



## Indoor/Outdoor Hybrid Breakout Cables

Revision Number: 3 Revision Date: 6.12.20

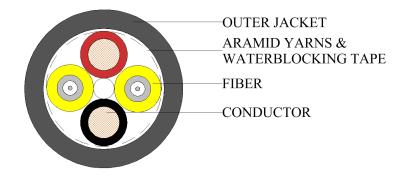


Fiber *Express* (FX) Hybrid Copper-Fiber Cables allow endusers to take advantage of DC power and fiber in one cable to safely deliver low-voltage power and data over long distances to remote locations where standard power is unavailable or too costly to install. Hybrid cable technology offers installation and labor savings by requiring just a single cable pull. Various cable constructions offer unlimited application flexibility.

## Standards:

- ICEA S-120-742
- RoHS
- ANSI/TIA-568-C.3

|              | Temperature Rang                                                          | je                                                                          |  |  |  |  |  |  |  |
|--------------|---------------------------------------------------------------------------|-----------------------------------------------------------------------------|--|--|--|--|--|--|--|
|              | Riser Plenum                                                              |                                                                             |  |  |  |  |  |  |  |
| Operating    | -40°C to +70°C<br>-40°F to +158°F                                         | -40°C to +70°C<br>-40°F to +158°F                                           |  |  |  |  |  |  |  |
| Storage      | $-40^{\circ}$ C to $+70^{\circ}$ C<br>$-40^{\circ}$ F to $+158^{\circ}$ F | $-40^{\circ}$ C to $+70^{\circ}$ C<br>$-40^{\circ}$ F to $+158^{\circ}$ F   |  |  |  |  |  |  |  |
| Installation | -10°C to +60°C<br>14°F to +140°F                                          | $0^{0}$ C to +60 <sup>0</sup> C<br>32 <sup>0</sup> F to +140 <sup>0</sup> F |  |  |  |  |  |  |  |



| Glass Type                      | Fiber Grade<br>Code (x) | Subunit<br>Color | Operating<br>Wavelength<br>(nm) | Max<br>Attenuation<br>(dB/km) | Min. OFL<br>Bandwidth<br>(MHz-km) | Min. Laser<br>Bandwidth<br>(MHz-km) | 1 Gigabit<br>Ethernet<br>Min. Link<br>Length<br>(meters) | 10 Gigabit<br>Ethernet Min.<br>Link Length<br>(meters) |
|---------------------------------|-------------------------|------------------|---------------------------------|-------------------------------|-----------------------------------|-------------------------------------|----------------------------------------------------------|--------------------------------------------------------|
| OM3 -<br>50/125mm<br>Multi-Mode | 3                       | Aqua             | 850/1300                        | 3.0/1.0                       | 1500/500                          | 2000/-                              | 1000/550                                                 | 300/-                                                  |
| OM4 -<br>50/125mm<br>Multi-Mode | 4                       | Erika Violet     | 850/1300                        | 3.0/1.0                       | 3500/500                          | 4700/-                              | 1100/550                                                 | 400/-                                                  |
| OS2 - Single<br>Mode            | S                       | Yellow           | 1310/1550                       | 0.5/0.5                       | -                                 | -                                   | 5000/-                                                   | 10,000/40,000                                          |
| OM2 Fiber ava                   | ilable upon Requ        | lest             |                                 |                               |                                   |                                     |                                                          |                                                        |

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|                       | Riser - UL Type CL3R-OF – 3mm Sub Units |                          |              |                             |                                 |                              |                                   |  |  |  |  |
|-----------------------|-----------------------------------------|--------------------------|--------------|-----------------------------|---------------------------------|------------------------------|-----------------------------------|--|--|--|--|
| AWG Size              | Fiber Count                             | Part Number <sup>1</sup> | Jacket Color | Nom. Jacket<br>Dia. in (mm) | Weight<br>lbs/1000ft<br>(kg/km) | Max. Install<br>Load lbs (N) | Max. Long<br>Term Load lbs<br>(N) |  |  |  |  |
| 12                    | 2                                       | HDxB0020212RC            | Black        | 0.402 (10.2)                | 98 (146)                        | 600 (2700)                   | 180 (810)                         |  |  |  |  |
| 14                    | 2                                       | HDxB0020214RC            | Black        | 0.402 (10.2)                | 73 (109)                        | 600 (2700)                   | 180 (810)                         |  |  |  |  |
| 1 Substitute (x) with | Fiber Grade Code                        |                          |              |                             |                                 |                              |                                   |  |  |  |  |

|                       | Riser - UL Type CMR-OF – 3mm Sub Units |                          |              |                             |                                 |                              |                                   |  |  |  |  |
|-----------------------|----------------------------------------|--------------------------|--------------|-----------------------------|---------------------------------|------------------------------|-----------------------------------|--|--|--|--|
| AWG Size              | Fiber Count                            | Part Number <sup>1</sup> | Jacket Color | Nom. Jacket<br>Dia. in (mm) | Weight<br>lbs/1000ft<br>(kg/km) | Max. Install<br>Load lbs (N) | Max. Long<br>Term Load lbs<br>(N) |  |  |  |  |
| 16                    | 2                                      | HDxB0020216RC            | Black        | 0.375 (9.5)                 | 64 (95)                         | 600 (2700)                   | 180 (810)                         |  |  |  |  |
| 18                    | 2                                      | HDxB0020218RC            | Black        | 0.375 (9.5)                 | 59 (88)                         | 600 (2700)                   | 180 (810)                         |  |  |  |  |
| 20                    | 2                                      | HDxB0020220RC            | Black        | 0.393 (10.0)                | 55 (82)                         | 600 (2700)                   | 180 (810)                         |  |  |  |  |
| 1 Substitute (x) with | Fiber Grade Code                       |                          |              |                             |                                 |                              |                                   |  |  |  |  |

|                       | Riser - UL Type CL3R-OF – 3mm Sub Units - Aluminum Interlocked Armor |                          |              |                             |                                 |                              |                                   |  |  |  |  |
|-----------------------|----------------------------------------------------------------------|--------------------------|--------------|-----------------------------|---------------------------------|------------------------------|-----------------------------------|--|--|--|--|
| AWG Size              | Fiber Count                                                          | Part Number <sup>1</sup> | Jacket Color | Nom. Jacket<br>Dia. in (mm) | Weight<br>lbs/1000ft<br>(kg/km) | Max. Install<br>Load lbs (N) | Max. Long<br>Term Load lbs<br>(N) |  |  |  |  |
| 12                    | 2                                                                    | HDxB0020212FC            | Black        | 0.700 (17.8)                | 228 (339)                       | 600 (2700)                   | 180 (810)                         |  |  |  |  |
| 14                    | 2                                                                    | HDxB0020214FC            | Black        | 0.700 (17.8)                | 203 (302)                       | 600 (2700)                   | 180 (810)                         |  |  |  |  |
| 1 Substitute (x) with | Fiber Grade Code                                                     |                          |              |                             |                                 |                              |                                   |  |  |  |  |

| AWG Size | Fiber Count | Part Number <sup>1</sup> | Jacket Color | Nom. Jacket<br>Dia. in (mm) | Weight<br>lbs/1000ft<br>(kg/km) | Max. Install<br>Load lbs (N) | Max. Long<br>Term Load lbs<br>(N) |
|----------|-------------|--------------------------|--------------|-----------------------------|---------------------------------|------------------------------|-----------------------------------|
| 16       | 2           | HDxB0020216FC            | Black        | 0.670 (17.0)                | 188 (280)                       | 600 (2700)                   | 180 (810)                         |
| 18       | 2           | HDxB0020218FC            | Black        | 0.670 (17.0)                | 183 (272)                       | 600 (2700)                   | 180 (810)                         |
| 20       | 2           | HDxB0020220FC            | Black        | 0.690 (17.5)                | 183 (272)                       | 600 (2700)                   | 180 (810)                         |

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|                       | Riser - UL Type CL3R-OF – 2mm Sub Units |                          |              |                             |                                 |                              |                                   |  |  |  |  |
|-----------------------|-----------------------------------------|--------------------------|--------------|-----------------------------|---------------------------------|------------------------------|-----------------------------------|--|--|--|--|
| AWG Size              | Fiber Count                             | Part Number <sup>1</sup> | Jacket Color | Nom. Jacket<br>Dia. in (mm) | Weight<br>lbs/1000ft<br>(kg/km) | Max. Install<br>Load lbs (N) | Max. Long<br>Term Load lbs<br>(N) |  |  |  |  |
| 12                    | 2                                       | HDxB0020212RB            | Black        | 0.379 (9.6)                 | 85 (126)                        | 600 (2700)                   | 180 (810)                         |  |  |  |  |
| 14                    | 2                                       | HDxB0020214RB            | Black        | 0.333 (8.5)                 | 62 (93)                         | 600 (2700)                   | 180 (810)                         |  |  |  |  |
| 1 Substitute (x) with | Fiber Grade Code                        |                          |              |                             |                                 |                              |                                   |  |  |  |  |

|                       | Riser - UL Type CMR-OF – 2mm Sub Units |                          |              |                             |                                 |                              |                                   |  |  |  |  |
|-----------------------|----------------------------------------|--------------------------|--------------|-----------------------------|---------------------------------|------------------------------|-----------------------------------|--|--|--|--|
| AWG Size              | Fiber Count                            | Part Number <sup>1</sup> | Jacket Color | Nom. Jacket<br>Dia. in (mm) | Weight<br>lbs/1000ft<br>(kg/km) | Max. Install<br>Load lbs (N) | Max. Long<br>Term Load lbs<br>(N) |  |  |  |  |
| 16                    | 2                                      | HDxB0020216RB            | Black        | 0.327 (8.3)                 | 53 (78)                         | 600 (2700)                   | 180 (810)                         |  |  |  |  |
| 18                    | 2                                      | HDxB0020218RB            | Black        | 0.312 (7.9)                 | 45 (67)                         | 600 (2700)                   | 180 (810)                         |  |  |  |  |
| 20                    | 2                                      | HDxB0020220RB            | Black        | 0.295 (7.5)                 | 39 (58)                         | 600 (2700)                   | 180 (810)                         |  |  |  |  |
| 1 Substitute (x) with | Fiber Grade Code                       |                          |              |                             |                                 |                              |                                   |  |  |  |  |

|                       | Riser - UL Type CL3R-OF – 2mm Sub Units - Aluminum Interlocked Armor |                          |              |                             |                                 |                              |                                   |  |  |  |  |
|-----------------------|----------------------------------------------------------------------|--------------------------|--------------|-----------------------------|---------------------------------|------------------------------|-----------------------------------|--|--|--|--|
| AWG Size              | Fiber Count                                                          | Part Number <sup>1</sup> | Jacket Color | Nom. Jacket<br>Dia. in (mm) | Weight<br>lbs/1000ft<br>(kg/km) | Max. Install<br>Load lbs (N) | Max. Long<br>Term Load lbs<br>(N) |  |  |  |  |
| 12                    | 2                                                                    | HDxB0020212FB            | Black        | 0.670 (17.0)                | 209 (311)                       | 600 (2700)                   | 180 (810)                         |  |  |  |  |
| 14                    | 2                                                                    | HDxB0020214FB            | Black        | 0.630 (16.0)                | 177 (263)                       | 600 (2700)                   | 180 (810)                         |  |  |  |  |
| 1 Substitute (x) with | Fiber Grade Code                                                     |                          |              |                             |                                 |                              |                                   |  |  |  |  |

| Riser - UL Type CMR-OF – 2mm Sub Units - Aluminum Interlocked Armor |                  |                          |              |                             |                                 |                              |                                   |  |  |  |
|---------------------------------------------------------------------|------------------|--------------------------|--------------|-----------------------------|---------------------------------|------------------------------|-----------------------------------|--|--|--|
| AWG Size                                                            | Fiber Count      | Part Number <sup>1</sup> | Jacket Color | Nom. Jacket<br>Dia. in (mm) | Weight<br>lbs/1000ft<br>(kg/km) | Max. Install<br>Load lbs (N) | Max. Long<br>Term Load lbs<br>(N) |  |  |  |
| 16                                                                  | 2                | HDxB0020216FB            | Black        | 0.620 (15.7)                | 166 (247)                       | 600 (2700)                   | 180 (810)                         |  |  |  |
| 18                                                                  | 2                | HDxB0020218FB            | Black        | 0.610 (15.5)                | 155 (231)                       | 600 (2700)                   | 180 (810)                         |  |  |  |
| 20                                                                  | 2                | HDxB0020220FB            | Black        | 0.590 (15.0)                | 145 (216)                       | 600 (2700)                   | 180 (810)                         |  |  |  |
| 1 Substitute (x) with                                               | Fiber Grade Code |                          |              |                             |                                 |                              |                                   |  |  |  |

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|                       | Plenum - UL Type CL3P-OF – 3mm Sub Units |                          |              |                             |                                 |                              |                                   |  |  |  |  |
|-----------------------|------------------------------------------|--------------------------|--------------|-----------------------------|---------------------------------|------------------------------|-----------------------------------|--|--|--|--|
| AWG Size              | Fiber Count                              | Part Number <sup>1</sup> | Jacket Color | Nom. Jacket<br>Dia. in (mm) | Weight<br>lbs/1000ft<br>(kg/km) | Max. Install<br>Load lbs (N) | Max. Long<br>Term Load lbs<br>(N) |  |  |  |  |
| 12                    | 2                                        | HDxB0020212PC            | Black        | 0.366 (9.3)                 | 88 (131)                        | 600 (2700)                   | 180 (810)                         |  |  |  |  |
| 14                    | 2                                        | HDxB0020214PC            | Black        | 0.366 (9.3)                 | 68 (101)                        | 600 (2700)                   | 180 (810)                         |  |  |  |  |
| 1 Substitute (x) with | Fiber Grade Code                         |                          |              |                             |                                 |                              |                                   |  |  |  |  |

|                       | Plenum - UL Type CMP-OF – 3mm Sub Units |                          |              |                             |                                 |                              |                                   |  |  |  |  |
|-----------------------|-----------------------------------------|--------------------------|--------------|-----------------------------|---------------------------------|------------------------------|-----------------------------------|--|--|--|--|
| AWG Size              | Fiber Count                             | Part Number <sup>1</sup> | Jacket Color | Nom. Jacket<br>Dia. in (mm) | Weight<br>lbs/1000ft<br>(kg/km) | Max. Install<br>Load lbs (N) | Max. Long<br>Term Load lbs<br>(N) |  |  |  |  |
| 16                    | 2                                       | HDxB0020216PC            | Black        | 0.339 (8.6)                 | 57 (85)                         | 600 (2700)                   | 180 (810)                         |  |  |  |  |
| 18                    | 2                                       | HDxB0020218PC            | Black        | 0.339 (8.6)                 | 52 (77)                         | 600 (2700)                   | 180 (810)                         |  |  |  |  |
| 20                    | 2                                       | HDxB0020220PC            | Black        | 0.357 (9.1)                 | 47 (70)                         | 600 (2700)                   | 180 (810)                         |  |  |  |  |
| 1 Substitute (x) with | Fiber Grade Code                        |                          |              |                             |                                 |                              |                                   |  |  |  |  |

| Plenum - UL Type CL3P-OF – 2mm Sub Units |             |                          |              |                             |                                 |                              |                                   |  |  |  |  |
|------------------------------------------|-------------|--------------------------|--------------|-----------------------------|---------------------------------|------------------------------|-----------------------------------|--|--|--|--|
| AWG Size                                 | Fiber Count | Part Number <sup>1</sup> | Jacket Color | Nom. Jacket<br>Dia. in (mm) | Weight<br>lbs/1000ft<br>(kg/km) | Max. Install<br>Load lbs (N) | Max. Long<br>Term Load lbs<br>(N) |  |  |  |  |
| 12                                       | 2           | HDxB0020212PB            | Black        | 0.343 (8.7)                 | 76 (115)                        | 600 (2700)                   | 180 (810)                         |  |  |  |  |
| 14                                       | 2           | HDxB0020214PB            | Black        | 0.297 (7.5)                 | 55 (82)                         | 600 (2700)                   | 180 (810)                         |  |  |  |  |
| 1 Substitute (x) with Fiber Grade Code   |             |                          |              |                             |                                 |                              |                                   |  |  |  |  |

| Plenum - UL Type CMP-OF – 2mm Sub Units |             |                          |              |                             |                                 |                              |                                   |  |  |  |  |
|-----------------------------------------|-------------|--------------------------|--------------|-----------------------------|---------------------------------|------------------------------|-----------------------------------|--|--|--|--|
| AWG Size                                | Fiber Count | Part Number <sup>1</sup> | Jacket Color | Nom. Jacket<br>Dia. in (mm) | Weight<br>lbs/1000ft<br>(kg/km) | Max. Install<br>Load lbs (N) | Max. Long<br>Term Load lbs<br>(N) |  |  |  |  |
| 16                                      | 2           | HDxB0020216PB            | Black        | 0.291 (7.4)                 | 45 (67)                         | 600 (2700)                   | 180 (810)                         |  |  |  |  |
| 18                                      | 2           | HDxB0020218PB            | Black        | 0.276 (7.0)                 | 39 (59)                         | 600 (2700)                   | 180 (810)                         |  |  |  |  |
| 20                                      | 2           | HDxB0020220PB            | Black        | 0.259 (6.8)                 | 31 (47)                         | 600 (2700)                   | 180 (810)                         |  |  |  |  |
| 1 Substitute (x) with Fiber Grade Code  |             |                          |              |                             |                                 |                              |                                   |  |  |  |  |

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| STANDARD            |                                |            |                |   |             |     |                 |    |              |    |              |   |                                               |   |                                                                                     |
|---------------------|--------------------------------|------------|----------------|---|-------------|-----|-----------------|----|--------------|----|--------------|---|-----------------------------------------------|---|-------------------------------------------------------------------------------------|
| FX Fiber Cable Fibe |                                | Fiber Type | Family         |   | Fiber Count |     | Conductor Count |    | Copper Type  |    | Flammability |   | Subunit Type / Configuration                  |   |                                                                                     |
| HD                  |                                | 3          |                | В |             | 002 |                 | 02 |              | 12 |              | R |                                               | В |                                                                                     |
| HD                  | Indoor/Outdoor<br>Hybrid Cable | 3          | ОМЗ            | В | Breakout    | 001 | 1 Fiber         | 01 | 1 Conductor  | 12 | 12 AWG       | Ρ | Plenum (OFNP)                                 | В | COPPER: Stranded or Category<br>Cable<br>FIBER: 2.0mm Sub, 1 x 900um<br>Fiber / Sub |
|                     |                                | 4          | ОМ4            |   |             | 002 | 2 Fibers        | 02 | 2 Conductors | 14 | 14 AWG       | R | Riser (OFNR)                                  | с | COPPER: Stranded or Category<br>Cable<br>FIBER: 3.0mm Sub, 1 x 900um<br>Fiber / Sub |
|                     |                                | S          | OS2 (G.657.A1) |   |             |     |                 |    |              | 16 | 16 AWG       | F | Riser Interlocked<br>Aluminum Armor<br>(OFCR) |   |                                                                                     |
|                     |                                |            |                |   |             |     |                 |    |              | 18 | 18 AWG       |   |                                               |   |                                                                                     |
|                     |                                |            |                |   |             |     |                 |    |              | 20 | 20 AWG       | - |                                               |   |                                                                                     |

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