Bi-directional Digital T1/E1 and 10Base-T Ethernet / 100Base-T Fast Ethernet Data over Two Multimode or Singlemode fibers

FEATURES:

Digital T1/E1:

- 10/100 Base-T Ethernet Auto-negotiation
- Full Duplex or Half-duplex Supported
- IEEE 802.3 Compliant
- User Selectable MDI/MDI-X
- Environmentally Hardened for Wide Temperature Applications
- NTCIP Compatible
- Far End Fault Function
- Link Fault Pass-through Function
- Laser Based Systems for Multimode & Singlemode
- Laser Back-Biased Photo Detector Circuitry for Stable
- Optical Output Over Full Temp. Range
- FC,ST Optical Connectors Standard, SC Optional
- Distances Up To 50km
- Hot Swappable Rack Cards
- Remote & Local Loop-back Supported with SpectraSmart™ Option
- Wide Optical Dynamic Range
- Supports Single Fiber Communications 12VDC & 24VAC Operation Spectrasmart™ Optional PC Based Network Management
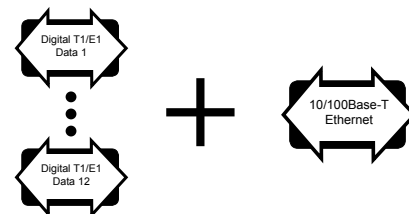
10Base-T / 100Base-T :

- Optical Bypass Operation
- Terminal Block or BNC Data Connector
- Cable Equalization up to 600 feet
- Data and Clock Recovery Functions
- Transmit Side Jitter Attenuation
- Digital FPGA Technology
- Switch Selectable AMI, B8ZS or HDB3
- Synchronous Data Rates 1.544/2.048 Mbs
- Surface Mount Technology (SMT) for High Reliability and Repeatability
- Hot Swappable Cards
- Laser Based Back-biased Photo Detection Circuitry for Stable Optical Output Over Full Temperature Range (Singlemode)
- ST™, FC Optical Connector
- SpectraSmart Compatible
- Meets NEMA TS1/TS2 and Caltrans Specifications
- Utilizes Internal Switching Power Supplies
- LED Status Indicators Provide Rapid Indication of Critical Operating Parameters
- Automatically Resettable Solid-State Current Limiters on All Power Lines: Provides Equipment Protection
- Wide Optical Dynamic Range: Optical Attenuators are Never Required

DESCRIPTION:

The DX-12E1R-CWDM product incorporates new digital encoding technology. This fiber optic unit transmits 12 Bi-directional channels of T1 Data & one full-duplex 10/100Base-T Ethernet over 2 optical fibers.

This system will incorporate CWDM-8 cards, all-passive 8-channel optical multiplexer/demultiplexers which will combine or separate 8 individual wavelengths respectively to provide optical multiplexing over a one singlemode fiber.

Digital T1/E1:

The 1100T/110Ti and 1100E/1100Ei card digitally transmit T1 or E1 signals for distances of 6 Km (multimode) and 100 Km (singlemode) over one or two fibers. These Units support full duplex operation at data rates up to1.544 (T1) and 2.048 Mbs (E1). The 1100's capabilities are enhanced by it's compatibility with Meridian's PC based SpectraSmart Network Management and Diagnostic software system. SpectraSmart monitors operating parameters of the transmission system as well as allowing features like a remote optical bypass card, for optically bypassing any faulted card in a ring configuration. The optical bypass card is connected to the series 1100 through a two pin terminal block located on the front panel. For additional information see the SpectraSmart and BPX brochures.

10Base-T / 100Base-T :

The SX-1R-x Ethernet transceiver is a single-slot module and is designed for bi-directional transmission of 10Base-T Ethernet / 100Base-T Fast Ethernet data over two multimode or singlemode fibers. Since the data rate is auto-negotiated, no internal adjustments or setting are necessary. Distances of 50km can be obtained using singlemode fiber. The SX-1R-x series is environmentally hardened and will operated over the standard NEMA TS-2 temperature range - suitable for outdoor installations. LEDs on both the module and rack card indicate power, link speed, activity, laser current and optical signal. Standard shielded RJ-45 connectors are provided for Cat. 5 compliance. Optical connector options include ST, FC and SC. These units are available in either module or rack mount types. The SX-1R-x series is also compatible with Meridian's SpectraSmart Network management and diagnostic PCbased system.See the SpectraSmart brochure for additional details.

CONFIGURATIONS:

The DX-12E1R-CWDM system is available as rack mount cards and modules that can be installed in either Meridian's desk chassis or in 19" racking frames. This system can be configured in either star (module to rack) or trunking (rack to rack) configurations. These systems can be made a standalone system by using the SR-500/S, SR-1000/s, 1 or 2 slot desk / wall mount chassis (87 VAC- 264VAC)

MARKETS:

√ Intelligent transportation systems (ITS)
√ Datacom
√ Security and surveillance
√ Access control

SPECIFICATIONS:

Data

1100T1 card
Formats	AMI, B8ZS, HDB3
Data Rate	1.544 / 2.048 Mb/s
Bit Error Rate................	10^{-11} *

SX-1R-x card
Formats	IEEE 802.3 CSMA/CD
	IEEE 802.3i 10Base-T
	IEEE 802.3u 100Base-T
Data Rate	10/100 Mb/s
Bit Error Rate..............	Better than 10^{-9}

Optical
Fiber Data Rate	125 Mb/s

Connectors

1100T1 card
T1	100 Ohm (Balanced)
	3 Pin Terminal Block
	75 Ohm (Unbalanced)
E1..............................	BNC
	120 Ohm (Balanced)
	3 Pin Terminal Block
Optical	ST™, FC
Power	2 Pin Terminal Block

SX-1R-x card
Ethernet	RJ45 (shielded)
Optical	ST, FC, SC
Power (module)	2 Pin Screw Block

Quality
MTBF	>125,000 hours @ Ground Fix
	35ºC per MIL217F

Indicators (LEDs)

1100T1 card
1- Red	Power On
1- Green	Rx Sync Loss
1- Green	TX Data Loss
1- Green	TX Alarm
1- Green	TX BPV

SX-1R-x card
1 - Green	Power On
1 - Bi-color	TX Laser Current / Over Current
1 - Bi-color	TX Link / Speed
1 - Green	TX Activity
1 - Bi-Color	RX Link / Speed
1 - Green	RX Activity
1 - Bi-Color	RX Optical Signal Present / Absent

Power **
System	87VAC ~ 264VAC

Physical
Dimensions	19" L X 11" D, 5.25" H
	(483 mm,X 279 mm X 133mm)
Weight	<20 Lbs / 9.1 Kg
No. of Rack Slots	4

Enviromental
Operating Temperature	-34ºC to +74ºC
Storage Temperature	-55ºC to +85ºC
Relative Humidity	0 to 95% Non-condensing

Part Numbers:

DX — 12E1R - CWDM — [1370-1610] — [ ] — [ ]

CWDM wavelength range (nm)

CONFORMAL COATING - **C**

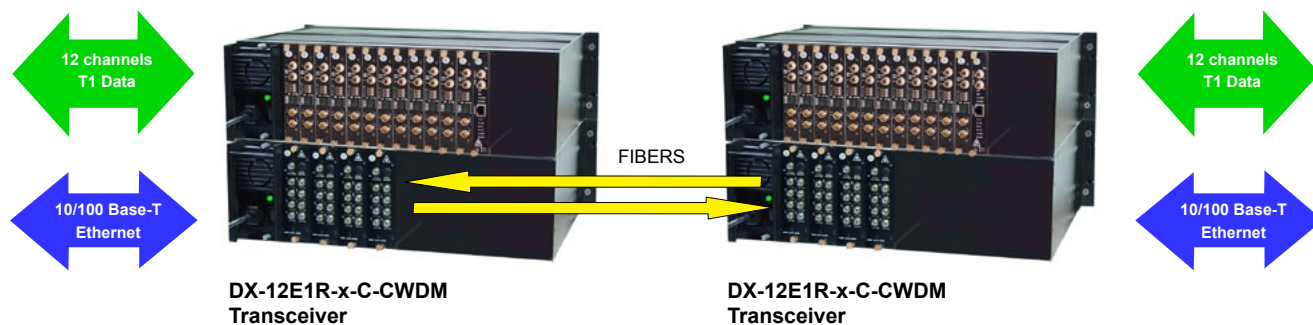SpectraSmart ™ DIAGNOSTIC- **D**

FC or ST

SINGLEMODE CONNECTOR
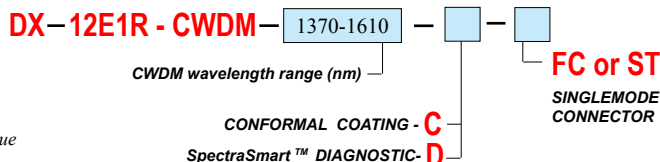
*   measured @ max. optical budget
** Due to variations of drivers and diagnostic options, power shown @ max value
*** Add 30mm to include mounting flanges

12 channels T1 Data

10/100 Base-T Ethernet

FIBERS

DX-12E1R-x-C-CWDM Transceiver

DX-12E1R-x-C-CWDM Transceiver

12 channels T1 Data

10/100 Base-T Ethernet

OPTICAL:

Fiber Type/Size (um)	Optical Output (dBm)	Receiver Sensitivity (dBm)	Optical Budget (dB)	Wavelength (nm)	Optical Connector	Optical Dynamic Range (dB)
Singlemode (CWDM Laser) 9 / 125	0	-22	22	1370 - 1610	ST / FC	22