

**10/100 to 100FX Industrial DIN-Rail Mount Hardened Media Converters**

Signamax Connectivity Systems' 065-1800 series 10/100 to 100BaseFX have been developed to operate in harsh industrial environments that require ruggedized equipment that can operate in severe temperature extremes. These media converters are an affordable solution for outdoor environments, transportation roadside systems, shop floors, and other harsh environments where consistent operation at temperature extremes of -30°F to 165°F (-34°C to 74°C) is necessary. These media converters are compact, plug-and-play devices that do not require complex user setup, but also have the manual setting features necessary to adjust to unusual operating conditions.

**KEY FEATURES**

- Meets NEMA TS1 Environmental Requirements for Traffic Control Equipment.
- Meets IEC61000-6-2 EMC Generic Standard Immunity for Industrial Environment.
- RJ-45 Port Auto-Negotiates 10/100Mbps & Full Half-Duplex Mode, with Auto-MDIX
- 100FX Port Available with Multimode, Singlemode and WDM Singlemode.
- DIP Switch Configuration for Link Fault Signaling Link Down Alarm, Plus Speed/Duplex Mode
- Non-Blocking Store-and-Forward Mechanism for Full Wire-Speed Performance
- Supports 2K MAC Addresses.
- Broadcast Storm Filtering
- Back-Pressure and IEEE 802.3x Compliant Flow Control
- Alarms for Power Failure and Port Link Failure via Relay Output.
- Redundant 24V DC Terminal Block Power Inputs
- Available with 3A DC Jack 12V DC with 120-240V AC Hardened External Power Supply.
- Supports DIN-Rail or Panel Mount Installations

[www.signamax.com](http://www.signamax.com)

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**ORDERING INFORMATION**

Part Number	Description
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**10/100 To 100FX DIN-Rail Hardened Media Converters – 24V DC Terminal Block**

065-1800TB	10/100 to 100FX Industrial DIN-Rail Mount Hardened Converter, ST MM, 2 km 24V DC Terminal Block
065-1810TB	10/100 to 100FX Industrial DIN-Rail Mount Hardened Converter, SC MM, 2 km 24V DC Terminal Block
065-1820TB	10/100 to 100FX Industrial DIN-Rail Mount Hardened Converter, SC SM, 20 km 24V DC Terminal Block
065-1820EDTB	10/100 to 100FX Industrial DIN-Rail Mount Hardened Converter, SC SM, 40 km 24V DC Terminal Block
065-1820XLDTB	10/100 to 100FX Industrial DIN-Rail Mount Hardened Converter, SC SM, 75 km 24V DC Terminal Block

**10/100 To 100FX DIN-Rail Hardened Media Converters – 110V Power Supply**

065-1800	10/100 to 100FX Industrial DIN-Rail Mount Hardened Converter, ST MM, 2 km 110V Power Supply
065-1810	10/100 to 100FX Industrial DIN-Rail Mount Hardened Converter, SC MM, 2 km 110V Power Supply
065-1820	10/100 to 100FX Industrial DIN-Rail Mount Hardened Converter, SC SM, 20 km 110V Power Supply
065-1820ED	10/100 to 100FX Industrial DIN-Rail Mount Hardened Converter, SC SM, 40 km 110V Power Supply
065-1820XLD	10/100 to 100FX Industrial DIN-Rail Mount Hardened Converter, SC SM, 75 km 110V Power Supply

Note: 220V Power Supplies are available

**10/100 To 100FX WDM DIN-Rail Mount Hardened Media Converters – 24V DC Terminal Block**

065-1876ATB	10/100T to 100FX Industrial DIN-Rail Mount Hardened Converter, WDM A Simplex SC/SM 20 km; Tx=1310 nm, Rx=1550 nm – 24V DC Terminal Block
065-1876BTB	10/100T to 100FX Industrial DIN-Rail Mount Hardened Converter, WDM B Simplex SC/SM 20 km; Tx=1550 nm, Rx=1310 nm – 24V DC Terminal Block
065-1876AEDTB	10/100T to 100FX Industrial DIN-Rail Mount Hardened Converter, WDM A Simplex SC/SM 40 km; Tx=1310 nm, Rx=1550 nm – 24V DC Terminal Block
065-1876BEDTB	10/100T to 100FX Industrial DIN-Rail Mount Hardened Converter, WDM B Simplex SC/SM 40 km; Tx=1550 nm, Rx=1310 nm – 24V DC Terminal Block

**10/100 To 100FX WDM DIN-Rail Mount Hardened Media Converters – 110V Power Supply**

065-1876A	10/100T to 100FX Industrial DIN-Rail Mount Hardened Converter, WDM A Simplex SC/SM 20 km; Tx=1310 nm, Rx=1550 nm – 110V Power Supply
065-1876B	10/100T to 100FX Industrial DIN-Rail Mount Hardened Converter, WDM B Simplex SC/SM 20 km; Tx=1550 nm, Rx=1310 nm – 110V Power Supply
065-1876AED	10/100T to 100FX Industrial DIN-Rail Mount Hardened Converter, WDM A Simplex SC/SM 40 km; Tx=1310 nm, Rx=1550 nm – 110V Power Supply
065-1876BED	10/100T to 100FX Industrial DIN-Rail Mount Hardened Converter, WDM B Simplex SC/SM 40 km; Tx=1550 nm, Rx=1310 nm – 110V Power Supply

Note: 220V Power Supplies are available

**SPECIFICATIONS****• APPLICABLE STANDARDS:**

IEEE802.3 10BaseT  
IEEE802.3u 100BaseTX / 100BaseFX  
IEEE802.3x Flow Control and Back pressure

**• FIXED PORTS**

1 twisted-pair port meeting IEEE 802.3 10BaseT & IEEE 802.3u 100BaseTX standard specifications, Auto MDI/MDI-X and Auto-Negotiation Function supported (all models)

**PLUS**

1 100FX port meeting IEEE 802.3u 100FX standard specifications with ST/MM, 2 km span  
(Models 065-1800, 065-1800i, & 065-1800TB)

**OR**

1 100FX port meeting IEEE 802.3u 100BaseFX standard specifications with SC/MM, 2 km span  
(Models 065-1810, 065-1810i, & 065-1810TB)

**OR**

1 100FX port meeting IEEE 802.3u 100BaseFX standard specifications with SC/SM, 20 km span  
(Models 065-1820, 065-1820i, & 065-1820TB)

**OR**

1 100FX port meeting IEEE 802.3u 100BaseFX standard specifications with SC/SM, 40 km span  
(Models 065-1820ED, 065-1820EDi, & 065-1820EDTB)

**OR**

1 100FX port meeting IEEE 802.3u 100BaseFX standard specifications with SC/SM, 75 km span  
(Models 065-1820XLD, 065-1820XLDi, & 065-1820XLDTB)

**OR**

1 100FX port meeting IEEE 802.3u 100BaseFX standard specifications with WDM A SC/SM simplex, 20 km span  
(Models 065-1876A, 065-1876Ai, & 065-1876ATB)

**OR**

1 100FX port meeting IEEE 802.3u 100BaseFX standard specifications with WDM B SC/SM simplex, 20 km span  
(Models 065-1876B, 065-1876Bi, & 065-1876BTB)

**OR**

1 100FX port meeting IEEE 802.3u 100BaseFX standard specifications with WDM A SC/SM simplex, 40 km span  
(Models 065-1876AED, 065-1876AEDi, & 065-1876AEDTB)

**OR**

1 100FX port meeting IEEE 802.3u 100BaseFX standard specifications with WDM B SC/SM simplex, 40 km span  
(Models 065-1876BED, 065-1876BEDi, & 065-1876BEDTB)

**• TWISTED-PAIR CABLE REQUIREMENTS**

Category 5 or better cable, 100 meters maximum distance for 100BaseTX, Category 3 or better cable, 100 meters maximum distance for 10BaseT

**• LED STATUS INDICATORS**

**Per Unit:** Power1 (Green), Power2 (Green). Fault, LFS

**Per Port:** 10/100 port: 100 Mbps Speed, Link/Activity, FDX/COL

FDX/COL

100FX port - Link/Activity, FDX/COL

**• PERFORMANCE**

**Latency:** < 4.2  $\mu$ s (LIFO)

**Throughput @ 100Base:** 148,810 pps (64-byte packets)

**• SWITCH ARCHITECTURE**

Store and Forward

**• FIBER INTERFACE, MULTIMODE MODELS**

**Type:** LED

**Wavelength:** 1300 nm nominal (1270 nm maximum, 1380 nm minimum)

**Maximum Output Power:** - 14.0 dBm

**Minimum Output Power:** - 20.0 dBm

**Sensitivity:** -33.0 dBm

**Maximum Input Power:** - 8.0 dBm

**Link Power Budget:** 13.0 dB

**• FIBER INTERFACE, SINGLEMODE PN 065-1820, & 065-1820TB**

**Type:** MQW Laser

**Wavelength:** 1300 nm nominal (1260 nm maximum, 1360 nm minimum)

**Maximum Output Power:** - 7.0 dBm

**Minimum Output Power:** - 15.0 dBm

**Sensitivity:** -34.0 dBm

**Maximum Input Power:** - 7.0 dBm

**Link Power Budget:** 19.0 dB

**• FIBER INTERFACE, SINGLEMODE PN 065-1820ED, & 065-1820EDTB**

**Type:** MQW Laser

**Wavelength:** 1300 nm nominal (1261 nm maximum, 1360 nm minimum)

**Maximum Output Power:** - 5.0 dBm

**Minimum Output Power:** - 12.0 dBm

**Sensitivity:** -35.0 dBm

**Maximum Input Power:** - 5.0 dBm

**Link Power Budget:** 23.0 dB

**• FIBER INTERFACE, SINGLEMODE PN 065-1820XLD, & 065-1820XLDTB**

**Type:** MQW Laser

**Wavelength:** 1300 nm nominal (1270 nm maximum, 1350 nm minimum)

**Maximum Output Power:** + 3.0 dBm

**Minimum Output Power:** - 3.0 dBm

**Sensitivity:** -37.0 dBm

**Maximum Input Power:** - 0.0 dBm

**Link Power Budget:** 34.0 dB

**• FIBER INTERFACE, SINGLEMODE PN 065-1876A, & 065-1876ATB**

**Type:** MQW Laser

**Transmit Wavelength:** 1310 nm nominal (1260 nm maximum, 1360 nm minimum)

**Receive Wavelength:** 1550 nm nominal (1480 nm maximum, 1600 nm minimum)

**Maximum Output Power:** - 8.0 dBm

**Minimum Output Power:** - 14.0 dBm

**Sensitivity:** -33.0 dBm

**Maximum Input Power:** - 3.0 dBm

**Link Power Budget:** 19.0 dB

**• FIBER INTERFACE, SINGLEMODE PN 065-1876B, & 065-1876BTB**

**Type:** MQW Laser

**Transmit Wavelength:** 1550 nm nominal (1480 nm maximum, 1580 nm minimum)

**Receive Wavelength:** 1310 nm nominal (1260 nm maximum, 1360 nm minimum)

**Maximum Output Power:** - 8.0 dBm

**Minimum Output Power:** - 14.0 dBm

**Sensitivity:** -33.0 dBm

**Maximum Input Power:** - 3.0 dBm

**Link Power Budget:** 19.0 dB

**• FIBER INTERFACE, SINGLEMODE PN 065-1876AED, & 065-1876AEDTB**

**Type:** MQW Laser

**Transmit Wavelength:** 1310 nm nominal (1260 nm maximum, 1360 nm minimum)

**Receive Wavelength:** 1550 nm nominal (1490 nm maximum, 1600 nm minimum)

**Maximum Output Power:** - 3.0 dBm

**Minimum Output Power:** - 8.0 dBm

**Sensitivity:** -33.0 dBm

**Maximum Input Power:** - 3.0 dBm

**Link Power Budget:** 25.0 dB

**SPECIFICATIONS****• FIBER INTERFACE, SINGLEMODE PN 065-1876BED, & 065-1876BEDTB**

**Type:** MQW Laser  
**Transmit Wavelength:** 1550 nm nominal (1480 nm maximum, 1580 nm minimum)  
**Receive Wavelength:** 1310 nm nominal (1260 nm maximum, 1360 nm minimum)  
**Maximum Output Power:** - 3.0 dBm  
**Minimum Output Power:** - 8.0 dBm  
**Sensitivity:** -33.0 dBm  
**Maximum Input Power:** - 3.0 dBm  
**Link Power Budget:** 25.0 dB

**• POWER INPUT REQUIREMENTS**

Redundant 12 to 48 Volts DC Terminal Block *or* 12V DC, 3A with optional hardened power supply

**• PHYSICAL CHARACTERISTICS**

**Dimensions:**  
1.97 in. x 5.35 in. x 4.33 in., W x H x D  
(50 mm x 136 mm x 110 mm)  
**Housing:** IP-30 protection, metal case  
**Weight:** 1.76 lb (0.8 kg.)

**• CERTIFICATIONS**

**NEMA TS1/2 Environmental requirements for traffic control equipment**

**ISO:** Manufactured in an ISO9001 facility

**Environmental Test Compliance:**

**Vibration Resistance (IEC 60068-2-6):** 5G@150Hz; Criterion 3

**Operation/Storage/Transport Shock (IEC 60068-2-27):** 25G @ 11ms (Half-Sine Shock Pulse; Operation)  
50G @ 11ms (Half-Sine Shock Pulse; Storage/Transport)

**Free Fall (IEC 60068-2-32):** Free Fall: 1M (3.281 ft.)

**ESD Standards (IEC 61000-4-2):**

**Enclosure Contact:** +/- 4kV; Criteria B

**Enclosure Air:** +/- 8kV; Criteria B

**Radiated FRI Standards (IEC 61000-4-3):**

**Enclosure Ports:** +/- 4kV@2.5kHz; Criteria B

**Burst Standards (IEC 61000-4-4):**

**Enclosure Ports:** 10V/m, 80 to 1000MHz; Criteria A

**D.C. Power Ports:** +/- 4kV; Criteria B

**A.C. Power Ports:** +/- 4kV; Criteria B

**Surge Standards (IEC 61000-4-5):**

**Signal Ports:** +/- 1kV Line-to-earth; Criteria B

**D.C. Power Ports:** +/- 0.5kV Line-to-earth; Criteria B

**A.C. Power Ports:** +/- 2kV; Line-to-earth; Criteria B

**Induced RFI Standards (IEC 61000-4-6):**

**Signal Ports:** 10v@ 0.15 - 80 MHz; Criteria A

**DC Power Ports:** 10v@ 0.15 - 80 MHz; Criteria A

**AC Power Ports:** 10v@ 0.15 - 80 MHz; Criteria A

**Earth Ground Ports:** 10v@ 0.15 - 80 MHz; Criteria A

**Magnetic Field Standards (IEC 61000-4-8):**

**Enclosure Ports:** 30A/m@ 50, 60Hz; Criteria A

**Voltage Dip Standards (IEC 61000-4-11):**

**AC Power Ports:** 30% Reduction for 0.5 period; Criteria B

**• ENVIRONMENT**

**Operating Temperature:** -30°F to 165°F (-34°C to 74°C)

**Storage Temperature:** -50°F to 200°F (-45°C to 93°C)

**Operating Humidity:** 10 to 95% (non-condensing)

**• INSTALLATION**

DIN Rail Kit, or wall mounting ears for 3-way installation

**• EMISSIONS**

**FCC:** Part 15 Class A

**CE:** EN55022 (CISPR22 Class A), EN55024 (CISPR24 Class A), CE EN-6100-4-4, CE EN6100-4-5, CE EN6100-4-6

**• SAFETY**

UL 60950, EN 60950, IEC 60950, IEC 61000-6-2

**• WARRANTY**

Lifetime