

# 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
- » Cabin Management Systems
- » Avionics
- » IFEC
- » High-Definition Video
- » Bus

High-Speed Digital Data Cable Series:

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

**NETflight®** 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™** 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

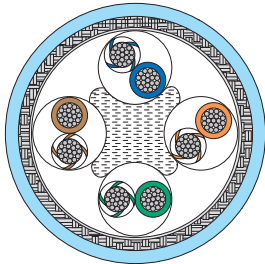
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## Gigabit Series

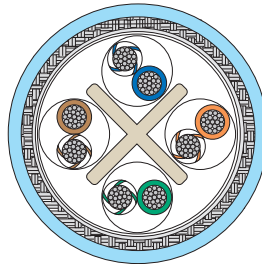
| Gigabit Series                                    |           | Gigabit-Flexx™ |              | Gigabit-Plus™ |              |              | Gigabit-10-HP™ | Gigabit-10™   |              | Gigabit-STP™   |
|---------------------------------------------------|-----------|----------------|--------------|---------------|--------------|--------------|----------------|---------------|--------------|----------------|
|                                                   |           | 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-24-ALW | 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        | 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         | 24 dB        | 29 dB        | 22.0 dB        | 24.1 dB       | 27.2 dB      | 38 dB          |
|                                                   | @ 250 MHz | N/A            | N/A          | 40 dB         | 40 dB        | 48 dB        | 32 dB          | 39.2 dB       | 44.3 dB      | 62 dB          |
|                                                   | @ 500 MHz | N/A            | N/A          | N/A           | N/A          | N/A          | 48 dB          | 57.2 dB       | 64.6 dB      | 90.6 dB        |
| Weight lb/1000 ft (kg/1000 m)                     |           | 35 (52)        | 28 (42)      | 50 (74)       | 45 (67)      | 35 (52)      | 55 (82)        | 45 (66.6)     | 33 (48.8)    | 50 (74)        |
| Size in (mm)                                      |           | 0.245 (6.22)   | 0.195 (4.95) | 0.270 (6.86)  | 0.270 (6.86) | 0.220 (5.59) | 0.290 (7.36)   | 0.282 (7.16)  | 0.232 (5.89) | 0.300 (7.62)   |
| Min. Bend Radius in (mm)                          |           | 1 (25.4)       | 0.75 (19.05) | 2 (50.8)      | 2 (50.8)     | 1.75 (44.45) | 0.5 (12.7)     | 2.82 (71.6)   | 2.32 (58.9)  | 3 (76.2)       |
| Operating Temp**                                  |           | -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 Flammability Requirements        |           | ✓              |              | ✓             |              |              | ✓              | ✓             |              | ✓              |
| Meets Boeing/Airbus Smoke & Toxicity Requirements |           | ✓              |              | ✓             |              |              | ✓              | ✓             |              | ✓              |

\*Gigabit-10 cables are designed specifically for use with an Octax® connector. \*\*Available at -65 °C. Contact us for details.

Gigabit-Flexx™



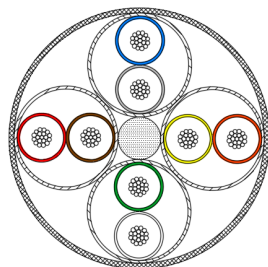
Gigabit-Plus™



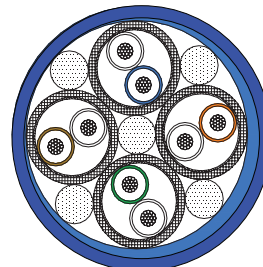
Gigabit 10-HP™



Gigabit-10



Gigabit-STP™



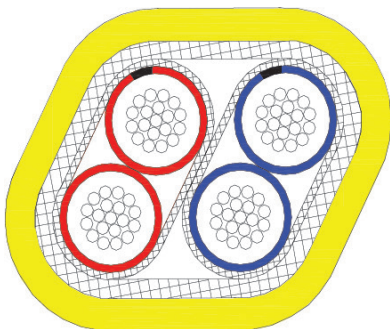
# High-Speed Digital Data Cables

## NETflight® Series

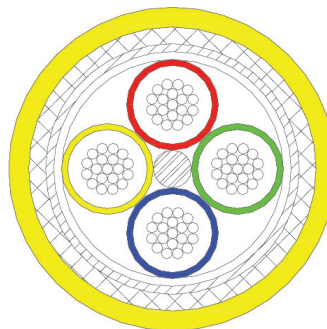
| NETflight®<br>Series                       |                  | 100 Base-T<br>Shielded Twisted Pair |                                | 100 Base-T<br>Shielded Quad |                 |                 |                    |                 | 100 Base-T<br>Single Twisted Pair |                 |     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

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

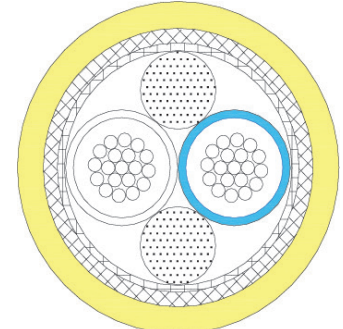
100 Base-T  
Shielded Twisted Pair



100 Base-T  
Shielded Quad



100 Base-T  
Single Twisted Pair



## Wire &amp; Cable

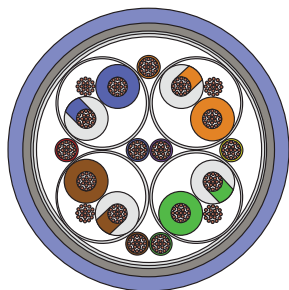
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## Maxflite™ Series

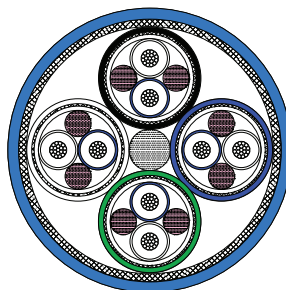
| Maxflite™ Series                     | HDMI (1.3)             | HDMI (2.0)           | DVI                | IEEE 1394 Firewire     | USB 2.0 26/22 AWG   | USB 3.0 24/26/22 AWG + Drain | USB 3.1              |
|--------------------------------------|------------------------|----------------------|--------------------|------------------------|---------------------|------------------------------|----------------------|
| 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  |
| Nom. Impedance                       | 100 Ω                  | 100 Ω                | 100 Ω              | 110 Ω                  | 90 Ω                | 90 Ω                         | 90 Ω                 |
| Nom. Velocity of Propagation         | 70%                    | 75%                  | 75%                | 79%                    | 70%                 | 70%                          | 75%                  |
| Nom. 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   |
|                                      |                        |                      |                    |                        |                     | 5.1 dB/3m @ 7.5 GHz          | 14.8 dB/3m @ 7.5 GHz |
|                                      |                        |                      |                    |                        |                     |                              | 19.7 dB/3m @ 10 GHz  |
| Nom. Weight lbs/1000 ft (kg/1000 m)  | 72 (107)               | 64 (95.1)            | 105 (156)          | 78 (116)               | 19 (28)             | 50 (74.41)                   | 73 (108.8)           |
| Nom. Diameter in (mm)                | 0.315 (8)              | 0.295 (7.49)         | 0.4 (10.16)        | 0.34 (8.64)            | 0.133 (3.4)         | 0.27 (6.8)                   | 0.295 (7.49)         |
| Min. Bend Radius in (mm)             | 1.89 (48)              | 1.5 (38.1)           | 4 (102)            | 3.4 (86)               | 1.3 (33)            | 2.7 (68.6)                   | 1.5 (38.1)           |
| Operating Temp**                     | -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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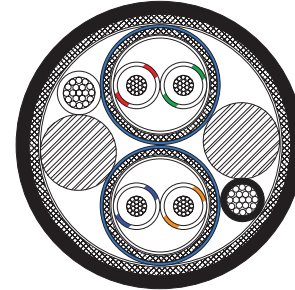
HDMI



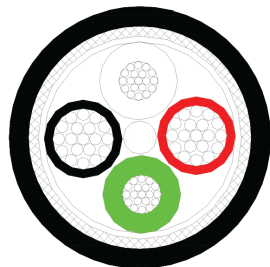
DVI



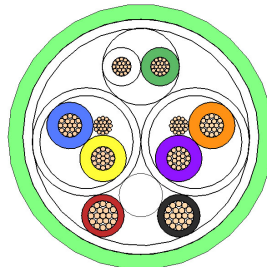
IEEE 1394 Firewire



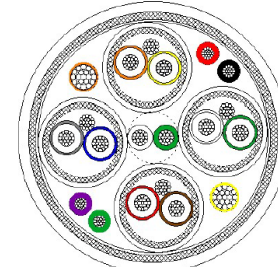
USB 2.0



USB 3.0



USB 3.1



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