

# High-Speed Digital Data Cables

Gigabit, NETflight®, and Maxflite™ Series



Gigabit Series Ethernet Cables | NETflight® Series Ethernet Cables | Maxflite™ Series Cables

## INTRODUCTION

We manufacture a wide variety of high-performance data cables designed to meet the needs of aerospace, defense, military, ground transportation, industrial, and RF communication applications like:

- » Ethernet Backbone
- » Avionics
- » High-Definition Video
- » Cabin Management Systems
- » In-Flight Entertainment
- » Bus

**Gigabit Series** Ethernet Cables have been developed in a wide variety of configurations to provide 1 and 10 Gb performance in the most demanding applications.

**NETflight® Series** Ethernet Cables in single pair, dual pair, and quadrx configurations are widely used throughout the aerospace industry and provide superior electrical and mechanical performance.

**Maxflite™ Series** cables provide high-speed performance for the popular video and data bus protocols:

- » HDMI
- » USB
- » DVI
- » Firewire

In addition to the standard protocols, we also offer:

- » Custom Designs
- » Assembly Services

## FEATURES & BENEFITS

- » Exceptional electrical and mechanical performance
- » Operating performance from -55 °C to as high as 200 °C
- » Meets the requirements of aerospace and other harsh environments including FAR 25.853 flammability and Boeing/Airbus smoke and toxicity requirements
- » Multiple configurations to meet the needs of almost any application
- » Lightweight versions to address weight and space requirements
- » Advanced technologies, including bonded pairs and an innovative X-Web, reduce crosstalk and ensure installable performance

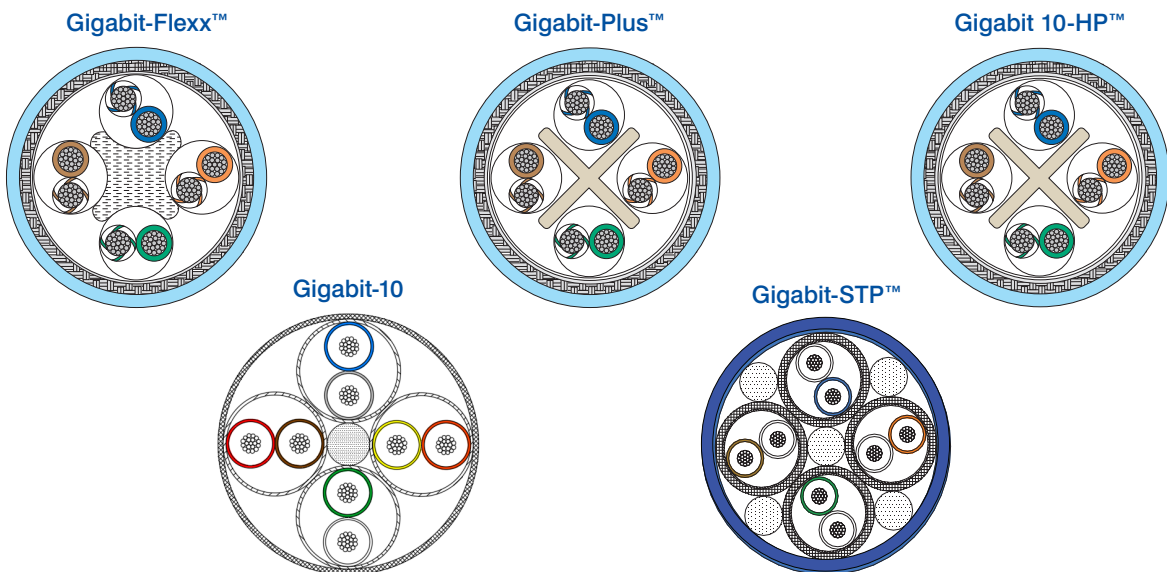
# High-Speed Digital Data Cables

## Gigabit Series

| Gigabit Series                         | Gigabit-Flexx™                  |                                 | Gigabit-Plus™                   |                                 | Gigabit 10-HP™                  | Gigabit-10                        |                                   | Gigabit-STP™                    |         |
|--|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------------------|-----------------------------------|---------------------------------|---------|
|  | 24 AWG                          | 26 AWG                          | 24 AWG                          | 26 AWG                          | 24 AWG                          | 24 AWG                            | 26 AWG                            | 26 AWG                          |         |
| Part Number                            | MX10G-24FLX                     | MX10G-26FLX                     | MX10G-24                        | MX10G-26                        | MX10G-24HP                      | NF24GB100-10                      | NF26GB100-10                      | NF26-GBSTP-100                  |         |
| Impedance                              | 100 Ω                           |                                 | 100 Ω                           |                                 | 100 Ω                           | 100 Ω                             |                                   | 100 Ω                           |         |
| DC Resistance @ 100 ft                 | 2.76 Ω                          | 4.38 Ω                          | 2.76 Ω                          | 4.38 Ω                          | 2.76 Ω                          | 2.43 Ω                            | 4.38 Ω                            | 4.38 Ω                          |         |
| Velocity of Propagation                | 70%                             |                                 | 70%                             |                                 | 70%                             | 77%                               |                                   | 77%                             |         |
| Attenuation @ 100 m                    | @ 100 MHz                       | 26.4 dB                         | 31.6 dB                         | 24 dB                           | 29 dB                           | 22.0 dB                           | 24.1 dB                           | 27.2 dB                         | 38 dB   |
|  | @ 250 MHz                       | N/A                             | N/A                             | 40 dB                           | 48 dB                           | 32 dB                             | 39.2 dB                           | 44.3 dB                         | 62 dB   |
|  | @ 500 MHz                       | N/A                             | N/A                             | N/A                             | N/A                             | 48 dB                             | 57.2 dB                           | 64.6 dB                         | 90.6 dB |
| Weight                                 | 35 lb/1000 ft<br>(52 kg/1000 m) | 28 lb/1000 ft<br>(42 kg/1000 m) | 50 lb/1000 ft<br>(74 kg/1000 m) | 35 lb/1000 ft<br>(52 kg/1000 m) | 55 lb/1000 ft<br>(82 kg/1000 m) | 45 lb/1000 ft<br>(66.6 kg/1000 m) | 33 lb/1000 ft<br>(48.8 kg/1000 m) | 50 lb/1000 ft<br>(74 kg/1000 m) |         |
| Size                                   | 0.245"<br>(6.22 mm)             | 0.195"<br>(4.95 mm)             | 0.270"<br>(6.86 mm)             | 0.220"<br>(5.59 mm)             | 0.290"<br>(7.36 mm)             | 0.282"<br>(7.16 mm)               | 0.232"<br>(5.89 mm)               | 0.300"<br>(7.62 mm)             |         |
| Min. Bend Radius                       | 1"<br>(25.4 mm)                 | 0.75"<br>(19.05 mm)             | 2"<br>(50.8 mm)                 | 1.75"<br>(44.45 mm)             | 0.5"<br>(12.7 mm)               | 2.82"<br>(71.6 mm)                | 2.32"<br>(58.9 mm)                | 3"<br>(76.2 mm)                 |         |
| Operating Temperature**                | -55 to 200 °C                   |                                 | -55 to 150 °C                   |                                 | -55 to 150 °C                   | -55 to 150 °C                     |                                   | -55 to 150 °C                   |         |
| ROHS Compliant                         | ✓                               |                                 | ✓                               |                                 | ✓                               | ✓                                 |                                   | ✓                               |         |
| Meets FAR 25.853                       | ✓                               |                                 | ✓                               |                                 | ✓                               | ✓                                 |                                   | ✓                               |         |
| Meets Boeing/Airbus Smoke and Toxicity | ✓                               |                                 | ✓                               |                                 | ✓                               | ✓                                 |                                   | ✓                               |         |

\* 24773/1A042X-8(LD) and 26463/1A042X-8(LD) are cables designed specifically for use with an Octax® connector. \*\*Available at -65 °C. Contact us for details.

### GIGABIT SERIES CROSS SECTIONS



# High-Speed Digital Data Cables

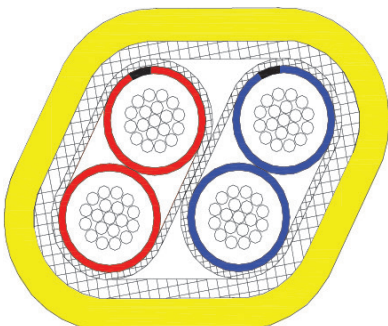
## NETflight® Series

| NETflight® Series                    | 100 Base-T Shielded Twisted Pair         |  | 100 Base-T Shielded Quad                 |  |  |  | 100 Base-T Single Twisted Pair          |  |  |  |
|--------------------------------------|--|--|--|--|--|--|---|--|--|--|
|                                      | 22 AWG                                   | 24 AWG                                 | 22 AWG                                   | 24 AWG                                 |  | 26 AWG                                 | 22 AWG                                  | 24 AWG                                   | 26 AWG                                   |  |
| Part Number                          | NF22P100                                 | NF24P100                               | NF22Q100-01                              | NF24Q100-01                            | NF24Q100-01HP                          | NF24Q100-01-DL-ALW                     | NF26Q100-01                             | NF22T100                                 | NF24T100                                 | NF26T100                                 |
| Impedance                            | 100 Ω                                    |  | 100 Ω                                    |  |  |  | 100 Ω                                   |  |  |  |
| Velocity of Propagation              | 78%                                      |  | 78%                                      |  |  |  | 78%                                     |  |  |  |
| Attenuation @ 100 MHz                | Nom: 5.6 dB/100 ft<br>Max: 6.7 dB/100 ft | Nom: 6 dB/100 ft<br>Max: 7.1 dB/100 ft | Nom: 6.4 dB/100 ft<br>Max: 7.3 dB/100 ft | Nom: 8 dB/100 ft<br>Max: 9.2 dB/100 ft | Nom: 8 dB/100 ft<br>Max: 9.2 dB/100 ft | Nom: 8 dB/100 ft<br>Max: 9.2 dB/100 ft | Nom: 9.3 dB/100 ft<br>Max: 11 dB/100 ft | Nom: 5.8 dB/100 ft<br>Max: 6.7 dB/100 ft | Nom: 6.6 dB/100 ft<br>Max: 7.7 dB/100 ft | Nom: 8.5 dB/100 ft<br>Max: 9.9 dB/100 ft |
| Nominal Weight                       | 42 lbs/100 ft<br>(63 kg/1000 m)          | 35 lbs/100 ft<br>(51 kg/1000 m)        | 35 lbs/100 ft<br>(51 kg/1000 m)          | 24.5 lbs/100 ft<br>(37 kg/1000 m)      | 24.5 lbs/100 ft<br>(36.4 kg/1000 m)    | 20.5 lbs/100 ft<br>(30.5 kg/1000 m)    | 19 lbs/100 ft<br>(28 kg/1000 m)         | 26 lbs/100 ft<br>(38 kg/1000 m)          | 18.5 lbs/100 ft<br>(28 kg/1000 m)        | 15.5 lbs/100 ft<br>(23 kg/1000 m)        |
| Nominal Size                         | 0.195 x 0.306"<br>(4.95 x 7.37 mm)       | 0.175 x 0.276"<br>(4.45 x 7.01 mm)     | 0.190"<br>(4.83 mm)                      | 0.160"<br>(4.06 mm)                    | 0.160"<br>(4.06 mm)                    | 0.160"<br>(4.06 mm)                    | 0.137"<br>(3.45 mm)                     | 0.180"<br>(4.57 mm)                      | 0.145"<br>(3.68 mm)                      | 0.132"<br>(3.35 mm)                      |
| Bend Radius                          | 1.95"<br>(49.5 mm)                       | 1.75"<br>(44.5 mm)                     | 1.90"<br>(48.3 mm)                       | 1.60"<br>(40.6 mm)                     | 1.60"<br>(40.6 mm)                     | 1.60"<br>(40.6 mm)                     | 1.37"<br>(34.5 mm)                      | 1.80"<br>(45.7 mm)                       | 1.45"<br>(36.8 mm)                       | 1.32"<br>(33.5 mm)                       |
| Operating Temperature**              | -55 to 150 °C                            |  | -55 to 150 °C                            |  | -55 to 200 °C                          | -55 to 150 °C                          |   | -55 to 150 °C                            |  |  |
| Meets FAR 25.853                     | ✓  |  | ✓  |  |  |  | ✓                                       |  |  |  |
| Meets Boeing/Airbus Smoke & Toxicity | ✓  |  | ✓  |  |  |  | ✓                                       |  |  |  |

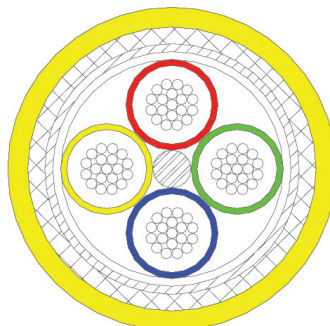
\*\*Available at -65 °C. Contact us for details.

### NETflight® SERIES CROSS SECTIONS

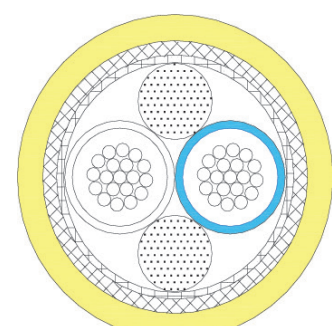
100 Base-T Shielded Twisted Pair



100 Base-T Shielded Quad



100 Base-T Single Twisted Pair





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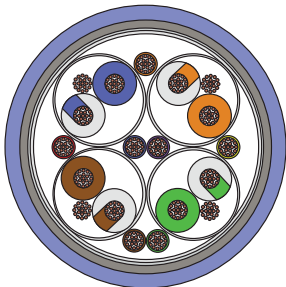
## Maxflite™ Series

| Maxflite™ Series                     | HDMI (1.3)                     | HDMI (2.0)                      | DVI                             | IEEE 1394 Firewire             | USB 2.0 26/22 AWG             | USB 3.0 24/26/22 AWG + Drain     | USB 3.1                          |
|--------------------------------------|--------------------------------|---------------------------------|---------------------------------|--------------------------------|-------------------------------|----------------------------------|----------------------------------|
| Part Number                          | 1586-305                       | 26453/1K017LX-15-DL             | 24463/05099X-8(LD)              | 24483/03063LX-6(LD)            | NF26/22USB(A)                 | USB3.0/24(AM)                    | 26443/1K016LX-16-DL              |
| Nominal Impedance                    | 100 Ω                          | 100 Ω                           | 100 Ω                           | 110 Ω                          | 90 Ω                          | 90 Ω                             | 90 Ω                             |
| Nominal Velocity of Propagation      | 70%                            | 75%                             | 75%                             | 79%                            | 70%                           | 70%                              | 75%                              |
| Nominal Attenuation                  | 17 dB/100 ft @ 300 MHz         | 30 dB/100 ft @ 1 GHz            | N/A                             | 11 dB/100 ft @ 200 MHz         | 2 dB/5m @ 100 GHz             | 1.4 dB/m @ 1.25 GHz              | 4.9 dB/3m @ 1.25 GHz             |
|                                      | 42 dB/100 ft @ 1.6 GHz         | 50 dB/100 ft @ 2 GHz            |                                 | 17 dB/100 ft @ 400 MHz         | 3.2 dB/5m @ 200 MHz           | 2.4 dB/m @ 2.5 GHz               | 6.9 dB/3m @ 2.5 GHz              |
|                                      | 70 dB/100 ft @ 4.1 GHz         | 70 dB/100 ft @ 3 GHz            |                                 | 24 dB/100 ft @ 800 MHz         | 5.8 dB/5m @ 400 MHz           | 4.1 dB/3m @ 5 GHz                | 10.8 dB/3m @ 5 GHz               |
| Nominal Weight                       | 72 lbs/1000 ft (107 kg/1000 m) | 64 lbs/1000 ft (95.1 kg/1000 m) | 105 lbs/1000 ft (156 kg/1000 m) | 78 lbs/1000 ft (116 kg/1000 m) | 19 lbs/1000 ft (28 kg/1000 m) | 50 lbs/1000 ft (74.41 kg/1000 m) | 73 lbs/1000 ft (108.8 kg/1000 m) |
| Nominal Diameter                     | 0.315" (8 mm)                  | 0.295" (7.49 mm)                | 0.4" (10.16 mm)                 | 0.34" (8.64 mm)                | 0.133" (3.4 mm)               | 0.27" (6.8 mm)                   | 0.295" (7.49 mm)                 |
| Min. Bend Radius                     | 1.89" (48 mm)                  | 1.5" (38.1 mm)                  | 4" (102 mm)                     | 3.4" (86 mm)                   | 1.3" (33 mm)                  | 2.7" (68.6 mm)                   | 1.5" (38.1 mm)                   |
| Operating Temperature**              | -55 to 150 °C                  | -55 to 135 °C                   | -55 to 150 °C                   | -55 to 150 °C                  | -55 to 150 °C                 | -55 to 150 °C                    | -55 to 200 °C                    |
| Meets FAR 25.853                     | ✓                              | ✓                               | ✓                               | ✓                              | ✓                             | ✓                                | ✓                                |
| Meets Boeing/Airbus Smoke & Toxicity | ✓                              | ✓                               | ✓                               | ✓                              | ✓                             | ✓                                | ✓                                |

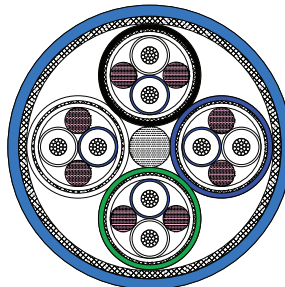
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### Maxflite™ SERIES CROSS SECTIONS

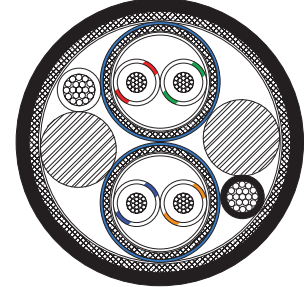
HDMI



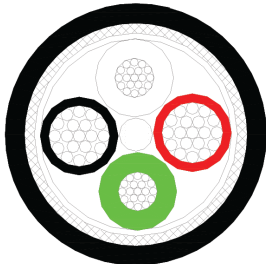
DVI



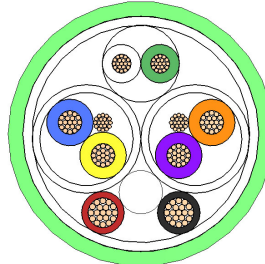
IEEE 1394 Firewire



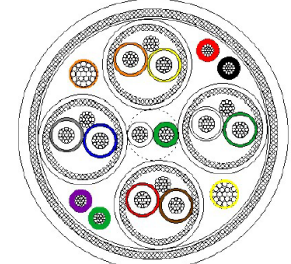
USB 2.0



USB 3.0



USB 3.1



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