

The N-TRON® 1002MC is an unmanaged 10/100/1000BaseT to 1000BaseSX/LX Industrial Media Converter. It is housed in a hardened, metal, DIN-Rail enclosure, and is designed for use in industrial data acquisition, control, and Ethernet I/O applications.

## PRODUCT FEATURES

- Compact Size, Small Footprint
- Unmanaged Operation
- Full IEEE 802.3, 802.3u, 802.3z, and 802.3ab Compliance
- Converts 10/100/1000BaseT to 1000BaseSX/LX
- Choose from Multimode or Singlemode LC Style SFP (Mini-GBIC) Gigabit Fiber Transceivers
- Extended Environmental Specifications
  - -40°C to 85°C Operating Temperature
  - >2M Hours MTBF
- RJ-45 Port Supports Full/Half Duplex Operation
- Up to 2.0 Gb/s Maximum Throughput
- Supports up to 1,024 MAC Addresses
- Store-and-Forward Technology
- RJ-45 Port Auto Senses Speed and Flow Control
- Full Wire Speed Communications
- MDIX Auto Cable Sensing (RJ-45)
- Hardened Metal DIN-Rail Enclosure
- LED Link/Activity Status Indication
- Redundant Power Inputs (10-30 VDC)

## PRODUCT OVERVIEW

The 1002MC Industrial Media Converter is designed to allow the connection of 10/100/1000BaseT Ethernet devices to your 1000BaseSX/LX fiber cabling infrastructure.

The 1002MC provides one RJ-45 auto sensing 10/100/1000BaseT port and one 1000BaseSX/LX SFP port. The RJ-45 port is full/half duplex capable, using "state of the art" Ethernet switching technology. The switch auto-negotiates the speed and flow control capabilities of the copper port, and configures itself automatically. The 1000BaseSX/LX fiber optic port utilizes industry standard SFP transceivers with LC style connectors and is configured for full duplex operation. Both multimode and singlemode fiber models are available.

Since the 1002MC uses switching technology, unlike most media converters, 10Mbps devices can be connected today and upgraded to 1000Mbps tomorrow. The switching fabric simply scales up or down automatically to match your specific network environment.



The 1002MC supports up to 1,024 MAC addresses, providing support for extremely sophisticated and complex network architectures.

The N-TRON 1002MC is well suited to convert 10/100/1000 BaseT industrial devices to fiber, allowing you to take advantage of your fiber based infrastructure and it's inherent advantages. Compared to copper based systems, fiber provides increased noise immunity and longer cable lengths.

The 1002MC is engineered to withstand the extremes of industrial environments and carries an impressive operating temperature rating of -40°C to 85°C. For cost savings and convenience the media converter can be DIN-Rail mounted alongside Ethernet I/O or other Industrial Equipment.

The unique compact size provides a small footprint, conserving space in the most critical dimension. In addition, as with other DIN-Rail devices, the 1002MC can be panel mounted by using our 1000-PM kit.

To increase reliability, the 1002MC contains redundant power inputs. LEDs are provided to display the link status and activity of each port, as well as power on/off status.



THE INDUSTRIAL NETWORK COMPANY

QUALITY MANAGEMENT SYSTEM

CERTIFIED BY DNV

ISO 9001:2008

## 1002MC SPECIFICATIONS

### Case Dimensions

|           |           |           |
|-----------|-----------|-----------|
| Height:   | 4.0"      | (10.2 cm) |
| Width:    | 1.0"      | (2.6 cm)  |
| Depth:    | 3.7       | (9.4 cm)  |
| Weight:   | 0.60 lbs. | (0.22 kg) |
| DIN-Rail: | 35mm      |           |

### Electrical

|                |                 |
|----------------|-----------------|
| Input Voltage: | 10-30 VDC       |
| Input Current: | 200mA@24V       |
| BTU/hr:        | 16.4@24VDC      |
| Inrush:        | 13Amp/0.8ms@24V |

### Environmental

|                        |                                |
|------------------------|--------------------------------|
| Operating Temperature: | -40°C to 85°C                  |
| Storage Temperature:   | -40°C to 85°C                  |
| Operating Humidity:    | 10% to 95%<br>(Non Condensing) |
| Operating Altitude:    | 0 to 10,000 ft.                |

### Network Media

|                        |               |
|------------------------|---------------|
| 10BaseT:               | >Cat3 Cable   |
| 100BaseT:              | >Cat5 Cable   |
| 1000BaseT:             | >Cat5e Cable  |
| 1000BaseSX Multimode:  | 50-62.5/125µm |
| 1000BaseLX Singlemode: | 7-10/125µm    |

### Connectors

|                    |   |
|--------------------|---|
| 10/100/1000BaseT:  | One (1) RJ-45 TX Port                       |
| 1000BaseSX/LX SFP: | One (1) SFP LC Duplex<br>Gigabit Fiber Port |

### Recommended Wiring Clearance

|        |               |
|--------|---------------|
| Front: | 4" (10.16 cm) |
| Top:   | 1" (2.54 cm)  |

### SFP Gigabit Fiber Transceiver Characteristics

| Fiber Length       | 550m for 50/125µm<br>275m @62.5/125µm | 10km**   | 40km**   | 80km**   |
|--------------------|---------------------------------------|----------|----------|----------|
| TX Power Min       | -9.5dBm                               | -9.5dBm  | -2dBm    | 0dBm     |
| RX Sensitivity Max | -17dBm                                | -20dBm   | -22dBm   | -24dBm   |
| Wavelength         | 850nm                                 | 1310nm   | 1310nm   | 1550nm   |
| Assumed Fiber Loss | 3.5 to 3.75 dB/km                     | .45dB/km | .35dB/km | .25dB/km |

\* SX Fiber Optic Cable

\*\* LX Fiber Optic Cable

## BENEFITS

### Industrial Media Converter

- Compact Size, Small Footprint
- Converts 10/100/1000BaseT to 1000BaseSX/LX
- High Reliability/Availability
- Extended Environmental Specifications
- Hardened Metal DIN-Rail Enclosure
- High Performance
- High MTBF >2M Hours (measured)
- ESD Protection Diodes on RJ-45 Ports
- Surge Protection Diodes on Power Inputs

### Ease of Use

- Plug & Play Operation
- RJ-45 Auto Sensing 10/100/1000BaseT Port
- RJ-45 Port Auto Senses Duplex, Speed, and Cable Type
- Compact DIN-Rail Package

### Increased Performance

- Full Wire Speed Capable
- 1000BaseSX/LX Fiber Uplink
- Full Duplex Capable
- Eliminates Network Collisions
- Increases Network Determinism

### Regulatory Approvals

FCC/CE (CFR 47, Part 15, Subpart B, Class A)  
EN 61000-6-2/4, IEC 61000-4-2/3/4/5/6

EN 55011, ICES-003

UL/cUL: Class I, Division 2, Groups A, B, C and D; T4A  
UL 508, ICE and ANSI/ISA-12.12.01-2007

ABS Type Approval for Shipboard Applications

DNV Type Approval Certification

RoHS Compliant

### Designed to comply with:

IEEE 1613 for Electric Utility Substations  
NEMA TS1/TS2 for Traffic Control

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## Ordering Information

|              |                             |
|--------------|-----------------------------|
| 1002MC-SX    | 1000BaseSX multimode fiber  |
| 1002MC-LX-ZZ | 1000BaseLX singlemode fiber |
| 1000-PM      | Panel Mount Kit             |
| NTPS-24-1.3  | DIN-Rail Power Supply       |
|              | 24V@1.3 Amp                 |

Where "ZZ" is:

- 10 for 10km max. fiber segment length
- 40 for 40km max. fiber segment length
- 80 for 80km max. fiber segment length

