 | 42.1/47.8/39.1 | 40.7/45.0/39.7 | 47.4/53.0/44.3 | 39.1/44.8/36.1 | 37.7/42.0/36.7 |
| 20 | 48.8/55.0/45.8 | 9.3 | 25.0/31.0/25.0 | 39.5/45.7/36.5 | 38.7/43.0/37.7 | 45.8/52.0/42.8 | 36.5/42.7/33.5 | 35.7/40.0/34.7 |
| 25 | 47.3/53.0/44.3 | 10.4 | 24.3/30.3/24.3 | 36.9/42.6/33.9 | 36.8/41.0/35.8 | 44.3/50.0/41.3 | 33.9/39.6/30.9 | 33.8/38.0/32.8 |
| 31.25 | 45.9/52.0/42.9 | 11.7 | 23.6/29.6/23.6 | 34.2/40.3/31.2 | 34.9/39.0/33.9 | 42.9/49.0/39.9 | 31.2/37.3/28.2 | 31.9/36.0/30.9 |
| 62.5 | 41.4/47.0/38.4 | 17.0 | 21.5/27.5/21.5 | 24.4/30.0/21.4 | 28.8/33.0/27.8 | 38.4/44.0/35.4 | 21.4/27.0/18.4 | 25.8/30.0/24.8 |
| 100 | 38.3/44.0/35.3 | 22.0 | 20.1/26.1/20.1 | 16.3/22.0/13.3 | 24.8/29.0/23.8 | 35.3/41.0/32.3 | 13.3/19.0/10.3 | 21.8/26.0/20.8 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 155 | 35.5/41.0/32.5 | 28.1 | 18.8/24.8/18.8 | 7.4/12.9/4.4 | 20.9/25.0/19.9 | 32.5/38.0/29.5 | 4.4/9.9/-1.4 | 17.9/22.0/16.9 |
| 200 | 33.7/40.0/30.7 | 32.4 | 18.0/24.0/18.0 | 1.3/7.6/-1.7 | 19.7/24.0/18.7 | 30.0/37.0/27.7 | -1.7/4.6/-4.7 | 16.7/21.0/15.7 |
| 310 | 32.3/38.0/29.3 | 41.8 | 17.3/23.3/17.3 | N/A | 11.0/15.0/10.0 | 29.3/35.0/26.3 | N/A | 14.0/18.0/13.0 |
| 350 | 30.1/36.0/27.1 | 44.9 | 17.3/23.3/17.3 | N/A | 8.1/12.0/7.1 | 27.1/33.0/24.1 | N/A | 11.1/15.0/10.1 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor Diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT5E U/UTP SWB | 4×2×0.5/0.51 | 0.2 | 0.6 | 1.0 | 7.68 | 93 |

Rated Voltage

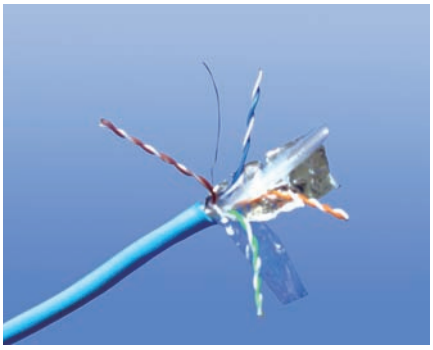
Standard

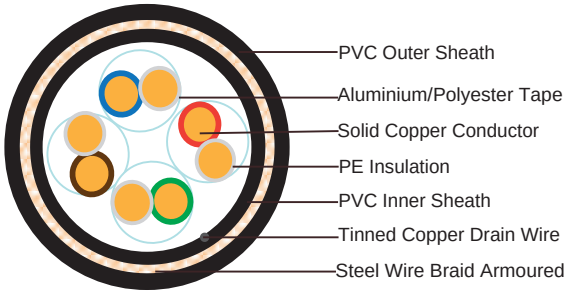
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT5E U/FTP SWB Armoured Data Cables

### FGD-CAT5E U/FTP4P24 SWB






### APPLICATION

Cat5E is a cable standard for Gigabit Ethernet and other network protocol, suitable for basic voice and data installations up to 100 MHz. In addition, these cables can be offered with copper wire braid armoured & flame retardant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 24AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium/polyester tape with drain wire.
**Inner Sheath:** Thermoplastic PVC compound.

**Armouring:**
**SWB:** Steel Wire Braid
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 24 |
| Nominal Conductor Diameter | mm | 0.5/0.51 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 5 |
| Maximum Mutual Capacitance | pF/m | 55.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 45 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 68.3/74.0/65.3 | 2.0 | 20.2/26.0/20.2 | 66.3/72.0/63.3 | 64.8/69.0/63.8 | 65.0/71.0/62.3 | 63.3/69.0/60.3 | 61.8/66.0/60.8 |
| 4 | 59.3/65.0/56.3 | 4.1 | 23.0/29.0/23.0 | 55.2/60.9/52.2 | 52.7/57.0/51.7 | 56.3/62.0/53.3 | 52.2/57.9/49.2 | 49.7/54.0/48.7 |
| 8 | 54.8/61.0/51.8 | 5.8 | 24.5/30.5/24.5 | 49.0/55.2/46.0 | 46.7/51.0/45.7 | 51.8/58.0/48.8 | 46.0/52.2/43.0 | 43.7/48.0/42.7 |
| 10 | 53.3/59.0/50.3 | 6.5 | 25.0/31.0/25.0 | 46.8/52.5/43.8 | 44.8/49.0/43.8 | 50.3/56.0/47.3 | 43.8/49.5/40.8 | 41.8/46.0/40.8 |
| 16 | 50.3/56.0/47.3 | 8.2 | 25.0/31.0/25.0 | 42.1/47.8/39.1 | 40.7/45.0/39.7 | 47.4/53.0/44.3 | 39.1/44.8/36.1 | 37.7/42.0/36.7 |
| 20 | 48.8/55.0/45.8 | 9.3 | 25.0/31.0/25.0 | 39.5/45.7/36.5 | 38.7/43.0/37.7 | 45.8/52.0/42.8 | 36.5/42.7/33.5 | 35.7/40.0/34.7 |
| 25 | 47.3/53.0/44.3 | 10.4 | 24.3/30.3/24.3 | 36.9/42.6/33.9 | 36.8/41.0/35.8 | 44.3/50.0/41.3 | 33.9/39.6/30.9 | 33.8/38.0/32.8 |
| 31.25 | 45.9/52.0/42.9 | 11.7 | 23.6/29.6/23.6 | 34.2/40.3/31.2 | 34.9/39.0/33.9 | 42.9/49.0/39.9 | 31.2/37.3/28.2 | 31.9/36.0/30.9 |
| 62.5 | 41.4/47.0/38.4 | 17.0 | 21.5/27.5/21.5 | 24.4/30.0/21.4 | 28.8/33.0/27.8 | 38.4/44.0/35.4 | 21.4/27.0/18.4 | 25.8/30.0/24.8 |
| 100 | 38.3/44.0/35.3 | 22.0 | 20.1/26.1/20.1 | 16.3/22.0/13.3 | 24.8/29.0/23.8 | 35.3/41.0/32.3 | 13.3/19.0/10.3 | 21.8/26.0/20.8 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 155 | 35.5/41.0/32.5 | 28.1 | 18.8/24.8/18.8 | 7.4/12.9/4.4 | 20.9/25.0/19.9 | 32.5/38.0/29.5 | 4.4/9.9/-1.4 | 17.9/22.0/16.9 |
| 200 | 33.7/40.0/30.7 | 32.4 | 18.0/24.0/18.0 | 1.3/7.6/-1.7 | 19.7/24.0/18.7 | 30.0/37.0/27.7 | -1.7/4.6/-4.7 | 16.7/21.0/15.7 |
| 310 | 32.3/38.0/29.3 | 41.8 | 17.3/23.3/17.3 | N/A | 11.0/15.0/10.0 | 29.3/35.0/26.3 | N/A | 14.0/18.0/13.0 |
| 350 | 30.1/36.0/27.1 | 44.9 | 17.3/23.3/17.3 | N/A | 8.1/12.0/7.1 | 27.1/33.0/24.1 | N/A | 11.1/15.0/10.1 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor Diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT5E U/UTP SWB | 4×2×0.5/0.51 | 0.2 | 0.6 | 1.0 | 8.14 | 105 |

Rated Voltage

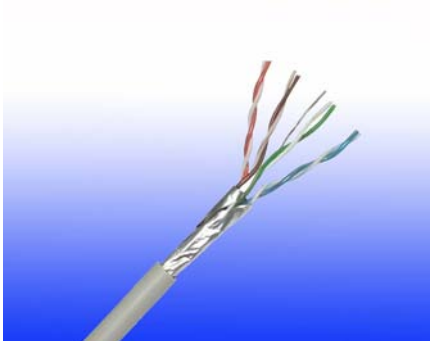
Standard

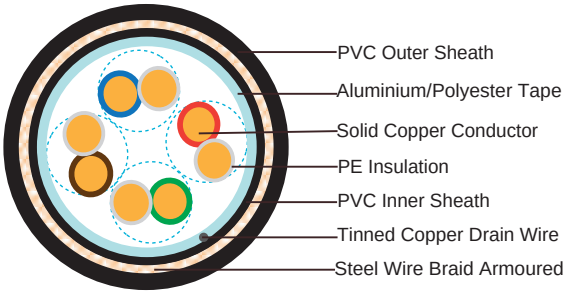
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT5E F/UTP SWB Armoured Data Cables

### FGD-CAT5E F/UTP4P24 SWB






### APPLICATION

Cat5E is a cable standard for Gigabit Ethernet and other network protocol, suitable for basic voice and data installations up to 100 MHz. In addition, these cables can be offered with copper wire braid armoured & flame retardant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 24AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Overall aluminium/Polyester tape with drain wire screen.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**

**SWB:** Steel Wire Braid
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 24 |
| Nominal Conductor Diameter | mm | 0.53 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 5 |
| Maximum Mutual Capacitance | pF/m | 55.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 45 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 68.3/74.0/65.3 | 2.0 | 20.2/26.0/20.2 | 66.3/72.0/63.3 | 64.8/69.0/63.8 | 65.0/71.0/62.3 | 63.3/69.0/60.3 | 61.8/66.0/60.8 |
| 4 | 59.3/65.0/56.3 | 4.1 | 23.0/29.0/23.0 | 55.2/60.9/52.2 | 52.7/57.0/51.7 | 56.3/62.0/53.3 | 52.2/57.9/49.2 | 49.7/54.0/48.7 |
| 8 | 54.8/61.0/51.8 | 5.8 | 24.5/30.5/24.5 | 49.0/55.2/46.0 | 46.7/51.0/45.7 | 51.8/58.0/48.8 | 46.0/52.2/43.0 | 43.7/48.0/42.7 |
| 10 | 53.3/59.0/50.3 | 6.5 | 25.0/31.0/25.0 | 46.8/52.5/43.8 | 44.8/49.0/43.8 | 50.3/56.0/47.3 | 43.8/49.5/40.8 | 41.8/46.0/40.8 |
| 16 | 50.3/56.0/47.3 | 8.2 | 25.0/31.0/25.0 | 42.1/47.8/39.1 | 40.7/45.0/39.7 | 47.4/53.0/44.3 | 39.1/44.8/36.1 | 37.7/42.0/36.7 |
| 20 | 48.8/55.0/45.8 | 9.3 | 25.0/31.0/25.0 | 39.5/45.7/36.5 | 38.7/43.0/37.7 | 45.8/52.0/42.8 | 36.5/42.7/33.5 | 35.7/40.0/34.7 |
| 25 | 47.3/53.0/44.3 | 10.4 | 24.3/30.3/24.3 | 36.9/42.6/33.9 | 36.8/41.0/35.8 | 44.3/50.0/41.3 | 33.9/39.6/30.9 | 33.8/38.0/32.8 |
| 31.25 | 45.9/52.0/42.9 | 11.7 | 23.6/29.6/23.6 | 34.2/40.3/31.2 | 34.9/39.0/33.9 | 42.9/49.0/39.9 | 31.2/37.3/28.2 | 31.9/36.0/30.9 |
| 62.5 | 41.4/47.0/38.4 | 17.0 | 21.5/27.5/21.5 | 24.4/30.0/21.4 | 28.8/33.0/27.8 | 38.4/44.0/35.4 | 21.4/27.0/18.4 | 25.8/30.0/24.8 |
| 100 | 38.3/44.0/35.3 | 22.0 | 20.1/26.1/20.1 | 16.3/22.0/13.3 | 24.8/29.0/23.8 | 35.3/41.0/32.3 | 13.3/19.0/10.3 | 21.8/26.0/20.8 |
| 155 | 35.5/41.0/32.5 | 28.1 | 18.8/24.8/18.8 | 7.4/12.9/4.4 | 20.9/25.0/19.9 | 32.5/38.0/29.5 | 4.4/9.9/-1.4 | 17.9/22.0/16.9 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 200 | 33.7/40.0/30.7 | 32.4 | 18.0/24.0/18.0 | 1.3/7.6/-1.7 | 19.7/24.0/18.7 | 30.0/37.0/27.7 | -1.7/4.6/-4.7 | 16.7/21.0/15.7 |
| 310 | 32.3/38.0/29.3 | 41.8 | 17.3/23.3/17.3 | N/A | 11.0/15.0/10.0 | 29.3/35.0/26.3 | N/A | 14.0/18.0/13.0 |
| 350 | 30.1/36.0/27.1 | 44.9 | 17.3/23.3/17.3 | N/A | 8.1/12.0/7.1 | 27.1/33.0/24.1 | N/A | 11.1/15.0/10.1 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor Diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT5E F/UTP SWB | 4×2×0.53 | 0.2 | 0.6 | 1.0 | 8.28 | 112 |

Rated Voltage

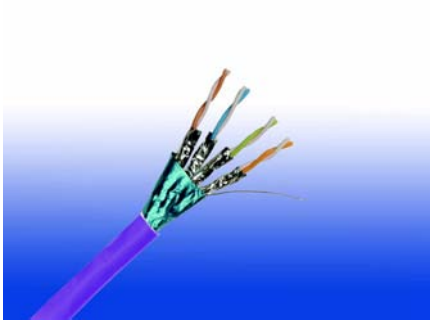
Standard

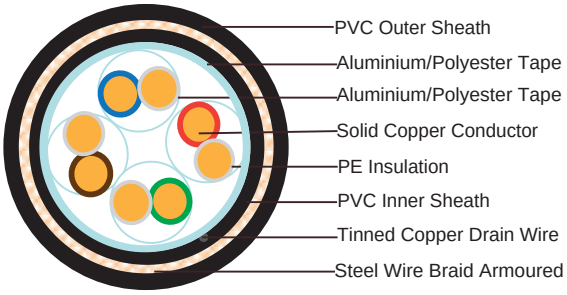
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT5E F/FTP SWB Armoured Data Cables

### FGD-CAT5E F/FTP4P24 SWB






### APPLICATION

Cat5E is a cable standard for Gigabit Ethernet and other network protocol, suitable for basic voice and data installations up to 100 MHz. In addition, these cables can be offered with copper wire braid armoured & flame retardant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 24AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium/polyester tape with drain wire and overall aluminium/polyester tape with drain wire screen.
**Inner Sheath:** Thermoplastic PVC compound.

**Armouring:**
**SWB:** Steel Wire Braid
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 24 |
| Nominal Conductor Diameter | mm | 0.53 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 5 |
| Maximum Mutual Capacitance | pF/m | 55.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 45 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 68.3/74.0/65.3 | 2.0 | 20.2/26.0/20.2 | 66.3/72.0/63.3 | 64.8/69.0/63.8 | 65.0/71.0/62.3 | 63.3/69.0/60.3 | 61.8/66.0/60.8 |
| 4 | 59.3/65.0/56.3 | 4.1 | 23.0/29.0/23.0 | 55.2/60.9/52.2 | 52.7/57.0/51.7 | 56.3/62.0/53.3 | 52.2/57.9/49.2 | 49.7/54.0/48.7 |
| 8 | 54.8/61.0/51.8 | 5.8 | 24.5/30.5/24.5 | 49.0/55.2/46.0 | 46.7/51.0/45.7 | 51.8/58.0/48.8 | 46.0/52.2/43.0 | 43.7/48.0/42.7 |
| 10 | 53.3/59.0/50.3 | 6.5 | 25.0/31.0/25.0 | 46.8/52.5/43.8 | 44.8/49.0/43.8 | 50.3/56.0/47.3 | 43.8/49.5/40.8 | 41.8/46.0/40.8 |
| 16 | 50.3/56.0/47.3 | 8.2 | 25.0/31.0/25.0 | 42.1/47.8/39.1 | 40.7/45.0/39.7 | 47.4/53.0/44.3 | 39.1/44.8/36.1 | 37.7/42.0/36.7 |
| 20 | 48.8/55.0/45.8 | 9.3 | 25.0/31.0/25.0 | 39.5/45.7/36.5 | 38.7/43.0/37.7 | 45.8/52.0/42.8 | 36.5/42.7/33.5 | 35.7/40.0/34.7 |
| 25 | 47.3/53.0/44.3 | 10.4 | 24.3/30.3/24.3 | 36.9/42.6/33.9 | 36.8/41.0/35.8 | 44.3/50.0/41.3 | 33.9/39.6/30.9 | 33.8/38.0/32.8 |
| 31.25 | 45.9/52.0/42.9 | 11.7 | 23.6/29.6/23.6 | 34.2/40.3/31.2 | 34.9/39.0/33.9 | 42.9/49.0/39.9 | 31.2/37.3/28.2 | 31.9/36.0/30.9 |
| 62.5 | 41.4/47.0/38.4 | 17.0 | 21.5/27.5/21.5 | 24.4/30.0/21.4 | 28.8/33.0/27.8 | 38.4/44.0/35.4 | 21.4/27.0/18.4 | 25.8/30.0/24.8 |
| 100 | 38.3/44.0/35.3 | 22.0 | 20.1/26.1/20.1 | 16.3/22.0/13.3 | 24.8/29.0/23.8 | 35.3/41.0/32.3 | 13.3/19.0/10.3 | 21.8/26.0/20.8 |

# FIREGUARD Fire Retardant CAT5E Data Cables

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 155 | 35.5/41.0/32.5 | 28.1 | 18.8/24.8/18.8 | 7.4/12.9/4.4 | 20.9/25.0/19.9 | 32.5/38.0/29.5 | 4.4/9.9/-1.4 | 17.9/22.0/16.9 |
| 200 | 33.7/40.0/30.7 | 32.4 | 18.0/24.0/18.0 | 1.3/7.6/-1.7 | 19.7/24.0/18.7 | 30.0/37.0/27.7 | -1.7/4.6/-4.7 | 16.7/21.0/15.7 |
| 310 | 32.3/38.0/29.3 | 41.8 | 17.3/23.3/17.3 | N/A | 11.0/15.0/10.0 | 29.3/35.0/26.3 | N/A | 14.0/18.0/13.0 |
| 350 | 30.1/36.0/27.1 | 44.9 | 17.3/23.3/17.3 | N/A | 8.1/12.0/7.1 | 27.1/33.0/24.1 | N/A | 11.1/15.0/10.1 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor Diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT5E F/FTP SWB | 4×2×0.53 | 0.2 | 0.6 | 1.0 | 8.72 | 120 |

Rated Voltage

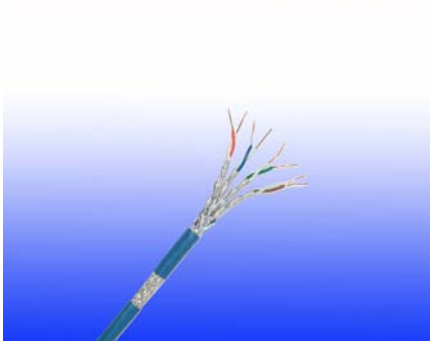
Standard

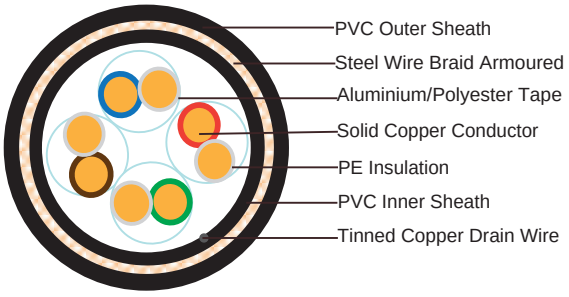
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT5E S/FTP SWB Armoured Data Cables

### FGD-CAT5E S/FTP4P24 SWB






### APPLICATION

Cat5E is a cable standard for Gigabit Ethernet and other network protocol, suitable for basic voice and data installations up to 100 MHz. In addition, these cables can be offered with copper wire braid armoured & flame retardant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 24AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium/polyester tape with drain wire and copper wire braid screen.
**Inner Sheath:** Thermoplastic PVC compound.

**Armouring:**
**SWB:** Steel Wire Braid
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 24 |
| Nominal Conductor Diameter | mm | 0.53 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 5 |
| Maximum Mutual Capacitance | pF/m | 55.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 45 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 68.3/74.0/65.3 | 2.0 | 20.2/26.0/20.2 | 66.3/72.0/63.3 | 64.8/69.0/63.8 | 65.0/71.0/62.3 | 63.3/69.0/60.3 | 61.8/66.0/60.8 |
| 4 | 59.3/65.0/56.3 | 4.1 | 23.0/29.0/23.0 | 55.2/60.9/52.2 | 52.7/57.0/51.7 | 56.3/62.0/53.3 | 52.2/57.9/49.2 | 49.7/54.0/48.7 |
| 8 | 54.8/61.0/51.8 | 5.8 | 24.5/30.5/24.5 | 49.0/55.2/46.0 | 46.7/51.0/45.7 | 51.8/58.0/48.8 | 46.0/52.2/43.0 | 43.7/48.0/42.7 |
| 10 | 53.3/59.0/50.3 | 6.5 | 25.0/31.0/25.0 | 46.8/52.5/43.8 | 44.8/49.0/43.8 | 50.3/56.0/47.3 | 43.8/49.5/40.8 | 41.8/46.0/40.8 |
| 16 | 50.3/56.0/47.3 | 8.2 | 25.0/31.0/25.0 | 42.1/47.8/39.1 | 40.7/45.0/39.7 | 47.4/53.0/44.3 | 39.1/44.8/36.1 | 37.7/42.0/36.7 |
| 20 | 48.8/55.0/45.8 | 9.3 | 25.0/31.0/25.0 | 39.5/45.7/36.5 | 38.7/43.0/37.7 | 45.8/52.0/42.8 | 36.5/42.7/33.5 | 35.7/40.0/34.7 |
| 25 | 47.3/53.0/44.3 | 10.4 | 24.3/30.3/24.3 | 36.9/42.6/33.9 | 36.8/41.0/35.8 | 44.3/50.0/41.3 | 33.9/39.6/30.9 | 33.8/38.0/32.8 |
| 31.25 | 45.9/52.0/42.9 | 11.7 | 23.6/29.6/23.6 | 34.2/40.3/31.2 | 34.9/39.0/33.9 | 42.9/49.0/39.9 | 31.2/37.3/28.2 | 31.9/36.0/30.9 |
| 62.5 | 41.4/47.0/38.4 | 17.0 | 21.5/27.5/21.5 | 24.4/30.0/21.4 | 28.8/33.0/27.8 | 38.4/44.0/35.4 | 21.4/27.0/18.4 | 25.8/30.0/24.8 |
| 100 | 38.3/44.0/35.3 | 22.0 | 20.1/26.1/20.1 | 16.3/22.0/13.3 | 24.8/29.0/23.8 | 35.3/41.0/32.3 | 13.3/19.0/10.3 | 21.8/26.0/20.8 |
| 155 | 35.5/41.0/32.5 | 28.1 | 18.8/24.8/18.8 | 7.4/12.9/4.4 | 20.9/25.0/19.9 | 32.5/38.0/29.5 | 4.4/9.9/-1.4 | 17.9/22.0/16.9 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 200 | 33.7/40.0/30.7 | 32.4 | 18.0/24.0/18.0 | 1.3/7.6/-1.7 | 19.7/24.0/18.7 | 30.0/37.0/27.7 | -1.7/4.6/-4.7 | 16.7/21.0/15.7 |
| 310 | 32.3/38.0/29.3 | 41.8 | 17.3/23.3/17.3 | N/A | 11.0/15.0/10.0 | 29.3/35.0/26.3 | N/A | 14.0/18.0/13.0 |
| 350 | 30.1/36.0/27.1 | 44.9 | 17.3/23.3/17.3 | N/A | 8.1/12.0/7.1 | 27.1/33.0/24.1 | N/A | 11.1/15.0/10.1 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor Diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT5E S/FTP SWB | 4×2×0.53 | 0.2 | 0.6 | 1.0 | 8.76 | 119 |

Rated Voltage

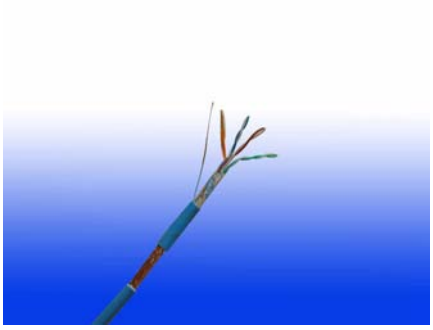
Standard

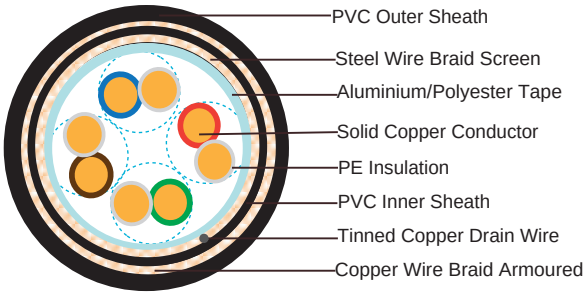
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT5E SF/UTP SWB Armoured Data Cables

### FGD-CAT5E SF/UTP4P24 SWB






### APPLICATION

Cat5E is a cable standard for Gigabit Ethernet and other network protocol, suitable for basic voice and data installations up to 100 MHz. In addition, these cables can be offered with copper wire braid armoured & flame retardant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 24AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Overall aluminium/Polyester tape with drain wire and copper wire braid screen.
**Inner Sheath:** Thermoplastic PVC compound.

**Armouring:**
**SWB:** Steel Wire Braid
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 24 |
| Nominal Conductor Diameter | mm | 0.53 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 5 |
| Maximum Mutual Capacitance | pF/m | 55.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 45 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 68.3/74.0/65.3 | 2.0 | 20.2/26.0/20.2 | 66.3/72.0/63.3 | 64.8/69.0/63.8 | 65.0/71.0/62.3 | 63.3/69.0/60.3 | 61.8/66.0/60.8 |
| 4 | 59.3/65.0/56.3 | 4.1 | 23.0/29.0/23.0 | 55.2/60.9/52.2 | 52.7/57.0/51.7 | 56.3/62.0/53.3 | 52.2/57.9/49.2 | 49.7/54.0/48.7 |
| 8 | 54.8/61.0/51.8 | 5.8 | 24.5/30.5/24.5 | 49.0/55.2/46.0 | 46.7/51.0/45.7 | 51.8/58.0/48.8 | 46.0/52.2/43.0 | 43.7/48.0/42.7 |
| 10 | 53.3/59.0/50.3 | 6.5 | 25.0/31.0/25.0 | 46.8/52.5/43.8 | 44.8/49.0/43.8 | 50.3/56.0/47.3 | 43.8/49.5/40.8 | 41.8/46.0/40.8 |
| 16 | 50.3/56.0/47.3 | 8.2 | 25.0/31.0/25.0 | 42.1/47.8/39.1 | 40.7/45.0/39.7 | 47.4/53.0/44.3 | 39.1/44.8/36.1 | 37.7/42.0/36.7 |
| 20 | 48.8/55.0/45.8 | 9.3 | 25.0/31.0/25.0 | 39.5/45.7/36.5 | 38.7/43.0/37.7 | 45.8/52.0/42.8 | 36.5/42.7/33.5 | 35.7/40.0/34.7 |
| 25 | 47.3/53.0/44.3 | 10.4 | 24.3/30.3/24.3 | 36.9/42.6/33.9 | 36.8/41.0/35.8 | 44.3/50.0/41.3 | 33.9/39.6/30.9 | 33.8/38.0/32.8 |
| 31.25 | 45.9/52.0/42.9 | 11.7 | 23.6/29.6/23.6 | 34.2/40.3/31.2 | 34.9/39.0/33.9 | 42.9/49.0/39.9 | 31.2/37.3/28.2 | 31.9/36.0/30.9 |
| 62.5 | 41.4/47.0/38.4 | 17.0 | 21.5/27.5/21.5 | 24.4/30.0/21.4 | 28.8/33.0/27.8 | 38.4/44.0/35.4 | 21.4/27.0/18.4 | 25.8/30.0/24.8 |
| 100 | 38.3/44.0/35.3 | 22.0 | 20.1/26.1/20.1 | 16.3/22.0/13.3 | 24.8/29.0/23.8 | 35.3/41.0/32.3 | 13.3/19.0/10.3 | 21.8/26.0/20.8 |

# FIREGUARD Fire Retardant CAT5E Data Cables

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 155 | 35.5/41.0/32.5 | 28.1 | 18.8/24.8/18.8 | 7.4/12.9/4.4 | 20.9/25.0/19.9 | 32.5/38.0/29.5 | 4.4/9.9/-1.4 | 17.9/22.0/16.9 |
| 200 | 33.7/40.0/30.7 | 32.4 | 18.0/24.0/18.0 | 1.3/7.6/-1.7 | 19.7/24.0/18.7 | 30.0/37.0/27.7 | -1.7/4.6/-4.7 | 16.7/21.0/15.7 |
| 310 | 32.3/38.0/29.3 | 41.8 | 17.3/23.3/17.3 | N/A | 11.0/15.0/10.0 | 29.3/35.0/26.3 | N/A | 14.0/18.0/13.0 |
| 350 | 30.1/36.0/27.1 | 44.9 | 17.3/23.3/17.3 | N/A | 8.1/12.0/7.1 | 27.1/33.0/24.1 | N/A | 11.1/15.0/10.1 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor Diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT5E SF/UTP SWB | 4×2×0.53 | 0.2 | 0.6 | 1.0 | 8.26 | 110 |

Rated Voltage

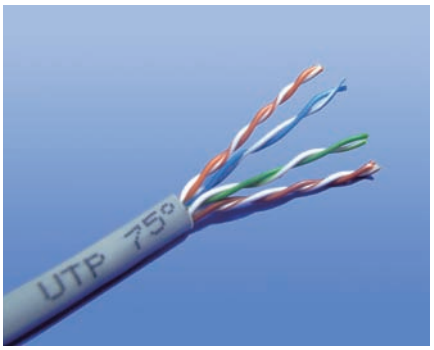
Standard

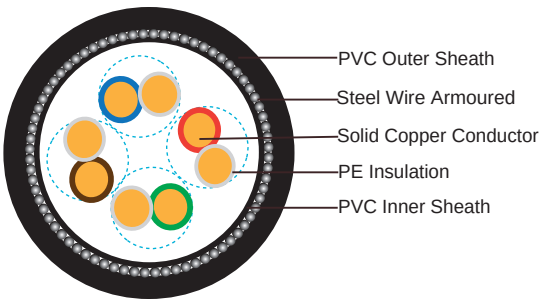
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT5E U/UTP SWA Armoured Data Cables

### FGD-CAT5E U/UTP4P24 SWA




### APPLICATION

Cat5E is a cable standard for Gigabit Ethernet and other network protocol, suitable for basic voice and data installations up to 100 MHz. In addition, these cables can be offered with copper wire braid armoured & flame retardant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 24AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Inner Sheath:** Thermoplastic PVC compound

**Armouring:**
**SWA:** Steel Wire Armour
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 24 |
| Nominal Conductor Diameter | mm | 0.5/0.51 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 5 |
| Maximum Mutual Capacitance | pF/m | 55.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 45 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 68.3/74.0/65.3 | 2.0 | 20.2/26.0/20.2 | 66.3/72.0/63.3 | 64.8/69.0/63.8 | 65.0/71.0/62.3 | 63.3/69.0/60.3 | 61.8/66.0/60.8 |
| 4 | 59.3/65.0/56.3 | 4.1 | 23.0/29.0/23.0 | 55.2/60.9/52.2 | 52.7/57.0/51.7 | 56.3/62.0/53.3 | 52.2/57.9/49.2 | 49.7/54.0/48.7 |
| 8 | 54.8/61.0/51.8 | 5.8 | 24.5/30.5/24.5 | 49.0/55.2/46.0 | 46.7/51.0/45.7 | 51.8/58.0/48.8 | 46.0/52.2/43.0 | 43.7/48.0/42.7 |
| 10 | 53.3/59.0/50.3 | 6.5 | 25.0/31.0/25.0 | 46.8/52.5/43.8 | 44.8/49.0/43.8 | 50.3/56.0/47.3 | 43.8/49.5/40.8 | 41.8/46.0/40.8 |
| 16 | 50.3/56.0/47.3 | 8.2 | 25.0/31.0/25.0 | 42.1/47.8/39.1 | 40.7/45.0/39.7 | 47.4/53.0/44.3 | 39.1/44.8/36.1 | 37.7/42.0/36.7 |
| 20 | 48.8/55.0/45.8 | 9.3 | 25.0/31.0/25.0 | 39.5/45.7/36.5 | 38.7/43.0/37.7 | 45.8/52.0/42.8 | 36.5/42.7/33.5 | 35.7/40.0/34.7 |
| 25 | 47.3/53.0/44.3 | 10.4 | 24.3/30.3/24.3 | 36.9/42.6/33.9 | 36.8/41.0/35.8 | 44.3/50.0/41.3 | 33.9/39.6/30.9 | 33.8/38.0/32.8 |
| 31.25 | 45.9/52.0/42.9 | 11.7 | 23.6/29.6/23.6 | 34.2/40.3/31.2 | 34.9/39.0/33.9 | 42.9/49.0/39.9 | 31.2/37.3/28.2 | 31.9/36.0/30.9 |
| 62.5 | 41.4/47.0/38.4 | 17.0 | 21.5/27.5/21.5 | 24.4/30.0/21.4 | 28.8/33.0/27.8 | 38.4/44.0/35.4 | 21.4/27.0/18.4 | 25.8/30.0/24.8 |
| 100 | 38.3/44.0/35.3 | 22.0 | 20.1/26.1/20.1 | 16.3/22.0/13.3 | 24.8/29.0/23.8 | 35.3/41.0/32.3 | 13.3/19.0/10.3 | 21.8/26.0/20.8 |
| 155 | 35.5/41.0/32.5 | 28.1 | 18.8/24.8/18.8 | 7.4/12.9/4.4 | 20.9/25.0/19.9 | 32.5/38.0/29.5 | 4.4/9.9/-1.4 | 17.9/22.0/16.9 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 200 | 33.7/40.0/30.7 | 32.4 | 18.0/24.0/18.0 | 1.3/7.6/-1.7 | 19.7/24.0/18.7 | 30.0/37.0/27.7 | -1.7/4.6/-4.7 | 16.7/21.0/15.7 |
| 310 | 32.3/38.0/29.3 | 41.8 | 17.3/23.3/17.3 | N/A | 11.0/15.0/10.0 | 29.3/35.0/26.3 | N/A | 14.0/18.0/13.0 |
| 350 | 30.1/36.0/27.1 | 44.9 | 17.3/23.3/17.3 | N/A | 8.1/12.0/7.1 | 27.1/33.0/24.1 | N/A | 11.1/15.0/10.1 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor Diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT5E U/UTP SWA | 4×2×0.5/0.51 | 0.2 | 0.6 | 1.0 | 8.68 | 165 |

Rated Voltage

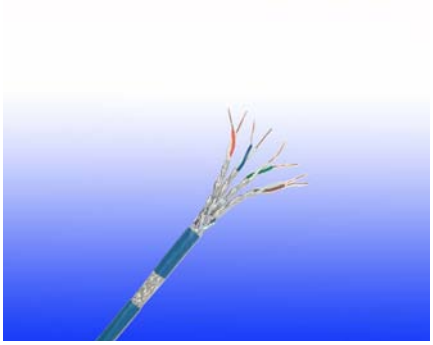
Standard

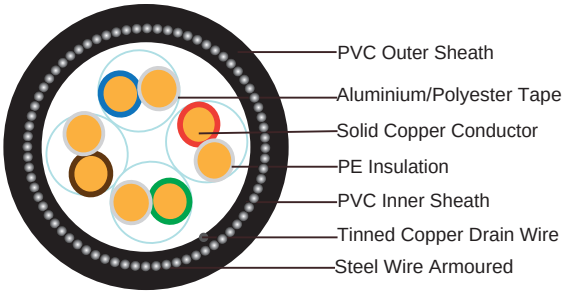
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT5E U/FTP SWA Armoured Data Cables

### FGD-CAT5E U/FTP4P24 SWA






### APPLICATION

Cat5E is a cable standard for Gigabit Ethernet and other network protocol, suitable for basic voice and data installations up to 100 MHz. In addition, these cables can be offered with copper wire braid armoured & flame retardant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 24AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium/polyester tape with drain wire.

**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**
**SWA:** Steel Wire Armour
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 24 |
| Nominal Conductor Diameter | mm | 0.5/0.51 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 5 |
| Maximum Mutual Capacitance | pF/m | 55.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 45 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 68.3/74.0/65.3 | 2.0 | 20.2/26.0/20.2 | 66.3/72.0/63.3 | 64.8/69.0/63.8 | 65.0/71.0/62.3 | 63.3/69.0/60.3 | 61.8/66.0/60.8 |
| 4 | 59.3/65.0/56.3 | 4.1 | 23.0/29.0/23.0 | 55.2/60.9/52.2 | 52.7/57.0/51.7 | 56.3/62.0/53.3 | 52.2/57.9/49.2 | 49.7/54.0/48.7 |
| 8 | 54.8/61.0/51.8 | 5.8 | 24.5/30.5/24.5 | 49.0/55.2/46.0 | 46.7/51.0/45.7 | 51.8/58.0/48.8 | 46.0/52.2/43.0 | 43.7/48.0/42.7 |
| 10 | 53.3/59.0/50.3 | 6.5 | 25.0/31.0/25.0 | 46.8/52.5/43.8 | 44.8/49.0/43.8 | 50.3/56.0/47.3 | 43.8/49.5/40.8 | 41.8/46.0/40.8 |
| 16 | 50.3/56.0/47.3 | 8.2 | 25.0/31.0/25.0 | 42.1/47.8/39.1 | 40.7/45.0/39.7 | 47.4/53.0/44.3 | 39.1/44.8/36.1 | 37.7/42.0/36.7 |
| 20 | 48.8/55.0/45.8 | 9.3 | 25.0/31.0/25.0 | 39.5/45.7/36.5 | 38.7/43.0/37.7 | 45.8/52.0/42.8 | 36.5/42.7/33.5 | 35.7/40.0/34.7 |
| 25 | 47.3/53.0/44.3 | 10.4 | 24.3/30.3/24.3 | 36.9/42.6/33.9 | 36.8/41.0/35.8 | 44.3/50.0/41.3 | 33.9/39.6/30.9 | 33.8/38.0/32.8 |
| 31.25 | 45.9/52.0/42.9 | 11.7 | 23.6/29.6/23.6 | 34.2/40.3/31.2 | 34.9/39.0/33.9 | 42.9/49.0/39.9 | 31.2/37.3/28.2 | 31.9/36.0/30.9 |
| 62.5 | 41.4/47.0/38.4 | 17.0 | 21.5/27.5/21.5 | 24.4/30.0/21.4 | 28.8/33.0/27.8 | 38.4/44.0/35.4 | 21.4/27.0/18.4 | 25.8/30.0/24.8 |
| 100 | 38.3/44.0/35.3 | 22.0 | 20.1/26.1/20.1 | 16.3/22.0/13.3 | 24.8/29.0/23.8 | 35.3/41.0/32.3 | 13.3/19.0/10.3 | 21.8/26.0/20.8 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 155 | 35.5/41.0/32.5 | 28.1 | 18.8/24.8/18.8 | 7.4/12.9/4.4 | 20.9/25.0/19.9 | 32.5/38.0/29.5 | 4.4/9.9/-1.4 | 17.9/22.0/16.9 |
| 200 | 33.7/40.0/30.7 | 32.4 | 18.0/24.0/18.0 | 1.3/7.6/-1.7 | 19.7/24.0/18.7 | 30.0/37.0/27.7 | -1.7/4.6/-4.7 | 16.7/21.0/15.7 |
| 310 | 32.3/38.0/29.3 | 41.8 | 17.3/23.3/17.3 | N/A | 11.0/15.0/10.0 | 29.3/35.0/26.3 | N/A | 14.0/18.0/13.0 |
| 350 | 30.1/36.0/27.1 | 44.9 | 17.3/23.3/17.3 | N/A | 8.1/12.0/7.1 | 27.1/33.0/24.1 | N/A | 11.1/15.0/10.1 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor Diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT5E U/FTP SWA | 4×2×0.5/0.51 | 0.2 | 0.6 | 1.0 | 9.12 | 174 |

Rated Voltage

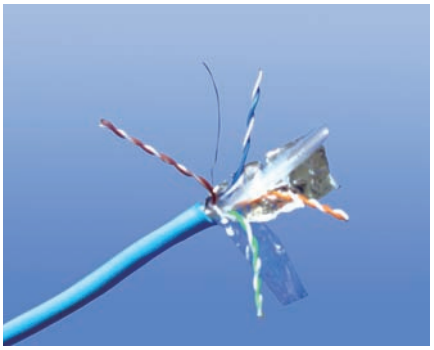
Standard

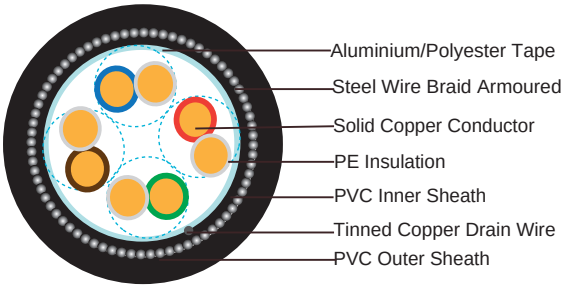
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT5E F/UTP SWA Armoured Data Cables

### FGD-CAT5E F/UTP4P24 SWA






### APPLICATION

Cat5E is a cable standard for Gigabit Ethernet and other network protocol, suitable for basic voice and data installations up to 100 MHz. In addition, these cables can be offered with copper wire braid armoured & flame retardant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 24AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Overall aluminium/Polyester tape with drain wire screen.
**Inner Sheath:** Thermoplastic PVC compound.

**Armouring:**
**SWA:** Steel Wire Armour
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 24 |
| Nominal Conductor Diameter | mm | 0.53 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 5 |
| Maximum Mutual Capacitance | pF/m | 55.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 45 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 68.3/74.0/65.3 | 2.0 | 20.2/26.0/20.2 | 66.3/72.0/63.3 | 64.8/69.0/63.8 | 65.0/71.0/62.3 | 63.3/69.0/60.3 | 61.8/66.0/60.8 |
| 4 | 59.3/65.0/56.3 | 4.1 | 23.0/29.0/23.0 | 55.2/60.9/52.2 | 52.7/57.0/51.7 | 56.3/62.0/53.3 | 52.2/57.9/49.2 | 49.7/54.0/48.7 |
| 8 | 54.8/61.0/51.8 | 5.8 | 24.5/30.5/24.5 | 49.0/55.2/46.0 | 46.7/51.0/45.7 | 51.8/58.0/48.8 | 46.0/52.2/43.0 | 43.7/48.0/42.7 |
| 10 | 53.3/59.0/50.3 | 6.5 | 25.0/31.0/25.0 | 46.8/52.5/43.8 | 44.8/49.0/43.8 | 50.3/56.0/47.3 | 43.8/49.5/40.8 | 41.8/46.0/40.8 |
| 16 | 50.3/56.0/47.3 | 8.2 | 25.0/31.0/25.0 | 42.1/47.8/39.1 | 40.7/45.0/39.7 | 47.4/53.0/44.3 | 39.1/44.8/36.1 | 37.7/42.0/36.7 |
| 20 | 48.8/55.0/45.8 | 9.3 | 25.0/31.0/25.0 | 39.5/45.7/36.5 | 38.7/43.0/37.7 | 45.8/52.0/42.8 | 36.5/42.7/33.5 | 35.7/40.0/34.7 |
| 25 | 47.3/53.0/44.3 | 10.4 | 24.3/30.3/24.3 | 36.9/42.6/33.9 | 36.8/41.0/35.8 | 44.3/50.0/41.3 | 33.9/39.6/30.9 | 33.8/38.0/32.8 |
| 31.25 | 45.9/52.0/42.9 | 11.7 | 23.6/29.6/23.6 | 34.2/40.3/31.2 | 34.9/39.0/33.9 | 42.9/49.0/39.9 | 31.2/37.3/28.2 | 31.9/36.0/30.9 |
| 62.5 | 41.4/47.0/38.4 | 17.0 | 21.5/27.5/21.5 | 24.4/30.0/21.4 | 28.8/33.0/27.8 | 38.4/44.0/35.4 | 21.4/27.0/18.4 | 25.8/30.0/24.8 |
| 100 | 38.3/44.0/35.3 | 22.0 | 20.1/26.1/20.1 | 16.3/22.0/13.3 | 24.8/29.0/23.8 | 35.3/41.0/32.3 | 13.3/19.0/10.3 | 21.8/26.0/20.8 |
| 155 | 35.5/41.0/32.5 | 28.1 | 18.8/24.8/18.8 | 7.4/12.9/4.4 | 20.9/25.0/19.9 | 32.5/38.0/29.5 | 4.4/9.9/-1.4 | 17.9/22.0/16.9 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 200 | 33.7/40.0/30.7 | 32.4 | 18.0/24.0/18.0 | 1.3/7.6/-1.7 | 19.7/24.0/18.7 | 30.0/37.0/27.7 | -1.7/4.6/-4.7 | 16.7/21.0/15.7 |
| 310 | 32.3/38.0/29.3 | 41.8 | 17.3/23.3/17.3 | N/A | 11.0/15.0/10.0 | 29.3/35.0/26.3 | N/A | 14.0/18.0/13.0 |
| 350 | 30.1/36.0/27.1 | 44.9 | 17.3/23.3/17.3 | N/A | 8.1/12.0/7.1 | 27.1/33.0/24.1 | N/A | 11.1/15.0/10.1 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor Diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT5E F/UTP SWA | 4×2×0.53 | 0.2 | 0.6 | 1.0 | 9.28 | 192 |

Rated Voltage

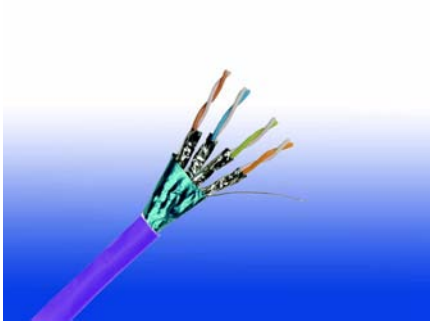
Standard

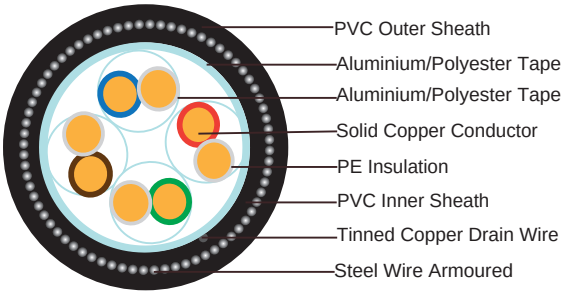
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT5E F/FTP SWA Armoured Data Cables

### FGD-CAT5E F/FTP4P24 SWA






### APPLICATION

Cat5E is a cable standard for Gigabit Ethernet and other network protocol, suitable for basic voice and data installations up to 100 MHz. In addition, these cables can be offered with copper wire braid armoured & flame retardant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 24AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium/polyester tape with drain wire and overall aluminium/polyester tape with drain wire screen.

**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**
**SWA:** Steel Wire Armour
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 24 |
| Nominal Conductor Diameter | mm | 0.53 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 5 |
| Maximum Mutual Capacitance | pF/m | 55.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 45 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 68.3/74.0/65.3 | 2.0 | 20.2/26.0/20.2 | 66.3/72.0/63.3 | 64.8/69.0/63.8 | 65.0/71.0/62.3 | 63.3/69.0/60.3 | 61.8/66.0/60.8 |
| 4 | 59.3/65.0/56.3 | 4.1 | 23.0/29.0/23.0 | 55.2/60.9/52.2 | 52.7/57.0/51.7 | 56.3/62.0/53.3 | 52.2/57.9/49.2 | 49.7/54.0/48.7 |
| 8 | 54.8/61.0/51.8 | 5.8 | 24.5/30.5/24.5 | 49.0/55.2/46.0 | 46.7/51.0/45.7 | 51.8/58.0/48.8 | 46.0/52.2/43.0 | 43.7/48.0/42.7 |
| 10 | 53.3/59.0/50.3 | 6.5 | 25.0/31.0/25.0 | 46.8/52.5/43.8 | 44.8/49.0/43.8 | 50.3/56.0/47.3 | 43.8/49.5/40.8 | 41.8/46.0/40.8 |
| 16 | 50.3/56.0/47.3 | 8.2 | 25.0/31.0/25.0 | 42.1/47.8/39.1 | 40.7/45.0/39.7 | 47.4/53.0/44.3 | 39.1/44.8/36.1 | 37.7/42.0/36.7 |
| 20 | 48.8/55.0/45.8 | 9.3 | 25.0/31.0/25.0 | 39.5/45.7/36.5 | 38.7/43.0/37.7 | 45.8/52.0/42.8 | 36.5/42.7/33.5 | 35.7/40.0/34.7 |
| 25 | 47.3/53.0/44.3 | 10.4 | 24.3/30.3/24.3 | 36.9/42.6/33.9 | 36.8/41.0/35.8 | 44.3/50.0/41.3 | 33.9/39.6/30.9 | 33.8/38.0/32.8 |
| 31.25 | 45.9/52.0/42.9 | 11.7 | 23.6/29.6/23.6 | 34.2/40.3/31.2 | 34.9/39.0/33.9 | 42.9/49.0/39.9 | 31.2/37.3/28.2 | 31.9/36.0/30.9 |
| 62.5 | 41.4/47.0/38.4 | 17.0 | 21.5/27.5/21.5 | 24.4/30.0/21.4 | 28.8/33.0/27.8 | 38.4/44.0/35.4 | 21.4/27.0/18.4 | 25.8/30.0/24.8 |
| 100 | 38.3/44.0/35.3 | 22.0 | 20.1/26.1/20.1 | 16.3/22.0/13.3 | 24.8/29.0/23.8 | 35.3/41.0/32.3 | 13.3/19.0/10.3 | 21.8/26.0/20.8 |
| 155 | 35.5/41.0/32.5 | 28.1 | 18.8/24.8/18.8 | 7.4/12.9/4.4 | 20.9/25.0/19.9 | 32.5/38.0/29.5 | 4.4/9.9/-1.4 | 17.9/22.0/16.9 |

# FIREGUARD Fire Retardant CAT5E Data Cables

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 200 | 33.7/40.0/30.7 | 32.4 | 18.0/24.0/18.0 | 1.3/7.6/-1.7 | 19.7/24.0/18.7 | 30.0/37.0/27.7 | -1.7/4.6/-4.7 | 16.7/21.0/15.7 |
| 310 | 32.3/38.0/29.3 | 41.8 | 17.3/23.3/17.3 | N/A | 11.0/15.0/10.0 | 29.3/35.0/26.3 | N/A | 14.0/18.0/13.0 |
| 350 | 30.1/36.0/27.1 | 44.9 | 17.3/23.3/17.3 | N/A | 8.1/12.0/7.1 | 27.1/33.0/24.1 | N/A | 11.1/15.0/10.1 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor Diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT5E F/FTP SWA | 4×2×0.53 | 0.2 | 0.6 | 1.0 | 9.70 | 201 |

Rated Voltage

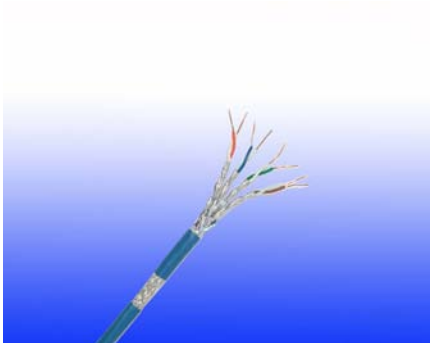
Standard

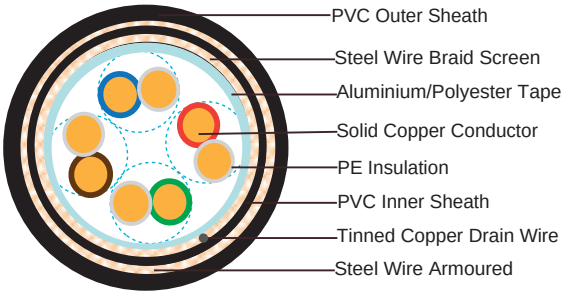
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT5E S/FTP SWA Armoured Data Cables

### FGD-CAT5E S/FTP4P24 SWA






### APPLICATION

Cat5E is a cable standard for Gigabit Ethernet and other network protocol, suitable for basic voice and data installations up to 100 MHz. In addition, these cables can be offered with copper wire braid armoured & flame retardant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 24AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium polyester tape with drain wire and copper wire braid screen.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**

**SWA:** Steel Wire Armour

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C

**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter

**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 24 |
| Nominal Conductor Diameter | mm | 0.53 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 5 |
| Maximum Mutual Capacitance | pF/m | 55.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 45 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 68.3/74.0/65.3 | 2.0 | 20.2/26.0/20.2 | 66.3/72.0/63.3 | 64.8/69.0/63.8 | 65.0/71.0/62.3 | 63.3/69.0/60.3 | 61.8/66.0/60.8 |
| 4 | 59.3/65.0/56.3 | 4.1 | 23.0/29.0/23.0 | 55.2/60.9/52.2 | 52.7/57.0/51.7 | 56.3/62.0/53.3 | 52.2/57.9/49.2 | 49.7/54.0/48.7 |
| 8 | 54.8/61.0/51.8 | 5.8 | 24.5/30.5/24.5 | 49.0/55.2/46.0 | 46.7/51.0/45.7 | 51.8/58.0/48.8 | 46.0/52.2/43.0 | 43.7/48.0/42.7 |
| 10 | 53.3/59.0/50.3 | 6.5 | 25.0/31.0/25.0 | 46.8/52.5/43.8 | 44.8/49.0/43.8 | 50.3/56.0/47.3 | 43.8/49.5/40.8 | 41.8/46.0/40.8 |
| 16 | 50.3/56.0/47.3 | 8.2 | 25.0/31.0/25.0 | 42.1/47.8/39.1 | 40.7/45.0/39.7 | 47.4/53.0/44.3 | 39.1/44.8/36.1 | 37.7/42.0/36.7 |
| 20 | 48.8/55.0/45.8 | 9.3 | 25.0/31.0/25.0 | 39.5/45.7/36.5 | 38.7/43.0/37.7 | 45.8/52.0/42.8 | 36.5/42.7/33.5 | 35.7/40.0/34.7 |
| 25 | 47.3/53.0/44.3 | 10.4 | 24.3/30.3/24.3 | 36.9/42.6/33.9 | 36.8/41.0/35.8 | 44.3/50.0/41.3 | 33.9/39.6/30.9 | 33.8/38.0/32.8 |
| 31.25 | 45.9/52.0/42.9 | 11.7 | 23.6/29.6/23.6 | 34.2/40.3/31.2 | 34.9/39.0/33.9 | 42.9/49.0/39.9 | 31.2/37.3/28.2 | 31.9/36.0/30.9 |
| 62.5 | 41.4/47.0/38.4 | 17.0 | 21.5/27.5/21.5 | 24.4/30.0/21.4 | 28.8/33.0/27.8 | 38.4/44.0/35.4 | 21.4/27.0/18.4 | 25.8/30.0/24.8 |
| 100 | 38.3/44.0/35.3 | 22.0 | 20.1/26.1/20.1 | 16.3/22.0/13.3 | 24.8/29.0/23.8 | 35.3/41.0/32.3 | 13.3/19.0/10.3 | 21.8/26.0/20.8 |
| 155 | 35.5/41.0/32.5 | 28.1 | 18.8/24.8/18.8 | 7.4/12.9/4.4 | 20.9/25.0/19.9 | 32.5/38.0/29.5 | 4.4/9.9/-1.4 | 17.9/22.0/16.9 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 200 | 33.7/40.0/30.7 | 32.4 | 18.0/24.0/18.0 | 1.3/7.6/-1.7 | 19.7/24.0/18.7 | 30.0/37.0/27.7 | -1.7/4.6/-4.7 | 16.7/21.0/15.7 |
| 310 | 32.3/38.0/29.3 | 41.8 | 17.3/23.3/17.3 | N/A | 11.0/15.0/10.0 | 29.3/35.0/26.3 | N/A | 14.0/18.0/13.0 |
| 350 | 30.1/36.0/27.1 | 44.9 | 17.3/23.3/17.3 | N/A | 8.1/12.0/7.1 | 27.1/33.0/24.1 | N/A | 11.1/15.0/10.1 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor Diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT5E S/FTP SWA | 4×2×0.53 | 0.2 | 0.6 | 1.0 | 9.76 | 216 |

Rated Voltage

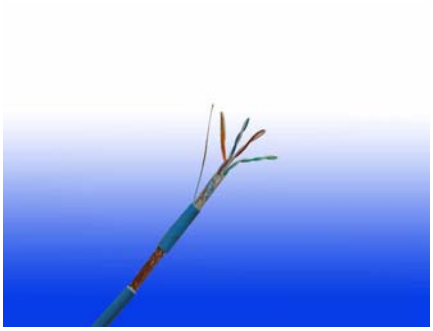
Standard

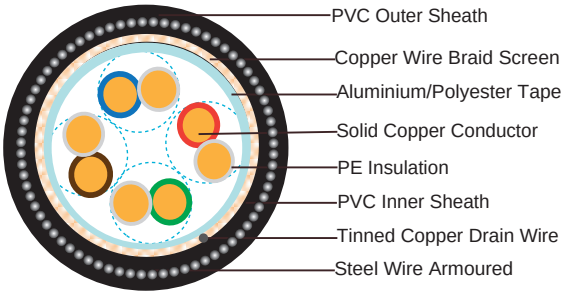
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT5E SF/UTP SWA Armoured Data Cables

### FGD-CAT5E SF/UTP4P24 SWA






### APPLICATION

Cat5E is a cable standard for Gigabit Ethernet and other network protocol, suitable for basic voice and data installations up to 100 MHz. In addition, these cables can be offered with copper wire braid armoured & flame retardant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 24AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Overall aluminium/polyester tape with drain wire and copper wire braid screen.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**

**SWA:** Steel Wire Armour

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C

**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter

**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 24 |
| Nominal Conductor Diameter | mm | 0.53 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 5 |
| Maximum Mutual Capacitance | pF/m | 55.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 45 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 68.3/74.0/65.3 | 2.0 | 20.2/26.0/20.2 | 66.3/72.0/63.3 | 64.8/69.0/63.8 | 65.0/71.0/62.3 | 63.3/69.0/60.3 | 61.8/66.0/60.8 |
| 4 | 59.3/65.0/56.3 | 4.1 | 23.0/29.0/23.0 | 55.2/60.9/52.2 | 52.7/57.0/51.7 | 56.3/62.0/53.3 | 52.2/57.9/49.2 | 49.7/54.0/48.7 |
| 8 | 54.8/61.0/51.8 | 5.8 | 24.5/30.5/24.5 | 49.0/55.2/46.0 | 46.7/51.0/45.7 | 51.8/58.0/48.8 | 46.0/52.2/43.0 | 43.7/48.0/42.7 |
| 10 | 53.3/59.0/50.3 | 6.5 | 25.0/31.0/25.0 | 46.8/52.5/43.8 | 44.8/49.0/43.8 | 50.3/56.0/47.3 | 43.8/49.5/40.8 | 41.8/46.0/40.8 |
| 16 | 50.3/56.0/47.3 | 8.2 | 25.0/31.0/25.0 | 42.1/47.8/39.1 | 40.7/45.0/39.7 | 47.4/53.0/44.3 | 39.1/44.8/36.1 | 37.7/42.0/36.7 |
| 20 | 48.8/55.0/45.8 | 9.3 | 25.0/31.0/25.0 | 39.5/45.7/36.5 | 38.7/43.0/37.7 | 45.8/52.0/42.8 | 36.5/42.7/33.5 | 35.7/40.0/34.7 |
| 25 | 47.3/53.0/44.3 | 10.4 | 24.3/30.3/24.3 | 36.9/42.6/33.9 | 36.8/41.0/35.8 | 44.3/50.0/41.3 | 33.9/39.6/30.9 | 33.8/38.0/32.8 |
| 31.25 | 45.9/52.0/42.9 | 11.7 | 23.6/29.6/23.6 | 34.2/40.3/31.2 | 34.9/39.0/33.9 | 42.9/49.0/39.9 | 31.2/37.3/28.2 | 31.9/36.0/30.9 |
| 62.5 | 41.4/47.0/38.4 | 17.0 | 21.5/27.5/21.5 | 24.4/30.0/21.4 | 28.8/33.0/27.8 | 38.4/44.0/35.4 | 21.4/27.0/18.4 | 25.8/30.0/24.8 |
| 100 | 38.3/44.0/35.3 | 22.0 | 20.1/26.1/20.1 | 16.3/22.0/13.3 | 24.8/29.0/23.8 | 35.3/41.0/32.3 | 13.3/19.0/10.3 | 21.8/26.0/20.8 |
| 155 | 35.5/41.0/32.5 | 28.1 | 18.8/24.8/18.8 | 7.4/12.9/4.4 | 20.9/25.0/19.9 | 32.5/38.0/29.5 | 4.4/9.9/-1.4 | 17.9/22.0/16.9 |

# FIREGUARD Fire Retardant CAT5E Data Cables

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 200 | 33.7/40.0/30.7 | 32.4 | 18.0/24.0/18.0 | 1.3/7.6/-1.7 | 19.7/24.0/18.7 | 30.0/37.0/27.7 | -1.7/4.6/-4.7 | 16.7/21.0/15.7 |
| 310 | 32.3/38.0/29.3 | 41.8 | 17.3/23.3/17.3 | N/A | 11.0/15.0/10.0 | 29.3/35.0/26.3 | N/A | 14.0/18.0/13.0 |
| 350 | 30.1/36.0/27.1 | 44.9 | 17.3/23.3/17.3 | N/A | 8.1/12.0/7.1 | 27.1/33.0/24.1 | N/A | 11.1/15.0/10.1 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor Diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT5E SF/UTP SWA | 4×2×0.53 | 0.2 | 0.6 | 1.0 | 9.12 | 201 |

Rated Voltage

Standard

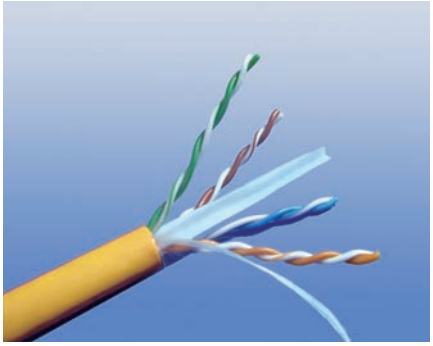
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

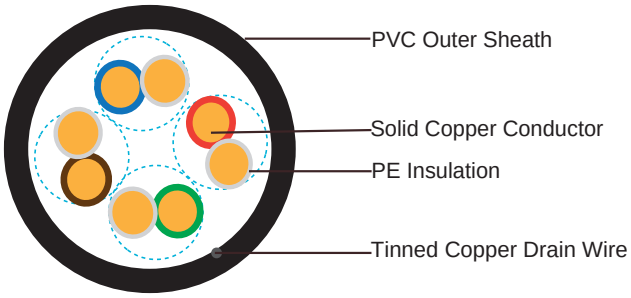
Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

# Fire Retardant CAT6 Data Cables

## Fire Retardant CAT6 U/UTP Data Cables

### FGD-CAT6 U/UTP4P23






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.56/0.57 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 77.3/87.0/74.3 | 2.0 | 20.0/21.5/20.0 | 75.2/85.0/72.2 | 68.8/80.0/67.8 | 75.3/85.0/72.3 | 73.2/83.0/70.2 | 65.8/70.0/64.8 |
| 4 | 68.3/77.0/65.3 | 3.8 | 23.0/24.7/23.0 | 64.4/73.0/61.4 | 56.8/66.0/55.8 | 66.3/74.0/63.3 | 62.5/71.0/59.5 | 53.8/63.0/52.8 |
| 8 | 63.8/72.0/60.8 | 5.3 | 24.5/25.5/24.5 | 58.4/67.0/55.4 | 50.7/61.0/49.7 | 61.8/70.0/58.8 | 56.5/65.0/53.5 | 47.7/58.0/46.7 |
| 10 | 62.3/70.0/59.3 | 6.0 | 25.0/28.0/25.0 | 56.3/64.0/53.3 | 48.8/57.0/47.8 | 60.3/68.0/57.3 | 54.3/62.0/51.3 | 45.8/54.0/44.8 |
| 16 | 59.2/66.0/56.2 | 7.6 | 25.0/28.0/25.0 | 51.6/59.0/48.6 | 44.7/52.0/43.7 | 57.2/64.0/54.2 | 49.6/57.0/46.6 | 41.7/49.0/40.7 |
| 20 | 57.8/65.0/54.8 | 8.5 | 25.0/28.0/25.0 | 49.3/57.0/46.3 | 42.8/50.0/41.8 | 55.8/63.0/52.8 | 47.3/55.0/44.3 | 39.8/47.0/38.8 |
| 25 | 56.3/63.0/53.3 | 9.5 | 24.3/27.0/24.3 | 46.8/5 4.0/43.8 | 40.8/47.0/39.8 | 54.3/61.0/51.3 | 44.8/52.0/41.8 | 37.8/44.0/36.8 |
| 31.25 | 54.9/61.0/51.9 | 10.7 | 23.6/26.5/23.6 | 44.1/51.0/41.1 | 38.9/45.0/37.9 | 52.9/59.0/49.9 | 42.1/49.0/39.1 | 35.9/42.0/34.9 |
| 62.5 | 50.4/57.0/47.4 | 15.4 | 21.5/24.6/21.5 | 34.9/42.0/31.9 | 32.9/38.0/31.9 | 48.4/55.0/45.4 | 32.9/40.0/29.9 | 29.9/35.0/28.9 |
| 100 | 47.3/53.0/44.3 | 19.8 | 20.1/23.7/20.1 | 27.4/33.0/24.4 | 28.8/34.0/27.8 | 45.3/51.0/42.3 | 25.4/31.0/22.4 | 25.8/31.0/24.8 |
| 200 | 42.8/48.0/39.8 | 29.0 | 18.0/22.2/18.0 | 13.6/21.0/10.6 | 22.8/27.0/21.8 | 40.8/46.0/37.8 | 11.6/19.0/8.6 | 19.8/24.0/18.8 |
| 250 | 41.3/46.0/38.3 | 32.8 | 17.3/21.6/17.3 | 8.3/14.0/5.3 | 20.8/24.0/19.8 | 39.3/44.0/36.3 | 6.3/12.0/3.3 | 17.8/21.0/16.8 |
| 300 | 37.1/45.0/37.1 | 36.4 | 16.8/20.7/16.8 | 0.5/11.0/0.5 | 18.3/23.0/18.3 | 35.1/43.0/35.1 | -1.5/9.0/-1.5 | 15.3/20.0/15.3 |
| 350 | 36.1/44.0/36.1 | 39.8 | 16.3/20.3/16.3 | -3.8/6.6/-3.8 | 16.9/21.0/16.9 | 34.1/42.0/34.1 | -5.8/4.6/-5.8 | 13.9/18.0/13.9 |
| 400 | 35.3/43.0/35.3 | 43.0 | 15.9/16.8/15.9 | -7.9/2.6/-7.9 | 15.8/20.0/15.8 | 33.3/41.0/33.3 | -9.9/0.6/-9.9 | 12.8/17.0/12.8 |
| 450 | 34.5/42.0/34.5 | 46.3 | 15.5/16.5/15.5 | -10.5/-1.1/-10.5 | 14.7/18.0/14.7 | 32.5/40.0/32.5 | -12.5/-3.1/-12.5 | 11.7/15.0/11.7 |
| 500 | 33.8/41.0/33.8 | 48.9 | 15.2/16.1/15.2 | -15.3/-6.2/-15.3 | 13.8/18.0/13.8 | 31.8/39.0/31.8 | -17.3/-8.2/-17.3 | 10.8/15.0/10.8 |
| 550 | 33.2/41.0/33.2 | 51.8 | 14.9/15.7/14.9 | -18.6/-12.0/-18.6 | 12.9/17.0/12.9 | 31.2/39.0/31.2 | -20.6/-14.0/-20.6 | 9.9/13.0/9.9 |
| 600 | 32.4/33.0/32.4 | 54.5 | 14.7/15.0/14.7 | -21.9/-21.0/-21.9 | 12.2/14.0/12.2 | 30.6/31.0/30.6 | -23.9/-23.0/-23.9 | 9.2/11.0/9.2 |

*Data for 250MHz above are for reference only

# FIREGUARD Fire Retardant CAT6 Data Cables

## CONSTRUCTION PARAMETERS

| Cable Code | Conductor Diameter | Diameter Over Insulation | Pairs | Screen | Overall Diameter |
|---|---|---|---|---|---|
| | mm | mm | | | mm |
| FGD-Cat6 U/UTP | 0.56/0.57 | 1.02 | 4 | Nil | 6.0 |

Rated Voltage

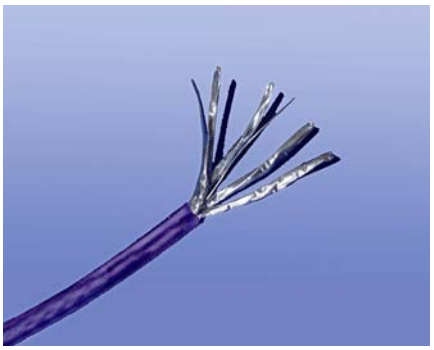
Standard

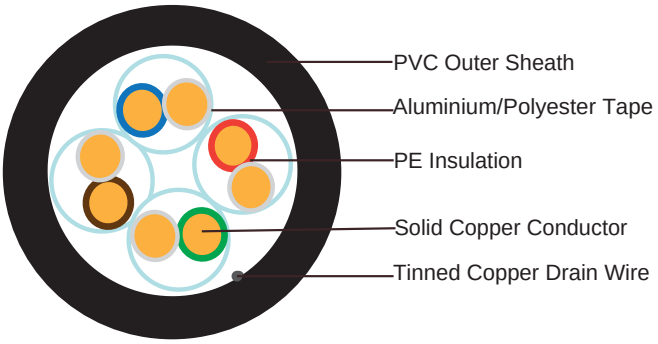
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6 U/FTP Data Cables

### FGD-CAT6 U/FTP4P23






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium/polyester tape with drain wire.
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire

performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 77.3/87.0/74.3 | 2.0 | 20.0/21.5/20.0 | 75.2/85.0/72.2 | 68.8/80.0/67.8 | 75.3/85.0/72.3 | 73.2/83.0/70.2 | 65.8/70.0/64.8 |
| 4 | 68.3/77.0/65.3 | 3.8 | 23.0/24.7/23.0 | 64.4/73.0/61.4 | 56.8/66.0/55.8 | 66.3/74.0/63.3 | 62.5/71.0/59.5 | 53.8/63.0/52.8 |
| 8 | 63.8/72.0/60.8 | 5.3 | 24.5/25.5/24.5 | 58.4/67.0/55.4 | 50.7/61.0/49.7 | 61.8/70.0/58.8 | 56.5/65.0/53.5 | 47.7/58.0/46.7 |
| 10 | 62.3/70.0/59.3 | 6.0 | 25.0/28.0/25.0 | 56.3/64.0/53.3 | 48.8/57.0/47.8 | 60.3/68.0/57.3 | 54.3/62.0/51.3 | 45.8/54.0/44.8 |
| 16 | 59.2/66.0/56.2 | 7.6 | 25.0/28.0/25.0 | 51.6/59.0/48.6 | 44.7/52.0/43.7 | 57.2/64.0/54.2 | 49.6/57.0/46.6 | 41.7/49.0/40.7 |
| 20 | 57.8/65.0/54.8 | 8.5 | 25.0/28.0/25.0 | 49.3/57.0/46.3 | 42.8/50.0/41.8 | 55.8/63.0/52.8 | 47.3/55.0/44.3 | 39.8/47.0/38.8 |
| 25 | 56.3/63.0/53.3 | 9.5 | 24.3/27.0/24.3 | 46.8/5 4.0/43.8 | 40.8/47.0/39.8 | 54.3/61.0/51.3 | 44.8/52.0/41.8 | 37.8/44.0/36.8 |
| 31.25 | 54.9/61.0/51.9 | 10.7 | 23.6/26.5/23.6 | 44.1/51.0/41.1 | 38.9/45.0/37.9 | 52.9/59.0/49.9 | 42.1/49.0/39.1 | 35.9/42.0/34.9 |
| 62.5 | 50.4/57.0/47.4 | 15.4 | 21.5/24.6/21.5 | 34.9/42.0/31.9 | 32.9/38.0/31.9 | 48.4/55.0/45.4 | 32.9/40.0/29.9 | 29.9/35.0/28.9 |
| 100 | 47.3/53.0/44.3 | 19.8 | 20.1/23.7/20.1 | 27.4/33.0/24.4 | 28.8/34.0/27.8 | 45.3/51.0/42.3 | 25.4/31.0/22.4 | 25.8/31.0/24.8 |
| 200 | 42.8/48.0/39.8 | 29.0 | 18.0/22.2/18.0 | 13.6/21.0/10.6 | 22.8/27.0/21.8 | 40.8/46.0/37.8 | 11.6/19.0/8.6 | 19.8/24.0/18.8 |
| 250 | 41.3/46.0/38.3 | 32.8 | 17.3/21.6/17.3 | 8.3/14.0/5.3 | 20.8/24.0/19.8 | 39.3/44.0/36.3 | 6.3/12.0/3.3 | 17.8/21.0/16.8 |
| 300 | 37.1/45.0/37.1 | 36.4 | 16.8/20.7/16.8 | 0.5/11.0/0.5 | 18.3/23.0/18.3 | 35.1/43.0/35.1 | -1.5/9.0/-1.5 | 15.3/20.0/15.3 |
| 350 | 36.1/44.0/36.1 | 39.8 | 16.3/20.3/16.3 | -3.8/6.6/-3.8 | 16.9/21.0/16.9 | 34.1/42.0/34.1 | -5.8/4.6/-5.8 | 13.9/18.0/13.9 |
| 400 | 35.3/43.0/35.3 | 43.0 | 15.9/16.8/15.9 | -7.9/2.6/-7.9 | 15.8/20.0/15.8 | 33.3/41.0/33.3 | -9.9/0.6/-9.9 | 12.8/17.0/12.8 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 450 | 34.5/42.0/34.5 | 46.3 | 15.5/16.5/15.5 | -10.5/-1.1/-10.5 | 14.7/18.0/14.7 | 32.5/40.0/32.5 | -12.5/-3.1/-12.5 | 11.7/15.0/11.7 |
| 500 | 33.8/41.0/33.8 | 48.9 | 15.2/16.1/15.2 | -15.3/-6.2/-15.3 | 13.8/18.0/13.8 | 31.8/39.0/31.8 | -17.3/-8.2/-17.3 | 10.8/15.0/10.8 |
| 550 | 33.2/41.0/33.2 | 51.8 | 14.9/15.7/14.9 | -18.6/-12.0/-18.6 | 12.9/17.0/12.9 | 31.2/39.0/31.2 | -20.6/-14.0/-20.6 | 9.9/13.0/9.9 |
| 600 | 32.4/33.0/32.4 | 54.5 | 14.7/15.0/14.7 | -21.9/-21.0/-21.9 | 12.2/14.0/12.2 | 30.6/31.0/30.6 | -23.9/-23.0/-23.9 | 9.2/11.0/9.2 |

## CONSTRUCTION PARAMETERS

| Cable Code | Conductor Diameter | Diameter Over Insulation | Pairs | Screen | Overall Diameter |
|---|---|---|---|---|---|
| | mm | mm | | | mm |
| FGD-Cat6 U/FTP | 0.57/0.58 | 1.02 | 4 | Individual Aluminium/Polyester Tape Screen | 7.3 |

Rated Voltage

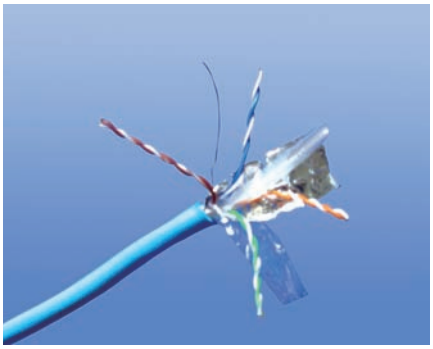
Standard

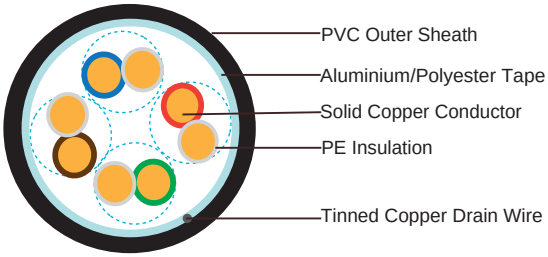
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6 F/UTP Data Cables

### FGD-CAT6 F/UTP4P23






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Overall aluminium/polyester tape with drain wire screen.
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire

performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 77.3/87.0/74.3 | 2.0 | 20.0/21.5/20.0 | 75.2/85.0/72.2 | 68.8/80.0/67.8 | 75.3/85.0/72.3 | 73.2/83.0/70.2 | 65.8/70.0/64.8 |
| 4 | 68.3/77.0/65.3 | 3.8 | 23.0/24.7/23.0 | 64.4/73.0/61.4 | 56.8/66.0/55.8 | 66.3/74.0/63.3 | 62.5/71.0/59.5 | 53.8/63.0/52.8 |
| 8 | 63.8/72.0/60.8 | 5.3 | 24.5/25.5/24.5 | 58.4/67.0/55.4 | 50.7/61.0/49.7 | 61.8/70.0/58.8 | 56.5/65.0/53.5 | 47.7/58.0/46.7 |
| 10 | 62.3/70.0/59.3 | 6.0 | 25.0/28.0/25.0 | 56.3/64.0/53.3 | 48.8/57.0/47.8 | 60.3/68.0/57.3 | 54.3/62.0/51.3 | 45.8/54.0/44.8 |
| 16 | 59.2/66.0/56.2 | 7.6 | 25.0/28.0/25.0 | 51.6/59.0/48.6 | 44.7/52.0/43.7 | 57.2/64.0/54.2 | 49.6/57.0/46.6 | 41.7/49.0/40.7 |
| 20 | 57.8/65.0/54.8 | 8.5 | 25.0/28.0/25.0 | 49.3/57.0/46.3 | 42.8/50.0/41.8 | 55.8/63.0/52.8 | 47.3/55.0/44.3 | 39.8/47.0/38.8 |
| 25 | 56.3/63.0/53.3 | 9.5 | 24.3/27.0/24.3 | 46.8/5 4.0/43.8 | 40.8/47.0/39.8 | 54.3/61.0/51.3 | 44.8/52.0/41.8 | 37.8/44.0/36.8 |
| 31.25 | 54.9/61.0/51.9 | 10.7 | 23.6/26.5/23.6 | 44.1/51.0/41.1 | 38.9/45.0/37.9 | 52.9/59.0/49.9 | 42.1/49.0/39.1 | 35.9/42.0/34.9 |
| 62.5 | 50.4/57.0/47.4 | 15.4 | 21.5/24.6/21.5 | 34.9/42.0/31.9 | 32.9/38.0/31.9 | 48.4/55.0/45.4 | 32.9/40.0/29.9 | 29.9/35.0/28.9 |
| 100 | 47.3/53.0/44.3 | 19.8 | 20.1/23.7/20.1 | 27.4/33.0/24.4 | 28.8/34.0/27.8 | 45.3/51.0/42.3 | 25.4/31.0/22.4 | 25.8/31.0/24.8 |
| 200 | 42.8/48.0/39.8 | 29.0 | 18.0/22.2/18.0 | 13.6/21.0/10.6 | 22.8/27.0/21.8 | 40.8/46.0/37.8 | 11.6/19.0/8.6 | 19.8/24.0/18.8 |
| 250 | 41.3/46.0/38.3 | 32.8 | 17.3/21.6/17.3 | 8.3/14.0/5.3 | 20.8/24.0/19.8 | 39.3/44.0/36.3 | 6.3/12.0/3.3 | 17.8/21.0/16.8 |
| 300 | 37.1/45.0/37.1 | 36.4 | 16.8/20.7/16.8 | 0.5/11.0/0.5 | 18.3/23.0/18.3 | 35.1/43.0/35.1 | -1.5/9.0/-1.5 | 15.3/20.0/15.3 |
| 350 | 36.1/44.0/36.1 | 39.8 | 16.3/20.3/16.3 | -3.8/6.6/-3.8 | 16.9/21.0/16.9 | 34.1/42.0/34.1 | -5.8/4.6/-5.8 | 13.9/18.0/13.9 |
| 400 | 35.3/43.0/35.3 | 43.0 | 15.9/16.8/15.9 | -7.9/2.6/-7.9 | 15.8/20.0/15.8 | 33.3/41.0/33.3 | -9.9/0.6/-9.9 | 12.8/17.0/12.8 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 450 | 34.5/42.0/34.5 | 46.3 | 15.5/16.5/15.5 | -10.5/-1.1/-10.5 | 14.7/18.0/14.7 | 32.5/40.0/32.5 | -12.5/-3.1/-12.5 | 11.7/15.0/11.7 |
| 500 | 33.8/41.0/33.8 | 48.9 | 15.2/16.1/15.2 | -15.3/-6.2/-15.3 | 13.8/18.0/13.8 | 31.8/39.0/31.8 | -17.3/-8.2/-17.3 | 10.8/15.0/10.8 |
| 550 | 33.2/41.0/33.2 | 51.8 | 14.9/15.7/14.9 | -18.6/-12.0/-18.6 | 12.9/17.0/12.9 | 31.2/39.0/31.2 | -20.6/-14.0/-20.6 | 9.9/13.0/9.9 |
| 600 | 32.4/33.0/32.4 | 54.5 | 14.7/15.0/14.7 | -21.9/-21.0/-21.9 | 12.2/14.0/12.2 | 30.6/31.0/30.6 | -23.9/-23.0/-23.9 | 9.2/11.0/9.2 |

## CONSTRUCTION PARAMETERS

| Cable Code | Conductor Diameter | Diameter Over Insulation | Pairs | Screen | Overall Diameter |
|---|---|---|---|---|---|
| | mm | mm | | | mm |
| FGD-Cat6 F/UTP | 0.57/0.58 | 1.02 | 4 | Overall Aluminum Tape Screen | 6.3 |

Rated Voltage

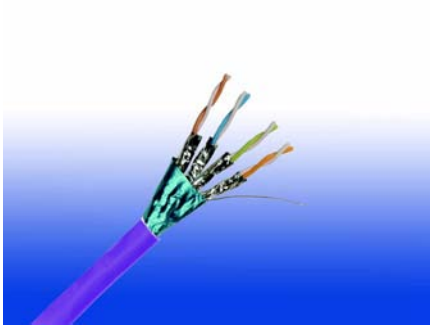
Standard

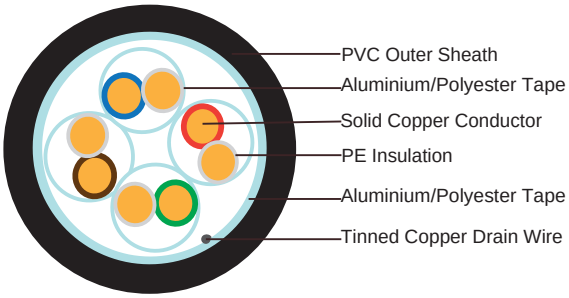
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6 F/FTP Data Cables

### FGD-CAT6 F/FTP4P23






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with overall and individual aluminum foil screen & PVC outer sheath, providing additional screening still maintaining the flexibility of the cable.

### STANDARDS

Basic design to IEC 11801, EIA TIA 568B.2-1

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium/polyester tape with drain wire and overall aluminium/polyester tape with drain wire screen.

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.6 |
| Maximum DC Resistant@20°C | Ω/100m | 6.3 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.6 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 30 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 77.3/87.0/74.3 | 2.0 | 20.0/21.5/20.0 | 75.2/85.0/72.2 | 68.8/80.0/67.8 | 75.3/85.0/72.3 | 73.2/83.0/70.2 | 65.8/70.0/64.8 |
| 4 | 68.3/77.0/65.3 | 3.8 | 23.0/24.7/23.0 | 64.4/73.0/61.4 | 56.8/66.0/55.8 | 66.3/74.0/63.3 | 62.5/71.0/59.5 | 53.8/63.0/52.8 |
| 8 | 63.8/72.0/60.8 | 5.3 | 24.5/25.5/24.5 | 58.4/67.0/55.4 | 50.7/61.0/49.7 | 61.8/70.0/58.8 | 56.5/65.0/53.5 | 47.7/58.0/46.7 |
| 10 | 62.3/70.0/59.3 | 6.0 | 25.0/28.0/25.0 | 56.3/64.0/53.3 | 48.8/57.0/47.8 | 60.3/68.0/57.3 | 54.3/62.0/51.3 | 45.8/54.0/44.8 |
| 16 | 59.2/66.0/56.2 | 7.6 | 25.0/28.0/25.0 | 51.6/59.0/48.6 | 44.7/52.0/43.7 | 57.2/64.0/54.2 | 49.6/57.0/46.6 | 41.7/49.0/40.7 |
| 20 | 57.8/65.0/54.8 | 8.5 | 25.0/28.0/25.0 | 49.3/57.0/46.3 | 42.8/50.0/41.8 | 55.8/63.0/52.8 | 47.3/55.0/44.3 | 39.8/47.0/38.8 |
| 25 | 56.3/63.0/53.3 | 9.5 | 24.3/27.0/24.3 | 46.8/5 4.0/43.8 | 40.8/47.0/39.8 | 54.3/61.0/51.3 | 44.8/52.0/41.8 | 37.8/44.0/36.8 |
| 31.25 | 54.9/61.0/51.9 | 10.7 | 23.6/26.5/23.6 | 44.1/51.0/41.1 | 38.9/45.0/37.9 | 52.9/59.0/49.9 | 42.1/49.0/39.1 | 35.9/42.0/34.9 |
| 62.5 | 50.4/57.0/47.4 | 15.4 | 21.5/24.6/21.5 | 34.9/42.0/31.9 | 32.9/38.0/31.9 | 48.4/55.0/45.4 | 32.9/40.0/29.9 | 29.9/35.0/28.9 |
| 100 | 47.3/53.0/44.3 | 19.8 | 20.1/23.7/20.1 | 27.4/33.0/24.4 | 28.8/34.0/27.8 | 45.3/51.0/42.3 | 25.4/31.0/22.4 | 25.8/31.0/24.8 |
| 200 | 42.8/48.0/39.8 | 29.0 | 18.0/22.2/18.0 | 13.6/21.0/10.6 | 22.8/27.0/21.8 | 40.8/46.0/37.8 | 11.6/19.0/8.6 | 19.8/24.0/18.8 |
| 250 | 41.3/46.0/38.3 | 32.8 | 17.3/21.6/17.3 | 8.3/14.0/5.3 | 20.8/24.0/19.8 | 39.3/44.0/36.3 | 6.3/12.0/3.3 | 17.8/21.0/16.8 |
| 300 | 37.1/45.0/37.1 | 36.4 | 16.8/20.7/16.8 | 0.5/11.0/0.5 | 18.3/23.0/18.3 | 35.1/43.0/35.1 | -1.5/9.0/-1.5 | 15.3/20.0/15.3 |
| 350 | 36.1/44.0/36.1 | 39.8 | 16.3/20.3/16.3 | -3.8/6.6/-3.8 | 16.9/21.0/16.9 | 34.1/42.0/34.1 | -5.8/4.6/-5.8 | 13.9/18.0/13.9 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 400 | 35.3/43.0/35.3 | 43.0 | 15.9/16.8/15.9 | -7.9/2.6/-7.9 | 15.8/20.0/15.8 | 33.3/41.0/33.3 | -9.9/0.6/-9.9 | 12.8/17.0/12.8 |
| 450 | 34.5/42.0/34.5 | 46.3 | 15.5/16.5/15.5 | -10.5/-1.1/-10.5 | 14.7/18.0/14.7 | 32.5/40.0/32.5 | -12.5/-3.1/-12.5 | 11.7/15.0/11.7 |
| 500 | 33.8/41.0/33.8 | 48.9 | 15.2/16.1/15.2 | -15.3/-6.2/-15.3 | 13.8/18.0/13.8 | 31.8/39.0/31.8 | -17.3/-8.2/-17.3 | 10.8/15.0/10.8 |
| 550 | 33.2/41.0/33.2 | 51.8 | 14.9/15.7/14.9 | -18.6/-12.0/-18.6 | 12.9/17.0/12.9 | 31.2/39.0/31.2 | -20.6/-14.0/-20.6 | 9.9/13.0/9.9 |
| 600 | 32.4/33.0/32.4 | 54.5 | 14.7/15.0/14.7 | -21.9/-21.0/-21.9 | 12.2/14.0/12.2 | 30.6/31.0/30.6 | -23.9/-23.0/-23.9 | 9.2/11.0/9.2 |

## CONSTRUCTION PARAMETERS

| Cable Code | Conductor Diameter | Diameter Over Insulation | Pairs | Screen | Overall Diameter |
|---|---|---|---|---|---|
| | mm | mm | | | mm |
| FGD-Cat6 F/FTP | 0.6 | 1.60 | 4 | Overall Aluminum Tape & Individual Aluminium/Polyester Tape Screen | 6.8 |

Rated Voltage

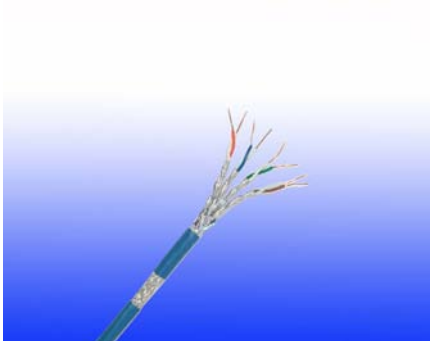
Standard

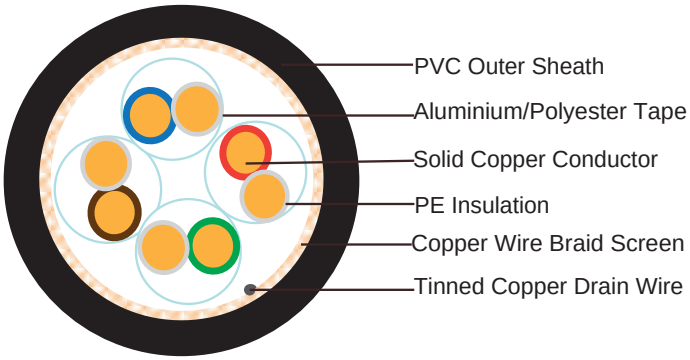
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6 S/FTP Data Cables

### FGD-CAT6 S/FTP4P23






## APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

## STANDARDS

Basic design adapted to EN50173

## FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

## VOLTAGE RATING

60V

## CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium polyester tape with drain wire and copper wire braid screen.

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 77.3/87.0/74.3 | 2.0 | 20.0/21.5/20.0 | 75.2/85.0/72.2 | 68.8/80.0/67.8 | 75.3/85.0/72.3 | 73.2/83.0/70.2 | 65.8/70.0/64.8 |
| 4 | 68.3/77.0/65.3 | 3.8 | 23.0/24.7/23.0 | 64.4/73.0/61.4 | 56.8/66.0/55.8 | 66.3/74.0/63.3 | 62.5/71.0/59.5 | 53.8/63.0/52.8 |
| 8 | 63.8/72.0/60.8 | 5.3 | 24.5/25.5/24.5 | 58.4/67.0/55.4 | 50.7/61.0/49.7 | 61.8/70.0/58.8 | 56.5/65.0/53.5 | 47.7/58.0/46.7 |
| 10 | 62.3/70.0/59.3 | 6.0 | 25.0/28.0/25.0 | 56.3/64.0/53.3 | 48.8/57.0/47.8 | 60.3/68.0/57.3 | 54.3/62.0/51.3 | 45.8/54.0/44.8 |
| 16 | 59.2/66.0/56.2 | 7.6 | 25.0/28.0/25.0 | 51.6/59.0/48.6 | 44.7/52.0/43.7 | 57.2/64.0/54.2 | 49.6/57.0/46.6 | 41.7/49.0/40.7 |
| 20 | 57.8/65.0/54.8 | 8.5 | 25.0/28.0/25.0 | 49.3/57.0/46.3 | 42.8/50.0/41.8 | 55.8/63.0/52.8 | 47.3/55.0/44.3 | 39.8/47.0/38.8 |
| 25 | 56.3/63.0/53.3 | 9.5 | 24.3/27.0/24.3 | 46.8/5 4.0/43.8 | 40.8/47.0/39.8 | 54.3/61.0/51.3 | 44.8/52.0/41.8 | 37.8/44.0/36.8 |
| 31.25 | 54.9/61.0/51.9 | 10.7 | 23.6/26.5/23.6 | 44.1/51.0/41.1 | 38.9/45.0/37.9 | 52.9/59.0/49.9 | 42.1/49.0/39.1 | 35.9/42.0/34.9 |
| 62.5 | 50.4/57.0/47.4 | 15.4 | 21.5/24.6/21.5 | 34.9/42.0/31.9 | 32.9/38.0/31.9 | 48.4/55.0/45.4 | 32.9/40.0/29.9 | 29.9/35.0/28.9 |
| 100 | 47.3/53.0/44.3 | 19.8 | 20.1/23.7/20.1 | 27.4/33.0/24.4 | 28.8/34.0/27.8 | 45.3/51.0/42.3 | 25.4/31.0/22.4 | 25.8/31.0/24.8 |
| 200 | 42.8/48.0/39.8 | 29.0 | 18.0/22.2/18.0 | 13.6/21.0/10.6 | 22.8/27.0/21.8 | 40.8/46.0/37.8 | 11.6/19.0/8.6 | 19.8/24.0/18.8 |
| 250 | 41.3/46.0/38.3 | 32.8 | 17.3/21.6/17.3 | 8.3/14.0/5.3 | 20.8/24.0/19.8 | 39.3/44.0/36.3 | 6.3/12.0/3.3 | 17.8/21.0/16.8 |
| 300 | 37.1/45.0/37.1 | 36.4 | 16.8/20.7/16.8 | 0.5/11.0/0.5 | 18.3/23.0/18.3 | 35.1/43.0/35.1 | -1.5/9.0/-1.5 | 15.3/20.0/15.3 |
| 350 | 36.1/44.0/36.1 | 39.8 | 16.3/20.3/16.3 | -3.8/6.6/-3.8 | 16.9/21.0/16.9 | 34.1/42.0/34.1 | -5.8/4.6/-5.8 | 13.9/18.0/13.9 |

# FIREGUARD Fire Retardant CAT6 Data Cables

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 400 | 35.3/43.0/35.3 | 43.0 | 15.9/16.8/15.9 | -7.9/2.6/-7.9 | 15.8/20.0/15.8 | 33.3/41.0/33.3 | -9.9/0.6/-9.9 | 12.8/17.0/12.8 |
| 450 | 34.5/42.0/34.5 | 46.3 | 15.5/16.5/15.5 | -10.5/-1.1/-10.5 | 14.7/18.0/14.7 | 32.5/40.0/32.5 | -12.5/-3.1/-12.5 | 11.7/15.0/11.7 |
| 500 | 33.8/41.0/33.8 | 48.9 | 15.2/16.1/15.2 | -15.3/-6.2/-15.3 | 13.8/18.0/13.8 | 31.8/39.0/31.8 | -17.3/-8.2/-17.3 | 10.8/15.0/10.8 |
| 550 | 33.2/41.0/33.2 | 51.8 | 14.9/15.7/14.9 | -18.6/-12.0/-18.6 | 12.9/17.0/12.9 | 31.2/39.0/31.2 | -20.6/-14.0/-20.6 | 9.9/13.0/9.9 |
| 600 | 32.4/33.0/32.4 | 54.5 | 14.7/15.0/14.7 | -21.9/-21.0/-21.9 | 12.2/14.0/12.2 | 30.6/31.0/30.6 | -23.9/-23.0/-23.9 | 9.2/11.0/9.2 |

## CONSTRUCTION PARAMETERS

| Cable Code | Conductor Diameter | Diameter Over Insulation | Pairs | Screen | Overall Diameter |
|---|---|---|---|---|---|
| | mm | mm | | | mm |
| FGD-Cat6 S/FTP | 0.57/0.58 | 1.02 | 4 | Individual Aluminium/Polyester Tape & Copper Wire Braid Screen | 8.0 |

Rated Voltage

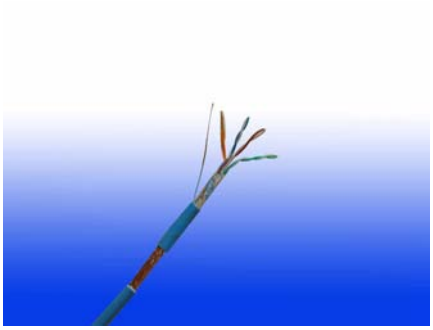
Standard

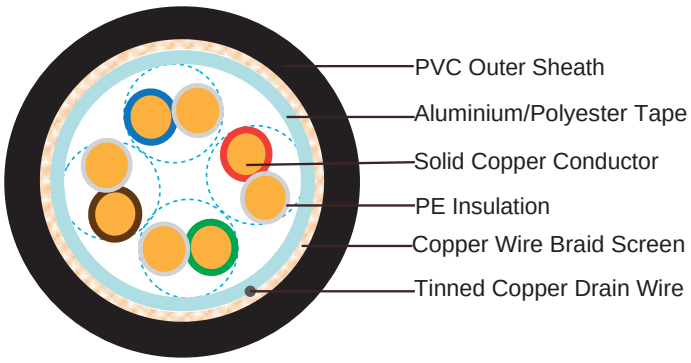
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6 SF/UTP Data Cables

### FGD-CAT6 SF/UTP4P23






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Overall aluminium/Polyester tape with drain wire and copper wire braid screen.
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire

performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 77.3/87.0/74.3 | 2.0 | 20.0/21.5/20.0 | 75.2/85.0/72.2 | 68.8/80.0/67.8 | 75.3/85.0/72.3 | 73.2/83.0/70.2 | 65.8/70.0/64.8 |
| 4 | 68.3/77.0/65.3 | 3.8 | 23.0/24.7/23.0 | 64.4/73.0/61.4 | 56.8/66.0/55.8 | 66.3/74.0/63.3 | 62.5/71.0/59.5 | 53.8/63.0/52.8 |
| 8 | 63.8/72.0/60.8 | 5.3 | 24.5/25.5/24.5 | 58.4/67.0/55.4 | 50.7/61.0/49.7 | 61.8/70.0/58.8 | 56.5/65.0/53.5 | 47.7/58.0/46.7 |
| 10 | 62.3/70.0/59.3 | 6.0 | 25.0/28.0/25.0 | 56.3/64.0/53.3 | 48.8/57.0/47.8 | 60.3/68.0/57.3 | 54.3/62.0/51.3 | 45.8/54.0/44.8 |
| 16 | 59.2/66.0/56.2 | 7.6 | 25.0/28.0/25.0 | 51.6/59.0/48.6 | 44.7/52.0/43.7 | 57.2/64.0/54.2 | 49.6/57.0/46.6 | 41.7/49.0/40.7 |
| 20 | 57.8/65.0/54.8 | 8.5 | 25.0/28.0/25.0 | 49.3/57.0/46.3 | 42.8/50.0/41.8 | 55.8/63.0/52.8 | 47.3/55.0/44.3 | 39.8/47.0/38.8 |
| 25 | 56.3/63.0/53.3 | 9.5 | 24.3/27.0/24.3 | 46.8/5 4.0/43.8 | 40.8/47.0/39.8 | 54.3/61.0/51.3 | 44.8/52.0/41.8 | 37.8/44.0/36.8 |
| 31.25 | 54.9/61.0/51.9 | 10.7 | 23.6/26.5/23.6 | 44.1/51.0/41.1 | 38.9/45.0/37.9 | 52.9/59.0/49.9 | 42.1/49.0/39.1 | 35.9/42.0/34.9 |
| 62.5 | 50.4/57.0/47.4 | 15.4 | 21.5/24.6/21.5 | 34.9/42.0/31.9 | 32.9/38.0/31.9 | 48.4/55.0/45.4 | 32.9/40.0/29.9 | 29.9/35.0/28.9 |
| 100 | 47.3/53.0/44.3 | 19.8 | 20.1/23.7/20.1 | 27.4/33.0/24.4 | 28.8/34.0/27.8 | 45.3/51.0/42.3 | 25.4/31.0/22.4 | 25.8/31.0/24.8 |
| 200 | 42.8/48.0/39.8 | 29.0 | 18.0/22.2/18.0 | 13.6/21.0/10.6 | 22.8/27.0/21.8 | 40.8/46.0/37.8 | 11.6/19.0/8.6 | 19.8/24.0/18.8 |
| 250 | 41.3/46.0/38.3 | 32.8 | 17.3/21.6/17.3 | 8.3/14.0/5.3 | 20.8/24.0/19.8 | 39.3/44.0/36.3 | 6.3/12.0/3.3 | 17.8/21.0/16.8 |
| 300 | 37.1/45.0/37.1 | 36.4 | 16.8/20.7/16.8 | 0.5/11.0/0.5 | 18.3/23.0/18.3 | 35.1/43.0/35.1 | -1.5/9.0/-1.5 | 15.3/20.0/15.3 |
| 350 | 36.1/44.0/36.1 | 39.8 | 16.3/20.3/16.3 | -3.8/6.6/-3.8 | 16.9/21.0/16.9 | 34.1/42.0/34.1 | -5.8/4.6/-5.8 | 13.9/18.0/13.9 |
| 400 | 35.3/43.0/35.3 | 43.0 | 15.9/16.8/15.9 | -7.9/2.6/-7.9 | 15.8/20.0/15.8 | 33.3/41.0/33.3 | -9.9/0.6/-9.9 | 12.8/17.0/12.8 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 450 | 34.5/42.0/34.5 | 46.3 | 15.5/16.5/15.5 | -10.5/-1.1/-10.5 | 14.7/18.0/14.7 | 32.5/40.0/32.5 | -12.5/-3.1/-12.5 | 11.7/15.0/11.7 |
| 500 | 33.8/41.0/33.8 | 48.9 | 15.2/16.1/15.2 | -15.3/-6.2/-15.3 | 13.8/18.0/13.8 | 31.8/39.0/31.8 | -17.3/-8.2/-17.3 | 10.8/15.0/10.8 |
| 550 | 33.2/41.0/33.2 | 51.8 | 14.9/15.7/14.9 | -18.6/-12.0/-18.6 | 12.9/17.0/12.9 | 31.2/39.0/31.2 | -20.6/-14.0/-20.6 | 9.9/13.0/9.9 |
| 600 | 32.4/33.0/32.4 | 54.5 | 14.7/15.0/14.7 | -21.9/-21.0/-21.9 | 12.2/14.0/12.2 | 30.6/31.0/30.6 | -23.9/-23.0/-23.9 | 9.2/11.0/9.2 |

## CONSTRUCTION PARAMETERS

| Cable Code | Conductor Diameter | Diameter Over Insulation | Pairs | Screen | Overall Diameter |
|---|---|---|---|---|---|
| | mm | mm | | | mm |
| FGD-Cat6 SF/UTP | 0.57/0.58 | 1.02 | 4 | Overall Aluminum Tape Screen & Copper Wire Braid | 6.6 |

Rated Voltage

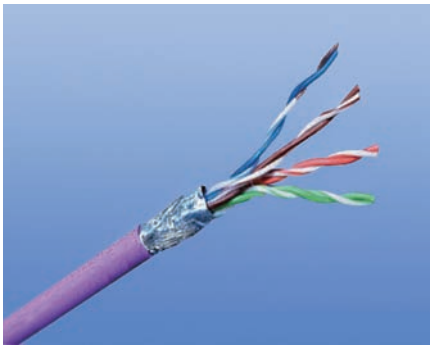
Standard

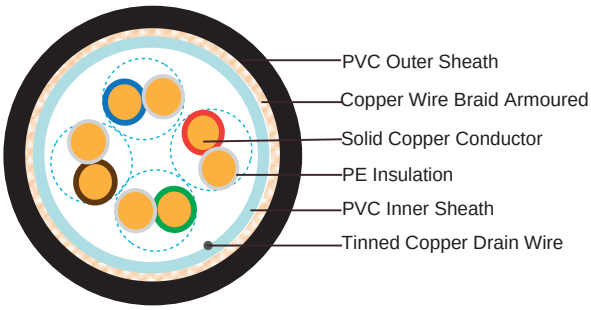
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6 U/UTP CWB Armoured Data Cables

### FGD-CAT6 U/UTP4P23 CWB






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**
**CWB:** Copper Wire Braid

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.56/0.57 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 77.3/87.0/74.3 | 2.0 | 20.0/21.5/20.0 | 75.2/85.0/72.2 | 68.8/80.0/67.8 | 75.3/85.0/72.3 | 73.2/83.0/70.2 | 65.8/70.0/64.8 |
| 4 | 68.3/77.0/65.3 | 3.8 | 23.0/24.7/23.0 | 64.4/73.0/61.4 | 56.8/66.0/55.8 | 66.3/74.0/63.3 | 62.5/71.0/59.5 | 53.8/63.0/52.8 |
| 8 | 63.8/72.0/60.8 | 5.3 | 24.5/25.5/24.5 | 58.4/67.0/55.4 | 50.7/61.0/49.7 | 61.8/70.0/58.8 | 56.5/65.0/53.5 | 47.7/58.0/46.7 |
| 10 | 62.3/70.0/59.3 | 6.0 | 25.0/28.0/25.0 | 56.3/64.0/53.3 | 48.8/57.0/47.8 | 60.3/68.0/57.3 | 54.3/62.0/51.3 | 45.8/54.0/44.8 |
| 16 | 59.2/66.0/56.2 | 7.6 | 25.0/28.0/25.0 | 51.6/59.0/48.6 | 44.7/52.0/43.7 | 57.2/64.0/54.2 | 49.6/57.0/46.6 | 41.7/49.0/40.7 |
| 20 | 57.8/65.0/54.8 | 8.5 | 25.0/28.0/25.0 | 49.3/57.0/46.3 | 42.8/50.0/41.8 | 55.8/63.0/52.8 | 47.3/55.0/44.3 | 39.8/47.0/38.8 |
| 25 | 56.3/63.0/53.3 | 9.5 | 24.3/27.0/24.3 | 46.8/5 4.0/43.8 | 40.8/47.0/39.8 | 54.3/61.0/51.3 | 44.8/52.0/41.8 | 37.8/44.0/36.8 |
| 31.25 | 54.9/61.0/51.9 | 10.7 | 23.6/26.5/23.6 | 44.1/51.0/41.1 | 38.9/45.0/37.9 | 52.9/59.0/49.9 | 42.1/49.0/39.1 | 35.9/42.0/34.9 |
| 62.5 | 50.4/57.0/47.4 | 15.4 | 21.5/24.6/21.5 | 34.9/42.0/31.9 | 32.9/38.0/31.9 | 48.4/55.0/45.4 | 32.9/40.0/29.9 | 29.9/35.0/28.9 |
| 100 | 47.3/53.0/44.3 | 19.8 | 20.1/23.7/20.1 | 27.4/33.0/24.4 | 28.8/34.0/27.8 | 45.3/51.0/42.3 | 25.4/31.0/22.4 | 25.8/31.0/24.8 |
| 200 | 42.8/48.0/39.8 | 29.0 | 18.0/22.2/18.0 | 13.6/21.0/10.6 | 22.8/27.0/21.8 | 40.8/46.0/37.8 | 11.6/19.0/8.6 | 19.8/24.0/18.8 |
| 250 | 41.3/46.0/38.3 | 32.8 | 17.3/21.6/17.3 | 8.3/14.0/5.3 | 20.8/24.0/19.8 | 39.3/44.0/36.3 | 6.3/12.0/3.3 | 17.8/21.0/16.8 |
| 300 | 37.1/45.0/37.1 | 36.4 | 16.8/20.7/16.8 | 0.5/11.0/0.5 | 18.3/23.0/18.3 | 35.1/43.0/35.1 | -1.5/9.0/-1.5 | 15.3/20.0/15.3 |
| 350 | 36.1/44.0/36.1 | 39.8 | 16.3/20.3/16.3 | -3.8/6.6/-3.8 | 16.9/21.0/16.9 | 34.1/42.0/34.1 | -5.8/4.6/-5.8 | 13.9/18.0/13.9 |
| 400 | 35.3/43.0/35.3 | 43.0 | 15.9/16.8/15.9 | -7.9/2.6/-7.9 | 15.8/20.0/15.8 | 33.3/41.0/33.3 | -9.9/0.6/-9.9 | 12.8/17.0/12.8 |

# FIREGUARD Fire Retardant CAT6 Data Cables

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 450 | 34.5/42.0/34.5 | 46.3 | 15.5/16.5/15.5 | -10.5/-1.1/-10.5 | 14.7/18.0/14.7 | 32.5/40.0/32.5 | -12.5/-3.1/-12.5 | 11.7/15.0/11.7 |
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| 550 | 33.2/41.0/33.2 | 51.8 | 14.9/15.7/14.9 | -18.6/-12.0/-18.6 | 12.9/17.0/12.9 | 31.2/39.0/31.2 | -20.6/-14.0/-20.6 | 9.9/13.0/9.9 |
| 600 | 32.4/33.0/32.4 | 54.5 | 14.7/15.0/14.7 | -21.9/-21.0/-21.9 | 12.2/14.0/12.2 | 30.6/31.0/30.6 | -23.9/-23.0/-23.9 | 9.2/11.0/9.2 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6 U/UTP CWB | 4×2×0.56/0.57 | 0.2 | 0.6 | 1.0 | 7.88 | 115 |

Rated Voltage

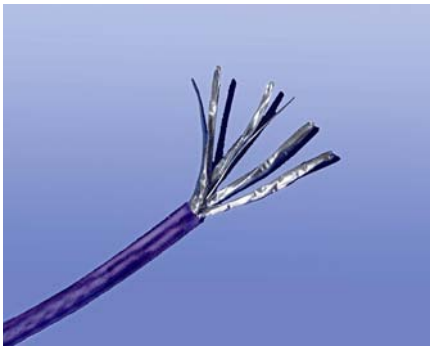
Standard

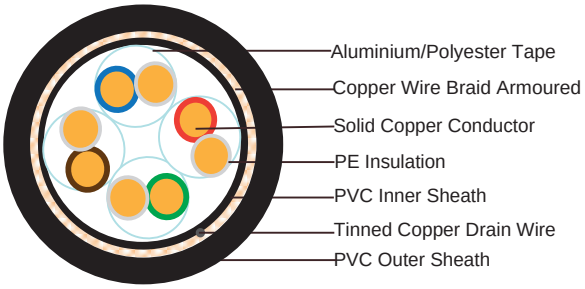
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6 U/FTP CWB Armoured Data Cables

### FGD-CAT6 U/FTP4P23 CWB



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| 4 | 68.3/77.0/65.3 | 3.8 | 23.0/24.7/23.0 | 64.4/73.0/61.4 | 56.8/66.0/55.8 | 66.3/74.0/63.3 | 62.5/71.0/59.5 | 53.8/63.0/52.8 |
| 8 | 63.8/72.0/60.8 | 5.3 | 24.5/25.5/24.5 | 58.4/67.0/55.4 | 50.7/61.0/49.7 | 61.8/70.0/58.8 | 56.5/65.0/53.5 | 47.7/58.0/46.7 |
| 10 | 62.3/70.0/59.3 | 6.0 | 25.0/28.0/25.0 | 56.3/64.0/53.3 | 48.8/57.0/47.8 | 60.3/68.0/57.3 | 54.3/62.0/51.3 | 45.8/54.0/44.8 |
| 16 | 59.2/66.0/56.2 | 7.6 | 25.0/28.0/25.0 | 51.6/59.0/48.6 | 44.7/52.0/43.7 | 57.2/64.0/54.2 | 49.6/57.0/46.6 | 41.7/49.0/40.7 |
| 20 | 57.8/65.0/54.8 | 8.5 | 25.0/28.0/25.0 | 49.3/57.0/46.3 | 42.8/50.0/41.8 | 55.8/63.0/52.8 | 47.3/55.0/44.3 | 39.8/47.0/38.8 |
| 25 | 56.3/63.0/53.3 | 9.5 | 24.3/27.0/24.3 | 46.8/5 4.0/43.8 | 40.8/47.0/39.8 | 54.3/61.0/51.3 | 44.8/52.0/41.8 | 37.8/44.0/36.8 |
| 31.25 | 54.9/61.0/51.9 | 10.7 | 23.6/26.5/23.6 | 44.1/51.0/41.1 | 38.9/45.0/37.9 | 52.9/59.0/49.9 | 42.1/49.0/39.1 | 35.9/42.0/34.9 |
| 62.5 | 50.4/57.0/47.4 | 15.4 | 21.5/24.6/21.5 | 34.9/42.0/31.9 | 32.9/38.0/31.9 | 48.4/55.0/45.4 | 32.9/40.0/29.9 | 29.9/35.0/28.9 |
| 100 | 47.3/53.0/44.3 | 19.8 | 20.1/23.7/20.1 | 27.4/33.0/24.4 | 28.8/34.0/27.8 | 45.3/51.0/42.3 | 25.4/31.0/22.4 | 25.8/31.0/24.8 |
| 200 | 42.8/48.0/39.8 | 29.0 | 18.0/22.2/18.0 | 13.6/21.0/10.6 | 22.8/27.0/21.8 | 40.8/46.0/37.8 | 11.6/19.0/8.6 | 19.8/24.0/18.8 |
| 250 | 41.3/46.0/38.3 | 32.8 | 17.3/21.6/17.3 | 8.3/14.0/5.3 | 20.8/24.0/19.8 | 39.3/44.0/36.3 | 6.3/12.0/3.3 | 17.8/21.0/16.8 |
| 300 | 37.1/45.0/37.1 | 36.4 | 16.8/20.7/16.8 | 0.5/11.0/0.5 | 18.3/23.0/18.3 | 35.1/43.0/35.1 | -1.5/9.0/-1.5 | 15.3/20.0/15.3 |
| 350 | 36.1/44.0/36.1 | 39.8 | 16.3/20.3/16.3 | -3.8/6.6/-3.8 | 16.9/21.0/16.9 | 34.1/42.0/34.1 | -5.8/4.6/-5.8 | 13.9/18.0/13.9 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 400 | 35.3/43.0/35.3 | 43.0 | 15.9/16.8/15.9 | -7.9/2.6/-7.9 | 15.8/20.0/15.8 | 33.3/41.0/33.3 | -9.9/0.6/-9.9 | 12.8/17.0/12.8 |
| 450 | 34.5/42.0/34.5 | 46.3 | 15.5/16.5/15.5 | -10.5/-1.1/-10.5 | 14.7/18.0/14.7 | 32.5/40.0/32.5 | -12.5/-3.1/-12.5 | 11.7/15.0/11.7 |
| 500 | 33.8/41.0/33.8 | 48.9 | 15.2/16.1/15.2 | -15.3/-6.2/-15.3 | 13.8/18.0/13.8 | 31.8/39.0/31.8 | -17.3/-8.2/-17.3 | 10.8/15.0/10.8 |
| 550 | 33.2/41.0/33.2 | 51.8 | 14.9/15.7/14.9 | -18.6/-12.0/-18.6 | 12.9/17.0/12.9 | 31.2/39.0/31.2 | -20.6/-14.0/-20.6 | 9.9/13.0/9.9 |
| 600 | 32.4/33.0/32.4 | 54.5 | 14.7/15.0/14.7 | -21.9/-21.0/-21.9 | 12.2/14.0/12.2 | 30.6/31.0/30.6 | -23.9/-23.0/-23.9 | 9.2/11.0/9.2 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6 U/FTP CWB | 4×2×0.56/0.57 | 0.2 | 0.6 | 1.0 | 8.34 | 123 |

Rated Voltage

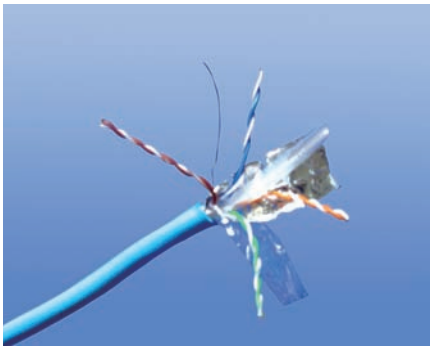
Standard

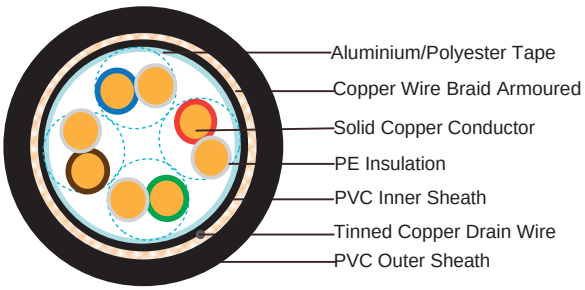
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6 F/UTP CWB Armoured Data Cables

### FGD-CAT6 F/UTP4P23 CWB






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Overall aluminium/Polyester tape with drain wire screen.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**

**CWB:** Copper Wire Braid

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 77.3/87.0/74.3 | 2.0 | 20.0/21.5/20.0 | 75.2/85.0/72.2 | 68.8/80.0/67.8 | 75.3/85.0/72.3 | 73.2/83.0/70.2 | 65.8/70.0/64.8 |
| 4 | 68.3/77.0/65.3 | 3.8 | 23.0/24.7/23.0 | 64.4/73.0/61.4 | 56.8/66.0/55.8 | 66.3/74.0/63.3 | 62.5/71.0/59.5 | 53.8/63.0/52.8 |
| 8 | 63.8/72.0/60.8 | 5.3 | 24.5/25.5/24.5 | 58.4/67.0/55.4 | 50.7/61.0/49.7 | 61.8/70.0/58.8 | 56.5/65.0/53.5 | 47.7/58.0/46.7 |
| 10 | 62.3/70.0/59.3 | 6.0 | 25.0/28.0/25.0 | 56.3/64.0/53.3 | 48.8/57.0/47.8 | 60.3/68.0/57.3 | 54.3/62.0/51.3 | 45.8/54.0/44.8 |
| 16 | 59.2/66.0/56.2 | 7.6 | 25.0/28.0/25.0 | 51.6/59.0/48.6 | 44.7/52.0/43.7 | 57.2/64.0/54.2 | 49.6/57.0/46.6 | 41.7/49.0/40.7 |
| 20 | 57.8/65.0/54.8 | 8.5 | 25.0/28.0/25.0 | 49.3/57.0/46.3 | 42.8/50.0/41.8 | 55.8/63.0/52.8 | 47.3/55.0/44.3 | 39.8/47.0/38.8 |
| 25 | 56.3/63.0/53.3 | 9.5 | 24.3/27.0/24.3 | 46.8/5 4.0/43.8 | 40.8/47.0/39.8 | 54.3/61.0/51.3 | 44.8/52.0/41.8 | 37.8/44.0/36.8 |
| 31.25 | 54.9/61.0/51.9 | 10.7 | 23.6/26.5/23.6 | 44.1/51.0/41.1 | 38.9/45.0/37.9 | 52.9/59.0/49.9 | 42.1/49.0/39.1 | 35.9/42.0/34.9 |
| 62.5 | 50.4/57.0/47.4 | 15.4 | 21.5/24.6/21.5 | 34.9/42.0/31.9 | 32.9/38.0/31.9 | 48.4/55.0/45.4 | 32.9/40.0/29.9 | 29.9/35.0/28.9 |
| 100 | 47.3/53.0/44.3 | 19.8 | 20.1/23.7/20.1 | 27.4/33.0/24.4 | 28.8/34.0/27.8 | 45.3/51.0/42.3 | 25.4/31.0/22.4 | 25.8/31.0/24.8 |
| 200 | 42.8/48.0/39.8 | 29.0 | 18.0/22.2/18.0 | 13.6/21.0/10.6 | 22.8/27.0/21.8 | 40.8/46.0/37.8 | 11.6/19.0/8.6 | 19.8/24.0/18.8 |
| 250 | 41.3/46.0/38.3 | 32.8 | 17.3/21.6/17.3 | 8.3/14.0/5.3 | 20.8/24.0/19.8 | 39.3/44.0/36.3 | 6.3/12.0/3.3 | 17.8/21.0/16.8 |
| 300 | 37.1/45.0/37.1 | 36.4 | 16.8/20.7/16.8 | 0.5/11.0/0.5 | 18.3/23.0/18.3 | 35.1/43.0/35.1 | -1.5/9.0/-1.5 | 15.3/20.0/15.3 |
| 350 | 36.1/44.0/36.1 | 39.8 | 16.3/20.3/16.3 | -3.8/6.6/-3.8 | 16.9/21.0/16.9 | 34.1/42.0/34.1 | -5.8/4.6/-5.8 | 13.9/18.0/13.9 |

# FIREGUARD Fire Retardant CAT6 Data Cables

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 400 | 35.3/43.0/35.3 | 43.0 | 15.9/16.8/15.9 | -7.9/2.6/-7.9 | 15.8/20.0/15.8 | 33.3/41.0/33.3 | -9.9/0.6/-9.9 | 12.8/17.0/12.8 |
| 450 | 34.5/42.0/34.5 | 46.3 | 15.5/16.5/15.5 | -10.5/-1.1/-10.5 | 14.7/18.0/14.7 | 32.5/40.0/32.5 | -12.5/-3.1/-12.5 | 11.7/15.0/11.7 |
| 500 | 33.8/41.0/33.8 | 48.9 | 15.2/16.1/15.2 | -15.3/-6.2/-15.3 | 13.8/18.0/13.8 | 31.8/39.0/31.8 | -17.3/-8.2/-17.3 | 10.8/15.0/10.8 |
| 550 | 33.2/41.0/33.2 | 51.8 | 14.9/15.7/14.9 | -18.6/-12.0/-18.6 | 12.9/17.0/12.9 | 31.2/39.0/31.2 | -20.6/-14.0/-20.6 | 9.9/13.0/9.9 |
| 600 | 32.4/33.0/32.4 | 54.5 | 14.7/15.0/14.7 | -21.9/-21.0/-21.9 | 12.2/14.0/12.2 | 30.6/31.0/30.6 | -23.9/-23.0/-23.9 | 9.2/11.0/9.2 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6 F/UTP CWB | 4×2×0.57/0.58 | 0.2 | 0.6 | 1.0 | 8.48 | 126 |

Rated Voltage

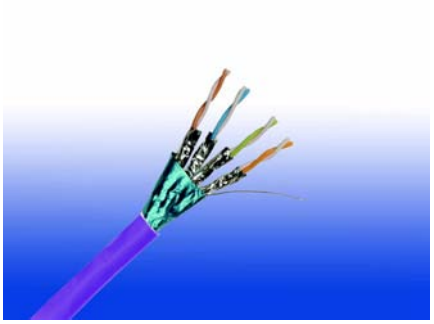
Standard

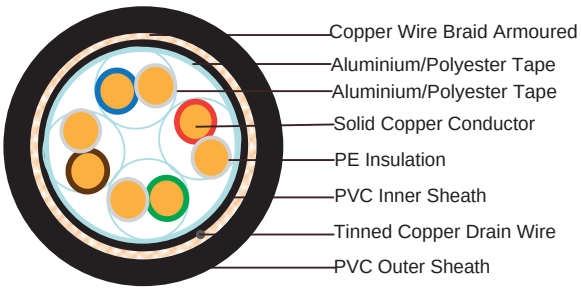
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6 F/FTP CWB Armoured Data Cables

### FGD-CAT6 F/FTP4P23 CWB






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium/polyester tape with drain wire and overall aluminium/polyester tape with drain wire screen.
**Inner Sheath:** Thermoplastic PVC compound.

**Armouring:**
**CWB:** Copper Wire Braid
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 77.3/87.0/74.3 | 2.0 | 20.0/21.5/20.0 | 75.2/85.0/72.2 | 68.8/80.0/67.8 | 75.3/85.0/72.3 | 73.2/83.0/70.2 | 65.8/70.0/64.8 |
| 4 | 68.3/77.0/65.3 | 3.8 | 23.0/24.7/23.0 | 64.4/73.0/61.4 | 56.8/66.0/55.8 | 66.3/74.0/63.3 | 62.5/71.0/59.5 | 53.8/63.0/52.8 |
| 8 | 63.8/72.0/60.8 | 5.3 | 24.5/25.5/24.5 | 58.4/67.0/55.4 | 50.7/61.0/49.7 | 61.8/70.0/58.8 | 56.5/65.0/53.5 | 47.7/58.0/46.7 |
| 10 | 62.3/70.0/59.3 | 6.0 | 25.0/28.0/25.0 | 56.3/64.0/53.3 | 48.8/57.0/47.8 | 60.3/68.0/57.3 | 54.3/62.0/51.3 | 45.8/54.0/44.8 |
| 16 | 59.2/66.0/56.2 | 7.6 | 25.0/28.0/25.0 | 51.6/59.0/48.6 | 44.7/52.0/43.7 | 57.2/64.0/54.2 | 49.6/57.0/46.6 | 41.7/49.0/40.7 |
| 20 | 57.8/65.0/54.8 | 8.5 | 25.0/28.0/25.0 | 49.3/57.0/46.3 | 42.8/50.0/41.8 | 55.8/63.0/52.8 | 47.3/55.0/44.3 | 39.8/47.0/38.8 |
| 25 | 56.3/63.0/53.3 | 9.5 | 24.3/27.0/24.3 | 46.8/5 4.0/43.8 | 40.8/47.0/39.8 | 54.3/61.0/51.3 | 44.8/52.0/41.8 | 37.8/44.0/36.8 |
| 31.25 | 54.9/61.0/51.9 | 10.7 | 23.6/26.5/23.6 | 44.1/51.0/41.1 | 38.9/45.0/37.9 | 52.9/59.0/49.9 | 42.1/49.0/39.1 | 35.9/42.0/34.9 |
| 62.5 | 50.4/57.0/47.4 | 15.4 | 21.5/24.6/21.5 | 34.9/42.0/31.9 | 32.9/38.0/31.9 | 48.4/55.0/45.4 | 32.9/40.0/29.9 | 29.9/35.0/28.9 |
| 100 | 47.3/53.0/44.3 | 19.8 | 20.1/23.7/20.1 | 27.4/33.0/24.4 | 28.8/34.0/27.8 | 45.3/51.0/42.3 | 25.4/31.0/22.4 | 25.8/31.0/24.8 |
| 200 | 42.8/48.0/39.8 | 29.0 | 18.0/22.2/18.0 | 13.6/21.0/10.6 | 22.8/27.0/21.8 | 40.8/46.0/37.8 | 11.6/19.0/8.6 | 19.8/24.0/18.8 |
| 250 | 41.3/46.0/38.3 | 32.8 | 17.3/21.6/17.3 | 8.3/14.0/5.3 | 20.8/24.0/19.8 | 39.3/44.0/36.3 | 6.3/12.0/3.3 | 17.8/21.0/16.8 |
| 300 | 37.1/45.0/37.1 | 36.4 | 16.8/20.7/16.8 | 0.5/11.0/0.5 | 18.3/23.0/18.3 | 35.1/43.0/35.1 | -1.5/9.0/-1.5 | 15.3/20.0/15.3 |
| 350 | 36.1/44.0/36.1 | 39.8 | 16.3/20.3/16.3 | -3.8/6.6/-3.8 | 16.9/21.0/16.9 | 34.1/42.0/34.1 | -5.8/4.6/-5.8 | 13.9/18.0/13.9 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 400 | 35.3/43.0/35.3 | 43.0 | 15.9/16.8/15.9 | -7.9/2.6/-7.9 | 15.8/20.0/15.8 | 33.3/41.0/33.3 | -9.9/0.6/-9.9 | 12.8/17.0/12.8 |
| 450 | 34.5/42.0/34.5 | 46.3 | 15.5/16.5/15.5 | -10.5/-1.1/-10.5 | 14.7/18.0/14.7 | 32.5/40.0/32.5 | -12.5/-3.1/-12.5 | 11.7/15.0/11.7 |
| 500 | 33.8/41.0/33.8 | 48.9 | 15.2/16.1/15.2 | -15.3/-6.2/-15.3 | 13.8/18.0/13.8 | 31.8/39.0/31.8 | -17.3/-8.2/-17.3 | 10.8/15.0/10.8 |
| 550 | 33.2/41.0/33.2 | 51.8 | 14.9/15.7/14.9 | -18.6/-12.0/-18.6 | 12.9/17.0/12.9 | 31.2/39.0/31.2 | -20.6/-14.0/-20.6 | 9.9/13.0/9.9 |
| 600 | 32.4/33.0/32.4 | 54.5 | 14.7/15.0/14.7 | -21.9/-21.0/-21.9 | 12.2/14.0/12.2 | 30.6/31.0/30.6 | -23.9/-23.0/-23.9 | 9.2/11.0/9.2 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6 F/FTP CWB | 4×2×0.57/0.58 | 0.2 | 0.6 | 1.0 | 8.90 | 135 |

Rated Voltage

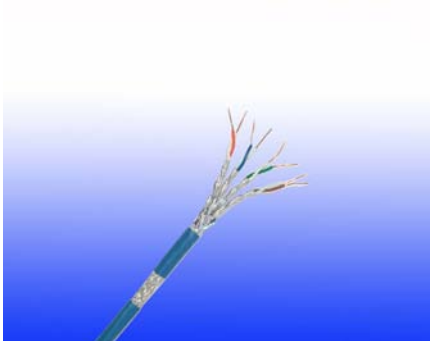
Standard

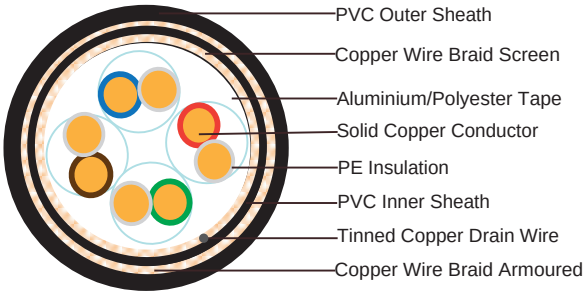
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6 S/FTP CWB Armoured Data Cables

### FGD-CAT6 S/FTP4P23 CWB






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium/polyester tape with drain wire and copper wire braid screen.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**

**CWB:** Copper Wire Braid
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 77.3/87.0/74.3 | 2.0 | 20.0/21.5/20.0 | 75.2/85.0/72.2 | 68.8/80.0/67.8 | 75.3/85.0/72.3 | 73.2/83.0/70.2 | 65.8/70.0/64.8 |
| 4 | 68.3/77.0/65.3 | 3.8 | 23.0/24.7/23.0 | 64.4/73.0/61.4 | 56.8/66.0/55.8 | 66.3/74.0/63.3 | 62.5/71.0/59.5 | 53.8/63.0/52.8 |
| 8 | 63.8/72.0/60.8 | 5.3 | 24.5/25.5/24.5 | 58.4/67.0/55.4 | 50.7/61.0/49.7 | 61.8/70.0/58.8 | 56.5/65.0/53.5 | 47.7/58.0/46.7 |
| 10 | 62.3/70.0/59.3 | 6.0 | 25.0/28.0/25.0 | 56.3/64.0/53.3 | 48.8/57.0/47.8 | 60.3/68.0/57.3 | 54.3/62.0/51.3 | 45.8/54.0/44.8 |
| 16 | 59.2/66.0/56.2 | 7.6 | 25.0/28.0/25.0 | 51.6/59.0/48.6 | 44.7/52.0/43.7 | 57.2/64.0/54.2 | 49.6/57.0/46.6 | 41.7/49.0/40.7 |
| 20 | 57.8/65.0/54.8 | 8.5 | 25.0/28.0/25.0 | 49.3/57.0/46.3 | 42.8/50.0/41.8 | 55.8/63.0/52.8 | 47.3/55.0/44.3 | 39.8/47.0/38.8 |
| 25 | 56.3/63.0/53.3 | 9.5 | 24.3/27.0/24.3 | 46.8/5 4.0/43.8 | 40.8/47.0/39.8 | 54.3/61.0/51.3 | 44.8/52.0/41.8 | 37.8/44.0/36.8 |
| 31.25 | 54.9/61.0/51.9 | 10.7 | 23.6/26.5/23.6 | 44.1/51.0/41.1 | 38.9/45.0/37.9 | 52.9/59.0/49.9 | 42.1/49.0/39.1 | 35.9/42.0/34.9 |
| 62.5 | 50.4/57.0/47.4 | 15.4 | 21.5/24.6/21.5 | 34.9/42.0/31.9 | 32.9/38.0/31.9 | 48.4/55.0/45.4 | 32.9/40.0/29.9 | 29.9/35.0/28.9 |
| 100 | 47.3/53.0/44.3 | 19.8 | 20.1/23.7/20.1 | 27.4/33.0/24.4 | 28.8/34.0/27.8 | 45.3/51.0/42.3 | 25.4/31.0/22.4 | 25.8/31.0/24.8 |
| 200 | 42.8/48.0/39.8 | 29.0 | 18.0/22.2/18.0 | 13.6/21.0/10.6 | 22.8/27.0/21.8 | 40.8/46.0/37.8 | 11.6/19.0/8.6 | 19.8/24.0/18.8 |
| 250 | 41.3/46.0/38.3 | 32.8 | 17.3/21.6/17.3 | 8.3/14.0/5.3 | 20.8/24.0/19.8 | 39.3/44.0/36.3 | 6.3/12.0/3.3 | 17.8/21.0/16.8 |
| 300 | 37.1/45.0/37.1 | 36.4 | 16.8/20.7/16.8 | 0.5/11.0/0.5 | 18.3/23.0/18.3 | 35.1/43.0/35.1 | -1.5/9.0/-1.5 | 15.3/20.0/15.3 |
| 350 | 36.1/44.0/36.1 | 39.8 | 16.3/20.3/16.3 | -3.8/6.6/-3.8 | 16.9/21.0/16.9 | 34.1/42.0/34.1 | -5.8/4.6/-5.8 | 13.9/18.0/13.9 |

# FIREGUARD Fire Retardant CAT6 Data Cables

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 400 | 35.3/43.0/35.3 | 43.0 | 15.9/16.8/15.9 | -7.9/2.6/-7.9 | 15.8/20.0/15.8 | 33.3/41.0/33.3 | -9.9/0.6/-9.9 | 12.8/17.0/12.8 |
| 450 | 34.5/42.0/34.5 | 46.3 | 15.5/16.5/15.5 | -10.5/-1.1/-10.5 | 14.7/18.0/14.7 | 32.5/40.0/32.5 | -12.5/-3.1/-12.5 | 11.7/15.0/11.7 |
| 500 | 33.8/41.0/33.8 | 48.9 | 15.2/16.1/15.2 | -15.3/-6.2/-15.3 | 13.8/18.0/13.8 | 31.8/39.0/31.8 | -17.3/-8.2/-17.3 | 10.8/15.0/10.8 |
| 550 | 33.2/41.0/33.2 | 51.8 | 14.9/15.7/14.9 | -18.6/-12.0/-18.6 | 12.9/17.0/12.9 | 31.2/39.0/31.2 | -20.6/-14.0/-20.6 | 9.9/13.0/9.9 |
| 600 | 32.4/33.0/32.4 | 54.5 | 14.7/15.0/14.7 | -21.9/-21.0/-21.9 | 12.2/14.0/12.2 | 30.6/31.0/30.6 | -23.9/-23.0/-23.9 | 9.2/11.0/9.2 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6 S/FTP CWB | 4×2×0.57/0.58 | 0.2 | 0.6 | 1.0 | 8.96 | 154 |

Rated Voltage

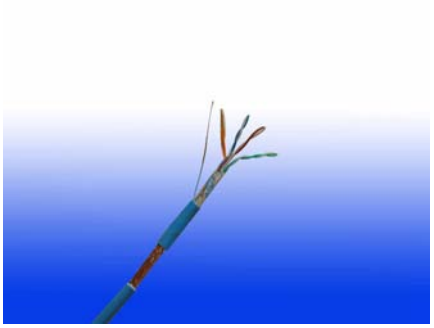
Standard

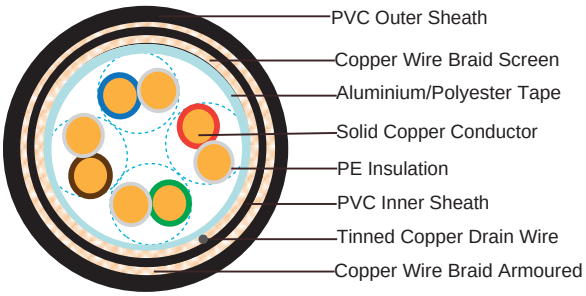
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6 SF/UTP CWB Armoured Data Cables

### FGD-CAT6 SF/UTP4P23 CWB






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Overall aluminium/Polyester tape with drain wire and copper wire braid screen.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**

**CWB:** Copper Wire Braid

**Outer Sheath:** T Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C

**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter

**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 77.3/87.0/74.3 | 2.0 | 20.0/21.5/20.0 | 75.2/85.0/72.2 | 68.8/80.0/67.8 | 75.3/85.0/72.3 | 73.2/83.0/70.2 | 65.8/70.0/64.8 |
| 4 | 68.3/77.0/65.3 | 3.8 | 23.0/24.7/23.0 | 64.4/73.0/61.4 | 56.8/66.0/55.8 | 66.3/74.0/63.3 | 62.5/71.0/59.5 | 53.8/63.0/52.8 |
| 8 | 63.8/72.0/60.8 | 5.3 | 24.5/25.5/24.5 | 58.4/67.0/55.4 | 50.7/61.0/49.7 | 61.8/70.0/58.8 | 56.5/65.0/53.5 | 47.7/58.0/46.7 |
| 10 | 62.3/70.0/59.3 | 6.0 | 25.0/28.0/25.0 | 56.3/64.0/53.3 | 48.8/57.0/47.8 | 60.3/68.0/57.3 | 54.3/62.0/51.3 | 45.8/54.0/44.8 |
| 16 | 59.2/66.0/56.2 | 7.6 | 25.0/28.0/25.0 | 51.6/59.0/48.6 | 44.7/52.0/43.7 | 57.2/64.0/54.2 | 49.6/57.0/46.6 | 41.7/49.0/40.7 |
| 20 | 57.8/65.0/54.8 | 8.5 | 25.0/28.0/25.0 | 49.3/57.0/46.3 | 42.8/50.0/41.8 | 55.8/63.0/52.8 | 47.3/55.0/44.3 | 39.8/47.0/38.8 |
| 25 | 56.3/63.0/53.3 | 9.5 | 24.3/27.0/24.3 | 46.8/5 4.0/43.8 | 40.8/47.0/39.8 | 54.3/61.0/51.3 | 44.8/52.0/41.8 | 37.8/44.0/36.8 |
| 31.25 | 54.9/61.0/51.9 | 10.7 | 23.6/26.5/23.6 | 44.1/51.0/41.1 | 38.9/45.0/37.9 | 52.9/59.0/49.9 | 42.1/49.0/39.1 | 35.9/42.0/34.9 |
| 62.5 | 50.4/57.0/47.4 | 15.4 | 21.5/24.6/21.5 | 34.9/42.0/31.9 | 32.9/38.0/31.9 | 48.4/55.0/45.4 | 32.9/40.0/29.9 | 29.9/35.0/28.9 |
| 100 | 47.3/53.0/44.3 | 19.8 | 20.1/23.7/20.1 | 27.4/33.0/24.4 | 28.8/34.0/27.8 | 45.3/51.0/42.3 | 25.4/31.0/22.4 | 25.8/31.0/24.8 |
| 200 | 42.8/48.0/39.8 | 29.0 | 18.0/22.2/18.0 | 13.6/21.0/10.6 | 22.8/27.0/21.8 | 40.8/46.0/37.8 | 11.6/19.0/8.6 | 19.8/24.0/18.8 |
| 250 | 41.3/46.0/38.3 | 32.8 | 17.3/21.6/17.3 | 8.3/14.0/5.3 | 20.8/24.0/19.8 | 39.3/44.0/36.3 | 6.3/12.0/3.3 | 17.8/21.0/16.8 |
| 300 | 37.1/45.0/37.1 | 36.4 | 16.8/20.7/16.8 | 0.5/11.0/0.5 | 18.3/23.0/18.3 | 35.1/43.0/35.1 | -1.5/9.0/-1.5 | 15.3/20.0/15.3 |
| 350 | 36.1/44.0/36.1 | 39.8 | 16.3/20.3/16.3 | -3.8/6.6/-3.8 | 16.9/21.0/16.9 | 34.1/42.0/34.1 | -5.8/4.6/-5.8 | 13.9/18.0/13.9 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 400 | 35.3/43.0/35.3 | 43.0 | 15.9/16.8/15.9 | -7.9/2.6/-7.9 | 15.8/20.0/15.8 | 33.3/41.0/33.3 | -9.9/0.6/-9.9 | 12.8/17.0/12.8 |
| 450 | 34.5/42.0/34.5 | 46.3 | 15.5/16.5/15.5 | -10.5/-1.1/-10.5 | 14.7/18.0/14.7 | 32.5/40.0/32.5 | -12.5/-3.1/-12.5 | 11.7/15.0/11.7 |
| 500 | 33.8/41.0/33.8 | 48.9 | 15.2/16.1/15.2 | -15.3/-6.2/-15.3 | 13.8/18.0/13.8 | 31.8/39.0/31.8 | -17.3/-8.2/-17.3 | 10.8/15.0/10.8 |
| 550 | 33.2/41.0/33.2 | 51.8 | 14.9/15.7/14.9 | -18.6/-12.0/-18.6 | 12.9/17.0/12.9 | 31.2/39.0/31.2 | -20.6/-14.0/-20.6 | 9.9/13.0/9.9 |
| 600 | 32.4/33.0/32.4 | 54.5 | 14.7/15.0/14.7 | -21.9/-21.0/-21.9 | 12.2/14.0/12.2 | 30.6/31.0/30.6 | -23.9/-23.0/-23.9 | 9.2/11.0/9.2 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6 SF/UTP CWB | 4×2×0.57/0.58 | 0.2 | 0.6 | 1.0 | 8.12 | 140 |

Rated Voltage

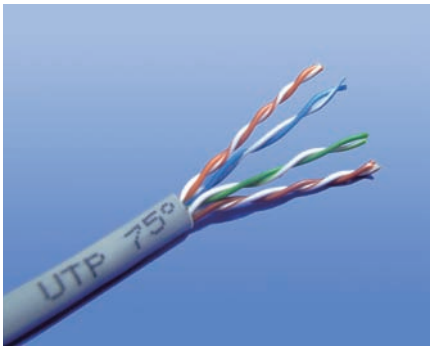
Standard

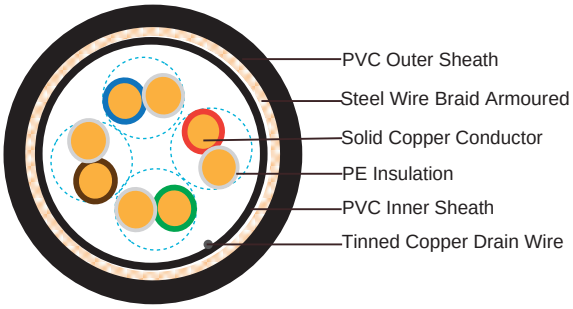
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6 U/UTP SWB Armoured Data Cables

### FGD-CAT6 U/UTP4P23 SWB




### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**
**SWB:** Steel Wire Braid

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.56/0.57 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 77.3/87.0/74.3 | 2.0 | 20.0/21.5/20.0 | 75.2/85.0/72.2 | 68.8/80.0/67.8 | 75.3/85.0/72.3 | 73.2/83.0/70.2 | 65.8/70.0/64.8 |
| 4 | 68.3/77.0/65.3 | 3.8 | 23.0/24.7/23.0 | 64.4/73.0/61.4 | 56.8/66.0/55.8 | 66.3/74.0/63.3 | 62.5/71.0/59.5 | 53.8/63.0/52.8 |
| 8 | 63.8/72.0/60.8 | 5.3 | 24.5/25.5/24.5 | 58.4/67.0/55.4 | 50.7/61.0/49.7 | 61.8/70.0/58.8 | 56.5/65.0/53.5 | 47.7/58.0/46.7 |
| 10 | 62.3/70.0/59.3 | 6.0 | 25.0/28.0/25.0 | 56.3/64.0/53.3 | 48.8/57.0/47.8 | 60.3/68.0/57.3 | 54.3/62.0/51.3 | 45.8/54.0/44.8 |
| 16 | 59.2/66.0/56.2 | 7.6 | 25.0/28.0/25.0 | 51.6/59.0/48.6 | 44.7/52.0/43.7 | 57.2/64.0/54.2 | 49.6/57.0/46.6 | 41.7/49.0/40.7 |
| 20 | 57.8/65.0/54.8 | 8.5 | 25.0/28.0/25.0 | 49.3/57.0/46.3 | 42.8/50.0/41.8 | 55.8/63.0/52.8 | 47.3/55.0/44.3 | 39.8/47.0/38.8 |
| 25 | 56.3/63.0/53.3 | 9.5 | 24.3/27.0/24.3 | 46.8/5 4.0/43.8 | 40.8/47.0/39.8 | 54.3/61.0/51.3 | 44.8/52.0/41.8 | 37.8/44.0/36.8 |
| 31.25 | 54.9/61.0/51.9 | 10.7 | 23.6/26.5/23.6 | 44.1/51.0/41.1 | 38.9/45.0/37.9 | 52.9/59.0/49.9 | 42.1/49.0/39.1 | 35.9/42.0/34.9 |
| 62.5 | 50.4/57.0/47.4 | 15.4 | 21.5/24.6/21.5 | 34.9/42.0/31.9 | 32.9/38.0/31.9 | 48.4/55.0/45.4 | 32.9/40.0/29.9 | 29.9/35.0/28.9 |
| 100 | 47.3/53.0/44.3 | 19.8 | 20.1/23.7/20.1 | 27.4/33.0/24.4 | 28.8/34.0/27.8 | 45.3/51.0/42.3 | 25.4/31.0/22.4 | 25.8/31.0/24.8 |
| 200 | 42.8/48.0/39.8 | 29.0 | 18.0/22.2/18.0 | 13.6/21.0/10.6 | 22.8/27.0/21.8 | 40.8/46.0/37.8 | 11.6/19.0/8.6 | 19.8/24.0/18.8 |
| 250 | 41.3/46.0/38.3 | 32.8 | 17.3/21.6/17.3 | 8.3/14.0/5.3 | 20.8/24.0/19.8 | 39.3/44.0/36.3 | 6.3/12.0/3.3 | 17.8/21.0/16.8 |
| 300 | 37.1/45.0/37.1 | 36.4 | 16.8/20.7/16.8 | 0.5/11.0/0.5 | 18.3/23.0/18.3 | 35.1/43.0/35.1 | -1.5/9.0/-1.5 | 15.3/20.0/15.3 |
| 350 | 36.1/44.0/36.1 | 39.8 | 16.3/20.3/16.3 | -3.8/6.6/-3.8 | 16.9/21.0/16.9 | 34.1/42.0/34.1 | -5.8/4.6/-5.8 | 13.9/18.0/13.9 |

# FIREGUARD Fire Retardant CAT6 Data Cables

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 400 | 35.3/43.0/35.3 | 43.0 | 15.9/16.8/15.9 | -7.9/2.6/-7.9 | 15.8/20.0/15.8 | 33.3/41.0/33.3 | -9.9/0.6/-9.9 | 12.8/17.0/12.8 |
| 450 | 34.5/42.0/34.5 | 46.3 | 15.5/16.5/15.5 | -10.5/-1.1/-10.5 | 14.7/18.0/14.7 | 32.5/40.0/32.5 | -12.5/-3.1/-12.5 | 11.7/15.0/11.7 |
| 500 | 33.8/41.0/33.8 | 48.9 | 15.2/16.1/15.2 | -15.3/-6.2/-15.3 | 13.8/18.0/13.8 | 31.8/39.0/31.8 | -17.3/-8.2/-17.3 | 10.8/15.0/10.8 |
| 550 | 33.2/41.0/33.2 | 51.8 | 14.9/15.7/14.9 | -18.6/-12.0/-18.6 | 12.9/17.0/12.9 | 31.2/39.0/31.2 | -20.6/-14.0/-20.6 | 9.9/13.0/9.9 |
| 600 | 32.4/33.0/32.4 | 54.5 | 14.7/15.0/14.7 | -21.9/-21.0/-21.9 | 12.2/14.0/12.2 | 30.6/31.0/30.6 | -23.9/-23.0/-23.9 | 9.2/11.0/9.2 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6 U/UTP SWB | 4×2×0.56/0.57 | 0.2 | 0.6 | 1.0 | 7.88 | 109 |

Rated Voltage

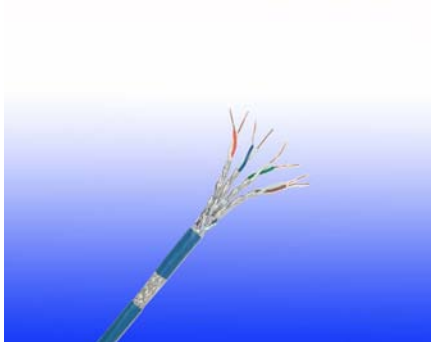
Standard

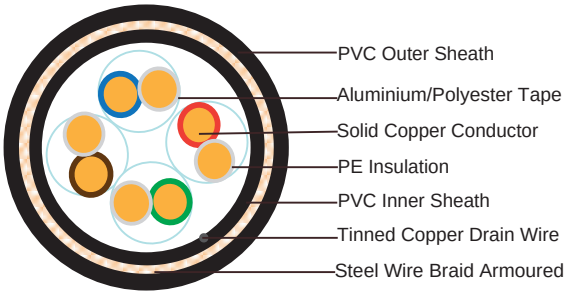
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6 U/FTP SWB Armoured Data Cables

### FGD-CAT6 U/FTP4P23 SWB






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium/polyester tape with drain wire.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**

**SWB:** Steel Wire Braid

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C

**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter

**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.56/0.57 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 77.3/87.0/74.3 | 2.0 | 20.0/21.5/20.0 | 75.2/85.0/72.2 | 68.8/80.0/67.8 | 75.3/85.0/72.3 | 73.2/83.0/70.2 | 65.8/70.0/64.8 |
| 4 | 68.3/77.0/65.3 | 3.8 | 23.0/24.7/23.0 | 64.4/73.0/61.4 | 56.8/66.0/55.8 | 66.3/74.0/63.3 | 62.5/71.0/59.5 | 53.8/63.0/52.8 |
| 8 | 63.8/72.0/60.8 | 5.3 | 24.5/25.5/24.5 | 58.4/67.0/55.4 | 50.7/61.0/49.7 | 61.8/70.0/58.8 | 56.5/65.0/53.5 | 47.7/58.0/46.7 |
| 10 | 62.3/70.0/59.3 | 6.0 | 25.0/28.0/25.0 | 56.3/64.0/53.3 | 48.8/57.0/47.8 | 60.3/68.0/57.3 | 54.3/62.0/51.3 | 45.8/54.0/44.8 |
| 16 | 59.2/66.0/56.2 | 7.6 | 25.0/28.0/25.0 | 51.6/59.0/48.6 | 44.7/52.0/43.7 | 57.2/64.0/54.2 | 49.6/57.0/46.6 | 41.7/49.0/40.7 |
| 20 | 57.8/65.0/54.8 | 8.5 | 25.0/28.0/25.0 | 49.3/57.0/46.3 | 42.8/50.0/41.8 | 55.8/63.0/52.8 | 47.3/55.0/44.3 | 39.8/47.0/38.8 |
| 25 | 56.3/63.0/53.3 | 9.5 | 24.3/27.0/24.3 | 46.8/5 4.0/43.8 | 40.8/47.0/39.8 | 54.3/61.0/51.3 | 44.8/52.0/41.8 | 37.8/44.0/36.8 |
| 31.25 | 54.9/61.0/51.9 | 10.7 | 23.6/26.5/23.6 | 44.1/51.0/41.1 | 38.9/45.0/37.9 | 52.9/59.0/49.9 | 42.1/49.0/39.1 | 35.9/42.0/34.9 |
| 62.5 | 50.4/57.0/47.4 | 15.4 | 21.5/24.6/21.5 | 34.9/42.0/31.9 | 32.9/38.0/31.9 | 48.4/55.0/45.4 | 32.9/40.0/29.9 | 29.9/35.0/28.9 |
| 100 | 47.3/53.0/44.3 | 19.8 | 20.1/23.7/20.1 | 27.4/33.0/24.4 | 28.8/34.0/27.8 | 45.3/51.0/42.3 | 25.4/31.0/22.4 | 25.8/31.0/24.8 |
| 200 | 42.8/48.0/39.8 | 29.0 | 18.0/22.2/18.0 | 13.6/21.0/10.6 | 22.8/27.0/21.8 | 40.8/46.0/37.8 | 11.6/19.0/8.6 | 19.8/24.0/18.8 |
| 250 | 41.3/46.0/38.3 | 32.8 | 17.3/21.6/17.3 | 8.3/14.0/5.3 | 20.8/24.0/19.8 | 39.3/44.0/36.3 | 6.3/12.0/3.3 | 17.8/21.0/16.8 |
| 300 | 37.1/45.0/37.1 | 36.4 | 16.8/20.7/16.8 | 0.5/11.0/0.5 | 18.3/23.0/18.3 | 35.1/43.0/35.1 | -1.5/9.0/-1.5 | 15.3/20.0/15.3 |
| 350 | 36.1/44.0/36.1 | 39.8 | 16.3/20.3/16.3 | -3.8/6.6/-3.8 | 16.9/21.0/16.9 | 34.1/42.0/34.1 | -5.8/4.6/-5.8 | 13.9/18.0/13.9 |
| 400 | 35.3/43.0/35.3 | 43.0 | 15.9/16.8/15.9 | -7.9/2.6/-7.9 | 15.8/20.0/15.8 | 33.3/41.0/33.3 | -9.9/0.6/-9.9 | 12.8/17.0/12.8 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 450 | 34.5/42.0/34.5 | 46.3 | 15.5/16.5/15.5 | -10.5/-1.1/-10.5 | 14.7/18.0/14.7 | 32.5/40.0/32.5 | -12.5/-3.1/-12.5 | 11.7/15.0/11.7 |
| 500 | 33.8/41.0/33.8 | 48.9 | 15.2/16.1/15.2 | -15.3/-6.2/-15.3 | 13.8/18.0/13.8 | 31.8/39.0/31.8 | -17.3/-8.2/-17.3 | 10.8/15.0/10.8 |
| 550 | 33.2/41.0/33.2 | 51.8 | 14.9/15.7/14.9 | -18.6/-12.0/-18.6 | 12.9/17.0/12.9 | 31.2/39.0/31.2 | -20.6/-14.0/-20.6 | 9.9/13.0/9.9 |
| 600 | 32.4/33.0/32.4 | 54.5 | 14.7/15.0/14.7 | -21.9/-21.0/-21.9 | 12.2/14.0/12.2 | 30.6/31.0/30.6 | -23.9/-23.0/-23.9 | 9.2/11.0/9.2 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6 U/FTP SWB | 4×2×0.56/0.57 | 0.2 | 0.6 | 1.0 | 8.0 | 117 |

Rated Voltage

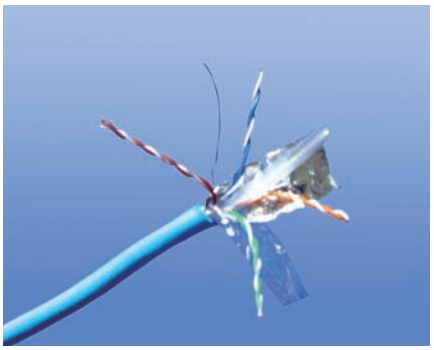
Standard

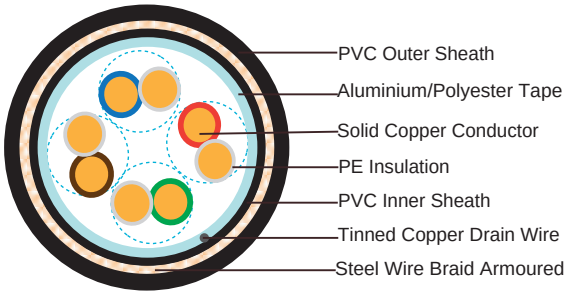
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6 F/UTP SWB Armoured Data Cables

### FGD-CAT6 F/UTP4P23 SWB






### APPLICATION

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### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Overall aluminium/Polyester tape with drain wire screen.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**

**SWB:** Steel Wire Braid

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

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| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 77.3/87.0/74.3 | 2.0 | 20.0/21.5/20.0 | 75.2/85.0/72.2 | 68.8/80.0/67.8 | 75.3/85.0/72.3 | 73.2/83.0/70.2 | 65.8/70.0/64.8 |
| 4 | 68.3/77.0/65.3 | 3.8 | 23.0/24.7/23.0 | 64.4/73.0/61.4 | 56.8/66.0/55.8 | 66.3/74.0/63.3 | 62.5/71.0/59.5 | 53.8/63.0/52.8 |
| 8 | 63.8/72.0/60.8 | 5.3 | 24.5/25.5/24.5 | 58.4/67.0/55.4 | 50.7/61.0/49.7 | 61.8/70.0/58.8 | 56.5/65.0/53.5 | 47.7/58.0/46.7 |
| 10 | 62.3/70.0/59.3 | 6.0 | 25.0/28.0/25.0 | 56.3/64.0/53.3 | 48.8/57.0/47.8 | 60.3/68.0/57.3 | 54.3/62.0/51.3 | 45.8/54.0/44.8 |
| 16 | 59.2/66.0/56.2 | 7.6 | 25.0/28.0/25.0 | 51.6/59.0/48.6 | 44.7/52.0/43.7 | 57.2/64.0/54.2 | 49.6/57.0/46.6 | 41.7/49.0/40.7 |
| 20 | 57.8/65.0/54.8 | 8.5 | 25.0/28.0/25.0 | 49.3/57.0/46.3 | 42.8/50.0/41.8 | 55.8/63.0/52.8 | 47.3/55.0/44.3 | 39.8/47.0/38.8 |
| 25 | 56.3/63.0/53.3 | 9.5 | 24.3/27.0/24.3 | 46.8/5 4.0/43.8 | 40.8/47.0/39.8 | 54.3/61.0/51.3 | 44.8/52.0/41.8 | 37.8/44.0/36.8 |
| 31.25 | 54.9/61.0/51.9 | 10.7 | 23.6/26.5/23.6 | 44.1/51.0/41.1 | 38.9/45.0/37.9 | 52.9/59.0/49.9 | 42.1/49.0/39.1 | 35.9/42.0/34.9 |
| 62.5 | 50.4/57.0/47.4 | 15.4 | 21.5/24.6/21.5 | 34.9/42.0/31.9 | 32.9/38.0/31.9 | 48.4/55.0/45.4 | 32.9/40.0/29.9 | 29.9/35.0/28.9 |
| 100 | 47.3/53.0/44.3 | 19.8 | 20.1/23.7/20.1 | 27.4/33.0/24.4 | 28.8/34.0/27.8 | 45.3/51.0/42.3 | 25.4/31.0/22.4 | 25.8/31.0/24.8 |
| 200 | 42.8/48.0/39.8 | 29.0 | 18.0/22.2/18.0 | 13.6/21.0/10.6 | 22.8/27.0/21.8 | 40.8/46.0/37.8 | 11.6/19.0/8.6 | 19.8/24.0/18.8 |
| 250 | 41.3/46.0/38.3 | 32.8 | 17.3/21.6/17.3 | 8.3/14.0/5.3 | 20.8/24.0/19.8 | 39.3/44.0/36.3 | 6.3/12.0/3.3 | 17.8/21.0/16.8 |
| 300 | 37.1/45.0/37.1 | 36.4 | 16.8/20.7/16.8 | 0.5/11.0/0.5 | 18.3/23.0/18.3 | 35.1/43.0/35.1 | -1.5/9.0/-1.5 | 15.3/20.0/15.3 |
| 350 | 36.1/44.0/36.1 | 39.8 | 16.3/20.3/16.3 | -3.8/6.6/-3.8 | 16.9/21.0/16.9 | 34.1/42.0/34.1 | -5.8/4.6/-5.8 | 13.9/18.0/13.9 |

# FIREGUARD Fire Retardant CAT6 Data Cables

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 400 | 35.3/43.0/35.3 | 43.0 | 15.9/16.8/15.9 | -7.9/2.6/-7.9 | 15.8/20.0/15.8 | 33.3/41.0/33.3 | -9.9/0.6/-9.9 | 12.8/17.0/12.8 |
| 450 | 34.5/42.0/34.5 | 46.3 | 15.5/16.5/15.5 | -10.5/-1.1/-10.5 | 14.7/18.0/14.7 | 32.5/40.0/32.5 | -12.5/-3.1/-12.5 | 11.7/15.0/11.7 |
| 500 | 33.8/41.0/33.8 | 48.9 | 15.2/16.1/15.2 | -15.3/-6.2/-15.3 | 13.8/18.0/13.8 | 31.8/39.0/31.8 | -17.3/-8.2/-17.3 | 10.8/15.0/10.8 |
| 550 | 33.2/41.0/33.2 | 51.8 | 14.9/15.7/14.9 | -18.6/-12.0/-18.6 | 12.9/17.0/12.9 | 31.2/39.0/31.2 | -20.6/-14.0/-20.6 | 9.9/13.0/9.9 |
| 600 | 32.4/33.0/32.4 | 54.5 | 14.7/15.0/14.7 | -21.9/-21.0/-21.9 | 12.2/14.0/12.2 | 30.6/31.0/30.6 | -23.9/-23.0/-23.9 | 9.2/11.0/9.2 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6 F/UTP SWB | 4×2×0.57/0.58 | 0.2 | 0.6 | 1.0 | 8.48 | 132 |

Rated Voltage

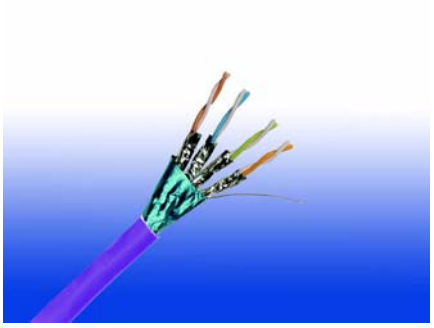
Standard

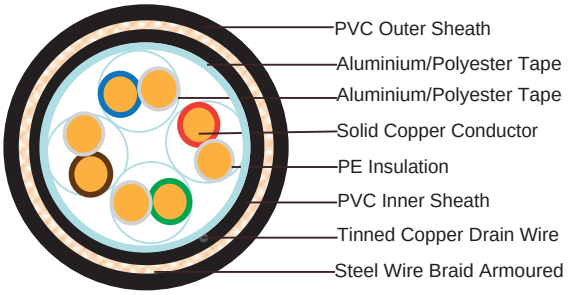
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6 F/FTP SWB Armoured Data Cables

### FGD-CAT6 F/FTP4P23 SWB






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium/polyester tape with drain wire and overall aluminium/polyester tape with drain wire screen.
**Inner Sheath:** Thermoplastic PVC compound.

**Armouring:**
**SWB:** Steel Wire Braid
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 77.3/87.0/74.3 | 2.0 | 20.0/21.5/20.0 | 75.2/85.0/72.2 | 68.8/80.0/67.8 | 75.3/85.0/72.3 | 73.2/83.0/70.2 | 65.8/70.0/64.8 |
| 4 | 68.3/77.0/65.3 | 3.8 | 23.0/24.7/23.0 | 64.4/73.0/61.4 | 56.8/66.0/55.8 | 66.3/74.0/63.3 | 62.5/71.0/59.5 | 53.8/63.0/52.8 |
| 8 | 63.8/72.0/60.8 | 5.3 | 24.5/25.5/24.5 | 58.4/67.0/55.4 | 50.7/61.0/49.7 | 61.8/70.0/58.8 | 56.5/65.0/53.5 | 47.7/58.0/46.7 |
| 10 | 62.3/70.0/59.3 | 6.0 | 25.0/28.0/25.0 | 56.3/64.0/53.3 | 48.8/57.0/47.8 | 60.3/68.0/57.3 | 54.3/62.0/51.3 | 45.8/54.0/44.8 |
| 16 | 59.2/66.0/56.2 | 7.6 | 25.0/28.0/25.0 | 51.6/59.0/48.6 | 44.7/52.0/43.7 | 57.2/64.0/54.2 | 49.6/57.0/46.6 | 41.7/49.0/40.7 |
| 20 | 57.8/65.0/54.8 | 8.5 | 25.0/28.0/25.0 | 49.3/57.0/46.3 | 42.8/50.0/41.8 | 55.8/63.0/52.8 | 47.3/55.0/44.3 | 39.8/47.0/38.8 |
| 25 | 56.3/63.0/53.3 | 9.5 | 24.3/27.0/24.3 | 46.8/5 4.0/43.8 | 40.8/47.0/39.8 | 54.3/61.0/51.3 | 44.8/52.0/41.8 | 37.8/44.0/36.8 |
| 31.25 | 54.9/61.0/51.9 | 10.7 | 23.6/26.5/23.6 | 44.1/51.0/41.1 | 38.9/45.0/37.9 | 52.9/59.0/49.9 | 42.1/49.0/39.1 | 35.9/42.0/34.9 |
| 62.5 | 50.4/57.0/47.4 | 15.4 | 21.5/24.6/21.5 | 34.9/42.0/31.9 | 32.9/38.0/31.9 | 48.4/55.0/45.4 | 32.9/40.0/29.9 | 29.9/35.0/28.9 |
| 100 | 47.3/53.0/44.3 | 19.8 | 20.1/23.7/20.1 | 27.4/33.0/24.4 | 28.8/34.0/27.8 | 45.3/51.0/42.3 | 25.4/31.0/22.4 | 25.8/31.0/24.8 |
| 200 | 42.8/48.0/39.8 | 29.0 | 18.0/22.2/18.0 | 13.6/21.0/10.6 | 22.8/27.0/21.8 | 40.8/46.0/37.8 | 11.6/19.0/8.6 | 19.8/24.0/18.8 |
| 250 | 41.3/46.0/38.3 | 32.8 | 17.3/21.6/17.3 | 8.3/14.0/5.3 | 20.8/24.0/19.8 | 39.3/44.0/36.3 | 6.3/12.0/3.3 | 17.8/21.0/16.8 |
| 300 | 37.1/45.0/37.1 | 36.4 | 16.8/20.7/16.8 | 0.5/11.0/0.5 | 18.3/23.0/18.3 | 35.1/43.0/35.1 | -1.5/9.0/-1.5 | 15.3/20.0/15.3 |
| 350 | 36.1/44.0/36.1 | 39.8 | 16.3/20.3/16.3 | -3.8/6.6/-3.8 | 16.9/21.0/16.9 | 34.1/42.0/34.1 | -5.8/4.6/-5.8 | 13.9/18.0/13.9 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 400 | 35.3/43.0/35.3 | 43.0 | 15.9/16.8/15.9 | -7.9/2.6/-7.9 | 15.8/20.0/15.8 | 33.3/41.0/33.3 | -9.9/0.6/-9.9 | 12.8/17.0/12.8 |
| 450 | 34.5/42.0/34.5 | 46.3 | 15.5/16.5/15.5 | -10.5/-1.1/-10.5 | 14.7/18.0/14.7 | 32.5/40.0/32.5 | -12.5/-3.1/-12.5 | 11.7/15.0/11.7 |
| 500 | 33.8/41.0/33.8 | 48.9 | 15.2/16.1/15.2 | -15.3/-6.2/-15.3 | 13.8/18.0/13.8 | 31.8/39.0/31.8 | -17.3/-8.2/-17.3 | 10.8/15.0/10.8 |
| 550 | 33.2/41.0/33.2 | 51.8 | 14.9/15.7/14.9 | -18.6/-12.0/-18.6 | 12.9/17.0/12.9 | 31.2/39.0/31.2 | -20.6/-14.0/-20.6 | 9.9/13.0/9.9 |
| 600 | 32.4/33.0/32.4 | 54.5 | 14.7/15.0/14.7 | -21.9/-21.0/-21.9 | 12.2/14.0/12.2 | 30.6/31.0/30.6 | -23.9/-23.0/-23.9 | 9.2/11.0/9.2 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6 F/FTP SWB | 4×2×0.57/0.58 | 0.2 | 0.6 | 1.0 | 8.68 | 139 |

Rated Voltage

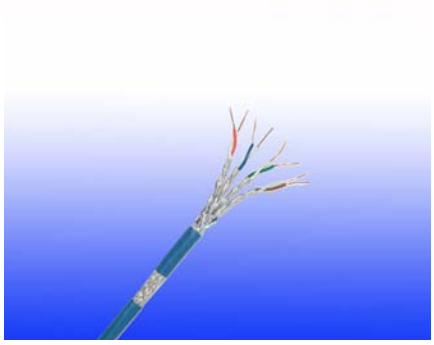
Standard

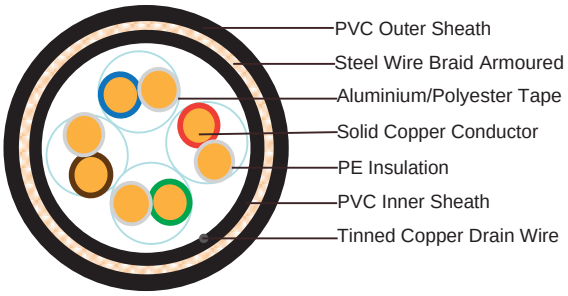
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6 S/FTPSWB Armoured Data Cables

### FGD-CAT6 S/FTP4P23 SWB






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Overall aluminium/Polyester tape with drain wire and copper wire braid screen.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**

**SWB:** Steel Wire Braid

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C

**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter

**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 77.3/87.0/74.3 | 2.0 | 20.0/21.5/20.0 | 75.2/85.0/72.2 | 68.8/80.0/67.8 | 75.3/85.0/72.3 | 73.2/83.0/70.2 | 65.8/70.0/64.8 |
| 4 | 68.3/77.0/65.3 | 3.8 | 23.0/24.7/23.0 | 64.4/73.0/61.4 | 56.8/66.0/55.8 | 66.3/74.0/63.3 | 62.5/71.0/59.5 | 53.8/63.0/52.8 |
| 8 | 63.8/72.0/60.8 | 5.3 | 24.5/25.5/24.5 | 58.4/67.0/55.4 | 50.7/61.0/49.7 | 61.8/70.0/58.8 | 56.5/65.0/53.5 | 47.7/58.0/46.7 |
| 10 | 62.3/70.0/59.3 | 6.0 | 25.0/28.0/25.0 | 56.3/64.0/53.3 | 48.8/57.0/47.8 | 60.3/68.0/57.3 | 54.3/62.0/51.3 | 45.8/54.0/44.8 |
| 16 | 59.2/66.0/56.2 | 7.6 | 25.0/28.0/25.0 | 51.6/59.0/48.6 | 44.7/52.0/43.7 | 57.2/64.0/54.2 | 49.6/57.0/46.6 | 41.7/49.0/40.7 |
| 20 | 57.8/65.0/54.8 | 8.5 | 25.0/28.0/25.0 | 49.3/57.0/46.3 | 42.8/50.0/41.8 | 55.8/63.0/52.8 | 47.3/55.0/44.3 | 39.8/47.0/38.8 |
| 25 | 56.3/63.0/53.3 | 9.5 | 24.3/27.0/24.3 | 46.8/5 4.0/43.8 | 40.8/47.0/39.8 | 54.3/61.0/51.3 | 44.8/52.0/41.8 | 37.8/44.0/36.8 |
| 31.25 | 54.9/61.0/51.9 | 10.7 | 23.6/26.5/23.6 | 44.1/51.0/41.1 | 38.9/45.0/37.9 | 52.9/59.0/49.9 | 42.1/49.0/39.1 | 35.9/42.0/34.9 |
| 62.5 | 50.4/57.0/47.4 | 15.4 | 21.5/24.6/21.5 | 34.9/42.0/31.9 | 32.9/38.0/31.9 | 48.4/55.0/45.4 | 32.9/40.0/29.9 | 29.9/35.0/28.9 |
| 100 | 47.3/53.0/44.3 | 19.8 | 20.1/23.7/20.1 | 27.4/33.0/24.4 | 28.8/34.0/27.8 | 45.3/51.0/42.3 | 25.4/31.0/22.4 | 25.8/31.0/24.8 |
| 200 | 42.8/48.0/39.8 | 29.0 | 18.0/22.2/18.0 | 13.6/21.0/10.6 | 22.8/27.0/21.8 | 40.8/46.0/37.8 | 11.6/19.0/8.6 | 19.8/24.0/18.8 |
| 250 | 41.3/46.0/38.3 | 32.8 | 17.3/21.6/17.3 | 8.3/14.0/5.3 | 20.8/24.0/19.8 | 39.3/44.0/36.3 | 6.3/12.0/3.3 | 17.8/21.0/16.8 |
| 300 | 37.1/45.0/37.1 | 36.4 | 16.8/20.7/16.8 | 0.5/11.0/0.5 | 18.3/23.0/18.3 | 35.1/43.0/35.1 | -1.5/9.0/-1.5 | 15.3/20.0/15.3 |
| 350 | 36.1/44.0/36.1 | 39.8 | 16.3/20.3/16.3 | -3.8/6.6/-3.8 | 16.9/21.0/16.9 | 34.1/42.0/34.1 | -5.8/4.6/-5.8 | 13.9/18.0/13.9 |

# FIREGUARD Fire Retardant CAT6 Data Cables

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 400 | 35.3/43.0/35.3 | 43.0 | 15.9/16.8/15.9 | -7.9/2.6/-7.9 | 15.8/20.0/15.8 | 33.3/41.0/33.3 | -9.9/0.6/-9.9 | 12.8/17.0/12.8 |
| 450 | 34.5/42.0/34.5 | 46.3 | 15.5/16.5/15.5 | -10.5/-1.1/-10.5 | 14.7/18.0/14.7 | 32.5/40.0/32.5 | -12.5/-3.1/-12.5 | 11.7/15.0/11.7 |
| 500 | 33.8/41.0/33.8 | 48.9 | 15.2/16.1/15.2 | -15.3/-6.2/-15.3 | 13.8/18.0/13.8 | 31.8/39.0/31.8 | -17.3/-8.2/-17.3 | 10.8/15.0/10.8 |
| 550 | 33.2/41.0/33.2 | 51.8 | 14.9/15.7/14.9 | -18.6/-12.0/-18.6 | 12.9/17.0/12.9 | 31.2/39.0/31.2 | -20.6/-14.0/-20.6 | 9.9/13.0/9.9 |
| 600 | 32.4/33.0/32.4 | 54.5 | 14.7/15.0/14.7 | -21.9/-21.0/-21.9 | 12.2/14.0/12.2 | 30.6/31.0/30.6 | -23.9/-23.0/-23.9 | 9.2/11.0/9.2 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6 S/FTP SWB | 4×2×0.57/0.58 | 0.2 | 0.6 | 1.0 | 9.25 | 162 |

Rated Voltage

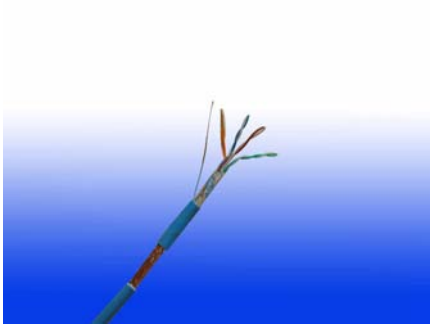
Standard

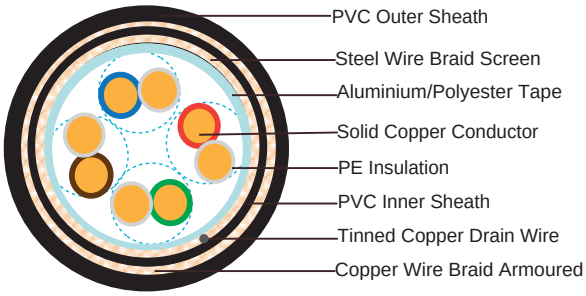
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6 SF/UTPSWB Armoured Data Cables

### FGD-CAT6 SF/UTP4P23 SWB






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Overall aluminium/Polyester tape with drain wire and copper wire braid screen.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**

**SWB:** Steel Wire Braid

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C

**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter

**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 77.3/87.0/74.3 | 2.0 | 20.0/21.5/20.0 | 75.2/85.0/72.2 | 68.8/80.0/67.8 | 75.3/85.0/72.3 | 73.2/83.0/70.2 | 65.8/70.0/64.8 |
| 4 | 68.3/77.0/65.3 | 3.8 | 23.0/24.7/23.0 | 64.4/73.0/61.4 | 56.8/66.0/55.8 | 66.3/74.0/63.3 | 62.5/71.0/59.5 | 53.8/63.0/52.8 |
| 8 | 63.8/72.0/60.8 | 5.3 | 24.5/25.5/24.5 | 58.4/67.0/55.4 | 50.7/61.0/49.7 | 61.8/70.0/58.8 | 56.5/65.0/53.5 | 47.7/58.0/46.7 |
| 10 | 62.3/70.0/59.3 | 6.0 | 25.0/28.0/25.0 | 56.3/64.0/53.3 | 48.8/57.0/47.8 | 60.3/68.0/57.3 | 54.3/62.0/51.3 | 45.8/54.0/44.8 |
| 16 | 59.2/66.0/56.2 | 7.6 | 25.0/28.0/25.0 | 51.6/59.0/48.6 | 44.7/52.0/43.7 | 57.2/64.0/54.2 | 49.6/57.0/46.6 | 41.7/49.0/40.7 |
| 20 | 57.8/65.0/54.8 | 8.5 | 25.0/28.0/25.0 | 49.3/57.0/46.3 | 42.8/50.0/41.8 | 55.8/63.0/52.8 | 47.3/55.0/44.3 | 39.8/47.0/38.8 |
| 25 | 56.3/63.0/53.3 | 9.5 | 24.3/27.0/24.3 | 46.8/5 4.0/43.8 | 40.8/47.0/39.8 | 54.3/61.0/51.3 | 44.8/52.0/41.8 | 37.8/44.0/36.8 |
| 31.25 | 54.9/61.0/51.9 | 10.7 | 23.6/26.5/23.6 | 44.1/51.0/41.1 | 38.9/45.0/37.9 | 52.9/59.0/49.9 | 42.1/49.0/39.1 | 35.9/42.0/34.9 |
| 62.5 | 50.4/57.0/47.4 | 15.4 | 21.5/24.6/21.5 | 34.9/42.0/31.9 | 32.9/38.0/31.9 | 48.4/55.0/45.4 | 32.9/40.0/29.9 | 29.9/35.0/28.9 |
| 100 | 47.3/53.0/44.3 | 19.8 | 20.1/23.7/20.1 | 27.4/33.0/24.4 | 28.8/34.0/27.8 | 45.3/51.0/42.3 | 25.4/31.0/22.4 | 25.8/31.0/24.8 |
| 200 | 42.8/48.0/39.8 | 29.0 | 18.0/22.2/18.0 | 13.6/21.0/10.6 | 22.8/27.0/21.8 | 40.8/46.0/37.8 | 11.6/19.0/8.6 | 19.8/24.0/18.8 |
| 250 | 41.3/46.0/38.3 | 32.8 | 17.3/21.6/17.3 | 8.3/14.0/5.3 | 20.8/24.0/19.8 | 39.3/44.0/36.3 | 6.3/12.0/3.3 | 17.8/21.0/16.8 |
| 300 | 37.1/45.0/37.1 | 36.4 | 16.8/20.7/16.8 | 0.5/11.0/0.5 | 18.3/23.0/18.3 | 35.1/43.0/35.1 | -1.5/9.0/-1.5 | 15.3/20.0/15.3 |
| 350 | 36.1/44.0/36.1 | 39.8 | 16.3/20.3/16.3 | -3.8/6.6/-3.8 | 16.9/21.0/16.9 | 34.1/42.0/34.1 | -5.8/4.6/-5.8 | 13.9/18.0/13.9 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 400 | 35.3/43.0/35.3 | 43.0 | 15.9/16.8/15.9 | -7.9/2.6/-7.9 | 15.8/20.0/15.8 | 33.3/41.0/33.3 | -9.9/0.6/-9.9 | 12.8/17.0/12.8 |
| 450 | 34.5/42.0/34.5 | 46.3 | 15.5/16.5/15.5 | -10.5/-1.1/-10.5 | 14.7/18.0/14.7 | 32.5/40.0/32.5 | -12.5/-3.1/-12.5 | 11.7/15.0/11.7 |
| 500 | 33.8/41.0/33.8 | 48.9 | 15.2/16.1/15.2 | -15.3/-6.2/-15.3 | 13.8/18.0/13.8 | 31.8/39.0/31.8 | -17.3/-8.2/-17.3 | 10.8/15.0/10.8 |
| 550 | 33.2/41.0/33.2 | 51.8 | 14.9/15.7/14.9 | -18.6/-12.0/-18.6 | 12.9/17.0/12.9 | 31.2/39.0/31.2 | -20.6/-14.0/-20.6 | 9.9/13.0/9.9 |
| 600 | 32.4/33.0/32.4 | 54.5 | 14.7/15.0/14.7 | -21.9/-21.0/-21.9 | 12.2/14.0/12.2 | 30.6/31.0/30.6 | -23.9/-23.0/-23.9 | 9.2/11.0/9.2 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6 SF/UTP SWB | 4×2×0.57/0.58 | 0.2 | 0.6 | 1.0 | 8.96 | 148 |

Rated Voltage

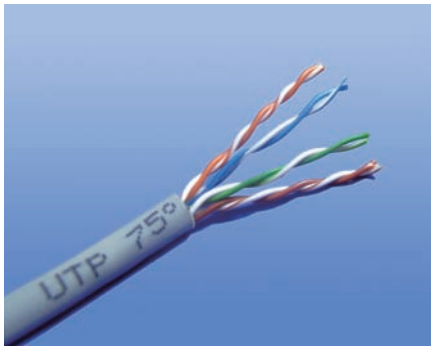
Standard

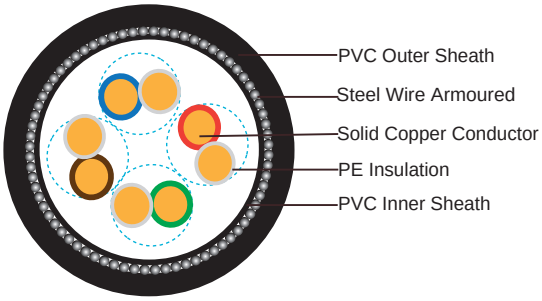
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6 U/UTP SWA Armoured Data Cables

### FGD-CAT6 U/UTP4P23 SWA




### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**
**SWA:** Steel Wire Armour

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 77.3/87.0/74.3 | 2.0 | 20.0/21.5/20.0 | 75.2/85.0/72.2 | 68.8/80.0/67.8 | 75.3/85.0/72.3 | 73.2/83.0/70.2 | 65.8/70.0/64.8 |
| 4 | 68.3/77.0/65.3 | 3.8 | 23.0/24.7/23.0 | 64.4/73.0/61.4 | 56.8/66.0/55.8 | 66.3/74.0/63.3 | 62.5/71.0/59.5 | 53.8/63.0/52.8 |
| 8 | 63.8/72.0/60.8 | 5.3 | 24.5/25.5/24.5 | 58.4/67.0/55.4 | 50.7/61.0/49.7 | 61.8/70.0/58.8 | 56.5/65.0/53.5 | 47.7/58.0/46.7 |
| 10 | 62.3/70.0/59.3 | 6.0 | 25.0/28.0/25.0 | 56.3/64.0/53.3 | 48.8/57.0/47.8 | 60.3/68.0/57.3 | 54.3/62.0/51.3 | 45.8/54.0/44.8 |
| 16 | 59.2/66.0/56.2 | 7.6 | 25.0/28.0/25.0 | 51.6/59.0/48.6 | 44.7/52.0/43.7 | 57.2/64.0/54.2 | 49.6/57.0/46.6 | 41.7/49.0/40.7 |
| 20 | 57.8/65.0/54.8 | 8.5 | 25.0/28.0/25.0 | 49.3/57.0/46.3 | 42.8/50.0/41.8 | 55.8/63.0/52.8 | 47.3/55.0/44.3 | 39.8/47.0/38.8 |
| 25 | 56.3/63.0/53.3 | 9.5 | 24.3/27.0/24.3 | 46.8/5 4.0/43.8 | 40.8/47.0/39.8 | 54.3/61.0/51.3 | 44.8/52.0/41.8 | 37.8/44.0/36.8 |
| 31.25 | 54.9/61.0/51.9 | 10.7 | 23.6/26.5/23.6 | 44.1/51.0/41.1 | 38.9/45.0/37.9 | 52.9/59.0/49.9 | 42.1/49.0/39.1 | 35.9/42.0/34.9 |
| 62.5 | 50.4/57.0/47.4 | 15.4 | 21.5/24.6/21.5 | 34.9/42.0/31.9 | 32.9/38.0/31.9 | 48.4/55.0/45.4 | 32.9/40.0/29.9 | 29.9/35.0/28.9 |
| 100 | 47.3/53.0/44.3 | 19.8 | 20.1/23.7/20.1 | 27.4/33.0/24.4 | 28.8/34.0/27.8 | 45.3/51.0/42.3 | 25.4/31.0/22.4 | 25.8/31.0/24.8 |
| 200 | 42.8/48.0/39.8 | 29.0 | 18.0/22.2/18.0 | 13.6/21.0/10.6 | 22.8/27.0/21.8 | 40.8/46.0/37.8 | 11.6/19.0/8.6 | 19.8/24.0/18.8 |
| 250 | 41.3/46.0/38.3 | 32.8 | 17.3/21.6/17.3 | 8.3/14.0/5.3 | 20.8/24.0/19.8 | 39.3/44.0/36.3 | 6.3/12.0/3.3 | 17.8/21.0/16.8 |
| 300 | 37.1/45.0/37.1 | 36.4 | 16.8/20.7/16.8 | 0.5/11.0/0.5 | 18.3/23.0/18.3 | 35.1/43.0/35.1 | -1.5/9.0/-1.5 | 15.3/20.0/15.3 |
| 350 | 36.1/44.0/36.1 | 39.8 | 16.3/20.3/16.3 | -3.8/6.6/-3.8 | 16.9/21.0/16.9 | 34.1/42.0/34.1 | -5.8/4.6/-5.8 | 13.9/18.0/13.9 |
| 400 | 35.3/43.0/35.3 | 43.0 | 15.9/16.8/15.9 | -7.9/2.6/-7.9 | 15.8/20.0/15.8 | 33.3/41.0/33.3 | -9.9/0.6/-9.9 | 12.8/17.0/12.8 |

# FIREGUARD Fire Retardant CAT6 Data Cables

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 450 | 34.5/42.0/34.5 | 46.3 | 15.5/16.5/15.5 | -10.5/-1.1/-10.5 | 14.7/18.0/14.7 | 32.5/40.0/32.5 | -12.5/-3.1/-12.5 | 11.7/15.0/11.7 |
| 500 | 33.8/41.0/33.8 | 48.9 | 15.2/16.1/15.2 | -15.3/-6.2/-15.3 | 13.8/18.0/13.8 | 31.8/39.0/31.8 | -17.3/-8.2/-17.3 | 10.8/15.0/10.8 |
| 550 | 33.2/41.0/33.2 | 51.8 | 14.9/15.7/14.9 | -18.6/-12.0/-18.6 | 12.9/17.0/12.9 | 31.2/39.0/31.2 | -20.6/-14.0/-20.6 | 9.9/13.0/9.9 |
| 600 | 32.4/33.0/32.4 | 54.5 | 14.7/15.0/14.7 | -21.9/-21.0/-21.9 | 12.2/14.0/12.2 | 30.6/31.0/30.6 | -23.9/-23.0/-23.9 | 9.2/11.0/9.2 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6 U/UTP SWA | 4×2×0.57/0.58 | 0.2 | 0.6 | 1.0 | 9.96 | 242 |

Rated Voltage

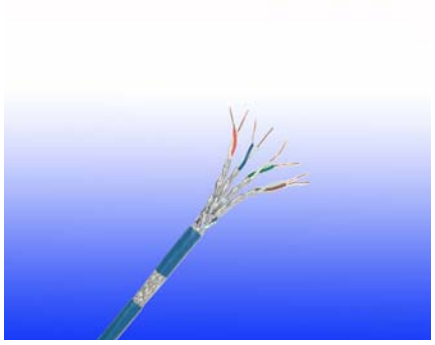
Standard

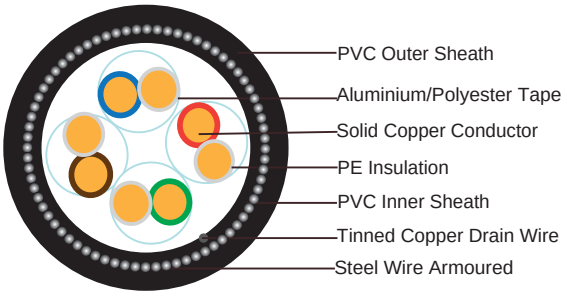
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6 U/FTP SWA Armoured Data Cables

### FGD-CAT6 U/FTP4P23 SWA






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Overall aluminium/Polyester tape with drain wire screen.

**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**
**SWA:** Steel Wire Armour
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 77.3/87.0/74.3 | 2.0 | 20.0/21.5/20.0 | 75.2/85.0/72.2 | 68.8/80.0/67.8 | 75.3/85.0/72.3 | 73.2/83.0/70.2 | 65.8/70.0/64.8 |
| 4 | 68.3/77.0/65.3 | 3.8 | 23.0/24.7/23.0 | 64.4/73.0/61.4 | 56.8/66.0/55.8 | 66.3/74.0/63.3 | 62.5/71.0/59.5 | 53.8/63.0/52.8 |
| 8 | 63.8/72.0/60.8 | 5.3 | 24.5/25.5/24.5 | 58.4/67.0/55.4 | 50.7/61.0/49.7 | 61.8/70.0/58.8 | 56.5/65.0/53.5 | 47.7/58.0/46.7 |
| 10 | 62.3/70.0/59.3 | 6.0 | 25.0/28.0/25.0 | 56.3/64.0/53.3 | 48.8/57.0/47.8 | 60.3/68.0/57.3 | 54.3/62.0/51.3 | 45.8/54.0/44.8 |
| 16 | 59.2/66.0/56.2 | 7.6 | 25.0/28.0/25.0 | 51.6/59.0/48.6 | 44.7/52.0/43.7 | 57.2/64.0/54.2 | 49.6/57.0/46.6 | 41.7/49.0/40.7 |
| 20 | 57.8/65.0/54.8 | 8.5 | 25.0/28.0/25.0 | 49.3/57.0/46.3 | 42.8/50.0/41.8 | 55.8/63.0/52.8 | 47.3/55.0/44.3 | 39.8/47.0/38.8 |
| 25 | 56.3/63.0/53.3 | 9.5 | 24.3/27.0/24.3 | 46.8/5 4.0/43.8 | 40.8/47.0/39.8 | 54.3/61.0/51.3 | 44.8/52.0/41.8 | 37.8/44.0/36.8 |
| 31.25 | 54.9/61.0/51.9 | 10.7 | 23.6/26.5/23.6 | 44.1/51.0/41.1 | 38.9/45.0/37.9 | 52.9/59.0/49.9 | 42.1/49.0/39.1 | 35.9/42.0/34.9 |
| 62.5 | 50.4/57.0/47.4 | 15.4 | 21.5/24.6/21.5 | 34.9/42.0/31.9 | 32.9/38.0/31.9 | 48.4/55.0/45.4 | 32.9/40.0/29.9 | 29.9/35.0/28.9 |
| 100 | 47.3/53.0/44.3 | 19.8 | 20.1/23.7/20.1 | 27.4/33.0/24.4 | 28.8/34.0/27.8 | 45.3/51.0/42.3 | 25.4/31.0/22.4 | 25.8/31.0/24.8 |
| 200 | 42.8/48.0/39.8 | 29.0 | 18.0/22.2/18.0 | 13.6/21.0/10.6 | 22.8/27.0/21.8 | 40.8/46.0/37.8 | 11.6/19.0/8.6 | 19.8/24.0/18.8 |
| 250 | 41.3/46.0/38.3 | 32.8 | 17.3/21.6/17.3 | 8.3/14.0/5.3 | 20.8/24.0/19.8 | 39.3/44.0/36.3 | 6.3/12.0/3.3 | 17.8/21.0/16.8 |
| 300 | 37.1/45.0/37.1 | 36.4 | 16.8/20.7/16.8 | 0.5/11.0/0.5 | 18.3/23.0/18.3 | 35.1/43.0/35.1 | -1.5/9.0/-1.5 | 15.3/20.0/15.3 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 350 | 36.1/44.0/36.1 | 39.8 | 16.3/20.3/16.3 | -3.8/6.6/-3.8 | 16.9/21.0/16.9 | 34.1/42.0/34.1 | -5.8/4.6/-5.8 | 13.9/18.0/13.9 |
| 400 | 35.3/43.0/35.3 | 43.0 | 15.9/16.8/15.9 | -7.9/2.6/-7.9 | 15.8/20.0/15.8 | 33.3/41.0/33.3 | -9.9/0.6/-9.9 | 12.8/17.0/12.8 |
| 450 | 34.5/42.0/34.5 | 46.3 | 15.5/16.5/15.5 | -10.5/-1.1/-10.5 | 14.7/18.0/14.7 | 32.5/40.0/32.5 | -12.5/-3.1/-12.5 | 11.7/15.0/11.7 |
| 500 | 33.8/41.0/33.8 | 48.9 | 15.2/16.1/15.2 | -15.3/-6.2/-15.3 | 13.8/18.0/13.8 | 31.8/39.0/31.8 | -17.3/-8.2/-17.3 | 10.8/15.0/10.8 |
| 550 | 33.2/41.0/33.2 | 51.8 | 14.9/15.7/14.9 | -18.6/-12.0/-18.6 | 12.9/17.0/12.9 | 31.2/39.0/31.2 | -20.6/-14.0/-20.6 | 9.9/13.0/9.9 |
| 600 | 32.4/33.0/32.4 | 54.5 | 14.7/15.0/14.7 | -21.9/-21.0/-21.9 | 12.2/14.0/12.2 | 30.6/31.0/30.6 | -23.9/-23.0/-23.9 | 9.2/11.0/9.2 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6 U/FTP SWA | 4×2×0.57/0.58 | 0.2 | 0.6 | 1.0 | 9.63 | 226 |

Rated Voltage

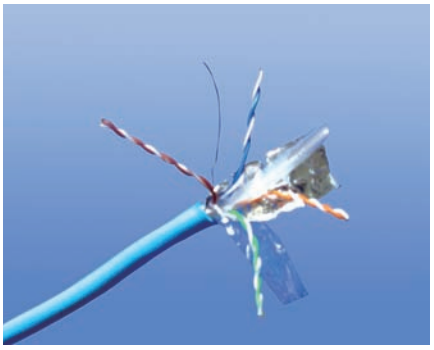
Standard

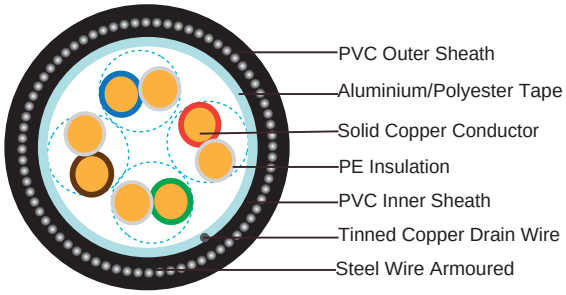
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6 F/UTP SWA Armoured Data Cables

### FGD-CAT6 F/UTP4P23 SWA






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Overall aluminium/Polyester tape with drain wire screen.
**Inner Sheath:** Thermoplastic PVC compound.

**Armouring:**
**SWA:** Steel Wire Armour
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 77.3/87.0/74.3 | 2.0 | 20.0/21.5/20.0 | 75.2/85.0/72.2 | 68.8/80.0/67.8 | 75.3/85.0/72.3 | 73.2/83.0/70.2 | 65.8/70.0/64.8 |
| 4 | 68.3/77.0/65.3 | 3.8 | 23.0/24.7/23.0 | 64.4/73.0/61.4 | 56.8/66.0/55.8 | 66.3/74.0/63.3 | 62.5/71.0/59.5 | 53.8/63.0/52.8 |
| 8 | 63.8/72.0/60.8 | 5.3 | 24.5/25.5/24.5 | 58.4/67.0/55.4 | 50.7/61.0/49.7 | 61.8/70.0/58.8 | 56.5/65.0/53.5 | 47.7/58.0/46.7 |
| 10 | 62.3/70.0/59.3 | 6.0 | 25.0/28.0/25.0 | 56.3/64.0/53.3 | 48.8/57.0/47.8 | 60.3/68.0/57.3 | 54.3/62.0/51.3 | 45.8/54.0/44.8 |
| 16 | 59.2/66.0/56.2 | 7.6 | 25.0/28.0/25.0 | 51.6/59.0/48.6 | 44.7/52.0/43.7 | 57.2/64.0/54.2 | 49.6/57.0/46.6 | 41.7/49.0/40.7 |
| 20 | 57.8/65.0/54.8 | 8.5 | 25.0/28.0/25.0 | 49.3/57.0/46.3 | 42.8/50.0/41.8 | 55.8/63.0/52.8 | 47.3/55.0/44.3 | 39.8/47.0/38.8 |
| 25 | 56.3/63.0/53.3 | 9.5 | 24.3/27.0/24.3 | 46.8/5 4.0/43.8 | 40.8/47.0/39.8 | 54.3/61.0/51.3 | 44.8/52.0/41.8 | 37.8/44.0/36.8 |
| 31.25 | 54.9/61.0/51.9 | 10.7 | 23.6/26.5/23.6 | 44.1/51.0/41.1 | 38.9/45.0/37.9 | 52.9/59.0/49.9 | 42.1/49.0/39.1 | 35.9/42.0/34.9 |
| 62.5 | 50.4/57.0/47.4 | 15.4 | 21.5/24.6/21.5 | 34.9/42.0/31.9 | 32.9/38.0/31.9 | 48.4/55.0/45.4 | 32.9/40.0/29.9 | 29.9/35.0/28.9 |
| 100 | 47.3/53.0/44.3 | 19.8 | 20.1/23.7/20.1 | 27.4/33.0/24.4 | 28.8/34.0/27.8 | 45.3/51.0/42.3 | 25.4/31.0/22.4 | 25.8/31.0/24.8 |
| 200 | 42.8/48.0/39.8 | 29.0 | 18.0/22.2/18.0 | 13.6/21.0/10.6 | 22.8/27.0/21.8 | 40.8/46.0/37.8 | 11.6/19.0/8.6 | 19.8/24.0/18.8 |
| 250 | 41.3/46.0/38.3 | 32.8 | 17.3/21.6/17.3 | 8.3/14.0/5.3 | 20.8/24.0/19.8 | 39.3/44.0/36.3 | 6.3/12.0/3.3 | 17.8/21.0/16.8 |
| 300 | 37.1/45.0/37.1 | 36.4 | 16.8/20.7/16.8 | 0.5/11.0/0.5 | 18.3/23.0/18.3 | 35.1/43.0/35.1 | -1.5/9.0/-1.5 | 15.3/20.0/15.3 |
| 350 | 36.1/44.0/36.1 | 39.8 | 16.3/20.3/16.3 | -3.8/6.6/-3.8 | 16.9/21.0/16.9 | 34.1/42.0/34.1 | -5.8/4.6/-5.8 | 13.9/18.0/13.9 |

# FIREGUARD Fire Retardant CAT6 Data Cables

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 400 | 35.3/43.0/35.3 | 43.0 | 15.9/16.8/15.9 | -7.9/2.6/-7.9 | 15.8/20.0/15.8 | 33.3/41.0/33.3 | -9.9/0.6/-9.9 | 12.8/17.0/12.8 |
| 450 | 34.5/42.0/34.5 | 46.3 | 15.5/16.5/15.5 | -10.5/-1.1/-10.5 | 14.7/18.0/14.7 | 32.5/40.0/32.5 | -12.5/-3.1/-12.5 | 11.7/15.0/11.7 |
| 500 | 33.8/41.0/33.8 | 48.9 | 15.2/16.1/15.2 | -15.3/-6.2/-15.3 | 13.8/18.0/13.8 | 31.8/39.0/31.8 | -17.3/-8.2/-17.3 | 10.8/15.0/10.8 |
| 550 | 33.2/41.0/33.2 | 51.8 | 14.9/15.7/14.9 | -18.6/-12.0/-18.6 | 12.9/17.0/12.9 | 31.2/39.0/31.2 | -20.6/-14.0/-20.6 | 9.9/13.0/9.9 |
| 600 | 32.4/33.0/32.4 | 54.5 | 14.7/15.0/14.7 | -21.9/-21.0/-21.9 | 12.2/14.0/12.2 | 30.6/31.0/30.6 | -23.9/-23.0/-23.9 | 9.2/11.0/9.2 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6 F/UTP SWA | 4×2×0.57/0.58 | 0.2 | 0.6 | 1.0 | 9.57 | 219 |

Rated Voltage

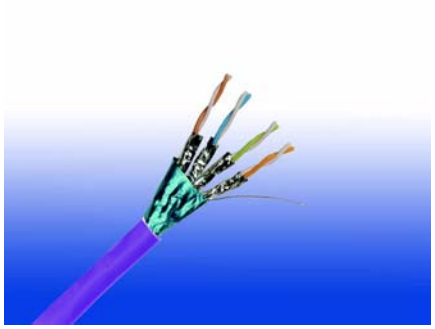
Standard

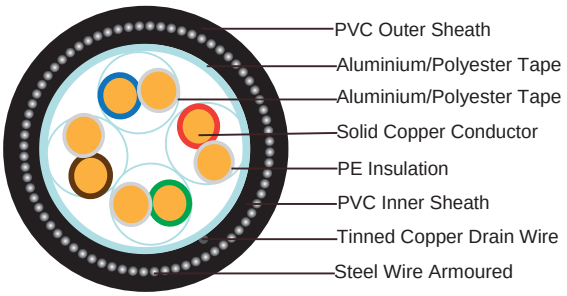
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6 F/FTP SWA Armoured Data Cables

### FGD-CAT6 F/FTP4P23 SWA






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium/polyester tape with drain wire and overall aluminium/polyester tape with drain wire screen.

**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**
**SWA:** Steel Wire Armour
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 77.3/87.0/74.3 | 2.0 | 20.0/21.5/20.0 | 75.2/85.0/72.2 | 68.8/80.0/67.8 | 75.3/85.0/72.3 | 73.2/83.0/70.2 | 65.8/70.0/64.8 |
| 4 | 68.3/77.0/65.3 | 3.8 | 23.0/24.7/23.0 | 64.4/73.0/61.4 | 56.8/66.0/55.8 | 66.3/74.0/63.3 | 62.5/71.0/59.5 | 53.8/63.0/52.8 |
| 8 | 63.8/72.0/60.8 | 5.3 | 24.5/25.5/24.5 | 58.4/67.0/55.4 | 50.7/61.0/49.7 | 61.8/70.0/58.8 | 56.5/65.0/53.5 | 47.7/58.0/46.7 |
| 10 | 62.3/70.0/59.3 | 6.0 | 25.0/28.0/25.0 | 56.3/64.0/53.3 | 48.8/57.0/47.8 | 60.3/68.0/57.3 | 54.3/62.0/51.3 | 45.8/54.0/44.8 |
| 16 | 59.2/66.0/56.2 | 7.6 | 25.0/28.0/25.0 | 51.6/59.0/48.6 | 44.7/52.0/43.7 | 57.2/64.0/54.2 | 49.6/57.0/46.6 | 41.7/49.0/40.7 |
| 20 | 57.8/65.0/54.8 | 8.5 | 25.0/28.0/25.0 | 49.3/57.0/46.3 | 42.8/50.0/41.8 | 55.8/63.0/52.8 | 47.3/55.0/44.3 | 39.8/47.0/38.8 |
| 25 | 56.3/63.0/53.3 | 9.5 | 24.3/27.0/24.3 | 46.8/5 4.0/43.8 | 40.8/47.0/39.8 | 54.3/61.0/51.3 | 44.8/52.0/41.8 | 37.8/44.0/36.8 |
| 31.25 | 54.9/61.0/51.9 | 10.7 | 23.6/26.5/23.6 | 44.1/51.0/41.1 | 38.9/45.0/37.9 | 52.9/59.0/49.9 | 42.1/49.0/39.1 | 35.9/42.0/34.9 |
| 62.5 | 50.4/57.0/47.4 | 15.4 | 21.5/24.6/21.5 | 34.9/42.0/31.9 | 32.9/38.0/31.9 | 48.4/55.0/45.4 | 32.9/40.0/29.9 | 29.9/35.0/28.9 |
| 100 | 47.3/53.0/44.3 | 19.8 | 20.1/23.7/20.1 | 27.4/33.0/24.4 | 28.8/34.0/27.8 | 45.3/51.0/42.3 | 25.4/31.0/22.4 | 25.8/31.0/24.8 |
| 200 | 42.8/48.0/39.8 | 29.0 | 18.0/22.2/18.0 | 13.6/21.0/10.6 | 22.8/27.0/21.8 | 40.8/46.0/37.8 | 11.6/19.0/8.6 | 19.8/24.0/18.8 |
| 250 | 41.3/46.0/38.3 | 32.8 | 17.3/21.6/17.3 | 8.3/14.0/5.3 | 20.8/24.0/19.8 | 39.3/44.0/36.3 | 6.3/12.0/3.3 | 17.8/21.0/16.8 |
| 300 | 37.1/45.0/37.1 | 36.4 | 16.8/20.7/16.8 | 0.5/11.0/0.5 | 18.3/23.0/18.3 | 35.1/43.0/35.1 | -1.5/9.0/-1.5 | 15.3/20.0/15.3 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 350 | 36.1/44.0/36.1 | 39.8 | 16.3/20.3/16.3 | -3.8/6.6/-3.8 | 16.9/21.0/16.9 | 34.1/42.0/34.1 | -5.8/4.6/-5.8 | 13.9/18.0/13.9 |
| 400 | 35.3/43.0/35.3 | 43.0 | 15.9/16.8/15.9 | -7.9/2.6/-7.9 | 15.8/20.0/15.8 | 33.3/41.0/33.3 | -9.9/0.6/-9.9 | 12.8/17.0/12.8 |
| 450 | 34.5/42.0/34.5 | 46.3 | 15.5/16.5/15.5 | -10.5/-1.1/-10.5 | 14.7/18.0/14.7 | 32.5/40.0/32.5 | -12.5/-3.1/-12.5 | 11.7/15.0/11.7 |
| 500 | 33.8/41.0/33.8 | 48.9 | 15.2/16.1/15.2 | -15.3/-6.2/-15.3 | 13.8/18.0/13.8 | 31.8/39.0/31.8 | -17.3/-8.2/-17.3 | 10.8/15.0/10.8 |
| 550 | 33.2/41.0/33.2 | 51.8 | 14.9/15.7/14.9 | -18.6/-12.0/-18.6 | 12.9/17.0/12.9 | 31.2/39.0/31.2 | -20.6/-14.0/-20.6 | 9.9/13.0/9.9 |
| 600 | 32.4/33.0/32.4 | 54.5 | 14.7/15.0/14.7 | -21.9/-21.0/-21.9 | 12.2/14.0/12.2 | 30.6/31.0/30.6 | -23.9/-23.0/-23.9 | 9.2/11.0/9.2 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6 F/FTP SWA | 4×2×0.57/0.58 | 0.2 | 0.6 | 1.0 | 9.48 | 213 |

Rated Voltage

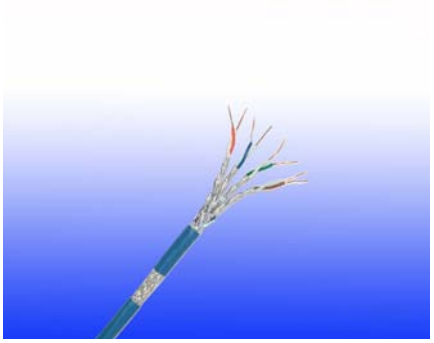
Standard

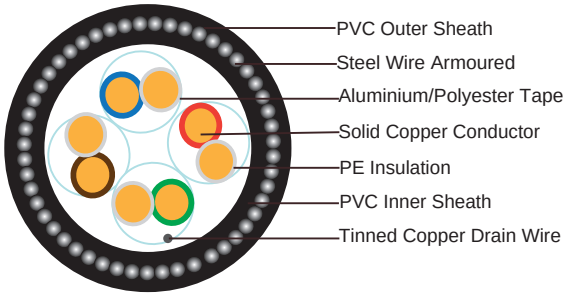
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6 S/FTP SWA Armoured Data Cables

### FGD-CAT6 S/FTP4P23 SWA






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Overall aluminium/Polyester tape with drain wire and copper wire braid screen.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**

**SWA:** Steel Wire Armour

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 77.3/87.0/74.3 | 2.0 | 20.0/21.5/20.0 | 75.2/85.0/72.2 | 68.8/80.0/67.8 | 75.3/85.0/72.3 | 73.2/83.0/70.2 | 65.8/70.0/64.8 |
| 4 | 68.3/77.0/65.3 | 3.8 | 23.0/24.7/23.0 | 64.4/73.0/61.4 | 56.8/66.0/55.8 | 66.3/74.0/63.3 | 62.5/71.0/59.5 | 53.8/63.0/52.8 |
| 8 | 63.8/72.0/60.8 | 5.3 | 24.5/25.5/24.5 | 58.4/67.0/55.4 | 50.7/61.0/49.7 | 61.8/70.0/58.8 | 56.5/65.0/53.5 | 47.7/58.0/46.7 |
| 10 | 62.3/70.0/59.3 | 6.0 | 25.0/28.0/25.0 | 56.3/64.0/53.3 | 48.8/57.0/47.8 | 60.3/68.0/57.3 | 54.3/62.0/51.3 | 45.8/54.0/44.8 |
| 16 | 59.2/66.0/56.2 | 7.6 | 25.0/28.0/25.0 | 51.6/59.0/48.6 | 44.7/52.0/43.7 | 57.2/64.0/54.2 | 49.6/57.0/46.6 | 41.7/49.0/40.7 |
| 20 | 57.8/65.0/54.8 | 8.5 | 25.0/28.0/25.0 | 49.3/57.0/46.3 | 42.8/50.0/41.8 | 55.8/63.0/52.8 | 47.3/55.0/44.3 | 39.8/47.0/38.8 |
| 25 | 56.3/63.0/53.3 | 9.5 | 24.3/27.0/24.3 | 46.8/5 4.0/43.8 | 40.8/47.0/39.8 | 54.3/61.0/51.3 | 44.8/52.0/41.8 | 37.8/44.0/36.8 |
| 31.25 | 54.9/61.0/51.9 | 10.7 | 23.6/26.5/23.6 | 44.1/51.0/41.1 | 38.9/45.0/37.9 | 52.9/59.0/49.9 | 42.1/49.0/39.1 | 35.9/42.0/34.9 |
| 62.5 | 50.4/57.0/47.4 | 15.4 | 21.5/24.6/21.5 | 34.9/42.0/31.9 | 32.9/38.0/31.9 | 48.4/55.0/45.4 | 32.9/40.0/29.9 | 29.9/35.0/28.9 |
| 100 | 47.3/53.0/44.3 | 19.8 | 20.1/23.7/20.1 | 27.4/33.0/24.4 | 28.8/34.0/27.8 | 45.3/51.0/42.3 | 25.4/31.0/22.4 | 25.8/31.0/24.8 |
| 200 | 42.8/48.0/39.8 | 29.0 | 18.0/22.2/18.0 | 13.6/21.0/10.6 | 22.8/27.0/21.8 | 40.8/46.0/37.8 | 11.6/19.0/8.6 | 19.8/24.0/18.8 |
| 250 | 41.3/46.0/38.3 | 32.8 | 17.3/21.6/17.3 | 8.3/14.0/5.3 | 20.8/24.0/19.8 | 39.3/44.0/36.3 | 6.3/12.0/3.3 | 17.8/21.0/16.8 |
| 300 | 37.1/45.0/37.1 | 36.4 | 16.8/20.7/16.8 | 0.5/11.0/0.5 | 18.3/23.0/18.3 | 35.1/43.0/35.1 | -1.5/9.0/-1.5 | 15.3/20.0/15.3 |
| 350 | 36.1/44.0/36.1 | 39.8 | 16.3/20.3/16.3 | -3.8/6.6/-3.8 | 16.9/21.0/16.9 | 34.1/42.0/34.1 | -5.8/4.6/-5.8 | 13.9/18.0/13.9 |
| 400 | 35.3/43.0/35.3 | 43.0 | 15.9/16.8/15.9 | -7.9/2.6/-7.9 | 15.8/20.0/15.8 | 33.3/41.0/33.3 | -9.9/0.6/-9.9 | 12.8/17.0/12.8 |

# FIREGUARD Fire Retardant CAT6 Data Cables

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 450 | 34.5/42.0/34.5 | 46.3 | 15.5/16.5/15.5 | -10.5/-1.1/-10.5 | 14.7/18.0/14.7 | 32.5/40.0/32.5 | -12.5/-3.1/-12.5 | 11.7/15.0/11.7 |
| 500 | 33.8/41.0/33.8 | 48.9 | 15.2/16.1/15.2 | -15.3/-6.2/-15.3 | 13.8/18.0/13.8 | 31.8/39.0/31.8 | -17.3/-8.2/-17.3 | 10.8/15.0/10.8 |
| 550 | 33.2/41.0/33.2 | 51.8 | 14.9/15.7/14.9 | -18.6/-12.0/-18.6 | 12.9/17.0/12.9 | 31.2/39.0/31.2 | -20.6/-14.0/-20.6 | 9.9/13.0/9.9 |
| 600 | 32.4/33.0/32.4 | 54.5 | 14.7/15.0/14.7 | -21.9/-21.0/-21.9 | 12.2/14.0/12.2 | 30.6/31.0/30.6 | -23.9/-23.0/-23.9 | 9.2/11.0/9.2 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6 S/FTP SWA | 4×2×0.57/0.58 | 0.2 | 0.6 | 1.0 | 9.96 | 242 |

Rated Voltage

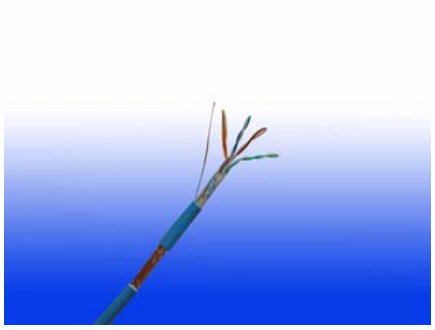
Standard

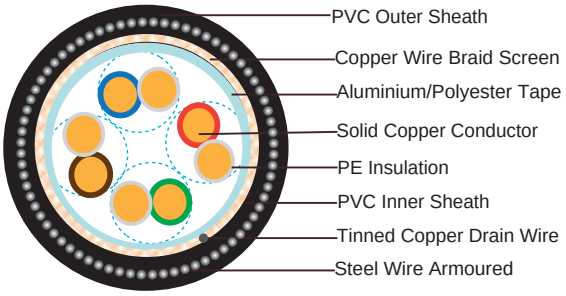
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6 SF/UTP SWA Armoured Data Cables

### FGD-CAT6 SF/UTP4P23 SWA






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Overall aluminium/Polyester tape with drain wire and copper wire braid screen.
**Inner Sheath:** Thermoplastic PVC compound.

**Armouring:**
**SWA:** Steel Wire Armour
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 77.3/87.0/74.3 | 2.0 | 20.0/21.5/20.0 | 75.2/85.0/72.2 | 68.8/80.0/67.8 | 75.3/85.0/72.3 | 73.2/83.0/70.2 | 65.8/70.0/64.8 |
| 4 | 68.3/77.0/65.3 | 3.8 | 23.0/24.7/23.0 | 64.4/73.0/61.4 | 56.8/66.0/55.8 | 66.3/74.0/63.3 | 62.5/71.0/59.5 | 53.8/63.0/52.8 |
| 8 | 63.8/72.0/60.8 | 5.3 | 24.5/25.5/24.5 | 58.4/67.0/55.4 | 50.7/61.0/49.7 | 61.8/70.0/58.8 | 56.5/65.0/53.5 | 47.7/58.0/46.7 |
| 10 | 62.3/70.0/59.3 | 6.0 | 25.0/28.0/25.0 | 56.3/64.0/53.3 | 48.8/57.0/47.8 | 60.3/68.0/57.3 | 54.3/62.0/51.3 | 45.8/54.0/44.8 |
| 16 | 59.2/66.0/56.2 | 7.6 | 25.0/28.0/25.0 | 51.6/59.0/48.6 | 44.7/52.0/43.7 | 57.2/64.0/54.2 | 49.6/57.0/46.6 | 41.7/49.0/40.7 |
| 20 | 57.8/65.0/54.8 | 8.5 | 25.0/28.0/25.0 | 49.3/57.0/46.3 | 42.8/50.0/41.8 | 55.8/63.0/52.8 | 47.3/55.0/44.3 | 39.8/47.0/38.8 |
| 25 | 56.3/63.0/53.3 | 9.5 | 24.3/27.0/24.3 | 46.8/5 4.0/43.8 | 40.8/47.0/39.8 | 54.3/61.0/51.3 | 44.8/52.0/41.8 | 37.8/44.0/36.8 |
| 31.25 | 54.9/61.0/51.9 | 10.7 | 23.6/26.5/23.6 | 44.1/51.0/41.1 | 38.9/45.0/37.9 | 52.9/59.0/49.9 | 42.1/49.0/39.1 | 35.9/42.0/34.9 |
| 62.5 | 50.4/57.0/47.4 | 15.4 | 21.5/24.6/21.5 | 34.9/42.0/31.9 | 32.9/38.0/31.9 | 48.4/55.0/45.4 | 32.9/40.0/29.9 | 29.9/35.0/28.9 |
| 100 | 47.3/53.0/44.3 | 19.8 | 20.1/23.7/20.1 | 27.4/33.0/24.4 | 28.8/34.0/27.8 | 45.3/51.0/42.3 | 25.4/31.0/22.4 | 25.8/31.0/24.8 |
| 200 | 42.8/48.0/39.8 | 29.0 | 18.0/22.2/18.0 | 13.6/21.0/10.6 | 22.8/27.0/21.8 | 40.8/46.0/37.8 | 11.6/19.0/8.6 | 19.8/24.0/18.8 |
| 250 | 41.3/46.0/38.3 | 32.8 | 17.3/21.6/17.3 | 8.3/14.0/5.3 | 20.8/24.0/19.8 | 39.3/44.0/36.3 | 6.3/12.0/3.3 | 17.8/21.0/16.8 |
| 300 | 37.1/45.0/37.1 | 36.4 | 16.8/20.7/16.8 | 0.5/11.0/0.5 | 18.3/23.0/18.3 | 35.1/43.0/35.1 | -1.5/9.0/-1.5 | 15.3/20.0/15.3 |
| 350 | 36.1/44.0/36.1 | 39.8 | 16.3/20.3/16.3 | -3.8/6.6/-3.8 | 16.9/21.0/16.9 | 34.1/42.0/34.1 | -5.8/4.6/-5.8 | 13.9/18.0/13.9 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 400 | 35.3/43.0/35.3 | 43.0 | 15.9/16.8/15.9 | -7.9/2.6/-7.9 | 15.8/20.0/15.8 | 33.3/41.0/33.3 | -9.9/0.6/-9.9 | 12.8/17.0/12.8 |
| 450 | 34.5/42.0/34.5 | 46.3 | 15.5/16.5/15.5 | -10.5/-1.1/-10.5 | 14.7/18.0/14.7 | 32.5/40.0/32.5 | -12.5/-3.1/-12.5 | 11.7/15.0/11.7 |
| 500 | 33.8/41.0/33.8 | 48.9 | 15.2/16.1/15.2 | -15.3/-6.2/-15.3 | 13.8/18.0/13.8 | 31.8/39.0/31.8 | -17.3/-8.2/-17.3 | 10.8/15.0/10.8 |
| 550 | 33.2/41.0/33.2 | 51.8 | 14.9/15.7/14.9 | -18.6/-12.0/-18.6 | 12.9/17.0/12.9 | 31.2/39.0/31.2 | -20.6/-14.0/-20.6 | 9.9/13.0/9.9 |
| 600 | 32.4/33.0/32.4 | 54.5 | 14.7/15.0/14.7 | -21.9/-21.0/-21.9 | 12.2/14.0/12.2 | 30.6/31.0/30.6 | -23.9/-23.0/-23.9 | 9.2/11.0/9.2 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6 SF/UTP SWA | 4×2×0.57/0.58 | 0.2 | 0.6 | 1.0 | 8.96 | 237 |

Rated Voltage

Standard

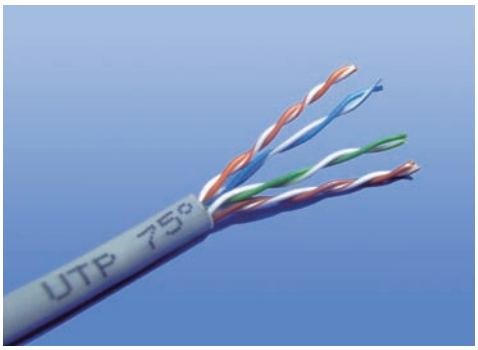
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

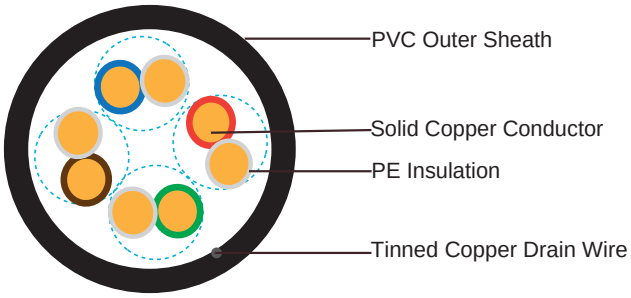
Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

# Fire Retardant CAT6A Data Cables

## Fire Retardant CAT6A U/UTP Data Cables

### FGD-CAT6A U/UTP4P23




### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.56/0.57 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 74.3/95.0/74.3 | 2.0 | 20.0/28.0/20.0 | 72.2/94.0/72.2 | 67.8/92.0/67.8 | 72.3/92.0/72.3 | 70.2/90.0/70.2 | 64.8/85.0/64.8 |
| 4 | 65.3/88.0/65.3 | 3.7 | 23.0/30.0/23.0 | 61.4/88.0/61.4 | 55.8/80.0/55.8 | 63.3/83.0/63.3 | 59.5/80.0/59.5 | 52.8/73.0/52.8 |
| 8 | 60.8/85.0/60.8 | 5.3 | 24.5/33.0/24.5 | 55.4/83.0/55.4 | 49.7/75.0/49.7 | 58.8/80.0/58.8 | 53.5/76.0/53.5 | 46.7/70.0/46.7 |
| 10 | 59.3/83.0/59.3 | 5.9 | 25.0/36.0/25.0 | 53.3/78.0/53.3 | 47.8/72.0/47.8 | 57.3/77.0/57.3 | 51.3/72.0/51.3 | 44.8/65.0/44.8 |
| 16 | 56.2/80.0/56.2 | 7.6 | 25.0/36.0/25.0 | 48.6/74.0/48.6 | 43.7/68.0/43.7 | 54.2/74.0/54.2 | 46.6/68.0/46.6 | 40.7/61.0/40.7 |
| 20 | 54.8/78.0/54.8 | 8.3 | 25.0/36.0/25.0 | 46.3/71.0/46.3 | 41.8/65.0/41.8 | 52.8/73.0/52.8 | 44.3/66.0/44.3 | 38.8/59.0/38.8 |
| 25 | 53.3/77.0/53.3 | 9.5 | 24.3/35.0/24.3 | 43.8/69.0/43.8 | 39.8/63.0/39.8 | 51.3/71.0/51.3 | 41.8/63.0/41.8 | 36.8/57.0/36.8 |
| 31.25 | 51.9/76.0/51.9 | 10.4 | 23.6/34.0/23.6 | 41.1/67.0/41.1 | 37.9/62.0/37.9 | 49.9/70.0/49.9 | 39.1/60.0/39.1 | 34.9/55.0/34.9 |
| 62.5 | 47.4/70.0/47.4 | 14.9 | 21.5/33.5/21.5 | 31.9/57.0/31.9 | 31.9/56.0/31.9 | 45.4/65.0/45.4 | 29.9/51.0/29.9 | 28.9/49.0/28.9 |
| 100 | 44.3/68.0/44.3 | 19.0 | 20.1/33.0/20.1 | 24.4/50.0/24.4 | 27.8/52.0/27.8 | 42.3/62.0/42.3 | 22.4/44.0/22.4 | 24.8/45.0/24.8 |
| 200 | 39.8/65.0/39.8 | 27.4 | 18.0/31.0/18.0 | 10.6/38.0/10.6 | 21.8/46.0/21.8 | 37.8/58.0/37.8 | 8.6/32.0/8.6 | 18.8/39.0/18.8 |
| 250 | 38.3/62.0/38.3 | 31.0 | 17.3/30.5/17.3 | 5.3/33.0/5.3 | 19.8/44.0/19.8 | 36.3/56.0/36.3 | 3.3/27.0/3.3 | 16.8/37.0/16.8 |
| 300 | 37.1/61.0/37.1 | 34.2 | 16.8/29.0/16.8 | 0.5/29.0/0.5 | 18.3/42.0/18.3 | 35.1/55.0/35.1 | -1.5/24.0/-1.5 | 15.3/35.0/15.3 |
| 350 | 36.1/60.0/36.1 | 37.1. | 16.3/28.0/16.3 | -3.8/26.0/-3.8 | 16.9/41.0/16.9 | 34.1/54.0/34.1 | -5.8/20.0/-5.8 | 13.9/34.0/13.9 |
| 400 | 35.3/59.0/35.3 | 40.0 | 15.9/27.0/15.9 | -7.9/21.0/-7.9 | 15.8/40.0/15.8 | 33.3/53.0/33.3 | -9.9/15.0/-9.9 | 12.8/33.0/12.8 |
| 450 | 34.5/58.0/34.5 | 46.3 | 15.5/26.5/15.5 | -10.5/18.0/-10.5 | 14.7/40.5.0/14.7 | 32.5/52.0/32.5 | -12.5/11.0/-12.5 | 11.7/32.5/11.7 |
| 500 | 33.8/57.0/33.8 | 45.3 | 15.2/26.0/15.2 | -15.3/15.0/-15.3 | 13.8/39.0/13.8 | 31.8/51.0/31.8 | -17.3/9.0/-17.3 | 10.8/32.0/10.8 |
| 625 | 32.4/53.0/32.4 | 51.1 | 14.5/25.0/14.5 | -23.1/31.0/-23.1 | 11.8/36.0/11.8 | 30.4/50.0/30.4 | -25.1/5.0/-25.1 | 8.8/29.0/8.8 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Diameter Over Insulation | Pairs | Screen | Overall Diameter |
|---|---|---|---|---|---|
| | mm | mm | | | mm |
| FGD-Cat6A U/UTP | 4×2×0.56/0.57 | 1.02 | 4 | Nil | 6.0 |

Rated Voltage

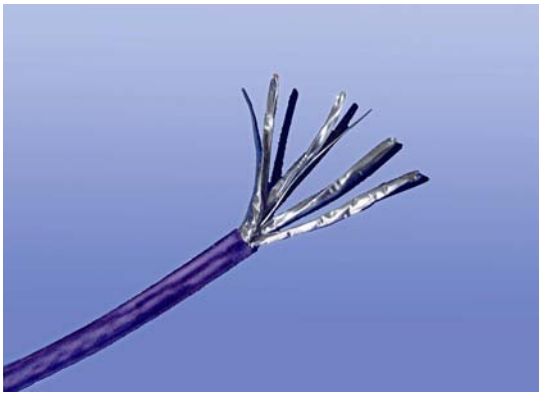
Standard

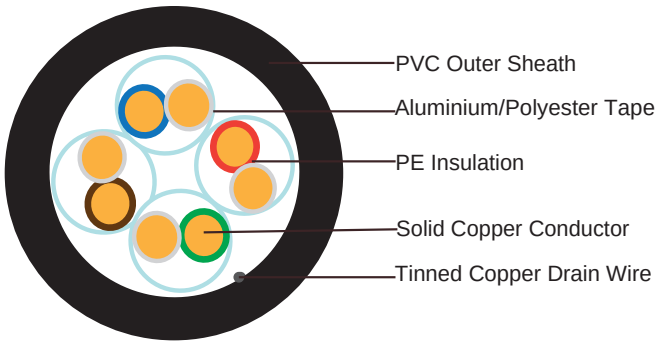
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6A U/FTP Data Cables

### FGD-CAT6A U/FTP4P23






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium/polyester tape with drain wire.
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil

resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.56/0.57 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 87.0/90.0/74.3 | 2.0 | 20.0/28.0/20.0 | 85.0/88.0/72.2 | 73.8/75.0/67.8 | 85.0/88.0/72.3 | 83.0/86.0/70.2 | 70.8/72.0/64.8 |
| 4 | 80.0/90.0/65.3 | 3.7 | 23.0/30.0/23.0 | 76.0/86.0/61.4 | 61.8/75.0/55.8 | 78.0/88.0/63.3 | 74.0/84.0/59.5 | 58.0/72.0/52.8 |
| 8 | 80.0/90.0/60.8 | 5.3 | 24.5/33.0/24.5 | 74.7/84.0/55.4 | 55.7/75.0/49.7 | 78.0/88.0/58.8 | 72.7/82.0/53.5 | 52.7/72.0/46.7 |
| 10 | 80.0/90.0/59.3 | 5.9 | 25.0/36.0/25.0 | 74.0/84.0/53.3 | 53.8/74.0/47.8 | 78.0/88.0/57.3 | 72.0/82.0/51.3 | 50.8/71.0/44.8 |
| 16 | 80.0/90.0/56.2 | 7.6 | 25.0/36.0/25.0 | 72.4/82.0/48.6 | 49.7/70.0/43.7 | 78.0/88.0/54.2 | 70.4/80.0/46.6 | 46.7/67.0/40.7 |
| 20 | 80.0/90.0/54.8 | 8.3 | 25.0/36.0/25.0 | 71.5/81.0/46.3 | 47.8/68.0/41.8 | 78.0/88.0/52.8 | 69.5/79.0/44.3 | 44.8/65.0/38.8 |
| 25 | 80.0/90.0/53.3 | 9.5 | 24.3/35.0/24.3 | 70.5/80.0/43.8 | 45.8/68.0/39.8 | 78.0/88.0/51.3 | 68.5/78.0/41.8 | 42.8/65.0/36.8 |
| 31.25 | 80.0/90.0/51.9 | 10.4 | 23.6/34.0/23.6 | 69.3/79.0/41.1 | 43.9/64.0/37.9 | 78.0/88.0/49.9 | 67.3/77.0/39.1 | 40.9/61.0/34.9 |
| 62.5 | 75.3/90.0/47.4 | 14.9 | 21.5/33.5/21.5 | 59.9/74.0/31.9 | 37.9/58.0/31.9 | 69.1/83.0/45.4 | 57.9/72.0/29.9 | 34.9/55.0/28.9 |
| 100 | 71.1/85.0/44.3 | 19.0 | 20.1/33.0/20.1 | 51.3/65.0/24.4 | 33.8/54.0/27.8 | 69.1/83.0/42.3 | 49.3/63.0/22.4 | 30.8/51.0/24.8 |
| 200 | 71.1/85.0/39.8 | 27.4 | 18.0/31.0/18.0 | 42.1/56.0/10.6 | 27.8/51.0/21.8 | 69.1/83.0/37.8 | 40.1/54.0/8.6 | 24.8/48.0/18.8 |
| 250 | 71.1/85.0/38.3 | 31.0 | 17.3/30.5/17.3 | 38.2/52.0/5.3 | 25.8/48.0/19.8 | 61.7/78.0/36.3 | 36.2/50.0/3.3 | 22.8/45.0/16.8 |
| 300 | 63.7/80.0/37.1 | 34.2 | 16.8/29.0/16.8 | 27.3/43.0/0.5 | 24.3/45.0/18.3 | 61.7/78.0/35.1 | 25.3/41.0/-1.5 | 21.2/42.0/15.3 |
| 350 | 63.7/80.0/36.1 | 37.1 | 16.3/28.0/16.3 | 23.9/40.0/-3.8 | 23.9/45.0/16.9 | 61.7/78.0/34.1 | 21.9/38.0/-5.8 | 19.9/42.0/13.9 |

# FIREGUARD Fire Retardant CAT6A Data Cables

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 400 | 63.7/80.0/35.3 | 40.0 | 15.9/27.0/15.9 | 20.7/37.0/-7.9 | 21.8/45.0/15.8 | 61.7/78.0/33.3 | 18.7/35.0/-9.9 | 19.7/42.0/12.8 |
| 450 | 63.7/80.0/34.5 | 46.3 | 15.5/26.5/15.5 | 17.4/33.0/-10.5 | 20.5/42.0/14.7 | 61.7/78.0/32.5 | 15.4/31.0/-12.5 | 17.5/39.0/11.7 |
| 500 | 63.7/80.0/33.8 | 45.3 | 15.2/26.0/15.2 | 14.8/31.0/-15.3 | 19.8/42.0/13.8 | 61.7/78.0/31.8 | 12.8/29.0/-17.3 | 16.8/39.0/10.8 |
| 625 | 60.0/70.0/32.4 | 51.1 | 14.5/25.0/14.5 | 5.5/15.5/-23.1 | 18.8/42.0/11.8 | 58.0/68.0/30.4 | 9.9/26.0/-25.1 | 16.0/39.0/8.8 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Diameter Over Insulation | Pairs | Screen Thickness | Overall Diameter |
|---|---|---|---|---|---|
| | mm | mm | No. | 00 | mm |
| FGD-Cat6A U/FTP | 4×2×0.56/0.57 | 1.02 | 4 | 0.2 | 7.5 |

Rated Voltage

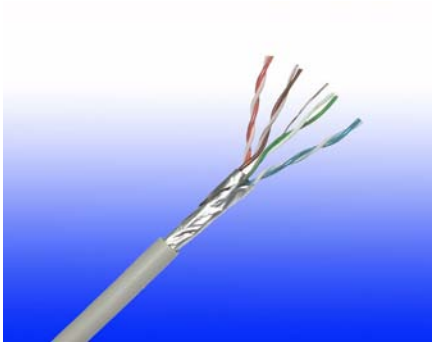
Standard

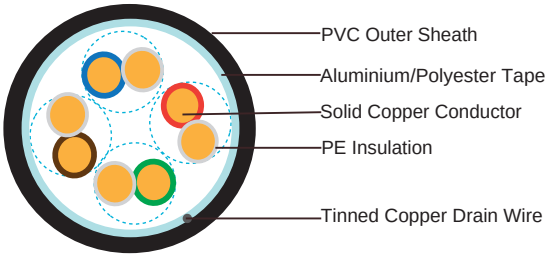
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6A F/UTP Data Cables

### FGD-CAT6A F/UTP4P23






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Overall aluminium/Polyester tape with drain wire screen.
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance

standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 74.3/86.0/74.3 | 2.0 | 20.0/33.0/20.0 | 72.2/84.0/72.2 | 67.8/91.0/67.8 | 72.3/81.0/72.3 | 70.2/80.5/70.2 | 64.8/84.0/64.8 |
| 4 | 65.3/77.0/65.3 | 3.7 | 23.0/35.5/23.0 | 61.4/73.0/61.4 | 55.8/79.0/55.8 | 63.3/72.0/63.3 | 59.5/70.0/59.5 | 52.8/72.0/52.8 |
| 8 | 60.8/75.0/60.8 | 5.3 | 24.5/36.0/24.5 | 55.4/70.0/55.4 | 49.7/74.0/49.7 | 58.8/69.0/58.8 | 53.5/66.0/53.5 | 46.7/69.0/46.7 |
| 10 | 59.3/71.0/59.3 | 5.9 | 25.0/38.0/25.0 | 53.3/66.0/53.3 | 47.8/71.0/47.8 | 57.3/65.0/57.3 | 51.3/62.0/51.3 | 44.8/64.0/44.8 |
| 16 | 56.2/68.0/56.2 | 7.6 | 25.0/35.2/25.0 | 48.6/61.0/48.6 | 43.7/67.0/43.7 | 54.2/62.0/54.2 | 46.6/58.0/46.6 | 40.7/60.0/40.7 |
| 20 | 54.8/67.0/54.8 | 8.3 | 25.0/35.0/25.0 | 46.3/59.0/46.3 | 41.8/65.0/41.8 | 52.8/61.0/52.8 | 44.3/55.0/44.3 | 38.8/59.0/38.8 |
| 25 | 53.3/65.0/53.3 | 9.5 | 24.3/34.0/24.3 | 43.8/57.0/43.8 | 39.8/63.0/39.8 | 51.3/60.0/51.3 | 41.8/53.0/41.8 | 36.8/57.0/36.8 |
| 31.25 | 51.9/64.0/51.9 | 10.4 | 23.6/33.1/23.6 | 41.1/54.0/41.1 | 37.9/61.0/37.9 | 49.9/54.0/49.9 | 39.1/50.0/39.1 | 34.9/54.0/34.9 |
| 62.5 | 47.4/59.0/47.4 | 14.9 | 21.5/32.2/21.5 | 31.9/44.0/31.9 | 31.9/55.0/31.9 | 45.4/58.0/45.4 | 29.9/41.0/29.9 | 28.9/48.0/28.9 |
| 100 | 44.3/56.0/44.3 | 19.0 | 20.1/31.6/20.1 | 24.4/38.0/24.4 | 27.8/51.0/27.8 | 42.3/50.0/42.3 | 22.4/34.0/22.4 | 24.8/44.0/24.8 |
| 200 | 39.8/52.0/39.8 | 27.4 | 18.0/29.8/18.0 | 10.6/25.0/10.6 | 21.8/45.0/21.8 | 37.8/45.0/37.8 | 8.6/20.5/8.6 | 18.8/38.0/18.8 |
| 250 | 38.3/50.0/38.3 | 31.0 | 17.3/28.7/17.3 | 5.3/19.0/5.3 | 19.8/43.0/19.8 | 36.3/44.0/36.3 | 3.3/15.0/3.3 | 16.8/36.0/16.8 |
| 300 | 37.1/49.0/37.1 | 34.2 | 16.8/28.0/16.8 | 0.5/14.0/0.5 | 18.3/38.0/18.3 | 35.1/43.0/35.1 | -1.5/10.0/-1.5 | 15.3/31.0/15.3 |
| 350 | 36.1/48.0/36.1 | 37.1 | 16.3/27.5/16.3 | -3.8/9.0/-3.8 | 16.9/37.0/16.9 | 34.1/41.0/34.1 | -5.8/7.0/-5.8 | 13.9/30.0/13.9 |
| 400 | 35.3/47.0/35.3 | 40.0 | 15.9/27.0/15.9 | -7.9/7.0/-7.9 | 15.8/36.0/15.8 | 33.3/40.0/33.3 | -9.9/3.0/-9.9 | 12.8/29.0/12.8 |
| 450 | 34.5/47.0/34.5 | 46.3 | 15.5/26.5/15.5 | -10.5/6.0/-10.5 | 14.7/35.0/14.7 | 32.5/39.0/32.5 | -12.5/2.0/-12.5 | 11.7/27.5/11.7 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 500 | 33.8/47.0/33.8 | 45.3 | 15.2/26.0/15.2 | -15.3/5.0/-15.3 | 13.8/34.0/13.8 | 31.8/38.0/31.8 | -17.3/0.0/-17.3 | 10.8/27.0/10.8 |
| 625 | 32.4/45.0/32.4 | 51.1 | 14.5/25.0/14.5 | -23.1/1.0/-23.1 | 11.8/33.0/11.8 | 30.4/37.0/30.4 | -25.1/-3.9/-25.1 | 8.8/26.0/8.8 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Pairs | Screen | Overall Diameter |
|---|---|---|---|---|---|
| | mm | mm | | | mm |
| FGD-Cat6A F/UTP | 4×2×0.57/0.58 | 1.02 | 4 | Overall Aluminum Tape Screen | 6.3 |

Rated Voltage

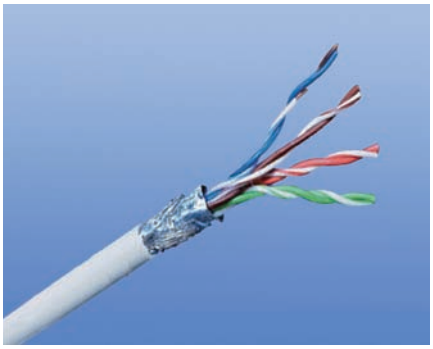
Standard

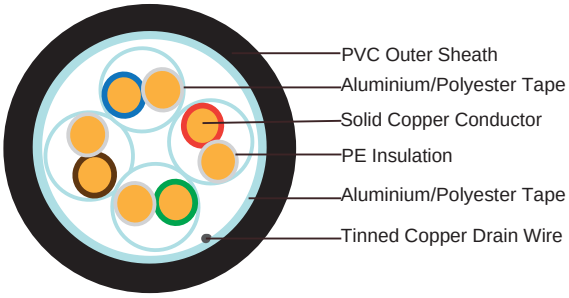
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6A F/FTP Data Cables

### FGD-CAT6A F/FTP4P23






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium/polyester tape with drain wire and overall aluminium/polyester tape with drain wire screen.
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil

resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 87.0/90.0/74.3 | 2.0 | 20.0/28.0/20.0 | 85.0/88.0/72.2 | 73.8/75.0/67.8 | 85.0/88.0/72.3 | 83.0/86.0/70.2 | 70.8/72.0/64.8 |
| 4 | 80.0/90.0/65.3 | 3.7 | 23.0/30.0/23.0 | 76.0/86.0/61.4 | 61.8/75.0/55.8 | 78.0/88.0/63.3 | 74.0/84.0/59.5 | 58.0/72.0/52.8 |
| 8 | 80.0/90.0/60.8 | 5.3 | 24.5/33.0/24.5 | 74.7/84.0/55.4 | 55.7/75.0/49.7 | 78.0/88.0/58.8 | 72.7/82.0/53.5 | 52.7/72.0/46.7 |
| 10 | 80.0/90.0/59.3 | 5.9 | 25.0/36.0/25.0 | 74.0/84.0/53.3 | 53.8/74.0/47.8 | 78.0/88.0/57.3 | 72.0/82.0/51.3 | 50.8/71.0/44.8 |
| 16 | 80.0/90.0/56.2 | 7.6 | 25.0/36.0/25.0 | 72.4/82.0/48.6 | 49.7/70.0/43.7 | 78.0/88.0/54.2 | 70.4/80.0/46.6 | 46.7/67.0/40.7 |
| 20 | 80.0/90.0/54.8 | 8.3 | 25.0/36.0/25.0 | 71.5/81.0/46.3 | 47.8/68.0/41.8 | 78.0/88.0/52.8 | 69.5/79.0/44.3 | 44.8/65.0/38.8 |
| 25 | 80.0/90.0/53.3 | 9.5 | 24.3/35.0/24.3 | 70.5/80.0/43.8 | 45.8/68.0/39.8 | 78.0/88.0/51.3 | 68.5/78.0/41.8 | 42.8/65.0/36.8 |
| 31.25 | 80.0/90.0/51.9 | 10.4 | 23.6/34.0/23.6 | 69.3/79.0/41.1 | 43.9/64.0/37.9 | 78.0/88.0/49.9 | 67.3/77.0/39.1 | 40.9/61.0/34.9 |
| 62.5 | 75.3/90.0/47.4 | 14.9 | 21.5/33.5/21.5 | 59.9/74.0/31.9 | 37.9/58.0/31.9 | 69.1/83.0/45.4 | 57.9/72.0/29.9 | 34.9/55.0/28.9 |
| 100 | 71.1/85.0/44.3 | 19.0 | 20.1/33.0/20.1 | 51.3/65.0/24.4 | 33.8/54.0/27.8 | 69.1/83.0/42.3 | 49.3/63.0/22.4 | 30.8/51.0/24.8 |
| 200 | 71.1/85.0/39.8 | 27.4 | 18.0/31.0/18.0 | 42.1/56.0/10.6 | 27.8/51.0/21.8 | 69.1/83.0/37.8 | 40.1/54.0/8.6 | 24.8/48.0/18.8 |
| 250 | 71.1/85.0/38.3 | 31.0 | 17.3/30.5/17.3 | 38.2/52.0/5.3 | 25.8/48.0/19.8 | 61.7/78.0/36.3 | 36.2/50.0/3.3 | 22.8/45.0/16.8 |
| 300 | 63.7/80.0/37.1 | 34.2 | 16.8/29.0/16.8 | 27.3/43.0/0.5 | 24.3/45.0/18.3 | 61.7/78.0/35.1 | 25.3/41.0/-1.5 | 21.2/42.0/15.3 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 350 | 63.7/80.0/36.1 | 37.1 | 16.3/28.0/16.3 | 23.9/40.0/-3.8 | 23.9/45.0/16.9 | 61.7/78.0/34.1 | 21.9/38.0/-5.8 | 19.9/42.0/13.9 |
| 400 | 63.7/80.0/35.3 | 40.0 | 15.9/27.0/15.9 | 20.7/37.0/-7.9 | 21.8/45.0/15.8 | 61.7/78.0/33.3 | 18.7/35.0/-9.9 | 19.7/42.0/12.8 |
| 450 | 63.7/80.0/34.5 | 46.3 | 15.5/26.5/15.5 | 17.4/33.0/-10.5 | 20.5/42.0/14.7 | 61.7/78.0/32.5 | 15.4/31.0/-12.5 | 17.5/39.0/11.7 |
| 500 | 63.7/80.0/33.8 | 45.3 | 15.2/26.0/15.2 | 14.8/31.0/-15.3 | 19.8/42.0/13.8 | 61.7/78.0/31.8 | 12.8/29.0/-17.3 | 16.8/39.0/10.8 |
| 625 | 60.0/70.0/32.4 | 51.1 | 14.5/25.0/14.5 | 5.5/15.5/-23.1 | 18.8/42.0/11.8 | 58.0/68.0/30.4 | 9.9/26.0/-25.1 | 16.0/39.0/8.8 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Pairs | Screen | Overall Diameter |
|---|---|---|---|---|---|
| | mm | mm | | | mm |
| FGD-Cat6A F/FTP | 4×2×0.57/0.58 | 1.02 | 4 | Individual & Overall Aluminum Tape Screen | 6.9 |

Rated Voltage

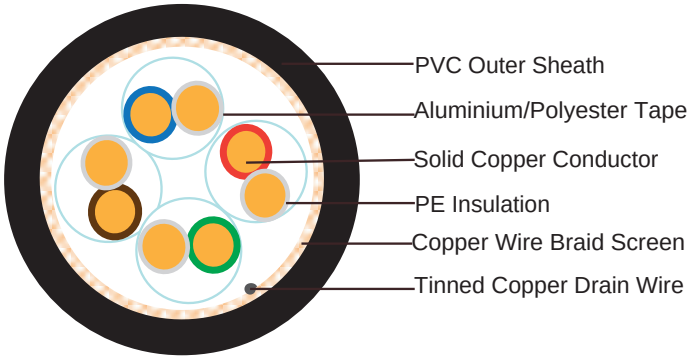
Standard

Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6A S/FTP Data Cables

### FGD-CAT6A S/FTP4P23




### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Overall aluminium/Polyester tape with drain wire and copper wire braid screen.

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 87.0/90.0/74.3 | 2.0 | 20.0/28.0/20.0 | 85.0/88.0/72.2 | 73.8/75.0/67.8 | 85.0/88.0/72.3 | 83.0/86.0/70.2 | 70.8/72.0/64.8 |
| 4 | 80.0/90.0/65.3 | 3.7 | 23.0/30.0/23.0 | 76.0/86.0/61.4 | 61.8/75.0/55.8 | 78.0/88.0/63.3 | 74.0/84.0/59.5 | 58.0/72.0/52.8 |
| 8 | 80.0/90.0/60.8 | 5.3 | 24.5/33.0/24.5 | 74.7/84.0/55.4 | 55.7/75.0/49.7 | 78.0/88.0/58.8 | 72.7/82.0/53.5 | 52.7/72.0/46.7 |
| 10 | 80.0/90.0/59.3 | 5.9 | 25.0/36.0/25.0 | 74.0/84.0/53.3 | 53.8/74.0/47.8 | 78.0/88.0/57.3 | 72.0/82.0/51.3 | 50.8/71.0/44.8 |
| 16 | 80.0/90.0/56.2 | 7.6 | 25.0/36.0/25.0 | 72.4/82.0/48.6 | 49.7/70.0/43.7 | 78.0/88.0/54.2 | 70.4/80.0/46.6 | 46.7/67.0/40.7 |
| 20 | 80.0/90.0/54.8 | 8.3 | 25.0/36.0/25.0 | 71.5/81.0/46.3 | 47.8/68.0/41.8 | 78.0/88.0/52.8 | 69.5/79.0/44.3 | 44.8/65.0/38.8 |
| 25 | 80.0/90.0/53.3 | 9.5 | 24.3/35.0/24.3 | 70.5/80.0/43.8 | 45.8/68.0/39.8 | 78.0/88.0/51.3 | 68.5/78.0/41.8 | 42.8/65.0/36.8 |
| 31.25 | 80.0/90.0/51.9 | 10.4 | 23.6/34.0/23.6 | 69.3/79.0/41.1 | 43.9/64.0/37.9 | 78.0/88.0/49.9 | 67.3/77.0/39.1 | 40.9/61.0/34.9 |
| 62.5 | 75.3/90.0/47.4 | 14.9 | 21.5/33.5/21.5 | 59.9/74.0/31.9 | 37.9/58.0/31.9 | 69.1/83.0/45.4 | 57.9/72.0/29.9 | 34.9/55.0/28.9 |
| 100 | 71.1/85.0/44.3 | 19.0 | 20.1/33.0/20.1 | 51.3/65.0/24.4 | 33.8/54.0/27.8 | 69.1/83.0/42.3 | 49.3/63.0/22.4 | 30.8/51.0/24.8 |
| 200 | 71.1/85.0/39.8 | 27.4 | 18.0/31.0/18.0 | 42.1/56.0/10.6 | 27.8/51.0/21.8 | 69.1/83.0/37.8 | 40.1/54.0/8.6 | 24.8/48.0/18.8 |
| 250 | 71.1/85.0/38.3 | 31.0 | 17.3/30.5/17.3 | 38.2/52.0/5.3 | 25.8/48.0/19.8 | 61.7/78.0/36.3 | 36.2/50.0/3.3 | 22.8/45.0/16.8 |
| 300 | 63.7/80.0/37.1 | 34.2 | 16.8/29.0/16.8 | 27.3/43.0/0.5 | 24.3/45.0/18.3 | 61.7/78.0/35.1 | 25.3/41.0/-1.5 | 21.2/42.0/15.3 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 350 | 63.7/80.0/36.1 | 37.1 | 16.3/28.0/16.3 | 23.9/40.0/-3.8 | 23.9/45.0/16.9 | 61.7/78.0/34.1 | 21.9/38.0/-5.8 | 19.9/42.0/13.9 |
| 400 | 63.7/80.0/35.3 | 40.0 | 15.9/27.0/15.9 | 20.7/37.0/-7.9 | 21.8/45.0/15.8 | 61.7/78.0/33.3 | 18.7/35.0/-9.9 | 19.7/42.0/12.8 |
| 450 | 63.7/80.0/34.5 | 46.3 | 15.5/26.5/15.5 | 17.4/33.0/-10.5 | 20.5/42.0/14.7 | 61.7/78.0/32.5 | 15.4/31.0/-12.5 | 17.5/39.0/11.7 |
| 500 | 63.7/80.0/33.8 | 45.3 | 15.2/26.0/15.2 | 14.8/31.0/-15.3 | 19.8/42.0/13.8 | 61.7/78.0/31.8 | 12.8/29.0/-17.3 | 16.8/39.0/10.8 |
| 625 | 60.0/70.0/32.4 | 51.1 | 14.5/25.0/14.5 | 5.5/15.5/-23.1 | 18.8/42.0/11.8 | 58.0/68.0/30.4 | 9.9/26.0/-25.1 | 16.0/39.0/8.8 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Pairs | Screen | Overall Diameter |
|---|---|---|---|---|---|
| | mm | mm | | | mm |
| FGD-Cat6A S/FTP | 4×2×0.57/0.58 | 1.02 | 4 | Overall Aluminum Tape Screen & Copper Wire Braid | 8.0 |

Rated Voltage

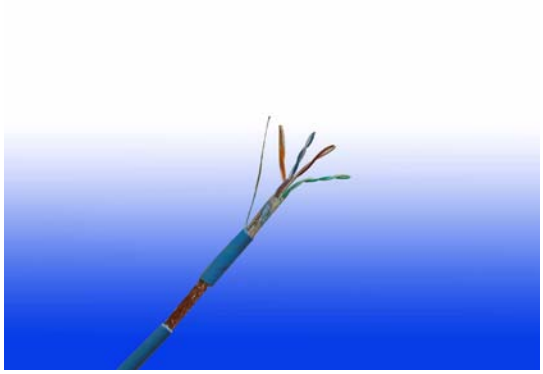
Standard

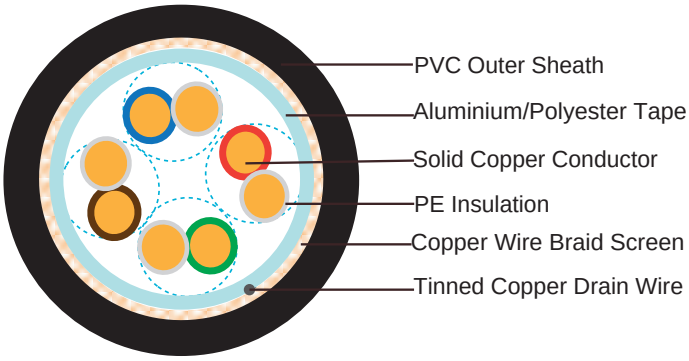
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6A SF/UTP Data Cables

### FGD-CAT6A SF/UTP4P23






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE.
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Overall aluminium/Polyester tape with drain wire and copper wire braid screen.
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire

performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 74.3/86.0/74.3 | 2.0 | 20.0/33.0/20.0 | 72.2/84.0/72.2 | 67.8/91.0/67.8 | 72.3/81.0/72.3 | 70.2/80.5/70.2 | 64.8/84.0/64.8 |
| 4 | 65.3/77.0/65.3 | 3.7 | 23.0/35.5/23.0 | 61.4/73.0/61.4 | 55.8/79.0/55.8 | 63.3/72.0/63.3 | 59.5/70.0/59.5 | 52.8/72.0/52.8 |
| 8 | 60.8/75.0/60.8 | 5.3 | 24.5/36.0/24.5 | 55.4/70.0/55.4 | 49.7/74.0/49.7 | 58.8/69.0/58.8 | 53.5/66.0/53.5 | 46.7/69.0/46.7 |
| 10 | 59.3/71.0/59.3 | 5.9 | 25.0/38.0/25.0 | 53.3/66.0/53.3 | 47.8/71.0/47.8 | 57.3/65.0/57.3 | 51.3/62.0/51.3 | 44.8/64.0/44.8 |
| 16 | 56.2/68.0/56.2 | 7.6 | 25.0/35.2/25.0 | 48.6/61.0/48.6 | 43.7/67.0/43.7 | 54.2/62.0/54.2 | 46.6/58.0/46.6 | 40.7/60.0/40.7 |
| 20 | 54.8/67.0/54.8 | 8.3 | 25.0/35.0/25.0 | 46.3/59.0/46.3 | 41.8/65.0/41.8 | 52.8/61.0/52.8 | 44.3/55.0/44.3 | 38.8/59.0/38.8 |
| 25 | 53.3/65.0/53.3 | 9.5 | 24.3/34.0/24.3 | 43.8/57.0/43.8 | 39.8/63.0/39.8 | 51.3/60.0/51.3 | 41.8/53.0/41.8 | 36.8/57.0/36.8 |
| 31.25 | 51.9/64.0/51.9 | 10.4 | 23.6/33.1/23.6 | 41.1/54.0/41.1 | 37.9/61.0/37.9 | 49.9/54.0/49.9 | 39.1/50.0/39.1 | 34.9/54.0/34.9 |
| 62.5 | 47.4/59.0/47.4 | 14.9 | 21.5/32.2/21.5 | 31.9/44.0/31.9 | 31.9/55.0/31.9 | 45.4/58.0/45.4 | 29.9/41.0/29.9 | 28.9/48.0/28.9 |
| 100 | 44.3/56.0/44.3 | 19.0 | 20.1/31.6/20.1 | 24.4/38.0/24.4 | 27.8/51.0/27.8 | 42.3/50.0/42.3 | 22.4/34.0/22.4 | 24.8/44.0/24.8 |
| 200 | 39.8/52.0/39.8 | 27.4 | 18.0/29.8/18.0 | 10.6/25.0/10.6 | 21.8/45.0/21.8 | 37.8/45.0/37.8 | 8.6/20.5/8.6 | 18.8/38.0/18.8 |
| 250 | 38.3/50.0/38.3 | 31.0 | 17.3/28.7/17.3 | 5.3/19.0/5.3 | 19.8/43.0/19.8 | 36.3/44.0/36.3 | 3.3/15.0/3.3 | 16.8/36.0/16.8 |
| 300 | 37.1/49.0/37.1 | 34.2 | 16.8/28.0/16.8 | 0.5/14.0/0.5 | 18.3/38.0/18.3 | 35.1/43.0/35.1 | -1.5/10.0/-1.5 | 15.3/31.0/15.3 |
| 350 | 36.1/48.0/36.1 | 37.1 | 16.3/27.5/16.3 | -3.8/9.0/-3.8 | 16.9/37.0/16.9 | 34.1/41.0/34.1 | -5.8/7.0/-5.8 | 13.9/30.0/13.9 |
| 400 | 35.3/47.0/35.3 | 40.0 | 15.9/27.0/15.9 | -7.9/7.0/-7.9 | 15.8/36.0/15.8 | 33.3/40.0/33.3 | -9.9/3.0/-9.9 | 12.8/29.0/12.8 |

# FIREGUARD Fire Retardant CAT6A Data Cables

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 450 | 34.5/47.0/34.5 | 46.3 | 15.5/26.5/15.5 | -10.5/6.0/-10.5 | 14.7/35.0/14.7 | 32.5/39.0/32.5 | -12.5/2.0/-12.5 | 11.7/27.5/11.7 |
| 500 | 33.8/47.0/33.8 | 45.3 | 15.2/26.0/15.2 | -15.3/5.0/-15.3 | 13.8/34.0/13.8 | 31.8/38.0/31.8 | -17.3/0.0/-17.3 | 10.8/27.0/10.8 |
| 625 | 32.4/45.0/32.4 | 51.1 | 14.5/25.0/14.5 | -23.1/1.0/-23.1 | 11.8/33.0/11.8 | 30.4/37.0/30.4 | -25.1/-3.9/-25.1 | 8.8/26.0/8.8 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Pairs | Screen | Overall Diameter |
|---|---|---|---|---|---|
| | mm | mm | | | mm |
| FGD-Cat6A SF/UTP | 4×2×0.57/0.58 | 1.02 | 4 | Overall Aluminum Tape Screen & Copper Wire Braid | 6.6 |

Rated Voltage

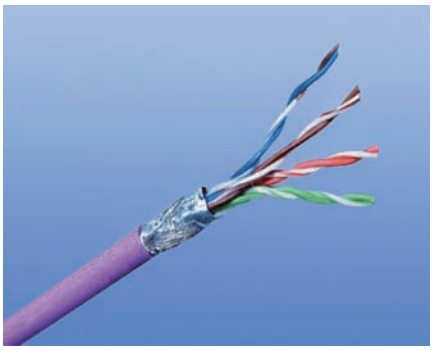
Standard

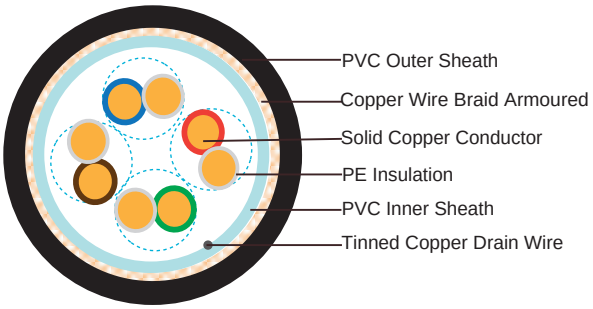
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6A U/UTP CWB Armoured Data Cables

### FGD-CAT6A U/UTP4P23 CWB






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**
**CWB:** Copper Wire Braid

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.56/0.57 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 74.3/95.0/74.3 | 2.0 | 20.0/28.0/20.0 | 72.2/94.0/72.2 | 67.8/92.0/67.8 | 72.3/92.0/72.3 | 70.2/90.0/70.2 | 64.8/85.0/64.8 |
| 4 | 65.3/88.0/65.3 | 3.7 | 23.0/30.0/23.0 | 61.4/88.0/61.4 | 55.8/80.0/55.8 | 63.3/83.0/63.3 | 59.5/80.0/59.5 | 52.8/73.0/52.8 |
| 8 | 60.8/85.0/60.8 | 5.3 | 24.5/33.0/24.5 | 55.4/83.0/55.4 | 49.7/75.0/49.7 | 58.8/80.0/58.8 | 53.5/76.0/53.5 | 46.7/70.0/46.7 |
| 10 | 59.3/83.0/59.3 | 5.9 | 25.0/36.0/25.0 | 53.3/78.0/53.3 | 47.8/72.0/47.8 | 57.3/77.0/57.3 | 51.3/72.0/51.3 | 44.8/65.0/44.8 |
| 16 | 56.2/80.0/56.2 | 7.6 | 25.0/36.0/25.0 | 48.6/74.0/48.6 | 43.7/68.0/43.7 | 54.2/74.0/54.2 | 46.6/68.0/46.6 | 40.7/61.0/40.7 |
| 20 | 54.8/78.0/54.8 | 8.3 | 25.0/36.0/25.0 | 46.3/71.0/46.3 | 41.8/65.0/41.8 | 52.8/73.0/52.8 | 44.3/66.0/44.3 | 38.8/59.0/38.8 |
| 25 | 53.3/77.0/53.3 | 9.5 | 24.3/35.0/24.3 | 43.8/69.0/43.8 | 39.8/63.0/39.8 | 51.3/71.0/51.3 | 41.8/63.0/41.8 | 36.8/57.0/36.8 |
| 31.25 | 51.9/76.0/51.9 | 10.4 | 23.6/34.0/23.6 | 41.1/67.0/41.1 | 37.9/62.0/37.9 | 49.9/70.0/49.9 | 39.1/60.0/39.1 | 34.9/55.0/34.9 |
| 62.5 | 47.4/70.0/47.4 | 14.9 | 21.5/33.5/21.5 | 31.9/57.0/31.9 | 31.9/56.0/31.9 | 45.4/65.0/45.4 | 29.9/51.0/29.9 | 28.9/49.0/28.9 |
| 100 | 44.3/68.0/44.3 | 19.0 | 20.1/33.0/20.1 | 24.4/50.0/24.4 | 27.8/52.0/27.8 | 42.3/62.0/42.3 | 22.4/44.0/22.4 | 24.8/45.0/24.8 |
| 200 | 39.8/65.0/39.8 | 27.4 | 18.0/31.0/18.0 | 10.6/38.0/10.6 | 21.8/46.0/21.8 | 37.8/58.0/37.8 | 8.6/32.0/8.6 | 18.8/39.0/18.8 |
| 250 | 38.3/62.0/38.3 | 31.0 | 17.3/30.5/17.3 | 5.3/33.0/5.3 | 19.8/44.0/19.8 | 36.3/56.0/36.3 | 3.3/27.0/3.3 | 16.8/37.0/16.8 |
| 300 | 37.1/61.0/37.1 | 34.2 | 16.8/29.0/16.8 | 0.5/29.0/0.5 | 18.3/42.0/18.3 | 35.1/55.0/35.1 | -1.5/24.0/-1.5 | 15.3/35.0/15.3 |
| 350 | 36.1/60.0/36.1 | 37.1. | 16.3/28.0/16.3 | -3.8/26.0/-3.8 | 16.9/41.0/16.9 | 34.1/54.0/34.1 | -5.8/20.0/-5.8 | 13.9/34.0/13.9 |
| 400 | 35.3/59.0/35.3 | 40.0 | 15.9/27.0/15.9 | -7.9/21.0/-7.9 | 15.8/40.0/15.8 | 33.3/53.0/33.3 | -9.9/15.0/-9.9 | 12.8/33.0/12.8 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 450 | 34.5/58.0/34.5 | 46.3 | 15.5/26.5/15.5 | -10.5/18.0/-10.5 | 14.7/40.5.0/14.7 | 32.5/52.0/32.5 | -12.5/11.0/-12.5 | 11.7/32.5/11.7 |
| 500 | 33.8/57.0/33.8 | 45.3 | 15.2/26.0/15.2 | -15.3/15.0/-15.3 | 13.8/39.0/13.8 | 31.8/51.0/31.8 | -17.3/9.0/-17.3 | 10.8/32.0/10.8 |
| 625 | 32.4/53.0/32.4 | 51.1 | 14.5/25.0/14.5 | -23.1/31.0/-23.1 | 11.8/36.0/11.8 | 30.4/50.0/30.4 | -25.1/5.0/-25.1 | 8.8/29.0/8.8 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6A U/UTP CWB | 4×2×0.56/0.57 | 0.2 | 0.6 | 1.0 | 7.88 | 115 |

Rated Voltage

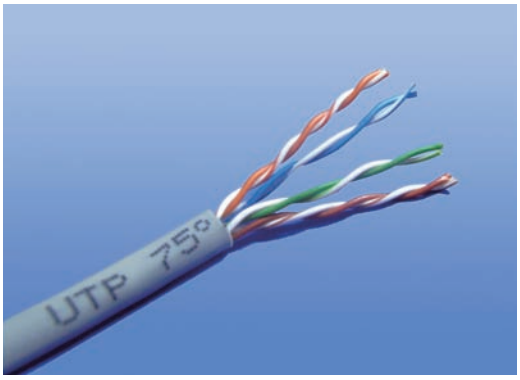
Standard

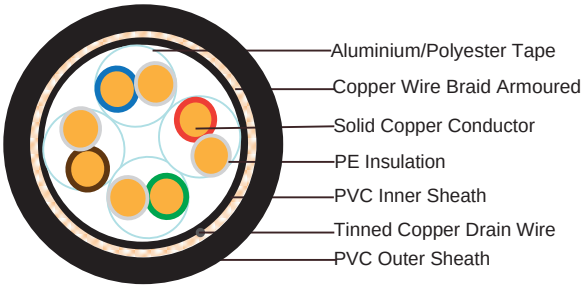
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6A U/FTP CWB Armoured Data Cables

### FGD-CAT6A U/FTP4P23 CWB




### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium/polyester tape with drain wire.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**

**CWB:** Copper Wire Braid

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C

**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter

**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.56/0.57 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 87.0/90.0/74.3 | 2.0 | 20.0/28.0/20.0 | 85.0/88.0/72.2 | 73.8/75.0/67.8 | 85.0/88.0/72.3 | 83.0/86.0/70.2 | 70.8/72.0/64.8 |
| 4 | 80.0/90.0/65.3 | 3.7 | 23.0/30.0/23.0 | 76.0/86.0/61.4 | 61.8/75.0/55.8 | 78.0/88.0/63.3 | 74.0/84.0/59.5 | 58.0/72.0/52.8 |
| 8 | 80.0/90.0/60.8 | 5.3 | 24.5/33.0/24.5 | 74.7/84.0/55.4 | 55.7/75.0/49.7 | 78.0/88.0/58.8 | 72.7/82.0/53.5 | 52.7/72.0/46.7 |
| 10 | 80.0/90.0/59.3 | 5.9 | 25.0/36.0/25.0 | 74.0/84.0/53.3 | 53.8/74.0/47.8 | 78.0/88.0/57.3 | 72.0/82.0/51.3 | 50.8/71.0/44.8 |
| 16 | 80.0/90.0/56.2 | 7.6 | 25.0/36.0/25.0 | 72.4/82.0/48.6 | 49.7/70.0/43.7 | 78.0/88.0/54.2 | 70.4/80.0/46.6 | 46.7/67.0/40.7 |
| 20 | 80.0/90.0/54.8 | 8.3 | 25.0/36.0/25.0 | 71.5/81.0/46.3 | 47.8/68.0/41.8 | 78.0/88.0/52.8 | 69.5/79.0/44.3 | 44.8/65.0/38.8 |
| 25 | 80.0/90.0/53.3 | 9.5 | 24.3/35.0/24.3 | 70.5/80.0/43.8 | 45.8/68.0/39.8 | 78.0/88.0/51.3 | 68.5/78.0/41.8 | 42.8/65.0/36.8 |
| 31.25 | 80.0/90.0/51.9 | 10.4 | 23.6/34.0/23.6 | 69.3/79.0/41.1 | 43.9/64.0/37.9 | 78.0/88.0/49.9 | 67.3/77.0/39.1 | 40.9/61.0/34.9 |
| 62.5 | 75.3/90.0/47.4 | 14.9 | 21.5/33.5/21.5 | 59.9/74.0/31.9 | 37.9/58.0/31.9 | 69.1/83.0/45.4 | 57.9/72.0/29.9 | 34.9/55.0/28.9 |
| 100 | 71.1/85.0/44.3 | 19.0 | 20.1/33.0/20.1 | 51.3/65.0/24.4 | 33.8/54.0/27.8 | 69.1/83.0/42.3 | 49.3/63.0/22.4 | 30.8/51.0/24.8 |
| 200 | 71.1/85.0/39.8 | 27.4 | 18.0/31.0/18.0 | 42.1/56.0/10.6 | 27.8/51.0/21.8 | 69.1/83.0/37.8 | 40.1/54.0/8.6 | 24.8/48.0/18.8 |
| 250 | 71.1/85.0/38.3 | 31.0 | 17.3/30.5/17.3 | 38.2/52.0/5.3 | 25.8/48.0/19.8 | 61.7/78.0/36.3 | 36.2/50.0/3.3 | 22.8/45.0/16.8 |
| 300 | 63.7/80.0/37.1 | 34.2 | 16.8/29.0/16.8 | 27.3/43.0/0.5 | 24.3/45.0/18.3 | 61.7/78.0/35.1 | 25.3/41.0/-1.5 | 21.2/42.0/15.3 |

# FIREGUARD Fire Retardant CAT6A Data Cables

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 350 | 63.7/80.0/36.1 | 37.1 | 16.3/28.0/16.3 | 23.9/40.0/-3.8 | 23.9/45.0/16.9 | 61.7/78.0/34.1 | 21.9/38.0/-5.8 | 19.9/42.0/13.9 |
| 400 | 63.7/80.0/35.3 | 40.0 | 15.9/27.0/15.9 | 20.7/37.0/-7.9 | 21.8/45.0/15.8 | 61.7/78.0/33.3 | 18.7/35.0/-9.9 | 19.7/42.0/12.8 |
| 450 | 63.7/80.0/34.5 | 46.3 | 15.5/26.5/15.5 | 17.4/33.0/-10.5 | 20.5/42.0/14.7 | 61.7/78.0/32.5 | 15.4/31.0/-12.5 | 17.5/39.0/11.7 |
| 500 | 63.7/80.0/33.8 | 45.3 | 15.2/26.0/15.2 | 14.8/31.0/-15.3 | 19.8/42.0/13.8 | 61.7/78.0/31.8 | 12.8/29.0/-17.3 | 16.8/39.0/10.8 |
| 625 | 60.0/70.0/32.4 | 51.1 | 14.5/25.0/14.5 | 5.5/15.5/-23.1 | 18.8/42.0/11.8 | 58.0/68.0/30.4 | 9.9/26.0/-25.1 | 16.0/39.0/8.8 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6A U/FTP CWB | 4×2×0.56/0.57 | 0.2 | 0.6 | 1.0 | 8.12 | 121 |

Rated Voltage

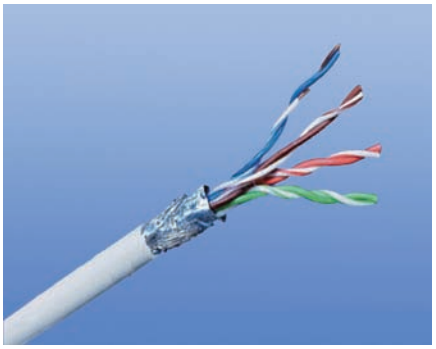
Standard

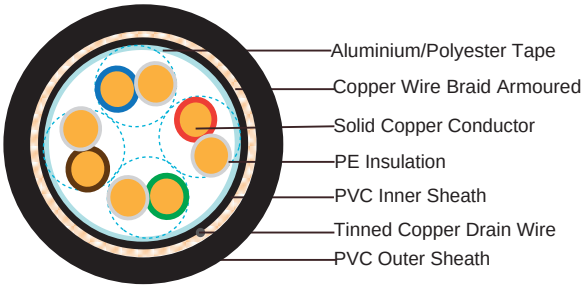
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6A F/UTP CWB Armoured Data Cables

### FGD-CAT6A F/UTP4P23 CWB






### APPLICATION

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### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Overall aluminium/Polyester tape with drain wire screen.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**

**CWB:** Copper Wire Braid

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C

**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter

**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 74.3/86.0/74.3 | 2.0 | 20.0/33.0/20.0 | 72.2/84.0/72.2 | 67.8/91.0/67.8 | 72.3/81.0/72.3 | 70.2/80.5/70.2 | 64.8/84.0/64.8 |
| 4 | 65.3/77.0/65.3 | 3.7 | 23.0/35.5/23.0 | 61.4/73.0/61.4 | 55.8/79.0/55.8 | 63.3/72.0/63.3 | 59.5/70.0/59.5 | 52.8/72.0/52.8 |
| 8 | 60.8/75.0/60.8 | 5.3 | 24.5/36.0/24.5 | 55.4/70.0/55.4 | 49.7/74.0/49.7 | 58.8/69.0/58.8 | 53.5/66.0/53.5 | 46.7/69.0/46.7 |
| 10 | 59.3/71.0/59.3 | 5.9 | 25.0/38.0/25.0 | 53.3/66.0/53.3 | 47.8/71.0/47.8 | 57.3/65.0/57.3 | 51.3/62.0/51.3 | 44.8/64.0/44.8 |
| 16 | 56.2/68.0/56.2 | 7.6 | 25.0/35.2/25.0 | 48.6/61.0/48.6 | 43.7/67.0/43.7 | 54.2/62.0/54.2 | 46.6/58.0/46.6 | 40.7/60.0/40.7 |
| 20 | 54.8/67.0/54.8 | 8.3 | 25.0/35.0/25.0 | 46.3/59.0/46.3 | 41.8/65.0/41.8 | 52.8/61.0/52.8 | 44.3/55.0/44.3 | 38.8/59.0/38.8 |
| 25 | 53.3/65.0/53.3 | 9.5 | 24.3/34.0/24.3 | 43.8/57.0/43.8 | 39.8/63.0/39.8 | 51.3/60.0/51.3 | 41.8/53.0/41.8 | 36.8/57.0/36.8 |
| 31.25 | 51.9/64.0/51.9 | 10.4 | 23.6/33.1/23.6 | 41.1/54.0/41.1 | 37.9/61.0/37.9 | 49.9/54.0/49.9 | 39.1/50.0/39.1 | 34.9/54.0/34.9 |
| 62.5 | 47.4/59.0/47.4 | 14.9 | 21.5/32.2/21.5 | 31.9/44.0/31.9 | 31.9/55.0/31.9 | 45.4/58.0/45.4 | 29.9/41.0/29.9 | 28.9/48.0/28.9 |
| 100 | 44.3/56.0/44.3 | 19.0 | 20.1/31.6/20.1 | 24.4/38.0/24.4 | 27.8/51.0/27.8 | 42.3/50.0/42.3 | 22.4/34.0/22.4 | 24.8/44.0/24.8 |
| 200 | 39.8/52.0/39.8 | 27.4 | 18.0/29.8/18.0 | 10.6/25.0/10.6 | 21.8/45.0/21.8 | 37.8/45.0/37.8 | 8.6/20.5/8.6 | 18.8/38.0/18.8 |
| 250 | 38.3/50.0/38.3 | 31.0 | 17.3/28.7/17.3 | 5.3/19.0/5.3 | 19.8/43.0/19.8 | 36.3/44.0/36.3 | 3.3/15.0/3.3 | 16.8/36.0/16.8 |
| 300 | 37.1/49.0/37.1 | 34.2 | 16.8/28.0/16.8 | 0.5/14.0/0.5 | 18.3/38.0/18.3 | 35.1/43.0/35.1 | -1.5/10.0/-1.5 | 15.3/31.0/15.3 |
| 350 | 36.1/48.0/36.1 | 37.1 | 16.3/27.5/16.3 | -3.8/9.0/-3.8 | 16.9/37.0/16.9 | 34.1/41.0/34.1 | -5.8/7.0/-5.8 | 13.9/30.0/13.9 |
| 400 | 35.3/47.0/35.3 | 40.0 | 15.9/27.0/15.9 | -7.9/7.0/-7.9 | 15.8/36.0/15.8 | 33.3/40.0/33.3 | -9.9/3.0/-9.9 | 12.8/29.0/12.8 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 450 | 34.5/47.0/34.5 | 46.3 | 15.5/26.5/15.5 | -10.5/6.0/-10.5 | 14.7/35.0/14.7 | 32.5/39.0/32.5 | -12.5/2.0/-12.5 | 11.7/27.5/11.7 |
| 500 | 33.8/47.0/33.8 | 45.3 | 15.2/26.0/15.2 | -15.3/5.0/-15.3 | 13.8/34.0/13.8 | 31.8/38.0/31.8 | -17.3/0.0/-17.3 | 10.8/27.0/10.8 |
| 625 | 32.4/45.0/32.4 | 51.1 | 14.5/25.0/14.5 | -23.1/1.0/-23.1 | 11.8/33.0/11.8 | 30.4/37.0/30.4 | -25.1/-3.9/-25.1 | 8.8/26.0/8.8 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6A F/UTP CWB | 4×2×0.57/0.58 | 0.2 | 0.6 | 1.0 | 8.48 | 126 |

Rated Voltage

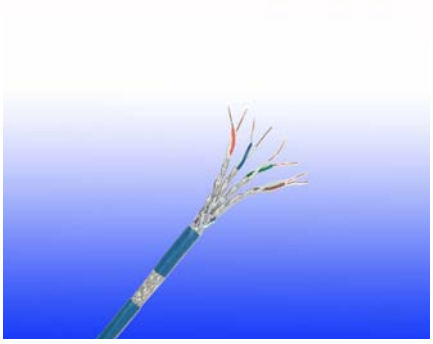
Standard

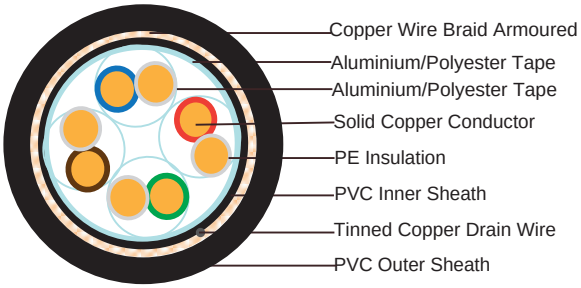
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6A F/FTP CWB Armoured Data Cables

### FGD-CAT6A F/FTP4P23 CWB






### APPLICATION

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### FIRE PERFORMANCE

| | |
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Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium/polyester tape with drain wire and overall aluminium/polyester tape with drain wire screen.
**Inner Sheath:** Thermoplastic PVC compound.

**Armouring:**
**CWB:** Copper Wire Braid
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 87.0/90.0/74.3 | 2.0 | 20.0/28.0/20.0 | 85.0/88.0/72.2 | 73.8/75.0/67.8 | 85.0/88.0/72.3 | 83.0/86.0/70.2 | 70.8/72.0/64.8 |
| 4 | 80.0/90.0/65.3 | 3.7 | 23.0/30.0/23.0 | 76.0/86.0/61.4 | 61.8/75.0/55.8 | 78.0/88.0/63.3 | 74.0/84.0/59.5 | 58.0/72.0/52.8 |
| 8 | 80.0/90.0/60.8 | 5.3 | 24.5/33.0/24.5 | 74.7/84.0/55.4 | 55.7/75.0/49.7 | 78.0/88.0/58.8 | 72.7/82.0/53.5 | 52.7/72.0/46.7 |
| 10 | 80.0/90.0/59.3 | 5.9 | 25.0/36.0/25.0 | 74.0/84.0/53.3 | 53.8/74.0/47.8 | 78.0/88.0/57.3 | 72.0/82.0/51.3 | 50.8/71.0/44.8 |
| 16 | 80.0/90.0/56.2 | 7.6 | 25.0/36.0/25.0 | 72.4/82.0/48.6 | 49.7/70.0/43.7 | 78.0/88.0/54.2 | 70.4/80.0/46.6 | 46.7/67.0/40.7 |
| 20 | 80.0/90.0/54.8 | 8.3 | 25.0/36.0/25.0 | 71.5/81.0/46.3 | 47.8/68.0/41.8 | 78.0/88.0/52.8 | 69.5/79.0/44.3 | 44.8/65.0/38.8 |
| 25 | 80.0/90.0/53.3 | 9.5 | 24.3/35.0/24.3 | 70.5/80.0/43.8 | 45.8/68.0/39.8 | 78.0/88.0/51.3 | 68.5/78.0/41.8 | 42.8/65.0/36.8 |
| 31.25 | 80.0/90.0/51.9 | 10.4 | 23.6/34.0/23.6 | 69.3/79.0/41.1 | 43.9/64.0/37.9 | 78.0/88.0/49.9 | 67.3/77.0/39.1 | 40.9/61.0/34.9 |
| 62.5 | 75.3/90.0/47.4 | 14.9 | 21.5/33.5/21.5 | 59.9/74.0/31.9 | 37.9/58.0/31.9 | 69.1/83.0/45.4 | 57.9/72.0/29.9 | 34.9/55.0/28.9 |
| 100 | 71.1/85.0/44.3 | 19.0 | 20.1/33.0/20.1 | 51.3/65.0/24.4 | 33.8/54.0/27.8 | 69.1/83.0/42.3 | 49.3/63.0/22.4 | 30.8/51.0/24.8 |
| 200 | 71.1/85.0/39.8 | 27.4 | 18.0/31.0/18.0 | 42.1/56.0/10.6 | 27.8/51.0/21.8 | 69.1/83.0/37.8 | 40.1/54.0/8.6 | 24.8/48.0/18.8 |
| 250 | 71.1/85.0/38.3 | 31.0 | 17.3/30.5/17.3 | 38.2/52.0/5.3 | 25.8/48.0/19.8 | 61.7/78.0/36.3 | 36.2/50.0/3.3 | 22.8/45.0/16.8 |
| 300 | 63.7/80.0/37.1 | 34.2 | 16.8/29.0/16.8 | 27.3/43.0/0.5 | 24.3/45.0/18.3 | 61.7/78.0/35.1 | 25.3/41.0/-1.5 | 21.2/42.0/15.3 |

# FIREGUARD Fire Retardant CAT6A Data Cables

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 350 | 63.7/80.0/36.1 | 37.1 | 16.3/28.0/16.3 | 23.9/40.0/-3.8 | 23.9/45.0/16.9 | 61.7/78.0/34.1 | 21.9/38.0/-5.8 | 19.9/42.0/13.9 |
| 400 | 63.7/80.0/35.3 | 40.0 | 15.9/27.0/15.9 | 20.7/37.0/-7.9 | 21.8/45.0/15.8 | 61.7/78.0/33.3 | 18.7/35.0/-9.9 | 19.7/42.0/12.8 |
| 450 | 63.7/80.0/34.5 | 46.3 | 15.5/26.5/15.5 | 17.4/33.0/-10.5 | 20.5/42.0/14.7 | 61.7/78.0/32.5 | 15.4/31.0/-12.5 | 17.5/39.0/11.7 |
| 500 | 63.7/80.0/33.8 | 45.3 | 15.2/26.0/15.2 | 14.8/31.0/-15.3 | 19.8/42.0/13.8 | 61.7/78.0/31.8 | 12.8/29.0/-17.3 | 16.8/39.0/10.8 |
| 625 | 60.0/70.0/32.4 | 51.1 | 14.5/25.0/14.5 | 5.5/15.5/-23.1 | 18.8/42.0/11.8 | 58.0/68.0/30.4 | 9.9/26.0/-25.1 | 16.0/39.0/8.8 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6A F/FTP CWB | 4×2×0.57/0.58 | 0.2 | 0.6 | 1.0 | 8.96 | 134 |

Rated Voltage

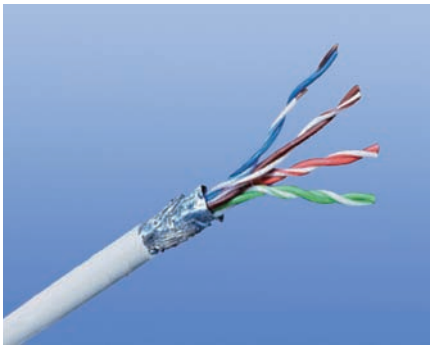
Standard

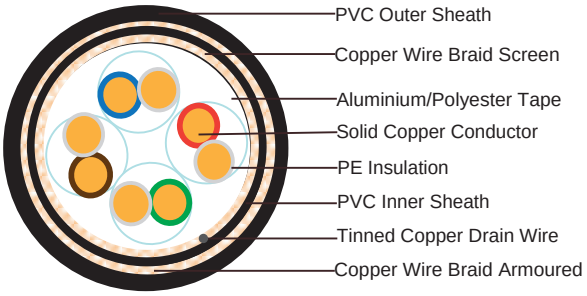
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6A S/FTP CWB Armoured Data Cables

### FGD-CAT6A S/FTP4P23 CWB






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium/Polyester tape with drain wire and copper wire braid screen.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**
**CWB:** Copper Wire Braid

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 87.0/90.0/74.3 | 2.0 | 20.0/28.0/20.0 | 85.0/88.0/72.2 | 73.8/75.0/67.8 | 85.0/88.0/72.3 | 83.0/86.0/70.2 | 70.8/72.0/64.8 |
| 4 | 80.0/90.0/65.3 | 3.7 | 23.0/30.0/23.0 | 76.0/86.0/61.4 | 61.8/75.0/55.8 | 78.0/88.0/63.3 | 74.0/84.0/59.5 | 58.0/72.0/52.8 |
| 8 | 80.0/90.0/60.8 | 5.3 | 24.5/33.0/24.5 | 74.7/84.0/55.4 | 55.7/75.0/49.7 | 78.0/88.0/58.8 | 72.7/82.0/53.5 | 52.7/72.0/46.7 |
| 10 | 80.0/90.0/59.3 | 5.9 | 25.0/36.0/25.0 | 74.0/84.0/53.3 | 53.8/74.0/47.8 | 78.0/88.0/57.3 | 72.0/82.0/51.3 | 50.8/71.0/44.8 |
| 16 | 80.0/90.0/56.2 | 7.6 | 25.0/36.0/25.0 | 72.4/82.0/48.6 | 49.7/70.0/43.7 | 78.0/88.0/54.2 | 70.4/80.0/46.6 | 46.7/67.0/40.7 |
| 20 | 80.0/90.0/54.8 | 8.3 | 25.0/36.0/25.0 | 71.5/81.0/46.3 | 47.8/68.0/41.8 | 78.0/88.0/52.8 | 69.5/79.0/44.3 | 44.8/65.0/38.8 |
| 25 | 80.0/90.0/53.3 | 9.5 | 24.3/35.0/24.3 | 70.5/80.0/43.8 | 45.8/68.0/39.8 | 78.0/88.0/51.3 | 68.5/78.0/41.8 | 42.8/65.0/36.8 |
| 31.25 | 80.0/90.0/51.9 | 10.4 | 23.6/34.0/23.6 | 69.3/79.0/41.1 | 43.9/64.0/37.9 | 78.0/88.0/49.9 | 67.3/77.0/39.1 | 40.9/61.0/34.9 |
| 62.5 | 75.3/90.0/47.4 | 14.9 | 21.5/33.5/21.5 | 59.9/74.0/31.9 | 37.9/58.0/31.9 | 69.1/83.0/45.4 | 57.9/72.0/29.9 | 34.9/55.0/28.9 |
| 100 | 71.1/85.0/44.3 | 19.0 | 20.1/33.0/20.1 | 51.3/65.0/24.4 | 33.8/54.0/27.8 | 69.1/83.0/42.3 | 49.3/63.0/22.4 | 30.8/51.0/24.8 |
| 200 | 71.1/85.0/39.8 | 27.4 | 18.0/31.0/18.0 | 42.1/56.0/10.6 | 27.8/51.0/21.8 | 69.1/83.0/37.8 | 40.1/54.0/8.6 | 24.8/48.0/18.8 |
| 250 | 71.1/85.0/38.3 | 31.0 | 17.3/30.5/17.3 | 38.2/52.0/5.3 | 25.8/48.0/19.8 | 61.7/78.0/36.3 | 36.2/50.0/3.3 | 22.8/45.0/16.8 |
| 300 | 63.7/80.0/37.1 | 34.2 | 16.8/29.0/16.8 | 27.3/43.0/0.5 | 24.3/45.0/18.3 | 61.7/78.0/35.1 | 25.3/41.0/-1.5 | 21.2/42.0/15.3 |
| 350 | 63.7/80.0/36.1 | 37.1 | 16.3/28.0/16.3 | 23.9/40.0/-3.8 | 23.9/45.0/16.9 | 61.7/78.0/34.1 | 21.9/38.0/-5.8 | 19.9/42.0/13.9 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 400 | 63.7/80.0/35.3 | 40.0 | 15.9/27.0/15.9 | 20.7/37.0/-7.9 | 21.8/45.0/15.8 | 61.7/78.0/33.3 | 18.7/35.0/-9.9 | 19.7/42.0/12.8 |
| 450 | 63.7/80.0/34.5 | 46.3 | 15.5/26.5/15.5 | 17.4/33.0/-10.5 | 20.5/42.0/14.7 | 61.7/78.0/32.5 | 15.4/31.0/-12.5 | 17.5/39.0/11.7 |
| 500 | 63.7/80.0/33.8 | 45.3 | 15.2/26.0/15.2 | 14.8/31.0/-15.3 | 19.8/42.0/13.8 | 61.7/78.0/31.8 | 12.8/29.0/-17.3 | 16.8/39.0/10.8 |
| 625 | 60.0/70.0/32.4 | 51.1 | 14.5/25.0/14.5 | 5.5/15.5/-23.1 | 18.8/42.0/11.8 | 58.0/68.0/30.4 | 9.9/26.0/-25.1 | 16.0/39.0/8.8 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6A S/FTP CWB | 4×2×0.57/0.58 | 0.2 | 0.6 | 1.0 | 9.66 | 168 |

Rated Voltage

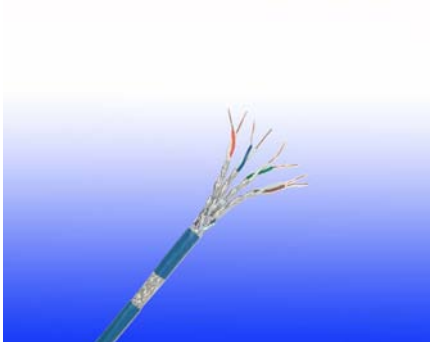
Standard

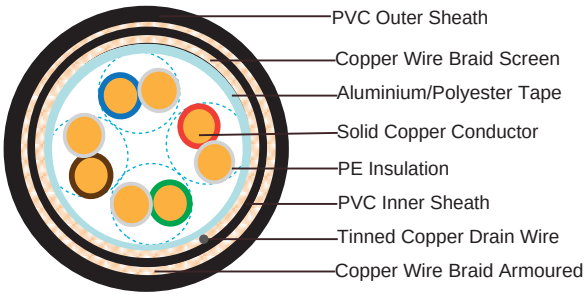
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6A SF/UTP CWB Armoured Data Cables

### FGD-CAT6A SF/UTP4P23 CWB






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Overall aluminium/Polyester tape with drain wire and copper wire braid screen.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**
**CWB:** Copper Wire Braid

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 74.3/86.0/74.3 | 2.0 | 20.0/33.0/20.0 | 72.2/84.0/72.2 | 67.8/91.0/67.8 | 72.3/81.0/72.3 | 70.2/80.5/70.2 | 64.8/84.0/64.8 |
| 4 | 65.3/77.0/65.3 | 3.7 | 23.0/35.5/23.0 | 61.4/73.0/61.4 | 55.8/79.0/55.8 | 63.3/72.0/63.3 | 59.5/70.0/59.5 | 52.8/72.0/52.8 |
| 8 | 60.8/75.0/60.8 | 5.3 | 24.5/36.0/24.5 | 55.4/70.0/55.4 | 49.7/74.0/49.7 | 58.8/69.0/58.8 | 53.5/66.0/53.5 | 46.7/69.0/46.7 |
| 10 | 59.3/71.0/59.3 | 5.9 | 25.0/38.0/25.0 | 53.3/66.0/53.3 | 47.8/71.0/47.8 | 57.3/65.0/57.3 | 51.3/62.0/51.3 | 44.8/64.0/44.8 |
| 16 | 56.2/68.0/56.2 | 7.6 | 25.0/35.2/25.0 | 48.6/61.0/48.6 | 43.7/67.0/43.7 | 54.2/62.0/54.2 | 46.6/58.0/46.6 | 40.7/60.0/40.7 |
| 20 | 54.8/67.0/54.8 | 8.3 | 25.0/35.0/25.0 | 46.3/59.0/46.3 | 41.8/65.0/41.8 | 52.8/61.0/52.8 | 44.3/55.0/44.3 | 38.8/59.0/38.8 |
| 25 | 53.3/65.0/53.3 | 9.5 | 24.3/34.0/24.3 | 43.8/57.0/43.8 | 39.8/63.0/39.8 | 51.3/60.0/51.3 | 41.8/53.0/41.8 | 36.8/57.0/36.8 |
| 31.25 | 51.9/64.0/51.9 | 10.4 | 23.6/33.1/23.6 | 41.1/54.0/41.1 | 37.9/61.0/37.9 | 49.9/54.0/49.9 | 39.1/50.0/39.1 | 34.9/54.0/34.9 |
| 62.5 | 47.4/59.0/47.4 | 14.9 | 21.5/32.2/21.5 | 31.9/44.0/31.9 | 31.9/55.0/31.9 | 45.4/58.0/45.4 | 29.9/41.0/29.9 | 28.9/48.0/28.9 |
| 100 | 44.3/56.0/44.3 | 19.0 | 20.1/31.6/20.1 | 24.4/38.0/24.4 | 27.8/51.0/27.8 | 42.3/50.0/42.3 | 22.4/34.0/22.4 | 24.8/44.0/24.8 |
| 200 | 39.8/52.0/39.8 | 27.4 | 18.0/29.8/18.0 | 10.6/25.0/10.6 | 21.8/45.0/21.8 | 37.8/45.0/37.8 | 8.6/20.5/8.6 | 18.8/38.0/18.8 |
| 250 | 38.3/50.0/38.3 | 31.0 | 17.3/28.7/17.3 | 5.3/19.0/5.3 | 19.8/43.0/19.8 | 36.3/44.0/36.3 | 3.3/15.0/3.3 | 16.8/36.0/16.8 |
| 300 | 37.1/49.0/37.1 | 34.2 | 16.8/28.0/16.8 | 0.5/14.0/0.5 | 18.3/38.0/18.3 | 35.1/43.0/35.1 | -1.5/10.0/-1.5 | 15.3/31.0/15.3 |
| 350 | 36.1/48.0/36.1 | 37.1 | 16.3/27.5/16.3 | -3.8/9.0/-3.8 | 16.9/37.0/16.9 | 34.1/41.0/34.1 | -5.8/7.0/-5.8 | 13.9/30.0/13.9 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 400 | 35.3/47.0/35.3 | 40.0 | 15.9/27.0/15.9 | -7.9/7.0/-7.9 | 15.8/36.0/15.8 | 33.3/40.0/33.3 | -9.9/3.0/-9.9 | 12.8/29.0/12.8 |
| 450 | 34.5/47.0/34.5 | 46.3 | 15.5/26.5/15.5 | -10.5/6.0/-10.5 | 14.7/35.0/14.7 | 32.5/39.0/32.5 | -12.5/2.0/-12.5 | 11.7/27.5/11.7 |
| 500 | 33.8/47.0/33.8 | 45.3 | 15.2/26.0/15.2 | -15.3/5.0/-15.3 | 13.8/34.0/13.8 | 31.8/38.0/31.8 | -17.3/0.0/-17.3 | 10.8/27.0/10.8 |
| 625 | 32.4/45.0/32.4 | 51.1 | 14.5/25.0/14.5 | -23.1/1.0/-23.1 | 11.8/33.0/11.8 | 30.4/37.0/30.4 | -25.1/-3.9/-25.1 | 8.8/26.0/8.8 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6A SF/UTP CWB | 4×2×0.57/0.58 | 0.2 | 0.6 | 1.0 | 8.96 | 154 |

Rated Voltage

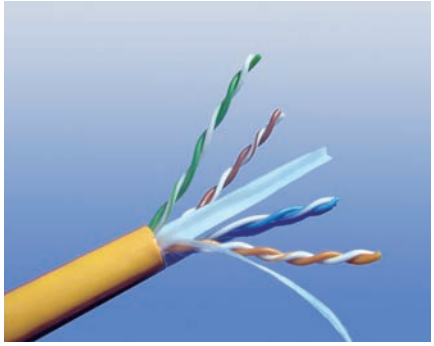
Standard

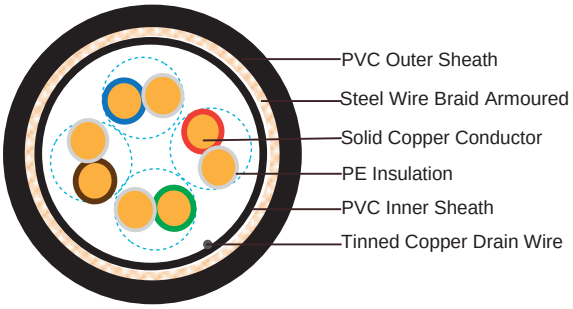
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6A U/UTP SWB Armoured Data Cables

### FGD-CAT6A U/UTP4P23 SWB






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**
**SWB:** Steel Wire Braid

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.56/0.57 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 74.3/95.0/74.3 | 2.0 | 20.0/28.0/20.0 | 72.2/94.0/72.2 | 67.8/92.0/67.8 | 72.3/92.0/72.3 | 70.2/90.0/70.2 | 64.8/85.0/64.8 |
| 4 | 65.3/88.0/65.3 | 3.7 | 23.0/30.0/23.0 | 61.4/88.0/61.4 | 55.8/80.0/55.8 | 63.3/83.0/63.3 | 59.5/80.0/59.5 | 52.8/73.0/52.8 |
| 8 | 60.8/85.0/60.8 | 5.3 | 24.5/33.0/24.5 | 55.4/83.0/55.4 | 49.7/75.0/49.7 | 58.8/80.0/58.8 | 53.5/76.0/53.5 | 46.7/70.0/46.7 |
| 10 | 59.3/83.0/59.3 | 5.9 | 25.0/36.0/25.0 | 53.3/78.0/53.3 | 47.8/72.0/47.8 | 57.3/77.0/57.3 | 51.3/72.0/51.3 | 44.8/65.0/44.8 |
| 16 | 56.2/80.0/56.2 | 7.6 | 25.0/36.0/25.0 | 48.6/74.0/48.6 | 43.7/68.0/43.7 | 54.2/74.0/54.2 | 46.6/68.0/46.6 | 40.7/61.0/40.7 |
| 20 | 54.8/78.0/54.8 | 8.3 | 25.0/36.0/25.0 | 46.3/71.0/46.3 | 41.8/65.0/41.8 | 52.8/73.0/52.8 | 44.3/66.0/44.3 | 38.8/59.0/38.8 |
| 25 | 53.3/77.0/53.3 | 9.5 | 24.3/35.0/24.3 | 43.8/69.0/43.8 | 39.8/63.0/39.8 | 51.3/71.0/51.3 | 41.8/63.0/41.8 | 36.8/57.0/36.8 |
| 31.25 | 51.9/76.0/51.9 | 10.4 | 23.6/34.0/23.6 | 41.1/67.0/41.1 | 37.9/62.0/37.9 | 49.9/70.0/49.9 | 39.1/60.0/39.1 | 34.9/55.0/34.9 |
| 62.5 | 47.4/70.0/47.4 | 14.9 | 21.5/33.5/21.5 | 31.9/57.0/31.9 | 31.9/56.0/31.9 | 45.4/65.0/45.4 | 29.9/51.0/29.9 | 28.9/49.0/28.9 |
| 100 | 44.3/68.0/44.3 | 19.0 | 20.1/33.0/20.1 | 24.4/50.0/24.4 | 27.8/52.0/27.8 | 42.3/62.0/42.3 | 22.4/44.0/22.4 | 24.8/45.0/24.8 |
| 200 | 39.8/65.0/39.8 | 27.4 | 18.0/31.0/18.0 | 10.6/38.0/10.6 | 21.8/46.0/21.8 | 37.8/58.0/37.8 | 8.6/32.0/8.6 | 18.8/39.0/18.8 |
| 250 | 38.3/62.0/38.3 | 31.0 | 17.3/30.5/17.3 | 5.3/33.0/5.3 | 19.8/44.0/19.8 | 36.3/56.0/36.3 | 3.3/27.0/3.3 | 16.8/37.0/16.8 |
| 300 | 37.1/61.0/37.1 | 34.2 | 16.8/29.0/16.8 | 0.5/29.0/0.5 | 18.3/42.0/18.3 | 35.1/55.0/35.1 | -1.5/24.0/-1.5 | 15.3/35.0/15.3 |
| 350 | 36.1/60.0/36.1 | 37.1. | 16.3/28.0/16.3 | -3.8/26.0/-3.8 | 16.9/41.0/16.9 | 34.1/54.0/34.1 | -5.8/20.0/-5.8 | 13.9/34.0/13.9 |
| 400 | 35.3/59.0/35.3 | 40.0 | 15.9/27.0/15.9 | -7.9/21.0/-7.9 | 15.8/40.0/15.8 | 33.3/53.0/33.3 | -9.9/15.0/-9.9 | 12.8/33.0/12.8 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 450 | 34.5/58.0/34.5 | 46.3 | 15.5/26.5/15.5 | -10.5/18.0/-10.5 | 14.7/40.5.0/14.7 | 32.5/52.0/32.5 | -12.5/11.0/-12.5 | 11.7/32.5/11.7 |
| 500 | 33.8/57.0/33.8 | 45.3 | 15.2/26.0/15.2 | -15.3/15.0/-15.3 | 13.8/39.0/13.8 | 31.8/51.0/31.8 | -17.3/9.0/-17.3 | 10.8/32.0/10.8 |
| 625 | 32.4/53.0/32.4 | 51.1 | 14.5/25.0/14.5 | -23.1/31.0/-23.1 | 11.8/36.0/11.8 | 30.4/50.0/30.4 | -25.1/5.0/-25.1 | 8.8/29.0/8.8 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6A U/UTP SWB | 4×2×0.56/0.57 | 0.2 | 0.6 | 1.0 | 7.88 | 109 |

Rated Voltage

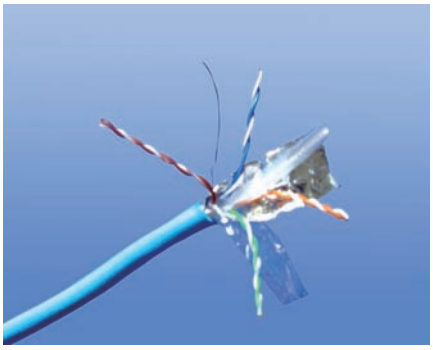
Standard

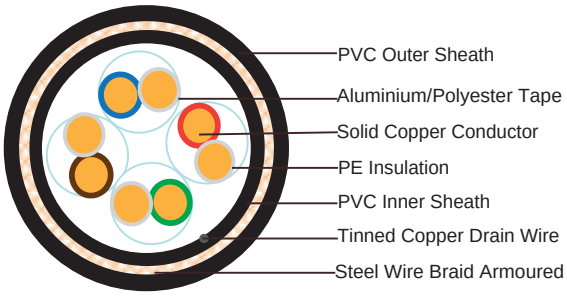
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6A U/FTP SWB Armoured Data Cables

### FGD-CAT6A U/FTP4P23 SWB






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium/polyester tape with drain wire.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**

**SWB:** Steel Wire Braid

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.56/0.57 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 87.0/90.0/74.3 | 2.0 | 20.0/28.0/20.0 | 85.0/88.0/72.2 | 73.8/75.0/67.8 | 85.0/88.0/72.3 | 83.0/86.0/70.2 | 70.8/72.0/64.8 |
| 4 | 80.0/90.0/65.3 | 3.7 | 23.0/30.0/23.0 | 76.0/86.0/61.4 | 61.8/75.0/55.8 | 78.0/88.0/63.3 | 74.0/84.0/59.5 | 58.0/72.0/52.8 |
| 8 | 80.0/90.0/60.8 | 5.3 | 24.5/33.0/24.5 | 74.7/84.0/55.4 | 55.7/75.0/49.7 | 78.0/88.0/58.8 | 72.7/82.0/53.5 | 52.7/72.0/46.7 |
| 10 | 80.0/90.0/59.3 | 5.9 | 25.0/36.0/25.0 | 74.0/84.0/53.3 | 53.8/74.0/47.8 | 78.0/88.0/57.3 | 72.0/82.0/51.3 | 50.8/71.0/44.8 |
| 16 | 80.0/90.0/56.2 | 7.6 | 25.0/36.0/25.0 | 72.4/82.0/48.6 | 49.7/70.0/43.7 | 78.0/88.0/54.2 | 70.4/80.0/46.6 | 46.7/67.0/40.7 |
| 20 | 80.0/90.0/54.8 | 8.3 | 25.0/36.0/25.0 | 71.5/81.0/46.3 | 47.8/68.0/41.8 | 78.0/88.0/52.8 | 69.5/79.0/44.3 | 44.8/65.0/38.8 |
| 25 | 80.0/90.0/53.3 | 9.5 | 24.3/35.0/24.3 | 70.5/80.0/43.8 | 45.8/68.0/39.8 | 78.0/88.0/51.3 | 68.5/78.0/41.8 | 42.8/65.0/36.8 |
| 31.25 | 80.0/90.0/51.9 | 10.4 | 23.6/34.0/23.6 | 69.3/79.0/41.1 | 43.9/64.0/37.9 | 78.0/88.0/49.9 | 67.3/77.0/39.1 | 40.9/61.0/34.9 |
| 62.5 | 75.3/90.0/47.4 | 14.9 | 21.5/33.5/21.5 | 59.9/74.0/31.9 | 37.9/58.0/31.9 | 69.1/83.0/45.4 | 57.9/72.0/29.9 | 34.9/55.0/28.9 |
| 100 | 71.1/85.0/44.3 | 19.0 | 20.1/33.0/20.1 | 51.3/65.0/24.4 | 33.8/54.0/27.8 | 69.1/83.0/42.3 | 49.3/63.0/22.4 | 30.8/51.0/24.8 |
| 200 | 71.1/85.0/39.8 | 27.4 | 18.0/31.0/18.0 | 42.1/56.0/10.6 | 27.8/51.0/21.8 | 69.1/83.0/37.8 | 40.1/54.0/8.6 | 24.8/48.0/18.8 |
| 250 | 71.1/85.0/38.3 | 31.0 | 17.3/30.5/17.3 | 38.2/52.0/5.3 | 25.8/48.0/19.8 | 61.7/78.0/36.3 | 36.2/50.0/3.3 | 22.8/45.0/16.8 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 300 | 63.7/80.0/37.1 | 34.2 | 16.8/29.0/16.8 | 27.3/43.0/0.5 | 24.3/45.0/18.3 | 61.7/78.0/35.1 | 25.3/41.0/-1.5 | 21.2/42.0/15.3 |
| 350 | 63.7/80.0/36.1 | 37.1 | 16.3/28.0/16.3 | 23.9/40.0/-3.8 | 23.9/45.0/16.9 | 61.7/78.0/34.1 | 21.9/38.0/-5.8 | 19.9/42.0/13.9 |
| 400 | 63.7/80.0/35.3 | 40.0 | 15.9/27.0/15.9 | 20.7/37.0/-7.9 | 21.8/45.0/15.8 | 61.7/78.0/33.3 | 18.7/35.0/-9.9 | 19.7/42.0/12.8 |
| 450 | 63.7/80.0/34.5 | 46.3 | 15.5/26.5/15.5 | 17.4/33.0/-10.5 | 20.5/42.0/14.7 | 61.7/78.0/32.5 | 15.4/31.0/-12.5 | 17.5/39.0/11.7 |
| 500 | 63.7/80.0/33.8 | 45.3 | 15.2/26.0/15.2 | 14.8/31.0/-15.3 | 19.8/42.0/13.8 | 61.7/78.0/31.8 | 12.8/29.0/-17.3 | 16.8/39.0/10.8 |
| 625 | 60.0/70.0/32.4 | 51.1 | 14.5/25.0/14.5 | 5.5/15.5/-23.1 | 18.8/42.0/11.8 | 58.0/68.0/30.4 | 9.9/26.0/-25.1 | 16.0/39.0/8.8 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6A U/FTP SWB | 4×2×0.56/0.57 | 0.2 | 0.6 | 1.0 | 8.32 | 126 |

Rated Voltage

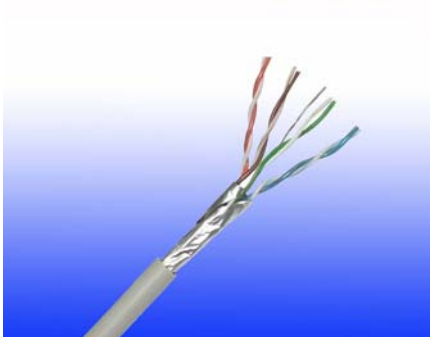
Standard

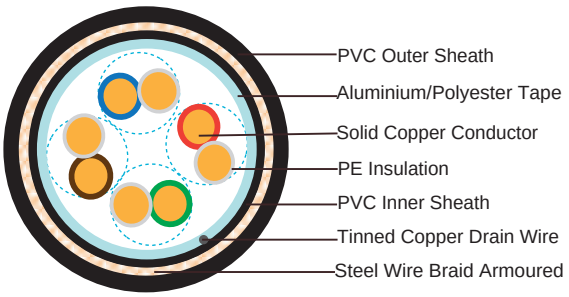
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6A F/UTP SWB Armoured Data Cables

### FGD-CAT6A F/UTP4P23 SWB






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Overall aluminium/Polyester tape with drain wire screen.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**

**SWB:** Steel Wire Braid

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C

**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter

**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 74.3/86.0/74.3 | 2.0 | 20.0/33.0/20.0 | 72.2/84.0/72.2 | 67.8/91.0/67.8 | 72.3/81.0/72.3 | 70.2/80.5/70.2 | 64.8/84.0/64.8 |
| 4 | 65.3/77.0/65.3 | 3.7 | 23.0/35.5/23.0 | 61.4/73.0/61.4 | 55.8/79.0/55.8 | 63.3/72.0/63.3 | 59.5/70.0/59.5 | 52.8/72.0/52.8 |
| 8 | 60.8/75.0/60.8 | 5.3 | 24.5/36.0/24.5 | 55.4/70.0/55.4 | 49.7/74.0/49.7 | 58.8/69.0/58.8 | 53.5/66.0/53.5 | 46.7/69.0/46.7 |
| 10 | 59.3/71.0/59.3 | 5.9 | 25.0/38.0/25.0 | 53.3/66.0/53.3 | 47.8/71.0/47.8 | 57.3/65.0/57.3 | 51.3/62.0/51.3 | 44.8/64.0/44.8 |
| 16 | 56.2/68.0/56.2 | 7.6 | 25.0/35.2/25.0 | 48.6/61.0/48.6 | 43.7/67.0/43.7 | 54.2/62.0/54.2 | 46.6/58.0/46.6 | 40.7/60.0/40.7 |
| 20 | 54.8/67.0/54.8 | 8.3 | 25.0/35.0/25.0 | 46.3/59.0/46.3 | 41.8/65.0/41.8 | 52.8/61.0/52.8 | 44.3/55.0/44.3 | 38.8/59.0/38.8 |
| 25 | 53.3/65.0/53.3 | 9.5 | 24.3/34.0/24.3 | 43.8/57.0/43.8 | 39.8/63.0/39.8 | 51.3/60.0/51.3 | 41.8/53.0/41.8 | 36.8/57.0/36.8 |
| 31.25 | 51.9/64.0/51.9 | 10.4 | 23.6/33.1/23.6 | 41.1/54.0/41.1 | 37.9/61.0/37.9 | 49.9/54.0/49.9 | 39.1/50.0/39.1 | 34.9/54.0/34.9 |
| 62.5 | 47.4/59.0/47.4 | 14.9 | 21.5/32.2/21.5 | 31.9/44.0/31.9 | 31.9/55.0/31.9 | 45.4/58.0/45.4 | 29.9/41.0/29.9 | 28.9/48.0/28.9 |
| 100 | 44.3/56.0/44.3 | 19.0 | 20.1/31.6/20.1 | 24.4/38.0/24.4 | 27.8/51.0/27.8 | 42.3/50.0/42.3 | 22.4/34.0/22.4 | 24.8/44.0/24.8 |
| 200 | 39.8/52.0/39.8 | 27.4 | 18.0/29.8/18.0 | 10.6/25.0/10.6 | 21.8/45.0/21.8 | 37.8/45.0/37.8 | 8.6/20.5/8.6 | 18.8/38.0/18.8 |
| 250 | 38.3/50.0/38.3 | 31.0 | 17.3/28.7/17.3 | 5.3/19.0/5.3 | 19.8/43.0/19.8 | 36.3/44.0/36.3 | 3.3/15.0/3.3 | 16.8/36.0/16.8 |
| 300 | 37.1/49.0/37.1 | 34.2 | 16.8/28.0/16.8 | 0.5/14.0/0.5 | 18.3/38.0/18.3 | 35.1/43.0/35.1 | -1.5/10.0/-1.5 | 15.3/31.0/15.3 |
| 350 | 36.1/48.0/36.1 | 37.1 | 16.3/27.5/16.3 | -3.8/9.0/-3.8 | 16.9/37.0/16.9 | 34.1/41.0/34.1 | -5.8/7.0/-5.8 | 13.9/30.0/13.9 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 400 | 35.3/47.0/35.3 | 40.0 | 15.9/27.0/15.9 | -7.9/7.0/-7.9 | 15.8/36.0/15.8 | 33.3/40.0/33.3 | -9.9/3.0/-9.9 | 12.8/29.0/12.8 |
| 450 | 34.5/47.0/34.5 | 46.3 | 15.5/26.5/15.5 | -10.5/6.0/-10.5 | 14.7/35.0/14.7 | 32.5/39.0/32.5 | -12.5/2.0/-12.5 | 11.7/27.5/11.7 |
| 500 | 33.8/47.0/33.8 | 45.3 | 15.2/26.0/15.2 | -15.3/5.0/-15.3 | 13.8/34.0/13.8 | 31.8/38.0/31.8 | -17.3/0.0/-17.3 | 10.8/27.0/10.8 |
| 625 | 32.4/45.0/32.4 | 51.1 | 14.5/25.0/14.5 | -23.1/1.0/-23.1 | 11.8/33.0/11.8 | 30.4/37.0/30.4 | -25.1/-3.9/-25.1 | 8.8/26.0/8.8 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6A F/UTP SWB | 4×2×0.57/0.58 | 0.2 | 0.6 | 1.0 | 8.48 | 132 |

Rated Voltage

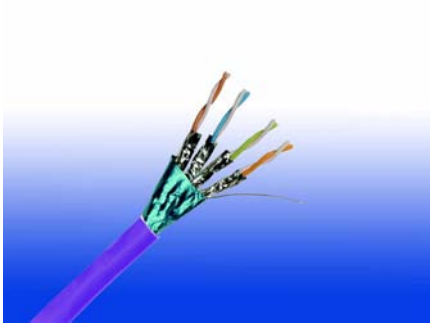
Standard

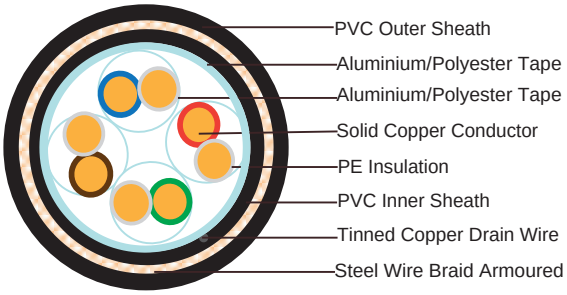
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6A F/FTP SWB Armoured Data Cables

### FGD-CAT6A F/FTP4P23 SWB






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium/polyester tape with drain wire and overall aluminium/polyester tape with drain wire screen.
**Inner Sheath:** Thermoplastic PVC compound.

**Armouring:**
**SWB:** Steel Wire Braid
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 87.0/90.0/74.3 | 2.0 | 20.0/28.0/20.0 | 85.0/88.0/72.2 | 73.8/75.0/67.8 | 85.0/88.0/72.3 | 83.0/86.0/70.2 | 70.8/72.0/64.8 |
| 4 | 80.0/90.0/65.3 | 3.7 | 23.0/30.0/23.0 | 76.0/86.0/61.4 | 61.8/75.0/55.8 | 78.0/88.0/63.3 | 74.0/84.0/59.5 | 58.0/72.0/52.8 |
| 8 | 80.0/90.0/60.8 | 5.3 | 24.5/33.0/24.5 | 74.7/84.0/55.4 | 55.7/75.0/49.7 | 78.0/88.0/58.8 | 72.7/82.0/53.5 | 52.7/72.0/46.7 |
| 10 | 80.0/90.0/59.3 | 5.9 | 25.0/36.0/25.0 | 74.0/84.0/53.3 | 53.8/74.0/47.8 | 78.0/88.0/57.3 | 72.0/82.0/51.3 | 50.8/71.0/44.8 |
| 16 | 80.0/90.0/56.2 | 7.6 | 25.0/36.0/25.0 | 72.4/82.0/48.6 | 49.7/70.0/43.7 | 78.0/88.0/54.2 | 70.4/80.0/46.6 | 46.7/67.0/40.7 |
| 20 | 80.0/90.0/54.8 | 8.3 | 25.0/36.0/25.0 | 71.5/81.0/46.3 | 47.8/68.0/41.8 | 78.0/88.0/52.8 | 69.5/79.0/44.3 | 44.8/65.0/38.8 |
| 25 | 80.0/90.0/53.3 | 9.5 | 24.3/35.0/24.3 | 70.5/80.0/43.8 | 45.8/68.0/39.8 | 78.0/88.0/51.3 | 68.5/78.0/41.8 | 42.8/65.0/36.8 |
| 31.25 | 80.0/90.0/51.9 | 10.4 | 23.6/34.0/23.6 | 69.3/79.0/41.1 | 43.9/64.0/37.9 | 78.0/88.0/49.9 | 67.3/77.0/39.1 | 40.9/61.0/34.9 |
| 62.5 | 75.3/90.0/47.4 | 14.9 | 21.5/33.5/21.5 | 59.9/74.0/31.9 | 37.9/58.0/31.9 | 69.1/83.0/45.4 | 57.9/72.0/29.9 | 34.9/55.0/28.9 |
| 100 | 71.1/85.0/44.3 | 19.0 | 20.1/33.0/20.1 | 51.3/65.0/24.4 | 33.8/54.0/27.8 | 69.1/83.0/42.3 | 49.3/63.0/22.4 | 30.8/51.0/24.8 |
| 200 | 71.1/85.0/39.8 | 27.4 | 18.0/31.0/18.0 | 42.1/56.0/10.6 | 27.8/51.0/21.8 | 69.1/83.0/37.8 | 40.1/54.0/8.6 | 24.8/48.0/18.8 |
| 250 | 71.1/85.0/38.3 | 31.0 | 17.3/30.5/17.3 | 38.2/52.0/5.3 | 25.8/48.0/19.8 | 61.7/78.0/36.3 | 36.2/50.0/3.3 | 22.8/45.0/16.8 |
| 300 | 63.7/80.0/37.1 | 34.2 | 16.8/29.0/16.8 | 27.3/43.0/0.5 | 24.3/45.0/18.3 | 61.7/78.0/35.1 | 25.3/41.0/-1.5 | 21.2/42.0/15.3 |

# FIREGUARD Fire Retardant CAT6A Data Cables

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 350 | 63.7/80.0/36.1 | 37.1 | 16.3/28.0/16.3 | 23.9/40.0/-3.8 | 23.9/45.0/16.9 | 61.7/78.0/34.1 | 21.9/38.0/-5.8 | 19.9/42.0/13.9 |
| 400 | 63.7/80.0/35.3 | 40.0 | 15.9/27.0/15.9 | 20.7/37.0/-7.9 | 21.8/45.0/15.8 | 61.7/78.0/33.3 | 18.7/35.0/-9.9 | 19.7/42.0/12.8 |
| 450 | 63.7/80.0/34.5 | 46.3 | 15.5/26.5/15.5 | 17.4/33.0/-10.5 | 20.5/42.0/14.7 | 61.7/78.0/32.5 | 15.4/31.0/-12.5 | 17.5/39.0/11.7 |
| 500 | 63.7/80.0/33.8 | 45.3 | 15.2/26.0/15.2 | 14.8/31.0/-15.3 | 19.8/42.0/13.8 | 61.7/78.0/31.8 | 12.8/29.0/-17.3 | 16.8/39.0/10.8 |
| 625 | 60.0/70.0/32.4 | 51.1 | 14.5/25.0/14.5 | 5.5/15.5/-23.1 | 18.8/42.0/11.8 | 58.0/68.0/30.4 | 9.9/26.0/-25.1 | 16.0/39.0/8.8 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6A F/FTP SWB | 4×2×0.57/0.58 | 0.2 | 0.6 | 1.0 | 8.90 | 140 |

Rated Voltage

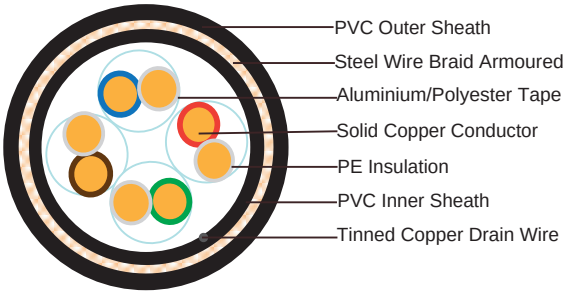
Standard

Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6A S/FTP SWB Armoured Data Cables

### FGD-CAT6A S/FTP4P23 SWB




### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium/Polyester tape with drain wire and copper wire braid screen.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**

**SWB:** Steel Wire Braid

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C

**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter

**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.56/0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 87.0/90.0/74.3 | 2.0 | 20.0/28.0/20.0 | 85.0/88.0/72.2 | 73.8/75.0/67.8 | 85.0/88.0/72.3 | 83.0/86.0/70.2 | 70.8/72.0/64.8 |
| 4 | 80.0/90.0/65.3 | 3.7 | 23.0/30.0/23.0 | 76.0/86.0/61.4 | 61.8/75.0/55.8 | 78.0/88.0/63.3 | 74.0/84.0/59.5 | 58.0/72.0/52.8 |
| 8 | 80.0/90.0/60.8 | 5.3 | 24.5/33.0/24.5 | 74.7/84.0/55.4 | 55.7/75.0/49.7 | 78.0/88.0/58.8 | 72.7/82.0/53.5 | 52.7/72.0/46.7 |
| 10 | 80.0/90.0/59.3 | 5.9 | 25.0/36.0/25.0 | 74.0/84.0/53.3 | 53.8/74.0/47.8 | 78.0/88.0/57.3 | 72.0/82.0/51.3 | 50.8/71.0/44.8 |
| 16 | 80.0/90.0/56.2 | 7.6 | 25.0/36.0/25.0 | 72.4/82.0/48.6 | 49.7/70.0/43.7 | 78.0/88.0/54.2 | 70.4/80.0/46.6 | 46.7/67.0/40.7 |
| 20 | 80.0/90.0/54.8 | 8.3 | 25.0/36.0/25.0 | 71.5/81.0/46.3 | 47.8/68.0/41.8 | 78.0/88.0/52.8 | 69.5/79.0/44.3 | 44.8/65.0/38.8 |
| 25 | 80.0/90.0/53.3 | 9.5 | 24.3/35.0/24.3 | 70.5/80.0/43.8 | 45.8/68.0/39.8 | 78.0/88.0/51.3 | 68.5/78.0/41.8 | 42.8/65.0/36.8 |
| 31.25 | 80.0/90.0/51.9 | 10.4 | 23.6/34.0/23.6 | 69.3/79.0/41.1 | 43.9/64.0/37.9 | 78.0/88.0/49.9 | 67.3/77.0/39.1 | 40.9/61.0/34.9 |
| 62.5 | 75.3/90.0/47.4 | 14.9 | 21.5/33.5/21.5 | 59.9/74.0/31.9 | 37.9/58.0/31.9 | 69.1/83.0/45.4 | 57.9/72.0/29.9 | 34.9/55.0/28.9 |
| 100 | 71.1/85.0/44.3 | 19.0 | 20.1/33.0/20.1 | 51.3/65.0/24.4 | 33.8/54.0/27.8 | 69.1/83.0/42.3 | 49.3/63.0/22.4 | 30.8/51.0/24.8 |
| 200 | 71.1/85.0/39.8 | 27.4 | 18.0/31.0/18.0 | 42.1/56.0/10.6 | 27.8/51.0/21.8 | 69.1/83.0/37.8 | 40.1/54.0/8.6 | 24.8/48.0/18.8 |
| 250 | 71.1/85.0/38.3 | 31.0 | 17.3/30.5/17.3 | 38.2/52.0/5.3 | 25.8/48.0/19.8 | 61.7/78.0/36.3 | 36.2/50.0/3.3 | 22.8/45.0/16.8 |
| 300 | 63.7/80.0/37.1 | 34.2 | 16.8/29.0/16.8 | 27.3/43.0/0.5 | 24.3/45.0/18.3 | 61.7/78.0/35.1 | 25.3/41.0/-1.5 | 21.2/42.0/15.3 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 350 | 63.7/80.0/36.1 | 37.1 | 16.3/28.0/16.3 | 23.9/40.0/-3.8 | 23.9/45.0/16.9 | 61.7/78.0/34.1 | 21.9/38.0/-5.8 | 19.9/42.0/13.9 |
| 400 | 63.7/80.0/35.3 | 40.0 | 15.9/27.0/15.9 | 20.7/37.0/-7.9 | 21.8/45.0/15.8 | 61.7/78.0/33.3 | 18.7/35.0/-9.9 | 19.7/42.0/12.8 |
| 450 | 63.7/80.0/34.5 | 46.3 | 15.5/26.5/15.5 | 17.4/33.0/-10.5 | 20.5/42.0/14.7 | 61.7/78.0/32.5 | 15.4/31.0/-12.5 | 17.5/39.0/11.7 |
| 500 | 63.7/80.0/33.8 | 45.3 | 15.2/26.0/15.2 | 14.8/31.0/-15.3 | 19.8/42.0/13.8 | 61.7/78.0/31.8 | 12.8/29.0/-17.3 | 16.8/39.0/10.8 |
| 625 | 60.0/70.0/32.4 | 51.1 | 14.5/25.0/14.5 | 5.5/15.5/-23.1 | 18.8/42.0/11.8 | 58.0/68.0/30.4 | 9.9/26.0/-25.1 | 16.0/39.0/8.8 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element× Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6A S/FTP SWB | 4×2×0.57/0.58 | 0.2 | 0.6 | 1.0 | 9.46 | 162 |

Rated Voltage

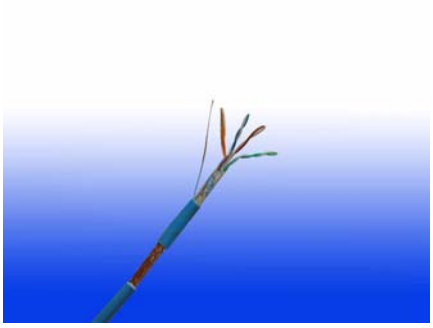
Standard

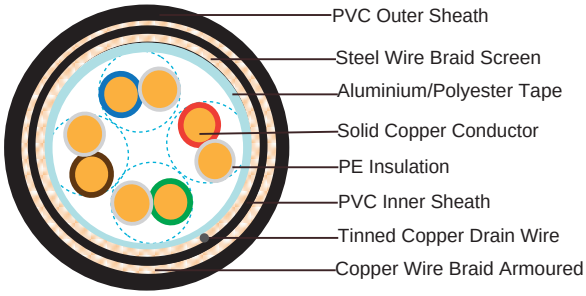
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6A SF/UTPSWB Armoured Data Cables

### FGD-CAT6A SF/UTP4P23 SWB






## APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

## STANDARDS

Basic design adapted to EN50173

## FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

## VOLTAGE RATING

60V

## CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Overall aluminium/Polyester tape with drain wire and copper wire braid screen.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**
**SWB:** Steel Wire Braid

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.56/0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 74.3/86.0/74.3 | 2.0 | 20.0/33.0/20.0 | 72.2/84.0/72.2 | 67.8/91.0/67.8 | 72.3/81.0/72.3 | 70.2/80.5/70.2 | 64.8/84.0/64.8 |
| 4 | 65.3/77.0/65.3 | 3.7 | 23.0/35.5/23.0 | 61.4/73.0/61.4 | 55.8/79.0/55.8 | 63.3/72.0/63.3 | 59.5/70.0/59.5 | 52.8/72.0/52.8 |
| 8 | 60.8/75.0/60.8 | 5.3 | 24.5/36.0/24.5 | 55.4/70.0/55.4 | 49.7/74.0/49.7 | 58.8/69.0/58.8 | 53.5/66.0/53.5 | 46.7/69.0/46.7 |
| 10 | 59.3/71.0/59.3 | 5.9 | 25.0/38.0/25.0 | 53.3/66.0/53.3 | 47.8/71.0/47.8 | 57.3/65.0/57.3 | 51.3/62.0/51.3 | 44.8/64.0/44.8 |
| 16 | 56.2/68.0/56.2 | 7.6 | 25.0/35.2/25.0 | 48.6/61.0/48.6 | 43.7/67.0/43.7 | 54.2/62.0/54.2 | 46.6/58.0/46.6 | 40.7/60.0/40.7 |
| 20 | 54.8/67.0/54.8 | 8.3 | 25.0/35.0/25.0 | 46.3/59.0/46.3 | 41.8/65.0/41.8 | 52.8/61.0/52.8 | 44.3/55.0/44.3 | 38.8/59.0/38.8 |
| 25 | 53.3/65.0/53.3 | 9.5 | 24.3/34.0/24.3 | 43.8/57.0/43.8 | 39.8/63.0/39.8 | 51.3/60.0/51.3 | 41.8/53.0/41.8 | 36.8/57.0/36.8 |
| 31.25 | 51.9/64.0/51.9 | 10.4 | 23.6/33.1/23.6 | 41.1/54.0/41.1 | 37.9/61.0/37.9 | 49.9/54.0/49.9 | 39.1/50.0/39.1 | 34.9/54.0/34.9 |
| 62.5 | 47.4/59.0/47.4 | 14.9 | 21.5/32.2/21.5 | 31.9/44.0/31.9 | 31.9/55.0/31.9 | 45.4/58.0/45.4 | 29.9/41.0/29.9 | 28.9/48.0/28.9 |
| 100 | 44.3/56.0/44.3 | 19.0 | 20.1/31.6/20.1 | 24.4/38.0/24.4 | 27.8/51.0/27.8 | 42.3/50.0/42.3 | 22.4/34.0/22.4 | 24.8/44.0/24.8 |
| 200 | 39.8/52.0/39.8 | 27.4 | 18.0/29.8/18.0 | 10.6/25.0/10.6 | 21.8/45.0/21.8 | 37.8/45.0/37.8 | 8.6/20.5/8.6 | 18.8/38.0/18.8 |
| 250 | 38.3/50.0/38.3 | 31.0 | 17.3/28.7/17.3 | 5.3/19.0/5.3 | 19.8/43.0/19.8 | 36.3/44.0/36.3 | 3.3/15.0/3.3 | 16.8/36.0/16.8 |
| 300 | 37.1/49.0/37.1 | 34.2 | 16.8/28.0/16.8 | 0.5/14.0/0.5 | 18.3/38.0/18.3 | 35.1/43.0/35.1 | -1.5/10.0/-1.5 | 15.3/31.0/15.3 |
| 350 | 36.1/48.0/36.1 | 37.1 | 16.3/27.5/16.3 | -3.8/9.0/-3.8 | 16.9/37.0/16.9 | 34.1/41.0/34.1 | -5.8/7.0/-5.8 | 13.9/30.0/13.9 |
| 400 | 35.3/47.0/35.3 | 40.0 | 15.9/27.0/15.9 | -7.9/7.0/-7.9 | 15.8/36.0/15.8 | 33.3/40.0/33.3 | -9.9/3.0/-9.9 | 12.8/29.0/12.8 |

# FIREGUARD Fire Retardant CAT6A Data Cables

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 450 | 34.5/47.0/34.5 | 46.3 | 15.5/26.5/15.5 | -10.5/6.0/-10.5 | 14.7/35.0/14.7 | 32.5/39.0/32.5 | -12.5/2.0/-12.5 | 11.7/27.5/11.7 |
| 500 | 33.8/47.0/33.8 | 45.3 | 15.2/26.0/15.2 | -15.3/5.0/-15.3 | 13.8/34.0/13.8 | 31.8/38.0/31.8 | -17.3/0.0/-17.3 | 10.8/27.0/10.8 |
| 625 | 32.4/45.0/32.4 | 51.1 | 14.5/25.0/14.5 | -23.1/1.0/-23.1 | 11.8/33.0/11.8 | 30.4/37.0/30.4 | -25.1/-3.9/-25.1 | 8.8/26.0/8.8 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element× Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6A SF/UTP SWB | 4×2×0.57/0.58 | 0.2 | 0.6 | 1.0 | 8.96 | 148 |

Rated Voltage

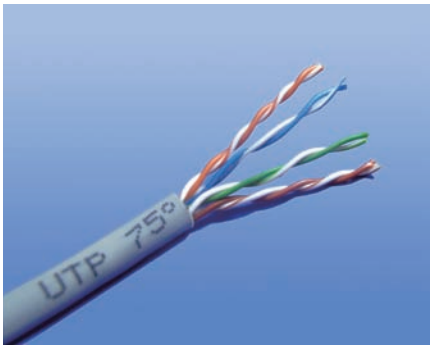
Standard

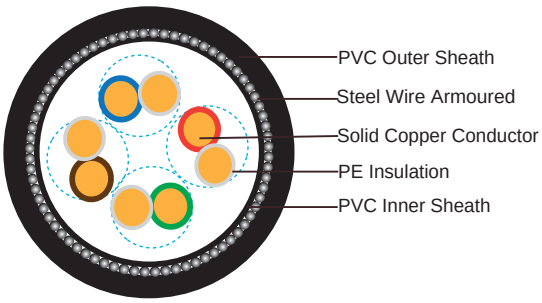
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6A U/UTP SWA Armoured Data Cables

### FGD-CAT6A U/UTP4P23 SWA




### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**
**SWA:** Steel Wire Armour

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.56/0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 74.3/95.0/74.3 | 2.0 | 20.0/28.0/20.0 | 72.2/94.0/72.2 | 67.8/92.0/67.8 | 72.3/92.0/72.3 | 70.2/90.0/70.2 | 64.8/85.0/64.8 |
| 4 | 65.3/88.0/65.3 | 3.7 | 23.0/30.0/23.0 | 61.4/88.0/61.4 | 55.8/80.0/55.8 | 63.3/83.0/63.3 | 59.5/80.0/59.5 | 52.8/73.0/52.8 |
| 8 | 60.8/85.0/60.8 | 5.3 | 24.5/33.0/24.5 | 55.4/83.0/55.4 | 49.7/75.0/49.7 | 58.8/80.0/58.8 | 53.5/76.0/53.5 | 46.7/70.0/46.7 |
| 10 | 59.3/83.0/59.3 | 5.9 | 25.0/36.0/25.0 | 53.3/78.0/53.3 | 47.8/72.0/47.8 | 57.3/77.0/57.3 | 51.3/72.0/51.3 | 44.8/65.0/44.8 |
| 16 | 56.2/80.0/56.2 | 7.6 | 25.0/36.0/25.0 | 48.6/74.0/48.6 | 43.7/68.0/43.7 | 54.2/74.0/54.2 | 46.6/68.0/46.6 | 40.7/61.0/40.7 |
| 20 | 54.8/78.0/54.8 | 8.3 | 25.0/36.0/25.0 | 46.3/71.0/46.3 | 41.8/65.0/41.8 | 52.8/73.0/52.8 | 44.3/66.0/44.3 | 38.8/59.0/38.8 |
| 25 | 53.3/77.0/53.3 | 9.5 | 24.3/35.0/24.3 | 43.8/69.0/43.8 | 39.8/63.0/39.8 | 51.3/71.0/51.3 | 41.8/63.0/41.8 | 36.8/57.0/36.8 |
| 31.25 | 51.9/76.0/51.9 | 10.4 | 23.6/34.0/23.6 | 41.1/67.0/41.1 | 37.9/62.0/37.9 | 49.9/70.0/49.9 | 39.1/60.0/39.1 | 34.9/55.0/34.9 |
| 62.5 | 47.4/70.0/47.4 | 14.9 | 21.5/33.5/21.5 | 31.9/57.0/31.9 | 31.9/56.0/31.9 | 45.4/65.0/45.4 | 29.9/51.0/29.9 | 28.9/49.0/28.9 |
| 100 | 44.3/68.0/44.3 | 19.0 | 20.1/33.0/20.1 | 24.4/50.0/24.4 | 27.8/52.0/27.8 | 42.3/62.0/42.3 | 22.4/44.0/22.4 | 24.8/45.0/24.8 |
| 200 | 39.8/65.0/39.8 | 27.4 | 18.0/31.0/18.0 | 10.6/38.0/10.6 | 21.8/46.0/21.8 | 37.8/58.0/37.8 | 8.6/32.0/8.6 | 18.8/39.0/18.8 |
| 250 | 38.3/62.0/38.3 | 31.0 | 17.3/30.5/17.3 | 5.3/33.0/5.3 | 19.8/44.0/19.8 | 36.3/56.0/36.3 | 3.3/27.0/3.3 | 16.8/37.0/16.8 |
| 300 | 37.1/61.0/37.1 | 34.2 | 16.8/29.0/16.8 | 0.5/29.0/0.5 | 18.3/42.0/18.3 | 35.1/55.0/35.1 | -1.5/24.0/-1.5 | 15.3/35.0/15.3 |
| 350 | 36.1/60.0/36.1 | 37.1. | 16.3/28.0/16.3 | -3.8/26.0/-3.8 | 16.9/41.0/16.9 | 34.1/54.0/34.1 | -5.8/20.0/-5.8 | 13.9/34.0/13.9 |
| 400 | 35.3/59.0/35.3 | 40.0 | 15.9/27.0/15.9 | -7.9/21.0/-7.9 | 15.8/40.0/15.8 | 33.3/53.0/33.3 | -9.9/15.0/-9.9 | 12.8/33.0/12.8 |
| 450 | 34.5/58.0/34.5 | 46.3 | 15.5/26.5/15.5 | -10.5/18.0/-10.5 | 14.7/40.5.0/14.7 | 32.5/52.0/32.5 | -12.5/11.0/-12.5 | 11.7/32.5/11.7 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 500 | 33.8/57.0/33.8 | 45.3 | 15.2/26.0/15.2 | -15.3/15.0/-15.3 | 13.8/39.0/13.8 | 31.8/51.0/31.8 | -17.3/9.0/-17.3 | 10.8/32.0/10.8 |
| 625 | 32.4/53.0/32.4 | 51.1 | 14.5/25.0/14.5 | -23.1/31.0/-23.1 | 11.8/36.0/11.8 | 30.4/50.0/30.4 | -25.1/5.0/-25.1 | 8.8/29.0/8.8 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6A SF/UTP SWA | 4×2×0.57/0.58 | 0.2 | 0.6 | 1.0 | 9.96 | 242 |

Rated Voltage

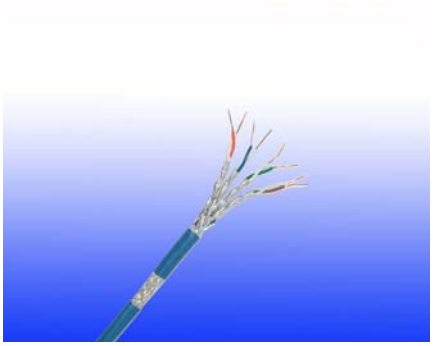
Standard

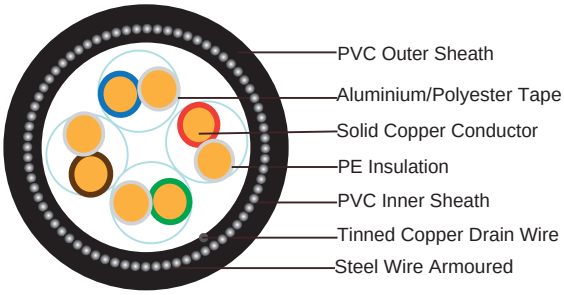
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6A U/FTP SWA Armoured Data Cables

### FGD-CAT6A U/FTP4P23 SWA






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium/Polyester tape with drain wire screen.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**

**SWA:** Steel Wire Armour

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C

**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter

**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.56/0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 87.0/90.0/74.3 | 2.0 | 20.0/28.0/20.0 | 85.0/88.0/72.2 | 73.8/75.0/67.8 | 85.0/88.0/72.3 | 83.0/86.0/70.2 | 70.8/72.0/64.8 |
| 4 | 80.0/90.0/65.3 | 3.7 | 23.0/30.0/23.0 | 76.0/86.0/61.4 | 61.8/75.0/55.8 | 78.0/88.0/63.3 | 74.0/84.0/59.5 | 58.0/72.0/52.8 |
| 8 | 80.0/90.0/60.8 | 5.3 | 24.5/33.0/24.5 | 74.7/84.0/55.4 | 55.7/75.0/49.7 | 78.0/88.0/58.8 | 72.7/82.0/53.5 | 52.7/72.0/46.7 |
| 10 | 80.0/90.0/59.3 | 5.9 | 25.0/36.0/25.0 | 74.0/84.0/53.3 | 53.8/74.0/47.8 | 78.0/88.0/57.3 | 72.0/82.0/51.3 | 50.8/71.0/44.8 |
| 16 | 80.0/90.0/56.2 | 7.6 | 25.0/36.0/25.0 | 72.4/82.0/48.6 | 49.7/70.0/43.7 | 78.0/88.0/54.2 | 70.4/80.0/46.6 | 46.7/67.0/40.7 |
| 20 | 80.0/90.0/54.8 | 8.3 | 25.0/36.0/25.0 | 71.5/81.0/46.3 | 47.8/68.0/41.8 | 78.0/88.0/52.8 | 69.5/79.0/44.3 | 44.8/65.0/38.8 |
| 25 | 80.0/90.0/53.3 | 9.5 | 24.3/35.0/24.3 | 70.5/80.0/43.8 | 45.8/68.0/39.8 | 78.0/88.0/51.3 | 68.5/78.0/41.8 | 42.8/65.0/36.8 |
| 31.25 | 80.0/90.0/51.9 | 10.4 | 23.6/34.0/23.6 | 69.3/79.0/41.1 | 43.9/64.0/37.9 | 78.0/88.0/49.9 | 67.3/77.0/39.1 | 40.9/61.0/34.9 |
| 62.5 | 75.3/90.0/47.4 | 14.9 | 21.5/33.5/21.5 | 59.9/74.0/31.9 | 37.9/58.0/31.9 | 69.1/83.0/45.4 | 57.9/72.0/29.9 | 34.9/55.0/28.9 |
| 100 | 71.1/85.0/44.3 | 19.0 | 20.1/33.0/20.1 | 51.3/65.0/24.4 | 33.8/54.0/27.8 | 69.1/83.0/42.3 | 49.3/63.0/22.4 | 30.8/51.0/24.8 |
| 200 | 71.1/85.0/39.8 | 27.4 | 18.0/31.0/18.0 | 42.1/56.0/10.6 | 27.8/51.0/21.8 | 69.1/83.0/37.8 | 40.1/54.0/8.6 | 24.8/48.0/18.8 |
| 250 | 71.1/85.0/38.3 | 31.0 | 17.3/30.5/17.3 | 38.2/52.0/5.3 | 25.8/48.0/19.8 | 61.7/78.0/36.3 | 36.2/50.0/3.3 | 22.8/45.0/16.8 |
| 300 | 63.7/80.0/37.1 | 34.2 | 16.8/29.0/16.8 | 27.3/43.0/0.5 | 24.3/45.0/18.3 | 61.7/78.0/35.1 | 25.3/41.0/-1.5 | 21.2/42.0/15.3 |
| 350 | 63.7/80.0/36.1 | 37.1 | 16.3/28.0/16.3 | 23.9/40.0/-3.8 | 23.9/45.0/16.9 | 61.7/78.0/34.1 | 21.9/38.0/-5.8 | 19.9/42.0/13.9 |

# FIREGUARD Fire Retardant CAT6A Data Cables

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 400 | 63.7/80.0/35.3 | 40.0 | 15.9/27.0/15.9 | 20.7/37.0/-7.9 | 21.8/45.0/15.8 | 61.7/78.0/33.3 | 18.7/35.0/-9.9 | 19.7/42.0/12.8 |
| 450 | 63.7/80.0/34.5 | 46.3 | 15.5/26.5/15.5 | 17.4/33.0/-10.5 | 20.5/42.0/14.7 | 61.7/78.0/32.5 | 15.4/31.0/-12.5 | 17.5/39.0/11.7 |
| 500 | 63.7/80.0/33.8 | 45.3 | 15.2/26.0/15.2 | 14.8/31.0/-15.3 | 19.8/42.0/13.8 | 61.7/78.0/31.8 | 12.8/29.0/-17.3 | 16.8/39.0/10.8 |
| 625 | 60.0/70.0/32.4 | 51.1 | 14.5/25.0/14.5 | 5.5/15.5/-23.1 | 18.8/42.0/11.8 | 58.0/68.0/30.4 | 9.9/26.0/-25.1 | 16.0/39.0/8.8 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6A U/FTP SWA | 4×2×0.57/0.58 | 0.2 | 0.6 | 1.0 | 10.20 | 250 |

Rated Voltage

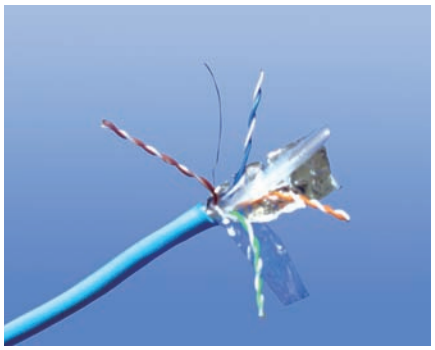
Standard

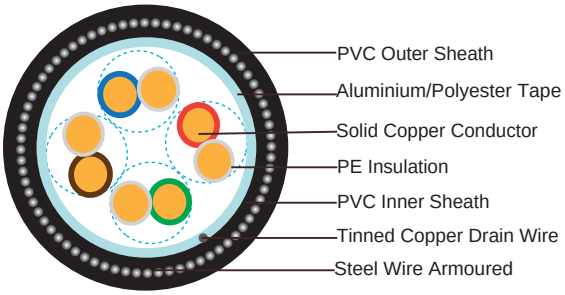
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6A F/UTP SWA Armoured Data Cables

### FGD-CAT6A F/UTP4P23 SWA






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Overall aluminium/Polyester tape with drain wire screen.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**
**SWA:** Steel Wire Armour

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.56/0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 74.3/86.0/74.3 | 2.0 | 20.0/33.0/20.0 | 72.2/84.0/72.2 | 67.8/91.0/67.8 | 72.3/81.0/72.3 | 70.2/80.5/70.2 | 64.8/84.0/64.8 |
| 4 | 65.3/77.0/65.3 | 3.7 | 23.0/35.5/23.0 | 61.4/73.0/61.4 | 55.8/79.0/55.8 | 63.3/72.0/63.3 | 59.5/70.0/59.5 | 52.8/72.0/52.8 |
| 8 | 60.8/75.0/60.8 | 5.3 | 24.5/36.0/24.5 | 55.4/70.0/55.4 | 49.7/74.0/49.7 | 58.8/69.0/58.8 | 53.5/66.0/53.5 | 46.7/69.0/46.7 |
| 10 | 59.3/71.0/59.3 | 5.9 | 25.0/38.0/25.0 | 53.3/66.0/53.3 | 47.8/71.0/47.8 | 57.3/65.0/57.3 | 51.3/62.0/51.3 | 44.8/64.0/44.8 |
| 16 | 56.2/68.0/56.2 | 7.6 | 25.0/35.2/25.0 | 48.6/61.0/48.6 | 43.7/67.0/43.7 | 54.2/62.0/54.2 | 46.6/58.0/46.6 | 40.7/60.0/40.7 |
| 20 | 54.8/67.0/54.8 | 8.3 | 25.0/35.0/25.0 | 46.3/59.0/46.3 | 41.8/65.0/41.8 | 52.8/61.0/52.8 | 44.3/55.0/44.3 | 38.8/59.0/38.8 |
| 25 | 53.3/65.0/53.3 | 9.5 | 24.3/34.0/24.3 | 43.8/57.0/43.8 | 39.8/63.0/39.8 | 51.3/60.0/51.3 | 41.8/53.0/41.8 | 36.8/57.0/36.8 |
| 31.25 | 51.9/64.0/51.9 | 10.4 | 23.6/33.1/23.6 | 41.1/54.0/41.1 | 37.9/61.0/37.9 | 49.9/54.0/49.9 | 39.1/50.0/39.1 | 34.9/54.0/34.9 |
| 62.5 | 47.4/59.0/47.4 | 14.9 | 21.5/32.2/21.5 | 31.9/44.0/31.9 | 31.9/55.0/31.9 | 45.4/58.0/45.4 | 29.9/41.0/29.9 | 28.9/48.0/28.9 |
| 100 | 44.3/56.0/44.3 | 19.0 | 20.1/31.6/20.1 | 24.4/38.0/24.4 | 27.8/51.0/27.8 | 42.3/50.0/42.3 | 22.4/34.0/22.4 | 24.8/44.0/24.8 |
| 200 | 39.8/52.0/39.8 | 27.4 | 18.0/29.8/18.0 | 10.6/25.0/10.6 | 21.8/45.0/21.8 | 37.8/45.0/37.8 | 8.6/20.5/8.6 | 18.8/38.0/18.8 |
| 250 | 38.3/50.0/38.3 | 31.0 | 17.3/28.7/17.3 | 5.3/19.0/5.3 | 19.8/43.0/19.8 | 36.3/44.0/36.3 | 3.3/15.0/3.3 | 16.8/36.0/16.8 |
| 300 | 37.1/49.0/37.1 | 34.2 | 16.8/28.0/16.8 | 0.5/14.0/0.5 | 18.3/38.0/18.3 | 35.1/43.0/35.1 | -1.5/10.0/-1.5 | 15.3/31.0/15.3 |
| 350 | 36.1/48.0/36.1 | 37.1 | 16.3/27.5/16.3 | -3.8/9.0/-3.8 | 16.9/37.0/16.9 | 34.1/41.0/34.1 | -5.8/7.0/-5.8 | 13.9/30.0/13.9 |
| 400 | 35.3/47.0/35.3 | 40.0 | 15.9/27.0/15.9 | -7.9/7.0/-7.9 | 15.8/36.0/15.8 | 33.3/40.0/33.3 | -9.9/3.0/-9.9 | 12.8/29.0/12.8 |
| 450 | 34.5/47.0/34.5 | 46.3 | 15.5/26.5/15.5 | -10.5/6.0/-10.5 | 14.7/35.0/14.7 | 32.5/39.0/32.5 | -12.5/2.0/-12.5 | 11.7/27.5/11.7 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 500 | 33.8/47.0/33.8 | 45.3 | 15.2/26.0/15.2 | -15.3/5.0/-15.3 | 13.8/34.0/13.8 | 31.8/38.0/31.8 | -17.3/0.0/-17.3 | 10.8/27.0/10.8 |
| 625 | 32.4/45.0/32.4 | 51.1 | 14.5/25.0/14.5 | -23.1/1.0/-23.1 | 11.8/33.0/11.8 | 30.4/37.0/30.4 | -25.1/-3.9/-25.1 | 8.8/26.0/8.8 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6A F/UTP SWA | 4×2×0.57/0.58 | 0.2 | 0.6 | 1.0 | 9.48 | 213 |

Rated Voltage

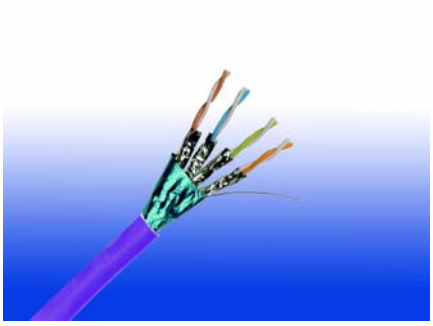
Standard

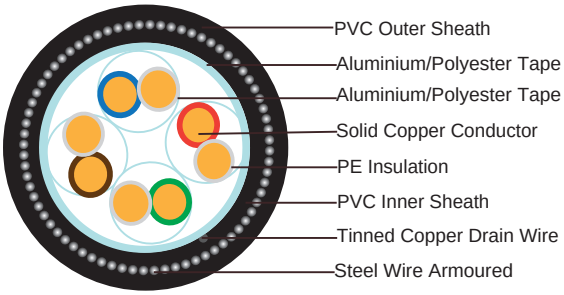
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6A F/FTP SWA Armoured Data Cables

### FGD-CAT6A F/FTP4P23 SWA






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium/polyester tape with drain wire and overall aluminium/polyester tape with drain wire screen.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**
**SWA:** Steel Wire Armour
**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil

resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.56/0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 87.0/90.0/74.3 | 2.0 | 20.0/28.0/20.0 | 85.0/88.0/72.2 | 73.8/75.0/67.8 | 85.0/88.0/72.3 | 83.0/86.0/70.2 | 70.8/72.0/64.8 |
| 4 | 80.0/90.0/65.3 | 3.7 | 23.0/30.0/23.0 | 76.0/86.0/61.4 | 61.8/75.0/55.8 | 78.0/88.0/63.3 | 74.0/84.0/59.5 | 58.0/72.0/52.8 |
| 8 | 80.0/90.0/60.8 | 5.3 | 24.5/33.0/24.5 | 74.7/84.0/55.4 | 55.7/75.0/49.7 | 78.0/88.0/58.8 | 72.7/82.0/53.5 | 52.7/72.0/46.7 |
| 10 | 80.0/90.0/59.3 | 5.9 | 25.0/36.0/25.0 | 74.0/84.0/53.3 | 53.8/74.0/47.8 | 78.0/88.0/57.3 | 72.0/82.0/51.3 | 50.8/71.0/44.8 |
| 16 | 80.0/90.0/56.2 | 7.6 | 25.0/36.0/25.0 | 72.4/82.0/48.6 | 49.7/70.0/43.7 | 78.0/88.0/54.2 | 70.4/80.0/46.6 | 46.7/67.0/40.7 |
| 20 | 80.0/90.0/54.8 | 8.3 | 25.0/36.0/25.0 | 71.5/81.0/46.3 | 47.8/68.0/41.8 | 78.0/88.0/52.8 | 69.5/79.0/44.3 | 44.8/65.0/38.8 |
| 25 | 80.0/90.0/53.3 | 9.5 | 24.3/35.0/24.3 | 70.5/80.0/43.8 | 45.8/68.0/39.8 | 78.0/88.0/51.3 | 68.5/78.0/41.8 | 42.8/65.0/36.8 |
| 31.25 | 80.0/90.0/51.9 | 10.4 | 23.6/34.0/23.6 | 69.3/79.0/41.1 | 43.9/64.0/37.9 | 78.0/88.0/49.9 | 67.3/77.0/39.1 | 40.9/61.0/34.9 |
| 62.5 | 75.3/90.0/47.4 | 14.9 | 21.5/33.5/21.5 | 59.9/74.0/31.9 | 37.9/58.0/31.9 | 69.1/83.0/45.4 | 57.9/72.0/29.9 | 34.9/55.0/28.9 |
| 100 | 71.1/85.0/44.3 | 19.0 | 20.1/33.0/20.1 | 51.3/65.0/24.4 | 33.8/54.0/27.8 | 69.1/83.0/42.3 | 49.3/63.0/22.4 | 30.8/51.0/24.8 |
| 200 | 71.1/85.0/39.8 | 27.4 | 18.0/31.0/18.0 | 42.1/56.0/10.6 | 27.8/51.0/21.8 | 69.1/83.0/37.8 | 40.1/54.0/8.6 | 24.8/48.0/18.8 |
| 250 | 71.1/85.0/38.3 | 31.0 | 17.3/30.5/17.3 | 38.2/52.0/5.3 | 25.8/48.0/19.8 | 61.7/78.0/36.3 | 36.2/50.0/3.3 | 22.8/45.0/16.8 |
| 300 | 63.7/80.0/37.1 | 34.2 | 16.8/29.0/16.8 | 27.3/43.0/0.5 | 24.3/45.0/18.3 | 61.7/78.0/35.1 | 25.3/41.0/-1.5 | 21.2/42.0/15.3 |
| 350 | 63.7/80.0/36.1 | 37.1 | 16.3/28.0/16.3 | 23.9/40.0/-3.8 | 23.9/45.0/16.9 | 61.7/78.0/34.1 | 21.9/38.0/-5.8 | 19.9/42.0/13.9 |
| 400 | 63.7/80.0/35.3 | 40.0 | 15.9/27.0/15.9 | 20.7/37.0/-7.9 | 21.8/45.0/15.8 | 61.7/78.0/33.3 | 18.7/35.0/-9.9 | 19.7/42.0/12.8 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 450 | 63.7/80.0/34.5 | 46.3 | 15.5/26.5/15.5 | 17.4/33.0/-10.5 | 20.5/42.0/14.7 | 61.7/78.0/32.5 | 15.4/31.0/-12.5 | 17.5/39.0/11.7 |
| 500 | 63.7/80.0/33.8 | 45.3 | 15.2/26.0/15.2 | 14.8/31.0/-15.3 | 19.8/42.0/13.8 | 61.7/78.0/31.8 | 12.8/29.0/-17.3 | 16.8/39.0/10.8 |
| 625 | 60.0/70.0/32.4 | 51.1 | 14.5/25.0/14.5 | 5.5/15.5/-23.1 | 18.8/42.0/11.8 | 58.0/68.0/30.4 | 9.9/26.0/-25.1 | 16.0/39.0/8.8 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6A F/FTP SWA | 4×2×0.57/0.58 | 0.2 | 0.6 | 1.0 | 9.94 | 222 |

Rated Voltage

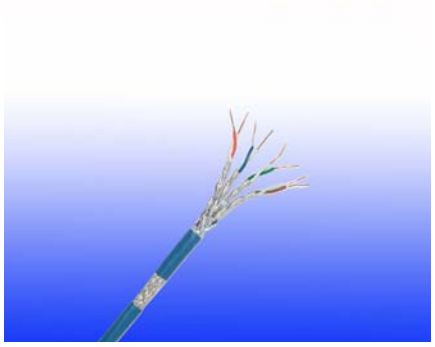
Standard

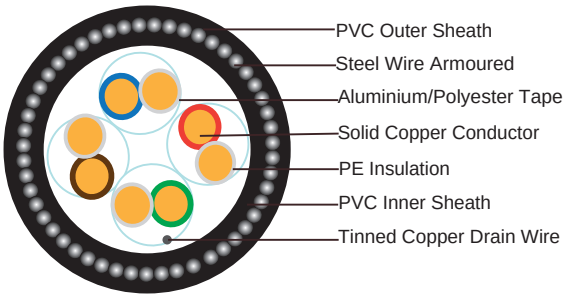
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6A S/FTP SWA Armoured Data Cables

### FGD-CAT6A S/FTP4P23 SWA






### APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

### STANDARDS

Basic design adapted to EN50173

### FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

### VOLTAGE RATING

60V

### CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Individual aluminium/Polyester tape with drain wire and copper wire braid screen.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**

**SWA:** Steel Wire Armour

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C

**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter

**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.56/0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 87.0/90.0/74.3 | 2.0 | 20.0/28.0/20.0 | 85.0/88.0/72.2 | 73.8/75.0/67.8 | 85.0/88.0/72.3 | 83.0/86.0/70.2 | 70.8/72.0/64.8 |
| 4 | 80.0/90.0/65.3 | 3.7 | 23.0/30.0/23.0 | 76.0/86.0/61.4 | 61.8/75.0/55.8 | 78.0/88.0/63.3 | 74.0/84.0/59.5 | 58.0/72.0/52.8 |
| 8 | 80.0/90.0/60.8 | 5.3 | 24.5/33.0/24.5 | 74.7/84.0/55.4 | 55.7/75.0/49.7 | 78.0/88.0/58.8 | 72.7/82.0/53.5 | 52.7/72.0/46.7 |
| 10 | 80.0/90.0/59.3 | 5.9 | 25.0/36.0/25.0 | 74.0/84.0/53.3 | 53.8/74.0/47.8 | 78.0/88.0/57.3 | 72.0/82.0/51.3 | 50.8/71.0/44.8 |
| 16 | 80.0/90.0/56.2 | 7.6 | 25.0/36.0/25.0 | 72.4/82.0/48.6 | 49.7/70.0/43.7 | 78.0/88.0/54.2 | 70.4/80.0/46.6 | 46.7/67.0/40.7 |
| 20 | 80.0/90.0/54.8 | 8.3 | 25.0/36.0/25.0 | 71.5/81.0/46.3 | 47.8/68.0/41.8 | 78.0/88.0/52.8 | 69.5/79.0/44.3 | 44.8/65.0/38.8 |
| 25 | 80.0/90.0/53.3 | 9.5 | 24.3/35.0/24.3 | 70.5/80.0/43.8 | 45.8/68.0/39.8 | 78.0/88.0/51.3 | 68.5/78.0/41.8 | 42.8/65.0/36.8 |
| 31.25 | 80.0/90.0/51.9 | 10.4 | 23.6/34.0/23.6 | 69.3/79.0/41.1 | 43.9/64.0/37.9 | 78.0/88.0/49.9 | 67.3/77.0/39.1 | 40.9/61.0/34.9 |
| 62.5 | 75.3/90.0/47.4 | 14.9 | 21.5/33.5/21.5 | 59.9/74.0/31.9 | 37.9/58.0/31.9 | 69.1/83.0/45.4 | 57.9/72.0/29.9 | 34.9/55.0/28.9 |
| 100 | 71.1/85.0/44.3 | 19.0 | 20.1/33.0/20.1 | 51.3/65.0/24.4 | 33.8/54.0/27.8 | 69.1/83.0/42.3 | 49.3/63.0/22.4 | 30.8/51.0/24.8 |
| 200 | 71.1/85.0/39.8 | 27.4 | 18.0/31.0/18.0 | 42.1/56.0/10.6 | 27.8/51.0/21.8 | 69.1/83.0/37.8 | 40.1/54.0/8.6 | 24.8/48.0/18.8 |
| 250 | 71.1/85.0/38.3 | 31.0 | 17.3/30.5/17.3 | 38.2/52.0/5.3 | 25.8/48.0/19.8 | 61.7/78.0/36.3 | 36.2/50.0/3.3 | 22.8/45.0/16.8 |
| 300 | 63.7/80.0/37.1 | 34.2 | 16.8/29.0/16.8 | 27.3/43.0/0.5 | 24.3/45.0/18.3 | 61.7/78.0/35.1 | 25.3/41.0/-1.5 | 21.2/42.0/15.3 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 350 | 63.7/80.0/36.1 | 37.1 | 16.3/28.0/16.3 | 23.9/40.0/-3.8 | 23.9/45.0/16.9 | 61.7/78.0/34.1 | 21.9/38.0/-5.8 | 19.9/42.0/13.9 |
| 400 | 63.7/80.0/35.3 | 40.0 | 15.9/27.0/15.9 | 20.7/37.0/-7.9 | 21.8/45.0/15.8 | 61.7/78.0/33.3 | 18.7/35.0/-9.9 | 19.7/42.0/12.8 |
| 450 | 63.7/80.0/34.5 | 46.3 | 15.5/26.5/15.5 | 17.4/33.0/-10.5 | 20.5/42.0/14.7 | 61.7/78.0/32.5 | 15.4/31.0/-12.5 | 17.5/39.0/11.7 |
| 500 | 63.7/80.0/33.8 | 45.3 | 15.2/26.0/15.2 | 14.8/31.0/-15.3 | 19.8/42.0/13.8 | 61.7/78.0/31.8 | 12.8/29.0/-17.3 | 16.8/39.0/10.8 |
| 625 | 60.0/70.0/32.4 | 51.1 | 14.5/25.0/14.5 | 5.5/15.5/-23.1 | 18.8/42.0/11.8 | 58.0/68.0/30.4 | 9.9/26.0/-25.1 | 16.0/39.0/8.8 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6A S/FTP SWA | 4×2×0.57/0.58 | 0.2 | 0.6 | 1.0 | 9.96 | 268 |

Rated Voltage

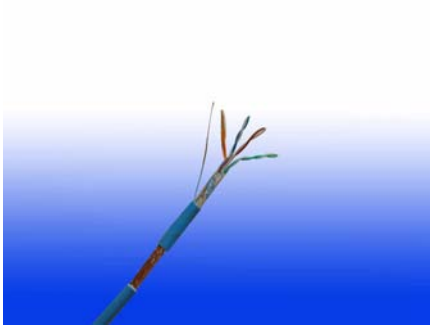
Standard

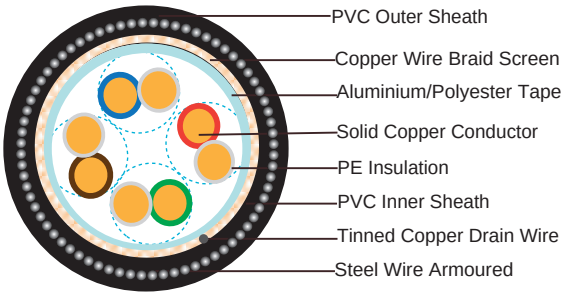
Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Fire Retardant CAT6A SF/UTP SWA Armoured Data Cables

### FGD-CAT6A SF/UTP4P23 SWA






## APPLICATION

Cat6 Cable is a cable standard for Gigabit Ethernet and other network protocol, suitable for 10BaseT, 100BaseTx & 1000BaseT (Gigabit Ethernet) application. In addition, these cables are with copper wire braid armoured & flame retardant mud resistant outer sheath, providing additional mechanically protection still maintaining the flexibility of the cable.

## STANDARDS

Basic design adapted to EN50173

## FIRE PERFORMANCE

| | |
|---|---|
| Flame Retardance (Single Vertical Wire Test)** | EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1* |
| Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)** | EN 60332-3-22 (cat. A); IEC 60332-3-22; BS EN 60332-3-22; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4 |

Note: Asterisk ** denotes that the standard compliance is optional, depending on the oxygen index of the PVC compound and the cable design.

## VOLTAGE RATING

60V

## CABLE CONSTRUCTION

**Conductors:** 23AWG solid bare copper.
**Insulation:** HDPE .
**Twinning:** Two coloured insulated conductors twisted together to form a pair.
**Screen:** Overall aluminium/Polyester tape with drain wire and copper wire braid screen.
**Inner Sheath:** Thermoplastic PVC compound.
**Armouring:**
**SWA:** Steel Wire Armour

**Outer Sheath:** Thermoplastic PVC compound. UV resistance, hydrocarbon resistance, oil resistance, anti rodent and anti termite properties can be offered as option. Compliance to fire performance standard (IEC 60332-1, IEC 60332-3, UL 1581, UL 1666 etc) depends on the oxygen index of the PVC compound and the overall cable design. LSPVC can also be provided upon request.

## PHYSICAL AND THERMAL PROPERTIES

**Temperature range:** -30°C ~ +75°C
**Minimum bending radius during installation (mobile state):** 8 x Overall Diameter
**Minimum bending radius during operation (fixed state):** 4 x Overall Diameter

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| AWG | | 23 |
| Nominal Conductor Diameter | mm | 0.56/0.57/0.58 |
| Maximum DC Resistant@20°C | Ω/100m | 9.38 |
| Maximum DCR Unbalance | % | 3 |
| Maximum Mutual Capacitance | pF/m | 5.8 |
| Maximum Capacitance Unbalance | pF/100m | 330 |
| Characteristic Impedance@1-100MHz | Ω | 100+/-15 |
| Maximum Propagation Delay Skew | ns/100m | 18 |

## TRANSMISSION PROPERTIES

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 74.3/86.0/74.3 | 2.0 | 20.0/33.0/20.0 | 72.2/84.0/72.2 | 67.8/91.0/67.8 | 72.3/81.0/72.3 | 70.2/80.5/70.2 | 64.8/84.0/64.8 |
| 4 | 65.3/77.0/65.3 | 3.7 | 23.0/35.5/23.0 | 61.4/73.0/61.4 | 55.8/79.0/55.8 | 63.3/72.0/63.3 | 59.5/70.0/59.5 | 52.8/72.0/52.8 |
| 8 | 60.8/75.0/60.8 | 5.3 | 24.5/36.0/24.5 | 55.4/70.0/55.4 | 49.7/74.0/49.7 | 58.8/69.0/58.8 | 53.5/66.0/53.5 | 46.7/69.0/46.7 |
| 10 | 59.3/71.0/59.3 | 5.9 | 25.0/38.0/25.0 | 53.3/66.0/53.3 | 47.8/71.0/47.8 | 57.3/65.0/57.3 | 51.3/62.0/51.3 | 44.8/64.0/44.8 |
| 16 | 56.2/68.0/56.2 | 7.6 | 25.0/35.2/25.0 | 48.6/61.0/48.6 | 43.7/67.0/43.7 | 54.2/62.0/54.2 | 46.6/58.0/46.6 | 40.7/60.0/40.7 |
| 20 | 54.8/67.0/54.8 | 8.3 | 25.0/35.0/25.0 | 46.3/59.0/46.3 | 41.8/65.0/41.8 | 52.8/61.0/52.8 | 44.3/55.0/44.3 | 38.8/59.0/38.8 |
| 25 | 53.3/65.0/53.3 | 9.5 | 24.3/34.0/24.3 | 43.8/57.0/43.8 | 39.8/63.0/39.8 | 51.3/60.0/51.3 | 41.8/53.0/41.8 | 36.8/57.0/36.8 |
| 31.25 | 51.9/64.0/51.9 | 10.4 | 23.6/33.1/23.6 | 41.1/54.0/41.1 | 37.9/61.0/37.9 | 49.9/54.0/49.9 | 39.1/50.0/39.1 | 34.9/54.0/34.9 |
| 62.5 | 47.4/59.0/47.4 | 14.9 | 21.5/32.2/21.5 | 31.9/44.0/31.9 | 31.9/55.0/31.9 | 45.4/58.0/45.4 | 29.9/41.0/29.9 | 28.9/48.0/28.9 |
| 100 | 44.3/56.0/44.3 | 19.0 | 20.1/31.6/20.1 | 24.4/38.0/24.4 | 27.8/51.0/27.8 | 42.3/50.0/42.3 | 22.4/34.0/22.4 | 24.8/44.0/24.8 |
| 200 | 39.8/52.0/39.8 | 27.4 | 18.0/29.8/18.0 | 10.6/25.0/10.6 | 21.8/45.0/21.8 | 37.8/45.0/37.8 | 8.6/20.5/8.6 | 18.8/38.0/18.8 |
| 250 | 38.3/50.0/38.3 | 31.0 | 17.3/28.7/17.3 | 5.3/19.0/5.3 | 19.8/43.0/19.8 | 36.3/44.0/36.3 | 3.3/15.0/3.3 | 16.8/36.0/16.8 |
| 300 | 37.1/49.0/37.1 | 34.2 | 16.8/28.0/16.8 | 0.5/14.0/0.5 | 18.3/38.0/18.3 | 35.1/43.0/35.1 | -1.5/10.0/-1.5 | 15.3/31.0/15.3 |
| 350 | 36.1/48.0/36.1 | 37.1 | 16.3/27.5/16.3 | -3.8/9.0/-3.8 | 16.9/37.0/16.9 | 34.1/41.0/34.1 | -5.8/7.0/-5.8 | 13.9/30.0/13.9 |
| 400 | 35.3/47.0/35.3 | 40.0 | 15.9/27.0/15.9 | -7.9/7.0/-7.9 | 15.8/36.0/15.8 | 33.3/40.0/33.3 | -9.9/3.0/-9.9 | 12.8/29.0/12.8 |

| FREQ (MHz) | NEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | IL (dB/100m) | RL (dB/100m) Minimum Value/ Typical Value/ Standard Value | ACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | ELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSNEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSACR (dB/100m) Minimum Value/ Typical Value/ Standard Value | PSELFEXT (dB/100m) Minimum Value/ Typical Value/ Standard Value |
|---|---|---|---|---|---|---|---|---|
| 450 | 34.5/47.0/34.5 | 46.3 | 15.5/26.5/15.5 | -10.5/6.0/-10.5 | 14.7/35.0/14.7 | 32.5/39.0/32.5 | -12.5/2.0/-12.5 | 11.7/27.5/11.7 |
| 500 | 33.8/47.0/33.8 | 45.3 | 15.2/26.0/15.2 | -15.3/5.0/-15.3 | 13.8/34.0/13.8 | 31.8/38.0/31.8 | -17.3/0.0/-17.3 | 10.8/27.0/10.8 |
| 625 | 32.4/45.0/32.4 | 51.1 | 14.5/25.0/14.5 | -23.1/1.0/-23.1 | 11.8/33.0/11.8 | 30.4/37.0/30.4 | -25.1/-3.9/-25.1 | 8.8/26.0/8.8 |

## CONSTRUCTION PARAMETERS

| Cable Code | Construction No. of elements×No. of cores in element×Conductor diameter | Nominal Insulation Thickness | Nominal Inner Sheath Thickness | Nominal Outer Sheath Thickness | Nominal Overall Diameter | Nominal Weight |
|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | kg/km |
| FGD-CAT6A SF/UTP SWA | 4×2×0.57/0.58 | 0.2 | 0.6 | 1.0 | 8.96 | 237 |

Rated Voltage

Standard

Flame Retardancy**
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1

Reduced Fire Propagation**
NF C32-070-2.2(C1)
IEC60332-3-22/EN50266-2-4

## Technical Information

### FLAME RETARDANCE IN ACCORDANCE WITH DIFFERENT STANDARDS

The following standards specify a method for flame propagation test for single core cables. The single cable sample undergoes the flame action of a bunsen burner. The test only lasts few minutes.

The IEC 60332-1 standards are taken over as EN standards and transferred to national standards Example: IEC 60332-1 becomes EN 60332-1 and introduced in Germany as DIN EN 60332-1.

#### Flame Retardance in accordance with EN 60332:2004

EN 60332:2004 Tests on electrical and optical cables under fire conditions. The standard applies to single insulated wires (cables) and requires a vertical flame test with a maximum flame climb of 450mm. The test lasts between 1 and 8 minutes, depending on the cable diameter.

EN 60332-1-1:2004 / BS EN 60332-1-1:2004 / IEC 60332-1-1:2004 / DIN EN 60332-1-1:2004 / VDE 0482-1-1:2005-06 Test on electrical and optical cables under fire conditions. Test for a vertical flame propagation fo a single insulated wire or cables.

EN 60332-1-2:2004 / BS EN 60332-1-2:2004 / IEC 60332-1-2:2004 / DIN EN 60332-1-2:2004 / VDE 0482-1-2:2005-06 / CEI 60332-1-2( CEI 20-35/1-2 ) Tests on electrical and optical fiber cables under fire conditions. Test for a vertical flame propagation for a single insulated wire or cable – Procedure for 1kW premixed flame.

This standard specifies a method of test for resistance to vertical flame propagation for a single insulated wire or cable. Part 1-1 specifies the test apparatus and Part 1-2 specifies the test procedure.

The cable sample is deemed to pass the test if the distance between the lower edge of the top support and the onset of charring is greater than 50mm. In addition, a failure shall be recorded if burning extends downward to a point greater than 540mm from the lower edge of the top support.

EN 60332-1-2:2004 specifies the use of 1kW premix flame and is for general use, except that the procedure may not be suitable for the testing of small insulated conductors or cables of less than 0.5mm sq cross section because the conductor melts before the test is completed, or for the testing of small optic fiber cables because the fiber will be broken before the test is completed. In this case, the procedure given by EN 60332-2-1/2 is recommended.

EN 60332-2-1:2004 / BS EN 60332-2-1:2004 / IEC 60332-2-1:2004 / DIN EN 60332-2-1:2004 / VDE 0482-2-1:2005-06 Tests on electrical and optical cables under fire conditions. Test for a vertical flame propagation for a single small insulated wire or cable.

EN 60332-2-2:2004 / BS EN 60332-2-2:2004 / IEC60332-2-2:2004 / DIN EN 60332-2-2:2004 / VDE 0482-2-2:2005-06 / CEI 60332-2-2 (CEI 20-35/2-2) Test on electric and optical fiber cables under fire conditions. Tests for vertical flame propagation for a single small insulated wire or cable. Procedure for diffusion flame.
This test applies to small dimensions cables.
This standard specifies a method of test for resistance to vertical flame propagation for a single insulated wire or cable. Part 2-1 specifies the test apparatus and Part 2-2 specifies the test

procedure.

### Flame Retardance in accordance with NF C32-070-2.1(C2)

NF C32-070:2001 Insulated conductors and cables for installation - Classification tests on conductors and cables with regard to fire behavior.
NF C32-070 2.1 Procedure for 1 kW pre-mixed flame.

The NF F 32070 2.1 (Category C2) and IEC 60332-1-2 are very similar. The sole difference is the time during which the flame is applied.

### Flame Retardance in accordance with EN 50265-1:1999 (replaced by EN 60332)

EN 50265-1:1999 / BS EN 50265-1:1999 / DIN EN 50265-1:1999 / VDE 0482-265-1:1999-04– Common test methods for cables under fire conditions. Test for resistance to a vertical flame propagation for a single insulated conductor or cable. Apparatus (Replaced by EN 60332-1-1:2004 and EN 60332-2-1:2004).
EN 50265-2-1:1999 / BS EN 50265-2-1:1999 / DIN EN 50265-2-1:1999 / VDE 0482-265-2-1:1999-04 – Common test methods for cables under fire conditions. Test for resistance to a vertical flame propagation for a single insulated conductor or cable. Part 2-1: Procedure 1kW pre-mixed flame (Replaced by EN 60332-1-2:2004).

EN 50265-2-2:1999 / BS EN 50265-2-2:1999 / DIN EN 50265-2-2:1999 / VDE 0482-265-2-2:1999-04 – Common test methods for cables under fire conditions. Test for resistance to a vertical flame propagation for a single insulated conductor or cable. Part 2-2: Procedure Diffusion flame (Replaced by EN 60332-2-2:2004).

### Flame Retardance in accordance with BS 4066 Part 1 & 2 (replaced by EN 60332)

BS 4066-2:1980 (superseded) – Tests on electic cables under fire conditions. Method of test on a single vertical insulated wire or cable.

This standard is no longer in force and is replaced by BS EN 50265-2-1 which was also superseded by BS EN 60332-1:2009.

### Flame Retardance in accordance with NBN C 30-004 (cat. F1)

NBN C 32-004 specifies a method of test for measuring the vertical flame propagation characteristics of a single wire or cable. The cable specimen is deemed to have passed the test and categorized as F1 if after burning has ceased, the charred or affected portion does not reach within 50mm of the lower edge of the top clamp which is equivalent to 425mm above the point of flame application.

### Flame Retardance in accordance with IEEE 383

In the IEEE 383 test, cables are supported by a one foot wide vertical rack eight feet high. The cables are positioned in the centre six inches of the rack, spaced one-half diameter apart. The rack is centered in an eight foot enclosure. A ten inch ribbon burner ignites the cable with a 21 kW (70000 BTU). The burner is positioned 2 feet above the floor and 9 to 12 inches of cables are exposed to direct flames for 20 minutes. Cables on which flame extends above the top of the 8 foot rack fail the test.

## REDUCED FIRE PROPAGATION IN ACCORDANCE WITH DIFFERENT STANDARDS

These standards specify a method for fire propagation test for vertically mounted bunched cables. These tests simulate the chimney effect in vertical installation of bunch of cables. A certain number of cable sections with a length of 3.5 m is fastened to a vertical ladder in an adapted chamber. The amount of combustible materials for cables and duration of flame application depends on the category the cable has to meet.

Resistance of the wires bundle arranged vertically to the spread of the flame should be such that after a certain time and stopping the source of ignition, flame is extinguished by itself and the length of charred fragments will not exceed 2.5 m in height measured above the lower edge of the burner.

### Reduced Fire Propagation in accordance with IEC 60332-3

This test is the most common one to verify the behaviour of a cables for the fire propagation. The cables are installed on a bunch of vertical ladder inside a metal cabinet and undergo the action of a ribbon flame at 750°C.The standard is subdivided in several parts that differ one from the other for the quantity of cable to be installed, the installation mode and the flame application time.

EN 60332-3-10:2009 / BS EN 60332-3-10:2009 / IEC 60332-3-10 ed1.1 / DIN EN 60332-3-10:2009 / VDE 0482-332-3-10:2010-08 – Common test methods for cables under fire conditions. Tests on electric and optical fiber cables under fire conditions - Part 3-10: Test for vertical flame spread of vertically mounted bunched wires or cables.

EN 60332-3-21:2009 / BS EN 60332-3-21:2009 / IEC 60332-3-21 ed1.1 / DIN EN 60332-3-21 / VDE 0482-332-3-21:2010-08 / CEI EN 60332-3-21:2009 (CEI 20-22/3-1)– Procedures. Tests on electric and optical fiber cables under fire conditions - Part 3-21: Test for vertical flame spread of vertically-mounted bunched wires or cables - Category A . F/R
-Installation In one layer (front).
-Installation In two layers (front and rear)
-The quantity of the Installed cable is equal to 7 litres/m of combustible materials for cables
-The time of application of the flame is 40 minutes

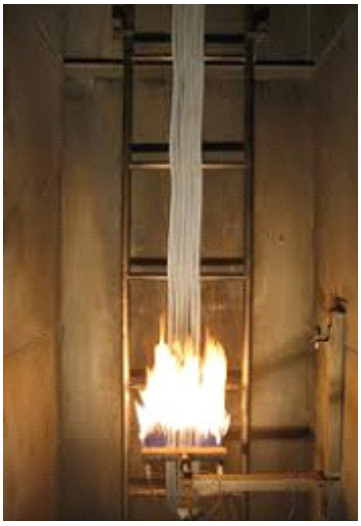
EN 60332-3-22:2009 / BS EN 60332-3-22:2009 / IEC 60332-3-22 ed1.1 / DIN EN 60332-3-22:2009 /VDE 0482-332-3-22:2010-08 / CEI EN 60332-3-22:2009 (CEI 20-22/3-2)– Procedures. Tests on electric and optical fiber cables under fire conditions - Part 3-22: Test for vertical flame spread of vertically-mounted bunched wires or cable - Category A

-Installation In one layer (front).
-The quantity of the installed cable is equal to 7 litres/m of combustible materials for cables
-The time of application of the flame is 40 minutes

EN 60332-3-23:2009 / BS EN 60332-3-23:2009 / IEC 60332-3-23 ed1.1 / DIN EN 60332-3-23:2009 / VDE 0482-332-3-23:2010-08 / CEI EN 60332-3-23:2009 (CEI 20-22/3-3)– Procedures. Tests on

electric and optical fiber cables under fire conditions - Part 3-23: Test for vertical flame spread of vertically-mounted bunched wires or cables - Category B

-Installation In one layer (front).
-The quantity of the installed cable is equal to 3.5 litres/m of combustible materials for cables
-The time of application of the flame is 40 minutes



EN 60332-3-24:2009 / BS EN 60332-3-24:2009 / IEC 60332-3-24 ed1.1 / DIN EN 60332-3-24:2009 / VDE 0482-332-3-24:2010-08 / CEI EN 60332-3-24:2009 (CEI 20-22/3-4) – Procedures. Tests on electric and optical fiber cables under fire conditions - Part 3-24: Test for vertical flame spread of vertically-mounted bunched wires or cables - Category C

-Installation In one layer (front).
-The quantity of the installed cable is equal to 1.5 litres/m of combustible materials for cables
-The time of application of the flame is 20 minutes

EN 60332-3-25:2009 / BS EN 60332-3-25:2009 / IEC 60332-3-25 ed1.1 / DIN EN 60332-3-25: 2009 / VDE 0482-332-3-25:2010-08 / CEI EN 60332-3-25:2009 (CEI 20-22/3-5)– Procedures. Tests on electric and optical fiber cables under fire conditions - Part 3-25: Test for vertical flame spread of vertically-mounted bunched wires or cables - Category D
-Installation In one layer (front).
-The quantity of the installed cable is equal to 0.5 litres/m of combustible materials for cables
-The time of application of the flame is 20 minutes.

Summary of test condition:

| **IEC** | 60332-3-21 | 60332-3-22 | | | 60332-3-23 | | 60332-3-24 | | 60332-3-25 | |
|---|---|---|---|---|---|---|---|---|---|---|
| **BS EN 50266** | 50266-2-1 | 50266-2-2 | | | 50266-2-3 | | 50266-2-4 | | 50266-2-5 | |
| **CEI** | 20-22/3-1 | 20-22/3-2 | | | 20-22/3-3 | | 20-22/3-4 | | 20-22/3-5 | |
| **Category** | AF/R | A | | | B | | C | | D | |
| **Conductor cross-sectionsmm$^2$** | ＞35 | ＞35 | | ≤35 | ＞35 | ≤35 | ＞35 | ≤35 | ＞35 | ≤35 |
| **NMV(litres per metre of cable)** | 7 | 7 | | | 3.5 | | 1.5 | | 0.5 | |
| **Minimum length of test pieces(m)** | 3.5 | 3.5 | | | 3.5 | | 3.5 | | 3.5 | |
| **Standard ladder (500 mm wide): • number of layers • maximum width of test sample** | 1front+1rear 300mm | ≥1front 300mm | 1front 300mm | - - | ≥1front 300mm | 1front 300mm | ≥1front 300mm | 1front 300mm | ≥1front 300mm | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Wide ladder (800 mm wide):**<br>**• number of layers**<br>**• maximum width of test sample** | -<br>- | -<br>- | -<br>- | 1front<br>600mm | -<br>- | | -<br>- | | -<br>- |
| **Positioning of test pieces** | Spaced 0.5×Diameter cable (Max.20mm) | Touching | Spaced 0.5×Diameter cable (Max.20mm) | | Touching | Spaced 0.5×Diameter cable (Max.20mm) | Touching | Spaced 0.5×Diameter cable (Max.20mm) | Touching |
| **Number of burners** | 1 | 1 | 1 | 2 | 1 | | 1 | | 1 |
| **Ladder mounting** | Front and rear | Front, Wider ladder for larger cables | | | Front | | Front | | Front |
| **Flame application time(min)** | 40 | 40 | 40 | | 40 | | 40 | | 40 |
| **Test conditions** | Wind speed: <8 m/s; Ternperature: 5°C - +40°C | | | | | | | | |
| **Extent of the charred portion** | ≤2.5m above the bottom edge of the burner, neither at the front nor at the rear of the ladder. | | | | | | | | |

## Reduced fire propagation in accordance with NF C32-070-2.2(C1)

NF C32-070 :2001 Insulated conductors and cables for installation.
-Classification tests on conductors and cables with regard to fire behavior.

A 1600mm vertically installed bundled of cable is exposed to the effects of a radiating oven (approx 830°C) and forced ventilation. Pilot flames arranged above the oven burn off the emitted gases. The test duration is 30 minutes, with the ventilation stopped for every 10 minutes during the flame application period. The cable sample is classified under Category C1 according to NF F 32070-2.2 if the carbonised part of the cable sample does not extend more than 0.8m above the upper base of the oven.

Depending on the damaged length, they can be further classified into 4 classes A, B, C and D according to NF F 16-101 as follows:

| Category | Test Result |
|---|---|
| A | No damaged length from top of the oven in upper position. |
| B | Damaged length from top of oven in upper position not extending more than 50mm. |
| C | Damaged length from top of oven in upper position not extending more than 300mm |
| D | Damaged length from top of oven in upper position not extending above the top of the chimney |

## Reduced Fire Propagation in accordance to EN 50266-1, EN 50266-2-2, EN 50266-2-3, EN 50266-2-4.

EN 50266-1:2001 / BS EN 50266-1:2001 / DIN EN 50266-1:2001 / VDE 0482-266-1:2001-09– Common test methods for cables under fire conditions. Test for vertical flame spread of vertically mounted bunched wires or cables - Part 1: Apparatus (Replaced by EN 60332-3-10:2009)

EN 50266-2-1:2001 / BS EN 50266-2-1:2001 / DIN EN 50266-2-1:2001 / VDE 0482-266-2-1:2001-09 / CEI EN 50266-2-1– Common test methods for cables under fire conditions. Test for vertical flame

spread of vertically mounted bunched wires or cables - Part 2-1 : Procedures. Category A F/R (Replaced by EN 60332-3-21:2009)

EN 50266-2-2:2001 / BS EN 50266-2-2:2001 / DIN EN 50266-2-2:2001 / VDE 0482-266-2-2:2001-09 / CEI EN 50266-2-2– Common test methods for cables under fire conditions. Test for vertical flame spread of vertically mounted bunched wires or cables - Part 2-2: Procedures. Category A (Replaced by EN 60332-3-22:2009)

EN 50266-2-3:2001 / BS EN 50266-2-3:2001 / DIN EN 50266-2-3:2001 / VDE 0482-266-2-3:2001-09 / CEI EN 50266-2-1– Common test methods for cables under fire conditions. Test for vertical flame spread of vertically mounted bunched wires or cables - Part 2-3: Procedures. Category B (Replaced by EN 60332-3-23:2009)

EN 50266-2-4:2001 / BS EN 50266-2-4:2001 / DIN EN 50266-2-4:2001 / VDE 0482-266-2-4:2001-09 / CEI EN 50266-2-4:2001 – Common test methods for cables under fire conditions. Test for vertical flame spread of vertically mounted bunched wires or cables - Part 2-4: Procedures. Category C (Replaced by EN 60332-3-24:2009).

### Reduced Fire Propagation in accordance with BS 4066-3

BS 4066-3:1994 (superseded) – Tests on electic cables under fire conditions. Tests on bunched wires or cables.
This standard is no longer in force and is replaced by the BS EN 50266-1:2001

### Reduced Fire Propagation in accordance with NBN C 32-004 (F2)

NBN C 32-004 specifies a method of test for measuring the vertical flame propagation characteristics of a bunch of cables. The cable specimen is deemed to have passed the test and categorized as F2 if after burning has ceased, the extent of charred or affected portion does not reach a height exceeding 2.5m above the bottom edge of the burner.

## HALOGEN CONTENT TEST IN ACCORDANCE WITH DIFFERENT STANDARDS

In the event of a fire, many fumes are produced. This test is concerned with the possibilities of corrosive acid gases being released from halogen containing cables and the damage such cables can cause (to equipments). These standards specify a method for determination of the amount of halogen acid gas, evolved during combustion of compound.

### Halogen Content Test in accordance with EN 50267-2-1

EN 50267-2-1:1998 / BS EN 50267-2-1:1999 / DIN EN 50267-2-1:1999 / VDE 0482-267-2-1:1999-04 / CEI EN 50267-2-1:1999 (CEI 20-37/2-1) Common test methods for cables under fire conditions- Test on gases evolved during combustion of materials from cables- Part 2-1: Procedures. Determination of the amount of halogen acid gas.
This part of the standard defines the method to measure the amount of halogen acid evolved and which should be expressed in hydrochloric acid. The amount of halogen acid contained in the test solution is determined by a titration method.

If the cables are described as zero halogen or halogen free, it is recommended that the hydrochoric acid yield should be less than 0.5%.

### Halogen Content Test in accordance with IEC 60754-1

IEC 60754-1 ed 2.0 Common test methods for cables under fire conditions. Test on gases evolved during combustion of materials from cables. Part 1: Procedures. Determination of the amount of halogen acid gas.
Basically, this is same as EN 50267-2-1.

### Halogen Content Test in accordance with BS 6425-1

BS 6425-1:1990(superseded): Test on gases evolved during the combustion of materials from cables. Method for determination of amount of halogen acid gas evolved during combustion of polmeric materials taken from cables.
This standard is no longer in force and is replaced by the EN 50267-2-1.

## ACID GAS EMISSION TEST IN ACCORDANCE WITH DIFFERENT STANDARDS

The following standards specify a method for determination of acidity of gas evolved during combustion of cables by measuring PH and conductivity. This test allows to determine the corrosivity of the acid gases generally halogens, that develop during the electric cable combustion.

### Acid Gas Emission Test in accordance with EN 50267-2-2

EN 50267-2-2:1999 / BS EN 50267-2-2:1999 / DIN EN 50267-2-2:1999 / VDE 0482-267-2-2:1999-04 / CEI EN 50267-2-2:1999 (CEI 20-37/2-2). Common test methods for cables under fire conditions- Test on gases evolved during combustion of materials from cables- Part 2-2: Procedures. Determination of degree of acidity of gases for materials by measuring PH and conductivity

The standard states that the pH and the conductivity of a test solution should be measured, using calibrated PH and conductivity meters.

If the cables are described as zero halogen or halogen free, it is recommended that at least both of the following requirements should be met for each of the individual materials of a cable:

-The PH value should not be less than 4.3 when related to 1 litre of water

-The conductivity should not be less than 10us/mm when related to 1 litre of water

EN 50267-2-3:1999 / BS EN 50267-2-3:1999 / DIN EN 50267-2-3:1999 / VDE 0482-267-2-3:1999-04 / CEI EN 50267-2-3:1999 (CEI 20-37/2-3). Common test methods for cables under fire conditions- Test on gases evolved during combustion of materials from cables- Part 2-3:Procedures. Determination of degree of acidity of gases for cables by determination of the weighted average of pH and conductivity.
The standard states that the pH and the conductivity of a test solution should be measured, using calibrated pH and conductivity meters. The results from the different components of the cable are then weighted.

### Acid Gas Emission Test in accordance with IEC 60754-2

IEC 60754-2 ed1.0 Test on gases evolved during combustion of electric cables - Part 2 : Determination of degree of acidity of gases evolved during combustion of materials taken from electric cables by measuring pH and conductivity.

### Acid Gas Emission Test in accordance with NF C32-074

NF C32-074 Common test methods for cables under fire conditions - Test on gases evolved during combustion of materials from cables. This standard is equivalent to IEC 60754-2

### Acid Gas Emission Test in accordance with BS 6425-2

BS 6425-2:1993 (superseded) Test on gases evolved during the combusion of materials from cables. Determination of degree of acidity (corrosivity) of gases by measuring pH and conductivity.

This standard is no longer in force and is replaced by the EN 50267-2-2:1999.

### Acid Gas Emission Test in accordance with DIN VDE 0472-813 / VDE 0472-813:1994

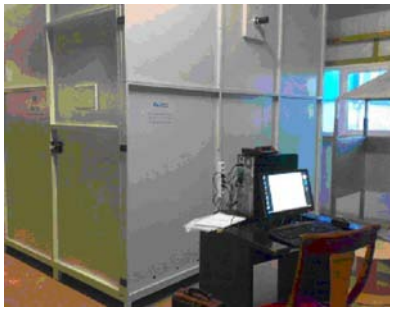
DIN VDE 0472-813 / VDE 0472-813:1994 Corrosivity of combustion gases.

The standards are no longer in force and are replaced by the EN 50267-2-2 & VDE 0482-267-2-2.

## SMOKE DENSITY TEST IN ACCORDANCE WITH DIFFERENT STANDARDS

The smoke density measurement taken from a material under fire conditions gives an indication of the visibility through the smoke. This is important as reduced visibility in a real fire situation makes it more difficult to escape from the fire thus increasing the threat to human life from the toxic gas, fumes and heat

The following standards specify the method for measuring the generation of smoke from cables during fire.



### Smoke Density Test in accordance with IEC 61034-1 & IEC 61034-2

IEC 61034-1:2005 / EN 61034-1:2005 / BS EN 61034-1:2005 / DIN EN 61034-1:2006 / VDE 0482-1034-1:2006 Measurement of smoke density of cables burning under defined conditions. Part 1: Test apparatus

IEC 61034-2:2005 / EN 61034-2:2005 / BS EN 61034-2:2005 / DIN EN 61034-2:2006 / VDE 0482-1034-2:2006 / CEI EN 61034-2:2006 (CEI 20-37/3-1) Measurement of smoke density of cables burning under defined conditions.
Part 2: Test procedure and requirements.
The standard specifies a method of measurement of smoke density of cables. Part 1 specifies the test apparatus and Part 2 specifies the test procedure.

The test is usually performed inside a chamber of 3m x3m x3m and the test is sometimes described as 3 metre cube test. The test is performed by monitoring the tranmittance reduction of a white light beam, running from one side of the chamber to the other, at a set height, thus monitoring the build up of smoke inside the chamber. The minimum percentage of light transmittance is often used to determine if the cable has passed or failed the test , often a minimum light transmittance of 60% is

applied in order to classify a cable as low smoke.

### Smoke Density Test in accordance with NF C32- 073

NF C32 073 Common test methods for cables under fire conditions.
- Measurement of smoke density of cables burning under defined conditions.
This standard is equivalent to IEC 61034-2

### Smoke Density Test in accordance with BS 7622-1 & BS 7622-2

BS 7622-1:1993 (superseded) – Measurement of smoke density of electric cables burning under defined condiitions. Test apparatus.
BS 7622-2:1993 (superseded) – Measurement of smoke density of electric cables burning under defined condiitions. Test procedure and requirements.

The standards are no longer in force and were replaced by the EN 50268-1:2000 and EN 50268-2:2000 even though they too were superseded by EN 61034-1:2005 and EN 61034-2:2005.

### Smoke Density Test in accordance with EN 50268-1 & EN 50268-2

EN 50268-1:2000 / BS EN 50268-1:2000 / DIN EN 50268-1:2000 / VDE 0482-268-1:2000 (superseded) – Common test methods for cables under fire conditions. Measurement of smoke density of cable burning under defined conditions. Part 1: Apparatus
EN 50268-2:2000 / BS EN 50268-2:2000 / DIN EN 50268-2:2000 / VDE 0482-268-2:2000 (superseded) – Common test methods for cables under fire conditions. Measurement of smoke density of cable burning under defined conditions. Part 2: Procedure.
The standards are no longer in force and are replaced by the EN 61034-1:2005 and EN 61034-2:2005. Although these standards have been withdrawn, they are still called upon in some specification documents such as in the London Underground specification 1-085.

### Smoke Density Test In Accordance with DIN VDE 0472-816 / VDE 0472-816:1994

DIN VDE 0472-816/VDE 0472-816:1994 Testing of cables, wires and flexible cords. Smoke Density.

The standards are no longer in force and are replaced by the EN 50268-1, VDE 0482-268-1, EN 50268-2 & VDE 0482-268-2 which are also replaced by the EN 61034-1:2005 and EN 61034-2:2005.

## OXYGEN INDEX TEST IN ACCORDANCE WITH DIFFERENT STANDARDS

The oxygen index is defined as the minimum concentration of oxygen, expressed as volume percentage, in a mixture of oxygen and nitrogen that will just support combustion of a material initially at room temperature under specified test conditions.

### Oxygen Index Test in accordance with ASTM D 2863

ASTM D 2863-10 Measuring the minimum oxygen concentration to support candle-like combustion of plastics (Oxygen Index).

The test is performed in accordance with the procedure specified in ASTM 2863-95 using test piece cut from the outer sheath of the cable. The apparatus holds a small specimen which is clamped vertically in a tube in an atmosphere where the relative concentration of oxygen and nitrogen can

be changed. The aim is to test the flammability of the sample with a small pilot flame to find the minimum oxygen concentration required to just sustain combustion of the sample.

### Oxygen Index Test in accordance with ISO 4589-2

ISO4589-2:1996 Determination of burning behaviour by oxygen index Part 2: Ambient temperature test.
Specimens measuring 100mm long by 6mm wide are used for testing. The test is performed in accordance with the procedure specified in the standard.

## TEMPERATURE INDEX TEST IN ACCORDANCE WITH DIFFERENT STANDARDS

This is a test for assessing the performance of a material when it is tested in accordance with BS2782: Part 1: Method 143a and 143b. The oxygen index of a material will drop when the temperature rises. When the temperature rises and the oxygen index drops to 21%, the material will burn automatically. This temperature is defined as temperature index. For example, the oxygen index of the coal at room temperature is 50% and when the temperature climbs to 150°C, it's oxygen index drops to 21°C and the coal will burn by itself automatically. The temperature index of the coal is defined as 150°C. In general, the temperature index of fire retardant cable exceeds 250°C.

### Temperature Index Test in accordance with BS 2782

BS 2782: Part 1:1989 Method 143a and 143b Temperature of materials. Determination of flammability.
Specimens measuring nominally 100mm long by 6.5mm wide by 3mm thick are used for testing. The specimens are then tested in accordance with the test procedure specified in the standard.

### Temperature Index Test in accordance with ISO 4589-3

ISO4589-3:1996 Determination of burning behaviour by oxygen index Part 3: Elevated temperature test.
Specimens measuring 100mm long by 6mm wide are used for testing. The test is performed in accordance with the procedure specified in the standard.

## TOXICITY TEST IN ACCORDANCE WITH DIFFERENT STANDARDS

### Toxicity test in accordance with NES 02-713

Measuring a fume from a material exposed to a controlled fire conditions gives an indication of the fumes which may be produced in a real fire situation. A standard method of test for determining the toxicity of materials under fire condition is Defense Standard NES 02-713- Toxicity. This method gives the level of toxicity of the fumes produced from the material under test. During the test, the test specimen is heated via direct flame application at 1150°C.

The flame is applied via a bunsen burner with a flame height of between 100m and 125mm formed with a methane gas and an external supply of compressed air. The specimen toxicity is determined from accurate pre-analysis weight (4pp) colorimetric tubes and ion chromatography.

The test may determine the following species: Hydrogen Bromide, Hydrochloric Acid, Hydrogen Fluoride, Formaldehyde, Nitrous gases, Carbon Monoxide, Carbon Dioxide, Acrylonitrile, Phenol,
Hydrogen Sulphide, Sulphur Dioxide, Hydrocyanic Acid, Ammonia. The concentration in ppm for each gas detected are provided. The toxicity index of the speciments summates the toxic gases, taking into account of their level of danger to humans. The smaller the toxicity index, the better the product. A limit of 5 is often applicable.

### Toxicity test in accordance with NF C 20-454

NF C 20-454 base environmental testing procedures. Fire behaviour. Analysis and titration of gases evolved during pyrolysis or combustion of materials used in electrotechnics. Exposure to abnormal heat or fire. Tube furnace method.

The test defined by this standard serves to define the conventional toxicity index (cti) of the gases emitted by the insulating or sleeving materials during combustion at 800°C.

### Toxicity test in accordance with NF X 70-100

NF X 70-100 Fire Tests; Analysis of gaseous effluents.
The test is conducted within a tube furnace where the temperature is set at either 400°C, 600°C, 800°C (commonly 600°C is used for most of the materials or 800°C for some electrical products) for 40 minutes throughout the test by analysis of the toxicity index of the gases including CO, $CO_2$, HCL, HBr, HCN, HF and $SO_2$.

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