

# Category 6<sub>A</sub> F/FTP Cables

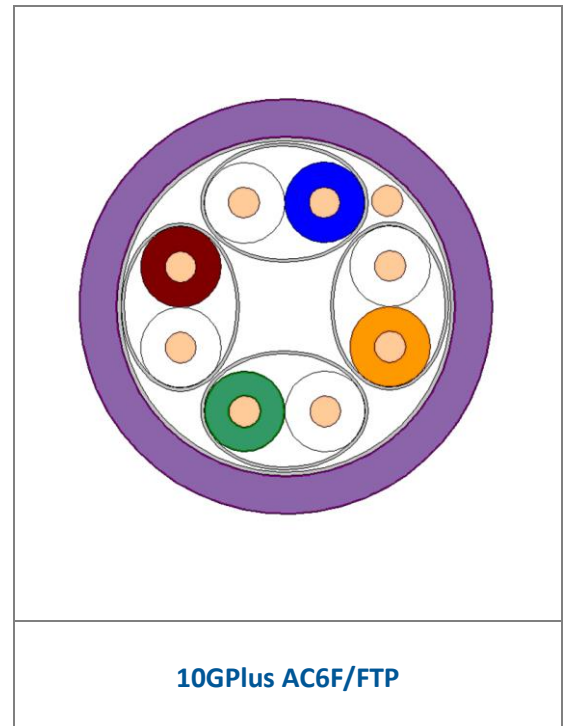
Datasheet: GD102423v3

## APPLICATION

The Brand-Rex 10GPlus cables exceed the Category 6<sub>A</sub> performance standards. They are rated to 500MHz and are suitable for use in all Class E<sub>A</sub> structured wiring cable systems. The applications supported include 10 Gigabit Ethernet, Gigabit Ethernet, PoE, PoE+ and broadband video transmissions at frequencies as high as 500MHz.

## FEATURES AND BENEFITS

- 23 AWG Solid Annealed Copper Wire
- Gas Injection Foamed Polyolefin Core Insulation – offering superior signal speed
- 4 Twisted Pairs Individually Screened and cabled together – providing EMI immunity
- Overall Aluminium Polyester Screen – for improved shielding efficiency and increased heat dissipation
- Available in a Range of Sheath Materials – to suit a variety of installation environments and colour coded for identification
- Designed to Support all Class E<sub>A</sub> protocols including 10GBASE-T
- Supports Power Over Ethernet (PoE) and Power Over Ethernet Plus (PoE+) Applications
- HFFR-LS versions meet the requirements of the Construction Products Regulation (CPR) Euroclass Eca
- Included in the Leviton and Brand-Rex 25 Year System Warranties when used in conjunction with Leviton or Brand-Rex copper connectivity. System warranties available for qualified projects installed by certified contractors.



## STANDARDS

Applicable Cable Standards: IEC 61156-5 and EN50288-10-1

## MATERIAL IDENTIFICATION

| Material Identifier      | HF1               | HF3              |
|--------------------------|-------------------|------------------|
| Material Description     | Standard HFFR-LS* | Enhanced HFFR-LS |
| Flammability Rating      | IEC 60332-1-2     | IEC 60332-3-24   |
| Fire Euroclass EN13501-6 | Eca               | Eca              |
| Smoke Emission           | IEC 61034-1 & 2   | IEC 61034-1 & 2  |
| Acid Gas Emission        | IEC 60754-2       | IEC 60754-2      |
| Colour                   | Violet            | Blue             |

\* Halogen Free Flame Retardant – Low Smoke

# Category 6<sub>A</sub> F/FTP Cables

Datasheet: GD102423v3



## PRIMARY ELECTRICAL PARAMETERS

| CHARACTERISTIC                 | SPECIFICATION   | TYPICAL PERFORMANCE @ 20°C |
|--------------------------------|-----------------|----------------------------|
| Conductor Loop Resistance      | Max 19 Ω / 100m | 14Ω / 100m                 |
| Conductor Resistance Unbalance | Max 2%          | 0.1%                       |
| Insulation Resistance          | >5GΩ.km         | >50GΩ.km                   |
| Dielectric Strength            | 2500 Vdc/2secs  | Pass                       |

## SECONDARY ELECTRICAL PARAMETERS

| CHARACTERISTIC                | SPECIFICATION            | TYPICAL PERFORMANCE @ 20°C |
|-------------------------------|--------------------------|----------------------------|
| Velocity of Propagation       | <534nsec/100m @ 100MHz   | 413nsec/100m @ 100MHz      |
| Delay Skew                    | Max 45nsec/100m @ 100MHz | 4nsec/100m @ 100MHz        |
| Mean Characteristic Impedance | 100Ω +/- 5Ω @ 100MHz     | 100Ω ± 3Ω @ 100MHz         |
| Coupling Attenuation          | Type 1b                  | 84dB                       |
| Transfer Impedance            | Grade 2                  | 11mΩ/m @ 10MHz             |

## ELECTRICAL PERFORMANCE

| Frequency (MHz)          |                | 1            | 4            | 10           | 20           | 100          | 200          | 250          | 500          | 550          |
|--------------------------|----------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Insertion Loss (dB/100m) | Standard       | na           | 3.8          | 5.9          | 8.4          | 19.1         | 27.6         | 31.1         | 45.3         | na           |
|                          | <b>Typical</b> | <b>1.9</b>   | <b>3.5</b>   | <b>5.5</b>   | <b>7.8</b>   | <b>18.0</b>  | <b>26.1</b>  | <b>29.4</b>  | <b>43.0</b>  | <b>45.4</b>  |
| NEXT (dB)                | Standard       | na           | 66.3         | 60.3         | 55.8         | 45.3         | 40.8         | 39.3         | 34.8         | na           |
|                          | <b>Typical</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>94.3</b>  | <b>88.9</b>  | <b>87.1</b>  | <b>81.7</b>  | <b>81.0</b>  |
| PSNEXT (dB)              | Standard       | na           | 63.3         | 57.3         | 52.8         | 42.3         | 37.8         | 36.3         | 31.8         | na           |
|                          | <b>Typical</b> | <b>97.0</b>  | <b>97.0</b>  | <b>97.0</b>  | <b>97.0</b>  | <b>91.3</b>  | <b>85.9</b>  | <b>84.1</b>  | <b>78.7</b>  | <b>78.0</b>  |
| ELFEXT (dB/100m)         | Standard       | na           | 56.0         | 48.0         | 42.0         | 28.0         | 22.0         | 20.0         | 14.0         | na           |
|                          | <b>Typical</b> | <b>90.0</b>  | <b>90.0</b>  | <b>90.0</b>  | <b>84.8</b>  | <b>70.8</b>  | <b>64.8</b>  | <b>62.8</b>  | <b>56.8</b>  | <b>56.0</b>  |
| PSELFEXT (dB/100m)       | Standard       | na           | 53.0         | 45.0         | 39.0         | 25.0         | 19.0         | 17.0         | 11.0         | na           |
|                          | <b>Typical</b> | <b>87.0</b>  | <b>87.0</b>  | <b>87.0</b>  | <b>81.8</b>  | <b>67.8</b>  | <b>61.8</b>  | <b>59.8</b>  | <b>53.8</b>  | <b>53.0</b>  |
| Return loss (dB)         | Standard       | 20.0         | 23.0         | 25.0         | 25.0         | 20.1         | 18.0         | 17.3         | 17.3         | na           |
|                          | <b>Typical</b> | <b>27.0</b>  | <b>30.0</b>  | <b>30.0</b>  | <b>30.0</b>  | <b>25.1</b>  | <b>23.0</b>  | <b>22.3</b>  | <b>20.2</b>  | <b>19.9</b>  |
| PSANEXT (dB)             | Standard       | 67.0         | 67.0         | 67.0         | 67.0         | 62.5         | 58.0         | 56.5         | 52.0         | na           |
|                          | <b>Typical</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> |
| PSAACR-F (dB)            | Standard       | 67.0         | 66.2         | 58.2         | 52.2         | 38.2         | 32.2         | 30.2         | 24.2         | na           |
|                          | <b>Typical</b> | <b>98.1</b>  | <b>96.5</b>  | <b>94.5</b>  | <b>92.2</b>  | <b>82.0</b>  | <b>73.9</b>  | <b>70.6</b>  | <b>57.0</b>  | <b>54.6</b>  |

# Category 6<sub>A</sub> F/FTP Cables

Datasheet: GD102423v3

**Brand-Rex** | a **LEVITON**  
company

## INSTALLATION

|                                 |                        |                                |                    |
|---------------------------------|------------------------|--------------------------------|--------------------|
| Temperature (Installation)      | 0°C to +50°C           | Min Bend Radius (Installation) | 8 x Outer Diameter |
| Temperature (Operation)         | -20°C to +75°C         | Min Bend Radius (Operation)    | 4 x Outer Diameter |
| Max Tensile Load (Installation) | 10kg per simplex cable | Field Test NVP Value           | 0.80               |
| Segregation Class               | Class D                |                                |                    |

## PRINT LEGEND

Example print legend:

[Length Mark]m BRAND-REX a LEVITON company AC6F/FTP-HF1-Eca Cat 6A F/FTP IEC 60332-1-2 Euroclass Eca NVP 0.80 MADE IN UK [ID number] [Week/Year]

## STANDARD PACKAGING SPECIFICATIONS

| Brand-Rex Part Number                | Nominal Cable Diameter (mm) | Nominal Cable Weight (kg/km) | Reel Size<br>Flange x Width (mm) | Gross Weight (kg/Item) | Items Per Pallet |
|--------------------------------------|-----------------------------|------------------------------|----------------------------------|------------------------|------------------|
| AC6F/FTP-HF1-Eca-500VT <sup>†</sup>  | 7.1                         | 49.7                         | 400 x 390                        | 27.4                   | 12               |
| AC6F/FTP-HF1-Eca-1000VT <sup>‡</sup> | 7.1                         | 49.7                         | 600 x 405                        | 56.2                   | 4                |
| AC6F/FTP-HF1-Eca-D500VT <sup>§</sup> | 7.1 x 14.3                  | 99.5                         | 600 x 405                        | 56.2                   | 4                |
| AC6F/FTP-HF1-Eca-D1000VT             | 7.1 x 14.3                  | 99.5                         | 750 x 405                        | 108.8                  | 2                |
| AC6F/FTP-HF3-Eca-500BU               | 7.5                         | 57.9                         | 465 x 390                        | 31.9                   | 6                |
| AC6F/FTP-HF3-Eca-1000BU              | 7.5                         | 57.9                         | 600 x 405                        | 64.4                   | 4                |

<sup>†</sup> 500 = 500m length

<sup>‡</sup> 1000 = 1000m length

<sup>§</sup> 'D' denotes duplex cable

*“Brand-Rex is **dedicated** to **designing, developing and manufacturing** sustainable **high performance** structured cabling and speciality **cabling solutions**”*

The information contained in this document is valid and correct at the time of issue. Brand-Rex reserves the right to modify details without notice in light of subsequent standard/specification changes and ongoing technical developments.