



November 18, 1999

A1-220

SMX Transceivers Network Medium Interfaces

Section: Integrated Systems

GENERAL

The network **SMX Transceiver** daughter board is a component of every **NION-232B**, **NION-2C8M**, **NION-2DRN**, **NION-16C48M**, **NION-48M**, **NION-ENV**, **4WRMB**, **BCI³** and **ROUTMB**. These transceivers provide the network medium interface for NION network communication.

There are three styles of SMX transceivers: **FTXC** for wire-based FT-10 topology, **FOXC** for fiber-optic-based FT-10 topology, and **DFXC** for bidirectional fiber-optic-based FO-10 topology. These transceivers come preconfigured for every NION.

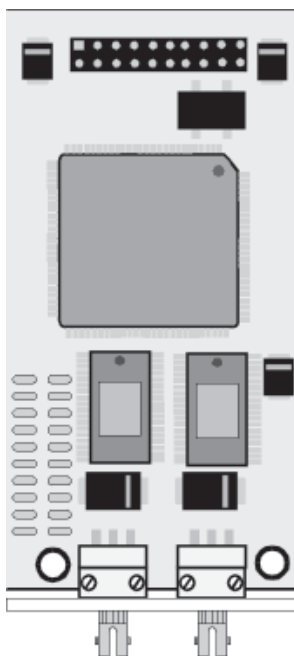
The transceivers are mounted to the NION motherboard using a header strip and two standoffs.

FEATURES

The FTXC, FOXC, and DFXC have the following common features:

- Provides transparent network communication.
- ESD protection circuitry.
- Powered by the NION motherboard: 5 VDC.
- LonWorks™ transceiver components for FT-10.

DFXC
*Dual Fiber
Transceiver*



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CS100



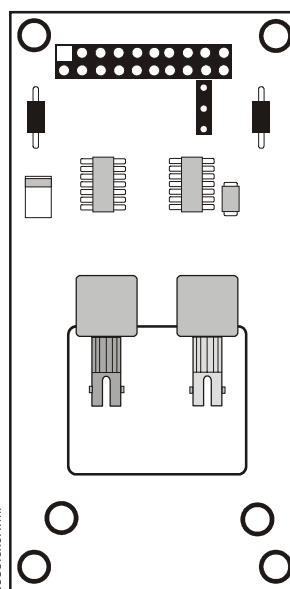
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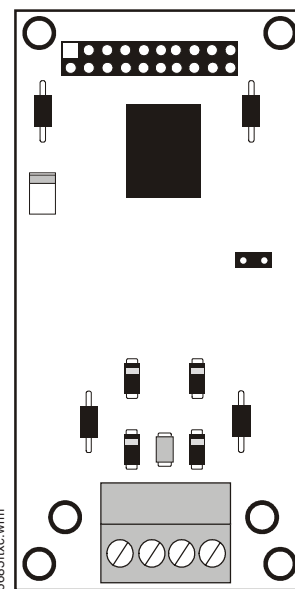
MEA

292-98-E Vol. III
(FTXC)

FOXC
Fiber Optic Transceiver



FTXC
FT-10 Transceiver



The following features are shared by both the FOXC fiber optic transceiver and the DFXC bidirectional fiber optic transceiver:

- Immunity to electrical noise (EMI and HIRF), lightning, and ground-potential differences.
- Ability to communicate over long distances (8,000+ feet [2438.4+ m] per segment with FOXC; 10,000+ feet [3048+ m] node-to-node with DFXC).
- No spark or fire hazard.
- Supports 62.5/125 micron multimode fiber.
- Operating voltage: +5 volts DC.
- Utilizes ST®-type fiber optic connectors.

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This document is not intended to be used for installation purposes. We try to keep our product information up-to-date and accurate. We cannot cover all specific applications or anticipate all requirements. All specifications are subject to change without notice. For more information, contact **NOTIFIER**. Phone: (203) 484-7161 FAX: (203) 484-7118



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The DFXC adds the following features:

- Bidirectional data flow: allows for enhanced reliability.
- Message regeneration: restores optical signal quality at each node (allowing runs of over 10,000 feet (3048 m) between each node).
- Two single, fiber optic, bidirectional, half-duplex diodes: provide support for ring or point-to-point network topology.
- 1250 Kbps data transfer rate (versus 78.5 Kbps for FT-10 topologies).

NETWORK TOPOLOGY

FT-10 (using FTXC with wire): When used by the FTXC transceiver, FT-10 allows 8,000 feet (2438.4 m) per segment in a point-to-point configuration, 6,000 feet (1828.8 m) per segment in a bus configuration, or 1,500 feet (457.2 m) per segment in a star configuration. Each segment can support 64 nodes, and with routers, the system can be expanded up to 200 nodes.

FT-10 (using FOXC with fiber): When using FT-10 with fiber optic cabling, FT-10 allows 8,000 feet (2438.4 m) per segment in a point-to-point configuration only.

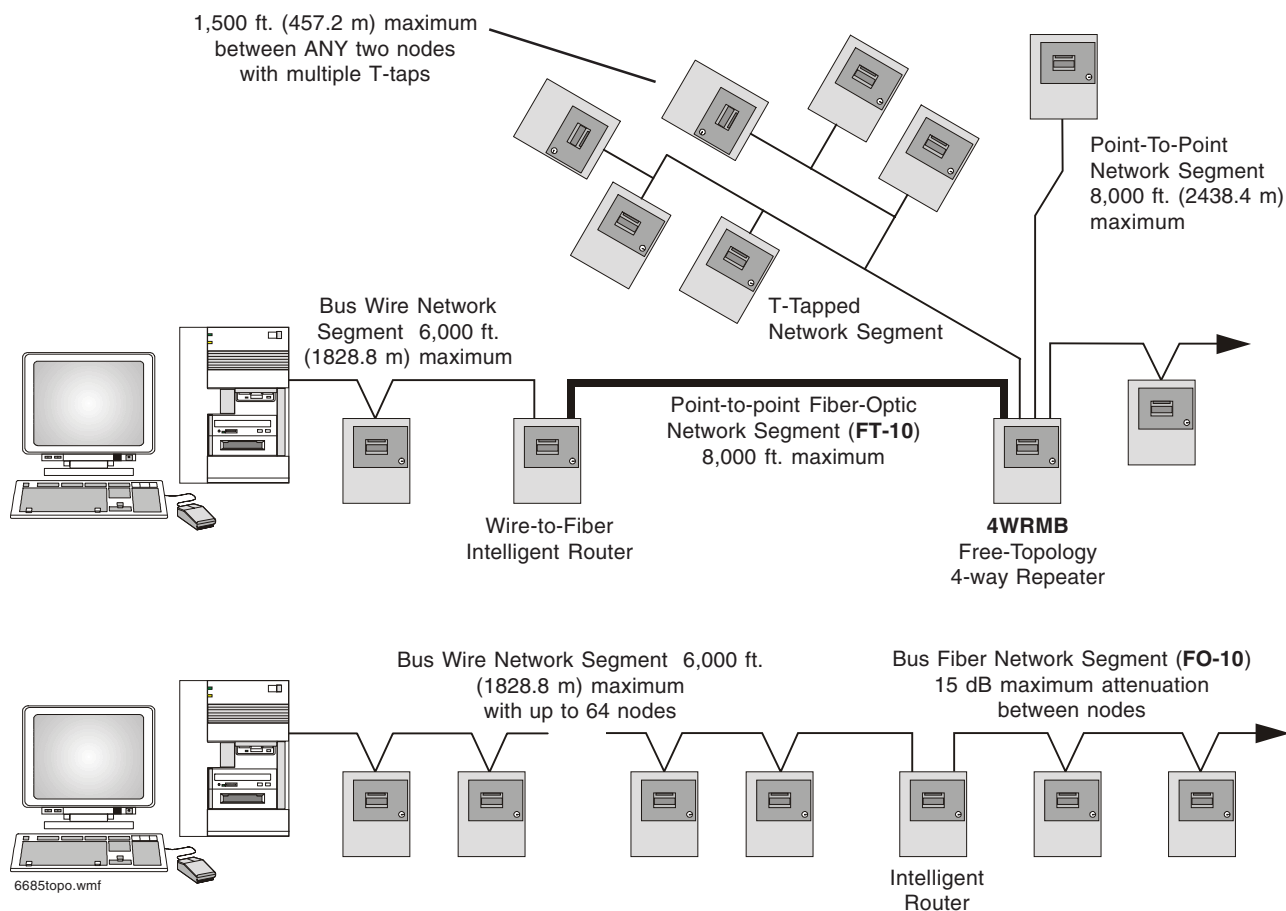
FO-10 (using DFXC with fiber): FO-10 can operate in either a bus or a ring format. The regenerative properties of the DFXC transceiver allow runs of up to 12 dB of attenuation between each node, with up to 64 nodes per segment. As with other formats, FO-10 can support a total of 200 nodes on the network.

NOTE: The DFXC cannot be used with the 4WRMB repeater.

NETWORK DIAGRAM

NOTES:

- Nodes include workstations, NIONs and routers.
- Routers count as a node on each network segment they connect.



INSTALLATION

The SMX network transceivers are mounted to the NION or intelligent router motherboard using a header strip and two standoffs. Refer to the board layout diagrams with each NION or router for the placement of the SMX transceivers.



Always remove power from the NION or router before making any changes to switch settings and removing or installing option modules, SMX network modules, and software upgrade chips. Failure to do so can result in damage to these components. Always observe ESD protection procedures when installing or switching settings.

SPECIFICATIONS

All Transceivers:

- Listed to UL 864.
- Operating temperatures: 0°C to 49°C (32°F to 120°F).
- Power is +5 VDC supplied by NION motherboard.
- Contains ESD protection circuitry.

FTXC Transceivers:

- Supports FT-10.
- Communicates on LonWorks-based network operating at 78.5 Kbaud over twisted-pair wiring.

FOXC Transceivers:

- Communicates at 78.5 Kbaud using FT-10 protocol.
- Uses ST-type fiber optic connectors (one Transmit and one Receive).
- Supports point-to-point topology ***only***.
- Supports 62.5/125 micron multimode fiber.

DFXC Transceivers:

- Communicates at 1250 Kbaud using FO-10 protocol.
- Uses ST-type fiber optic connectors (two bidirectional connectors).
- Supports ring, bus, or point-to-point topology.
- Supports 62.5/125 micron multimode fiber.

Network Wire (Twisted Pair for FTXC):

- Riser, plenum, or non-plenum, according to local fire alarm wiring codes.
- 24 AWG to 18 AWG.
- Solid.
- Category 5.
- Low capacitance (~15 pF/foot).

Fiber Cable (for FOXC or DFXC):

- 62.5/125 micron multimode fiber.
- ST-style connectors.

ORDERING INFORMATION

FTXC FT-10 Wire-Based Transceiver.

FOXC FT-10 Fiber-Optic-Based Transceiver.

DFXC FO-10 Bidirectional Fiber Optic Transceiver.