

PX-F01-300 SERIES

PX-F01-300D, PX-F01-300DM



10/100Base-Tx to 100Base-FX Media Converters

The media converters are designed to convert 10Base-T or 100Base-T signals to/from 100Base-FX fibre signals.

The media converters not only support existing variety of multimode and single mode fibres but also supports Bi-Di WDM and CWDM fibre network applications.

There are also designed to support centre chassis installation with optional power redundancy and management features where a larger fibre network is required.

Key Features:

- Convert speed and media type in full wire speed
- Support 10/100M dual speed on TP connections, auto-negotiation, and auto-MDI/MDI-X detection
- Link fault pass through function
- Transparent to 802.1Q VLAN tagged packets
- Far End Fault function on FX port
- Support desktop wall, and DIN-rail mounting
- Support centre chassis installation
- Low power consumption
- Support wide range of fibre options
- Provide user accessible settings for TP port configuration disabling link fault pass through function

PX-F01-300DM Specific

- Provides indications of remote media converter's TP port status
- Provides Loop Back Test function with connected remote media converter

PX-F01-300 SERIES (PX-F01-300D, PX-F01-300DM)

Specification

TP Port	IEEE 802.3 10Base-T, IEEE 802.3u 100Base-TX Shielded RJ-45 jacks with Auto MDI/MDI-X detection Auto-negotiation for speed and duplex auto detection Forced mode with speed and duplex settings Speed for 10Mbps or 100Mbps, Full-duplex or half-duplex support
FX Port	IEEE 802.3u 100Base-FX compliant Forced 100Mbps, Full duplex (factory default) Far end fault Function
Cable	Cat. 5 UTP cable, MM -62.5/125µm, 50/125µm, SM -9 /125µm
LEDs	PX-F01-300D: Power status TP Ports: Link/Act, Speed, Duplex status FX Ports: Link/Act status, Fibre signal detected PX-F01-300DM: Power status TP Ports: Link/Act, Speed, Duplex status FX Ports: Link/Act status, Fibre signal detected Remote TP Ports: Link, Speed, Duplex status
Configuration settings: PX-F01-300D - TP mode, TP duplex, TP speed, Link fault pass through PX-F01-300DM - TP mode, TP duplex, TP speed, Link fault pass through, Auto status report	
Packet Size	Up to 1522 bytes for store-and-forward mode No packet size limit for smart-forward mode (100-to-100)
Environment	Operating Temperature: -5°C to 50°C -20°C to 60°C (PX-07-300D-EC, PX-07-300DM-EC) Storage Temperature: -20°C to 80°C Relative Humidity: 5% to 95% non-condensing
Weight	PX-F01-300D: 210g, PX-F01-300DM: 213g
Dimensions	108 x 72.5 x 23 mm (W x D x H)
Operating volt.	+5V ~ +12VDC (+/-5%)(AC-DC plug pack recommended)
Consumption	2 watts. (max.)
Approval	FCC part 15 class B, CISPR 22 class B

Ordering Guide for Models PX-F01-300D/DM -xxxxx

Model	Connector	Fibre	Wavelength	Tx Power	Sensitivity	Rx Max.	Nom. Dist.
-T	ST Duplex	MM	1310nm	-19~ -14dBm	-31dBm	-14dBm	2km
-C	SC Duplex	MM	1310nm	-19~ -14dBm	-31dBm	-14dBm	2km
-EC	SC Duplex	MM	1310nm	-20~ -14dBm	-31dBm	0dBm	2km
-JM	MT-RJ	MM	1310nm	-19~ -14dBm	-31dBm	-14dBm	2km
-VM	VF-45	MM	1310nm	-20~ -14dBm	-31dBm	-14dBm	2km
-SL2	SC Duplex	SM	1310nm	-15~ -7dBm	-32dBm	-3dBm	20km
-SL3	SC Duplex	SM	1310nm	-15~ -8dBm	-34dBm	0dBm	30km
-SL6	SC Duplex	SM	1310nm	-5~ 0dBm	-35dBm	0dBm	60km
-SL9	SC Duplex	SM	1310nm	0~ +5dBm	-37dBm	0dBm	90km
-SL12	SC Duplex	SM	1550nm	0~ +5dBm	-37dBm	0dBm	120km
-W3515	Bi-Di SC	SM	TX 1310nm RX 1550nm	-14~ -8dBm	-31dBm	0dBm	15-20km
-W5315	Bi-Di SC	SM	TX 1550nm RX 1310nm	-14~ -8dBm	-31dBm	0dBm	15-20km
-W3540	Bi-Di Sc	SM	TX 1310nm RX 1550nm	-8~ 0dBm	-34dBm	0dBm	40km
-W5340	Bi-Di SC	SM	TX 1550nm RX 1310nm	-8~ 0dBm	-34dBm	0dBm	40km
-CxxW40	CWDM SC	SM	TX 1xx0nm RX 1100-1650nm	-5~ 0dBm	-35dBm	0dBm	40km
-CxxW80	CWDM SC	SM	TX 1xx0nm RX 1100-1650nm	0~ +5dBm	-37dBm	0dBm	80km

Example PX-F01-300DM-SL3 is a 10/100TX to 100FX media converter, SM Fibre, SC Duplex connector, nominal range 30km

PX-F01-310M

Web Smart Tri speed



10/100/1000base-T to 1000Base-FX Gigabit Media Converter

The media converters are designed to convert 10Base-T, 100Base-T or 1000Base-T signals to/from 1000Base-FX fibre signals.

The media converters not only support existing variety of multimode and single mode fibres but also supports Bi-Di WDM and CWDM fibre network applications.

There are also designed to support centre chassis installation with optional power redundancy and management features where a larger fibre network is required.

Key Features :

- Tri-speed 10/100/1000Mbps copper to 1000M fibre conversion
- Comply with IEEE 802.3, 802.3u, 802.3ab, 802.3z standard
- Support full wire speed conversion for Gigabit copper to Gigabit fibre
- Support auto-negotiation with link partners
- Provide SFP on fibre port for mounting variety of fibre options
- Provide loop back test function with link partner over fibre link
- Provide monitoring function for remote link partner's copper link status
- Support optional Din-Rail installation
- Support centre chassis installation to achieve the advantages of central power, with optional power redundancy and network management
- Ideal solution for multimode, short reach up to long reach single mode fibre, Bi-Di applications
- Web-based configuration management support
- Port operating mode, flow control and status monitoring functions
- Tagged or untagged packet filtering
- 802.1Q VLAN tag stripping and tagging
- Support Q-in-Q application with double tag capability
- Quality of Service (QoS) function with 8021.p, DSCP priority classifications
- Supports SNMP trap for port link change

Specification

Standard	IEEE 802.3, 802.3u, 802.3ab, 802.3z																
TX Port	Shielded RJ-45, 10/100/1000Mbps, Full/half duplex Auto-negotiation, Auto-MDI/MDI-X																
FX Port	SFP connector with pre-configured SFP fibre transceiver 1000Mbps full duplex, Auto-negotiation Far End Fault support																
Cables	TX port: Cat.5e recommended or higher up to 100m FX port: MMF 50/125µm, 62.5/125µm, SMF 9/125µm																
DIP Switches	Copper port operating mode Flow control																
LED Indication	Auto report for remote copper link status Power status Local copper port status – link, speed, duplex Local fibre port link status Remote copper port status – link, speed, duplex Loop back test status																
Loop Back Test	Push button to start loop back test with link partner over fibre link																
Mounting	Desktop, Wall, Din-Rail (optional), Centre chassis																
CO Chassis	Up to 16 units in one rack chassis with central power Support optional power redundancy and management																
Power Input	+5 ~+12VDC (+/-5%)																
Consumption	2.5W max.@7.5V																
Environment	Operating Temperature: -5°C ~ 55°C Storage Temperature: -20°C ~ 85°C Relative Humidity: 10% ~ 90%non-condensing																
Dimension	108 x 72.5 x 23 mm (W x D x H)																
Approval	FCC Class A, CE mark CISPR 22 Class A																
Management	<table border="0"> <tr> <td>Management</td> <td>Web-based browser interface</td> </tr> <tr> <td>Port Control</td> <td>Operating mode, flow control</td> </tr> <tr> <td>Packet Filtering</td> <td>802.1Q tagged packet filtering, Untagged packet filtering</td> </tr> <tr> <td>802.1Q VLAN</td> <td>Ingress 802.1Q tag stripping, Egress 802.1Q tagging (tag insertion)</td> </tr> <tr> <td>QoS</td> <td>Four priority levels 802.1p, DSCP-based priority classifications Service policy – strict priority, WFQ (Weighted Fairness Queuing)</td> </tr> <tr> <td>Monitoring</td> <td>Local Port status, Remote Port status, Port statistics</td> </tr> <tr> <td>Maintenance</td> <td>Restore factory default, reboot, firmware update</td> </tr> <tr> <td>SNMP Trap</td> <td>Trap events : boot up, Login failure, Copper port link change, Fibre port link change</td> </tr> </table>	Management	Web-based browser interface	Port Control	Operating mode, flow control	Packet Filtering	802.1Q tagged packet filtering, Untagged packet filtering	802.1Q VLAN	Ingress 802.1Q tag stripping, Egress 802.1Q tagging (tag insertion)	QoS	Four priority levels 802.1p, DSCP-based priority classifications Service policy – strict priority, WFQ (Weighted Fairness Queuing)	Monitoring	Local Port status, Remote Port status, Port statistics	Maintenance	Restore factory default, reboot, firmware update	SNMP Trap	Trap events : boot up, Login failure, Copper port link change, Fibre port link change
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Ordering Guide for Models PX-F01-310M -xxxxx

Model	Connector	Fibre	Wavelength	Tx Power	Sensitivity	Rx Max.	Nom. Dist.
-SX	LC	MM	850nm	-9.5~ -4dBm	-18dBm	-1dBm	200 ~ 500m*
-LX	LC	MM/SM	1310nm	-9.5~ -4dBm	-20dBm	-3dBm	550m/10km**
-LX20	LC Duplex	SM	1310nm	-7~ -0dBm	-24dBm	-3dBm	20km
-LX30	LC Duplex	SM	1310nm	-4~ +3dBm	-23dBm	-3dBm	30km
-LX50	LC Duplex	SM	1550nm	-4~ +1dBm	-23dBm	-3dBm	50km
-LX70	LC Duplex	SM	1550nm	0~ +5dBm	-23dBm	-3dBm	70km
-W3510	Bi-Di LC	SM	TX 1310nm RX 1550nm	-9~ -3dBm	-21dBm	-3dBm	10km
-W5310	Bi-Di LC	SM	TX 1550nm RX 1310nm	-9~ -3dBm	-21dBm	-3dBm	10km
-W3520	Bi-Di LC	SM	TX 1310nm RX 1550nm	-8~ -3dBm	-23dBm	-3dBm	20km
-W5320	Bi-Di LC	SM	TX 1550nm RX 1310nm	-8~ -3dBm	-23dBm	-3dBm	20km
-W3410	Bi-Di LC	SM	TX 1310nm RX 1490nm	-9~ -3dBm	-20dBm	-3dBm	10km
-W4310	Bi-Di LC	SM	TX 1490nm RX 1310nm	-9~ -3dBm	-20dBm	-3dBm	10km
-W3410S	Bi-Di SC	SM	TX 1310nm RX 1490nm	-9~ -3dBm	-20dBm	-3dBm	10km
-W4310S	Bi-Di SC	SM	TX 1490nm RX 1310nm	-9~ -3dBm	-20dBm	-3dBm	10km

* 200m for 62.5/125 MMF and 500m for 50/125 MMF ** 550m for MMF and 10km for SMF

Example PX-F01-310DM-LX30 is a 10/100/1000TX to 1000FX media converter, SM Fibre, LC Duplex connector, nominal range 30km

PX-F01-G703/64 CONVERTERS

Codirectional, Centradirectional, Contradirectional

PX-F01-G703 Interface converters are simple and easy to implement units that allows full conversion between G703 and CCITT V.35, X.21 and EIA RS 232 hardware. Simply connect the appropriate interface cables , connect the external DC power adapter, and select the required timing for translation. This product family features full compliance with all the relevant CCITT & EIA standard under 64Kbps network environments with high reliability.

Models available through Photonix Wireless & Telecommunications are:



PX-F01-G703/64A-V.35



PX-F01-G703/64A-X.21



PX-F01-G703/64A--232

Applications

These products can be widely used :

- In Packet Switching Network
- In ISDN Networks
- In DDN Networks
- For data terminals to access PCM, 64K/2048Kbps digital channels as well as digital microwave channels
- Additionally it can also be connected to the Satellite Communications Channels Such as SPAR series.

Specifications

CCITT G703 Interface Specifications :

- TYPE Codirectional/Contradirectional/Centradirectional 64Kbps
- Line 4 wires, 0.5 -0.7mm twisted pair cable.
- Range Up to 800 meters over 24AWG twisted pair or better.
- Impedance 120ohms.
- "Pulse" amplitude 1.0V Nominal +/- 10%.
- "Zero" amplitude 0V Nominal +/- .10V.
- Clock frequency 64Kbps.
- Frequency tracking +/- 100ppm
- Interface connector RJ45.
- Complies with CCITT G703 and G823.
- Frame format Unframe only.
- Line code 64Kbps codirectional/contradirectional/centradirectional line code

Data Communications Interface Specifications

- Interface Type RS232; DB25-DB25 adapter cable. V.35; MB34-DB25 adapter cable. X.21; DB15-DB25 adapter cable.
- Data rate 64Kbps for synchronous. 19.2Kbps for Asynchronous.
- Connector DB25/F with adapter cables.
- Data type Balanced for V.35 and X.21. Unbalanced for RS232.

Features

- Single port access to 64Kbps services.
- Interface conversion between G703 and V.35, X.21 and RS232;
- Data rate: 64Kbps for Synchronous mode. 19.2Kbps for Asynchronous mode.
- Fully transparent signal conversion.
- Diagnostics: local analog and local digital loopback.
- Selectable timing modes: recovery, transparent, dataport or internal Oscillator.
- Adapter cable DCE/DTE switchable.
- DC +9V input power.

Indicators

Data port side (V.35/RS232):

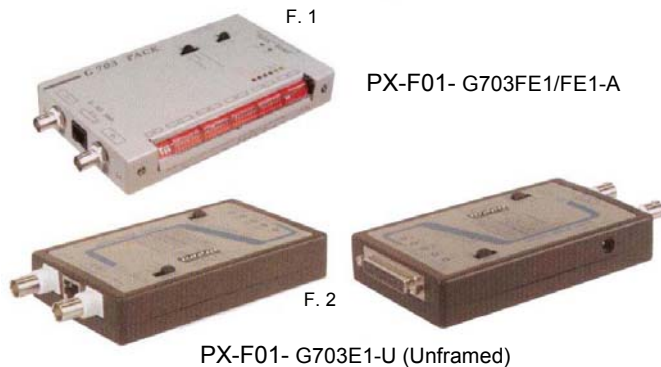
- * Timing Loss G703 Receive timing loss.
- * Signal Loss G703 Receive signal loss.
- * RD Receive data.
- * SD Send data.
- * POWER DC9V input power.

G.703 side:

- * GRD G703 side receive data.
- * GSD G703 side transmit data.

PX-F01-G703E1-U/FE1/FE1A

Single Port E1 and Fractional E1 Access Unit



The PX-F01-G.703E1-U/FE1/FE1A Access Units are single port access units for Unframed E1 or Fractional E1 services. Data Port rates are selectable via DIP-switches, for any multiple of 64Kbps up to 2048kbps (Fractional models only). User data is placed into the E1 frame, using only the required number of timeslots. Timeslots assignment is accomplished according to the Data Port speed & is selected by DIP-switches. The main E1 link may be clocked from the recovered receive clock (LBT), from the data port, or from an internal oscillator. The data channel interface is RS-530 standard. Adapter cables are available for V.35, X.21 and RS-449. The PX-F01-G.703E1-U/FE1/FE1A's DIP and slide switches, located on the side and front panels, provide for easy setup and control of all functions.

The PX-F01-G.703/FE1-A model may be cascaded as an E1 Multiplexer. The unused channel timeslots will pass through E1/Rx to E1/Tx.

Features

- Line Terminating Unit (LTU) built in unit
- Single port access to E1 & Fractional E1 services
- Interface conversion between G.703 and RS-530, RS-449 (V.21) or V.35
- Data rate: DIP selectable sync Nx64Kbps to 2048Kbps. (FE1 & FE1-A only)
- Fully transparent signal conversion under unframed mode (2048Kbps)
- Clock Regeneration from incoming HDB3 data
- Diagnostic Loopbacks both for G.703 and Data Port sides.
- All 1's monitor
- Decoded data in NRZ form
- Power: AC 110/230V 50/60Hz adapter to DC 9V
- DC model is also available through the optional accessory
- Temp. range: 0°C to 50°C
- Humidity: 10% to 90% relative humidity, non condensing.
- Dimension: 19.2cm (L) x 10cm(W) x 2.4cm(H)
- Weight: 400g net

PX-F01-G.703 Interface Specifications

- Type: Bidirectional (E1) 2048kbps
- Line: 4 wire, 26-16AWG
- Range: Up to 1500 meter, 24AWG or better
- Impedance: RJ-45 120Ω (balanced), BNC 75 Ω (unbalanced)
- "Pulse" amplitude: 2.37V nominal for BNC, 75 Ω
3.00V nominal for RJ-45, 120 Ω
- "Zero amplitude: ± 0.1V max
- Clock freq. 2.048MHz
- Freq. Tracking: ± 50ppm
- Jitter: Complies with ITU-TG.823
- Connector: RJ-45 or BNC
- Complies with: ITU G.703, G.704, G.706 and G.823
- Frame format: CAS/CCS, Unframe/Frame.
- CRC check: CRC-4 enable/disable
- Line code: HDB3

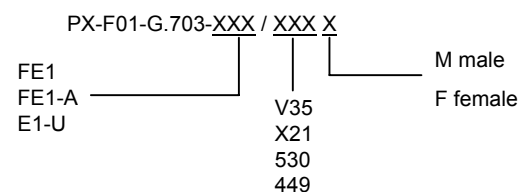
Data Port Interface Specifications

- Type: RS-530/DB25 Standard or V.35, RS-449 (V.39) or X.21 with adapter cable.
- Data rate: 64kbps to 2.048Mbps
- Connector: DB25/F with adapter cable
- Line code: NRZ

LED Indicators

- DTE (green) Data port set to DTE mode
- DCE (green) Data port set to DCE mode
- TD (yellow) Transmit data
- RD (yellow) Receive data
- TEST (red) Loopback test mode
- ALARM (red) Data loss, sync loss or Frame loss
- T-Clk Loss (red) Transmit clock loss
- R-Clk Loss (red) Receive signal loss

Ordering Information



FE1	Fractional E1 (Nx64kbps)
FE1-A	Fractional E1, supports cascaded mode
E1-U	E1, unframed only (2048kbps)

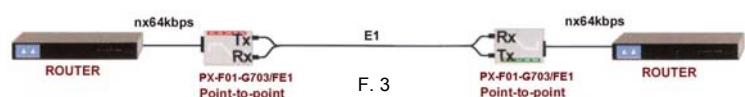
Optional DC to DC adapter
48VDC to 9VDC adapter

Optional Cable

V35	DB25-V35 Cable
X21	DB25-DB15 Cable
530	DB25-DB25 Cable
449	DB25-DB37 Cable

* Do not forget to order the required cable for the dataport of your equipment.

Application



PX-F01-ETU01-A Standalone/Rack Single Port Fractional E1 Access Unit

The **PX-F01-ETU01-A** provides an economic digital access solution for E1 and Fractional E1 network services. A DTE device may be linked to an **PX-F01-ETU01-A** at data rates of 56Kbps to 2048Kbps. The **PX-F01-ETU01-A** features user replaceable dataport modules for a number of interface standards including V.35, X.21, RS-530, RS-449, and RS-232. The **PX-F01-ETU01-A** supports local control and diagnostics via LCD display, keypad and LED status indicators located on the front panel as well as via an RS-232 console port in conjunction with a standard terminal. These features enable users to easily configure the unit, execute the in-service diagnostics and monitor the network status. The **PX-F01-ETU01-A** provides optional SNMP (Simple Network Management Protocol), which allow the user to remotely control, diagnose and monitor the system.

Features

- Integrates High Speed Data and E1 link with an intelligent E1/ Fractional E1 Access Unit.
- Data Interface: V.35, RS-530, X.21, RS-449, RS-232, G.703 64 codirectional, 10Base-T Ethernet, voice, and NRZ/ BNC.
- Selectable data rates: Nx64Kbps, Nx56Kbps
- Setup & Control via front Panel with LCD display or ASCII terminal.
- Supports SNMP Network Management System (optional).
- Complies with ITU G.703, G.704, G.706, G.736, G.823.
- IDLE Code: 00-FF by user setting
- N56K every seven bits followed by one (1)

Front Panel

Setup & Control

Key PAD	4 operation keys
LCD display	16 x 2 characters
LED status display	8 status LEDs (Power, E1, DTE & Diagnostics)

Diagnostic Tests

Alarm LED	Sync Loss, Signal Loss, Alarm (AIS, MRAI, RAI), TD, RD, Error, Test.
Loopback	Line loopback, Payload loopback, Local loopback and DTE loopback
BERT Test patterns	511, 2047, 2e15-1, 2e20-1, QRSS, 2e23-1, All 1, All 0, , Alt, 0011, 3 in 24, 1 in 16 1 in 8, 1 in 4 test patterns

Physical

45mm(H)x195mm(W)x255mm(D)
Weight: 1.5kg

Environment

Temperature: 0-50°C / 32-122°F
Humidity: 0 to 90% non-condensing



F. 1

PX-F01-G703 Interface Specifications

Framing:	Unframed/Frame CCS(PCM31) / CAS(PCM30) CRC4 ON/OFF
Bit rate	2.048Mbps
Line code	AMI HDB3
Line impedance	75 ohm / 120 ohm
Relative receive level	0 to -43dB
Transmit level	
- Pulse amplitude	Nominal 2.37V 10% for 75ohm Nominal 3.00V 10% for 120ohm
- Zero amplitude	±0.1V
Transmit frequency tracking	
- Internal timing	±30 ppm
- Loopback timing	±50 ppm
- External timing	±100 ppm
Jitter performance	According to ITU-T G.823
Complies with	ITU-T G.703, G.704, G.706 G.736, ETSI ETS 300 420 & G.732.
Interface connectors	15-pin, D-type female BNC x 2, RJ-45 (for SNMP)
Return loss	12dB for 51-102K HZ 18dB for 102-2048K HZ 14dB for 2048-3072K HZ
Surge Protection	DC Sparkover Voltage: 230±20% Impulse Sparkover Voltage: 650 V max(1kv/ms)

Ordering Information

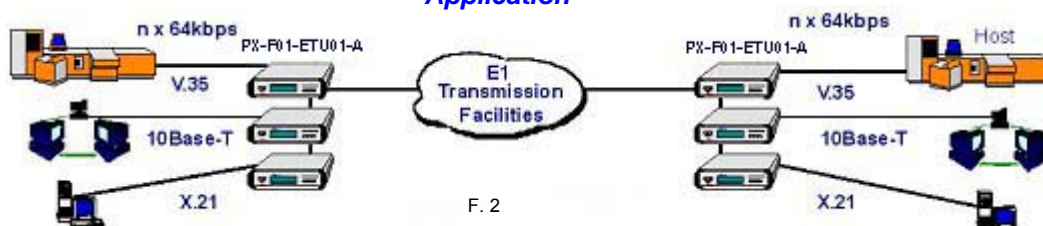
Optional

SNMP Module: Simple Network Management Protocol

Example

PX-F01-ETU01A/XX-DC: XX=I/F module type from abovetable with universal DC power supply

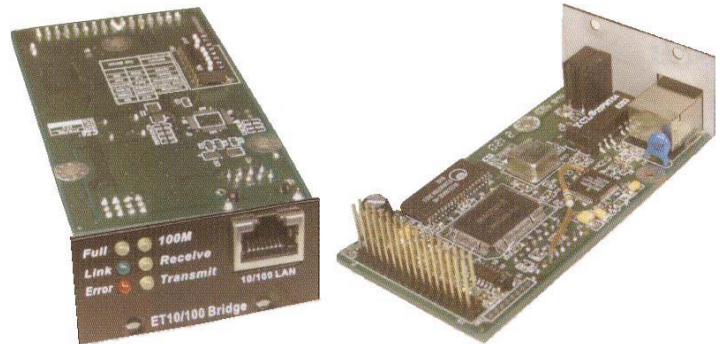
Application



F. 2

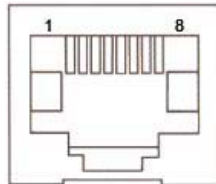
PX-F01-ET10/100 BRIDGE INTERFACE

ETU/TTU Series Ethernet Bridging I/F Module



When the PX-F01-ETU-01 is ordered with an PX-F01-ET10/100 Interface, the unit is not only an access unit for E1, but also becomes a high performance WAN bridge for 10Base-T or 100Base-TX Ethernet extension. The physical interface is a RJ-45 connector, with the pin assignment as follows:

MDI	MDI-X
1.Tx +	1.Rx +
2.Tx -	2.Rx -
3.Rx +	3.Tx +
4.Rx -	4.Tx -



Features:

- 10/100Mbps Full and Half duplex CSMA/CDMAC
- IEEE802.3x flow control
- Real-time filtering with 256 address table
- Automatic address learning
- Up to 340 packet-buffering capacity
- Auto-MDIX

DIP Switch Settings

DIP/NO:	STATE		STATE
1	ON*		Enable MAC filtering
	OFF		Disable Filtering
2	ON		Enable 802.3 x flow control
	OFF*		Disable 802.3 x flow control
3	ON		NO Auto-negotiation
	OFF*		Auto-negotiation
4	ON		Half Duplex ¹
	OFF*		Full Duplex ¹
5	ON		10Base-T LAN speed ¹
	OFF*		10Base-T LAN speed ¹
6	ON*		Enable Auto MDIX
	OFF		MDI (1:1 to HUB)
7 8	OFF	OFF	Memory configuration #1
	ON	OFF	Memory configuration#2
	OFF	ON	Memory configuration #3
	ON	ON	Reserved

* Factory default settings
¹ No effect when sw3 is off (auto-negotiation is on)

LED Indicators

Designation	Indicators
Fully(yel)	ON=Full Duplex
Link(grn)	ON=LAN Link
Error(red)	ON=LAN Error
100M&yel)	ON=Fast Ethernet
	ON=LAN Rx data
Receive(yel)	ON=LAN Tx data

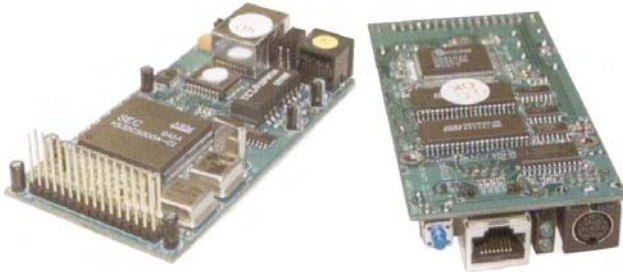
Transmit(yel)

Memory configuration detail

- #1 LAN to WAN 308 packets, WAN to LAN 32 packets
- #2 LAN to WAN 170 packets, WAN to LAN 170 packets
- #3 LAN to WAN 32 packets, WAN to LAN 308 packets

PX-F01-ET100R ROUTER INTERFACE

ETU/TTU Series Ethernet Routing I/F Modules

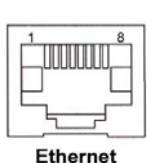


When the PX-F01-ETU Series or PX-F01-TTU Series units are installed with an PX-F01-ET100R Interface, the unit is not only an access unit for E1 or T1 but also becomes a high performance WAN Router for 10/100BASE-T Ethernet extension. The PX-F01-ET100R Ethernet Router interface module is design based upon the engine of the IPR Pro synchronous IP router. The included CDROM contains the IPR Pro instruction manual in Acrobat™ format and the Windows™ application programs Netdevice Manager and Netdevice Monitor. Configuration may be performed using the Netdevice Manager software and Ethernet connection regardless of the PX-F01-ET100R IP address setting. The PX-F01-ET100R may also be accessed via the RS-232 asynchronous communication port, a serial crossover cable (provided) and text based terminal emulation software (HyperTerminal™). Once an IP address has been established for the subnet, the PX-F01-ET100R may also be accessed via Telnet. The serial port and Telnet configuration menus are identical and may include password protection.

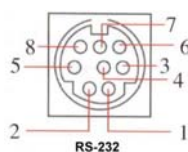
The PX-F01-ET100R supports the following functions:-

- Router Ethernet port IP Address/Subnet Mask
- Router Name
- Router Password
- WAN port IP address
- DHCP function
- NAT function
- Routing Table (manually set up to 16 entries)
- RIP I, RIP II, Send or Receive on Ethernet or WAN (Set by Windows AP ONLY)
- WAN PPP or Frame-Relay Setup
- IP Mapping
- Client Filtering
- Flash Upgrade (console connection and SMODEM Protocol)

The physical interfaces for the PX-F01-ET100R are an RJ-45 connector & DIN connector with the pin assignments as follows:-



Normal	
1.	Tx +
2.	Tx +
3.	Tx +
6.	Rx +



Specifications

Hardware	Samsung ARM7 integrated communications 33MHz processor with pipeline, 4Megabytes RAM for code, data and buffers
Connection	1 x Ethernet LAN port (10/100)
WAN Speed	Synchronous Port N56/N64 up to 2048Kbps
LAN Speed	Ethernet LAN port 10/100Mbps
Function	Proxy Routing, IP Routing, Static Routing, Dynamic Routing, DHCP Client/DHCP Server, IP Mapping, Packet Filtering
Protocols	PPP, NAT, RIP ½, TCP/IP, Frame Relay
Security	PAP/CHAP, RADIUS, NAT, Filter

Led Indicators

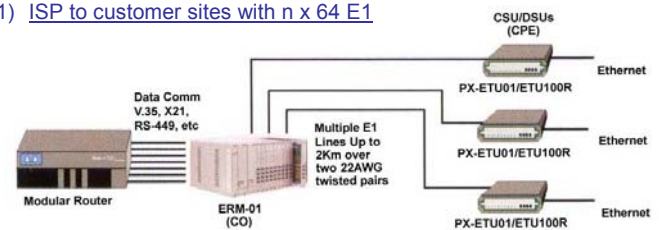
ACT	Transmit/Receive Data
LNK	Ethernet Link

RS-232 Pin Assignment

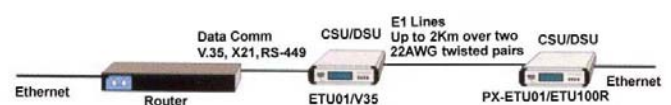
PIN	CIRCUIT	DIRECTION	DESCRIPTION
1	NC		
2	RX	←	Receive Data
3	TX	→	Transmit Data
4	NC		
5	GND	-	Signal Ground
6	NC		
7	RTS	←	Request to Send
8	CTS	→	Clear to Send

Applications

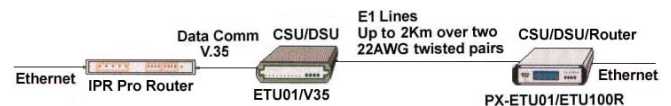
(1) ISP to customer sites with n x 64 E1



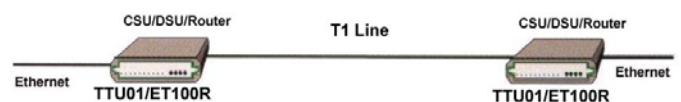
(2) LAN to LAN routing with third party router



(3) LAN to LAN routing with IPR Pro



(4) LAN to LAN routing over T1 Link



PX-F01-FRM301 3U Series

Rack Mount Type

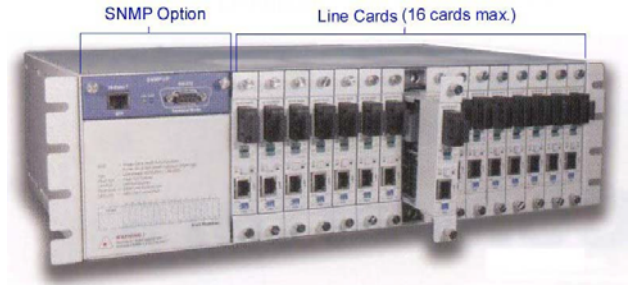
The PX-F01-FRM301 is a standard 3U, 19" rack mountable, Platform Media Converter that features 16 line card capacity. Currently supported line cards include Ethernet to fibre converters for 10/100 (auto), 100Base-TX, or 1000Base-TX over multimode fiber (up to 2km), single mode fibre (up to 120km) or utilizing WDM (up to 40km). WDM (Wave Division Multiplexing) converts each input-output data stream into separate wavelengths of light and transmits/receives these channels through the same optical fibre.

LAN Interface Specifications

- One RJ-45 female connector for straight or cross-over connection.
- Supports Ethernet 10Base-T, 100Base-T, 10/100Base-T (Auto-Negotiation)
- Supports full, half duplex and auto selections
- Transmission Packet Rate for 10Base-T/100Base-TX: 14880 per second/148800 per second.

Features for PX-F01-FRM301 Series – Rack Mount Type

- 3U high, 19" (or 23") RACK with convertible standalone units, RACK accommodates up to 16 units.
- RACK with Dual power modules designed for redundant power application, AC and/or DC, cooling FANs included.
- Once the converter is installed, it is hot-swappable to avoid any other network downtime.
- Supports an auto recovery function.
- 10/100Base auto negotiation capability
- Emission Compliance: FCC part 15 class A, CE Mark
- MTBF: 38,000 hours minimum



PX-F01-FRM301 line Card Types

The PX-F01-FRM301 media converter rack is designed to accept all of the FBI series converters as line cards within the rack.

General Specifications for PX-F01-FRM301 Series – Rack Mount Type

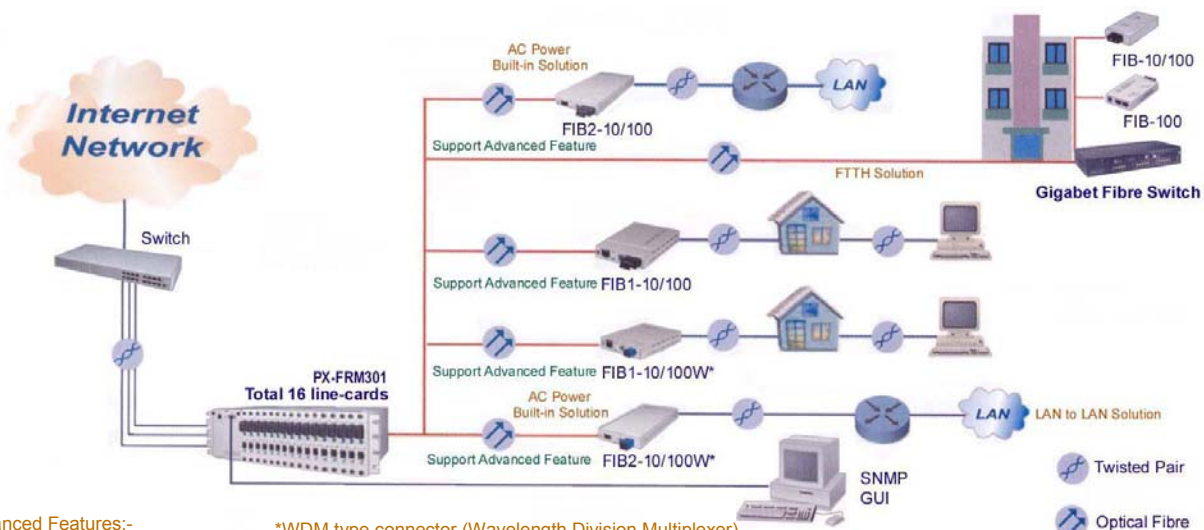
Environment

Temperature:	0-50°C (Operating); 0-70°C (Storage)
Humidity:	20-80% non condensing (Operating) 10-90% (Storage)
Dimensions:	440mm x 280mm x 130.6mm (LxWxH)
Weight:	17.3lbs (7.875kgs) (include 1 AC power modules & two ear panels for rack-mounting)

Power Module Specification

AC Power Module:	Input: Universal 90 ~ 264 VAC; Frequency: 47 ~ 63 Hz Output: DC 12V, 8.5A
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PX-F01-FRM301 Series Application



Advanced Features:-

- 1) Link-Loss Forwarding
- 2) Loop-Back Testing
- 3) Remote control, monitor status
- 4) Two frame length supported

*WDM type connector (Wavelength Division Multiplexer)
Transmit with single fibre, Connectivity up to 20km
A-type must be coupled with B-type

PX-F01-FRM301 3U Series

Rack Mount Type

Features for NMS

- The NMS provides three modes:-
 - Terminal mode: configuration by local RS-232 serial craft port connected to terminal or PC. This mode supports maintenance, setting & alarm. Operation is based on the menu-driven list
 - MIB file SNMP: configuration by RJ-45 10/100 Ethernet port complies with MIB-II standard. Supports the community string, community authority, trap IP and SNMP configuration
 - GUI SNMP Manager: configuration by RJ-45 10/100 Ethernet port. Supports real time monitoring and polling report & trap alarm via a Windows based application program
- The system polling report and alarm message can be displayed through each type of the NMS mode in the connected PC terminal.
- Able to read and set or modify the configuration at the same time
- The NMS enables the administrator to load the default setting configuration
- The configuration menu for each FRM series includes: Ethernet speed, Ethernet duplex status, fibre duplex status and auto-negotiation via each type of NMS mode.
- Alarm display function includes:-
 - Link Status (Link OK/link Down)
 - Power Fail Alarm/Power Fan Detector
 - Cooling FAN Fail Alarm
- Support for Telnet to operate from remote site in terminal mode. TFTP function to upgrade firmware
- Card configuration can be saved for recall later or for use on replacement line cards
- The SNMP control card can store the system configuration and default settings for sudden power shutdown

ORDERING Information

PX-F01-FRM301- Chassis Rack-Mount Chassis for both AC & DC type

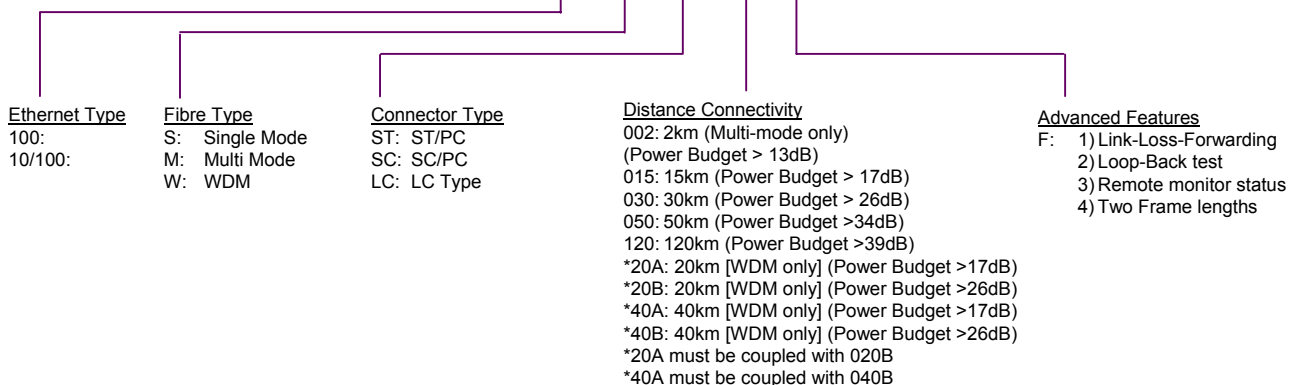
Power Cards

PX-F01-FRM301-AC1 Single AC power plug-in module
 PX-F01-FRM301-AC2 Redundant AC power plug-in module
 PX-F01-FRM301-DC1 Single DC –48V power plug-in module
 PX-F01-FRM301-DC2 Redundant DC –48V power plug-in module

Optional SNMP Card

PX-F01-FRM301-SNMP SNMP plug-in card, Terminal mode and MIBs file
 PX-F01-FRM301-GUISNMP Manager Windows® based GUI program

PX-F01-FRM301-XXXX X / XX XXX X



Example:

LP-FRM301-10/100S/ST030F Single Mode, ST type connector, 30km with Advanced Features
 LP-FRM301-10/100M/SC002F Multi Mode, SC type connector, 2km without Advanced Features
 LP-FRM30110/100W/ST20A WDM, ST Type Connector, 20km with Advanced Features & must be coupled with LP-FRM301-10/100W/ST20BF

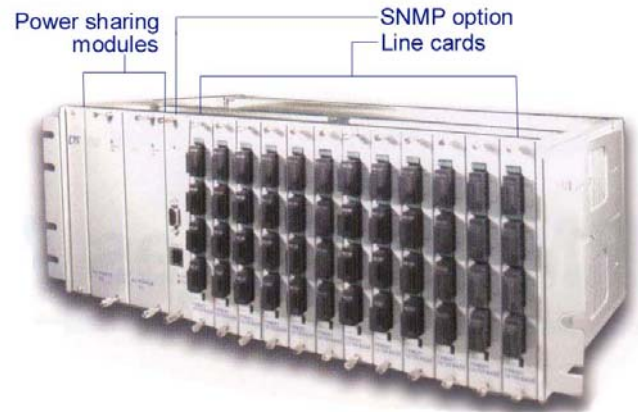
*Special note for WDM: because WDM utilizes different wave lengths on the same physical fibre cable, the WDM units must be matched in pairs (which we designate as A and B). Failure to match in pairs (A unit to B unit) will not allow any transmission on the fibre link as the transmit wavelength of one unit in the pair must match the receive wavelength of the other unit in the pair.

PX-F01-FRM401 4U Series

The PX-F01-FRM401 is an Ethernet to Fibre Media Converter chassis that fits in a 19 or 23" rack and occupies 4U (7inch) of rack space. The Hot Swappable Line Cards for the PX-F01-FRM401 are available in 100Base-TX or 10/100Base (auto) Ethernet standard to fibre (100Base-FX) connection for multi-mode (up to 2km) or single mode (up to 120km) with all the popular connector types such as SC, ST, FC, or MT-RJ. Line cards are also available with the latest Wave Division Multiplexing (WDM) technology (up to 40km & must be coupled) which converts the transmit and receive data streams into separate wavelengths and allows bi-directional transport through a single fibre strand.

Features for PX-F01-FRM401 10/100 – Line Card Type

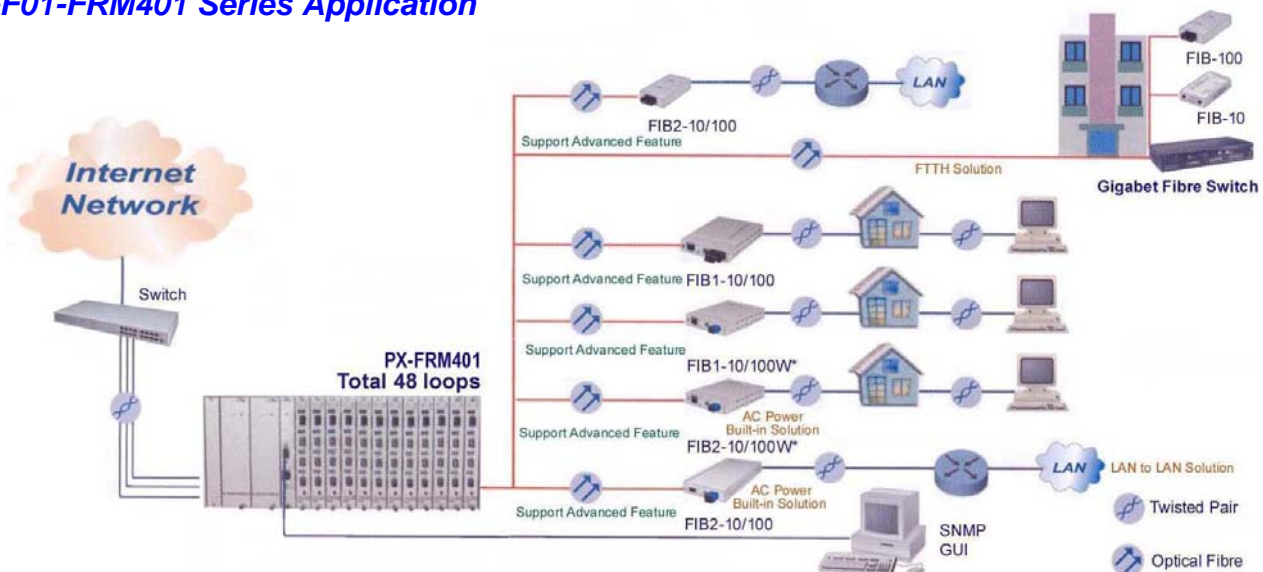
- High-density design
- Utilizes WDM technology to provide TX & RX on a bi-directional fibre cable. (WDM only)
- Fibre connectivity up to 120km for SM
- ST, SC or FC connectors accommodate SM fibre optic cable size 9/125µm, multimode size 62.5/125µm
- N-way Auto-Negotiation or manual configuration
- Advanced Features:-
 - 1) Supports Link-Loss-Forwarding function,
 - 2) Supports Loop-Back test & remote monitor status
 - 3) Supports non-standard frame length
 - ...64~1518/1522 bytes for Normal
 - ...64~1536 bytes for Special
- Supports Tag VLAN, Spanning Tree Fail-over links



General Specifications for PX-F01-FRM401 10/100 – Line Card Type

- Complies with IEEE 802.3 10Base-T, 802.3u 100Base-TX and 100Base-FX standards
- 4 diagnostic LED's display
 - LAN 100: 100M active (light) or 10M active (off)
 - LAN full: UTP port with Full Duplex (light) or Half Duplex (off)
 - F/Link: Fx port link success (light), fail (off) or receive data (flash)
 - U/Link: UTP port link success (light), fail (off) or receive data (flash)
- DIP Switch Setting: FX port Duplex setting, Full or Half
- Environment: Temp: 0° – 70°C (storage), 0°-50°C (operating)
- Dimensions: 122.6mm x 85.6mm x 20mm (LxWxH)
- Weight: 510g

PX-F01-FRM401 Series Application



Advanced Features:-

- 1) Link-Loss Forwarding
- 2) Loop-Back Testing
- 3) Get CPE status
- 4) Two frame length supported

*WDM type connector (Wavelength Division Multiplexer)

Transmit with single fibre, Connectivity up to 40km
A-type must be coupled with B-type

PX-F01-FRM401 4U Series

General Specifications for PX-F01-FRM401 Series – Rack Mount Type

- Temperature 0 – 50°C (Operating), 0 – 70°C (Storage)
- Humidity 20-80% non condensing (Operating); 10-90 (Storage)

Power Module Specification

- AC Power Module Input: selectable 110/220 VAC
- DC Power Module Input: -42~ -60VDC; Output: DC 48V, 8.5A Weight: 0.66kg

Chassis Specifications

- Dimensions 438mm x 285mm x 180mm L x W x H)
- Weight 790g (empty chassis plus ear-panel)
- Emission Compliance: FCC part 15 class A, CE Mark
- MTBF 38,000 hours minimum

Features for PX-F01-FRM401 Series – Rack Mount Type

- 4U high, 19 or 23" Rack. Chassis accommodates up to 12 line cards (each converter card provides four complete fibre converters), or 48 loops maximum
- RACK with Dual power modules designed for power sharing application, cooling FANs included.
- Once the converter is installed, it is hot-swappable to avoid any other network downtime. Also, the power does not to be off to insert another converter.
- Supports auto recovery function, the system can restore all the functions back to normal working status when the power or the connection is resumed.
- 10/100Base auto negotiation capability

ORDERING Information

PX-F01-FRM401-AC- Chassis Ethernet Fibre Optical Converter Rack, Standard 4U, 19" rack with AC mainboard, including fans
 PX-F01-FRM401-DC Chassis Ethernet Fibre Optical Converter Rack, Standard 4U, 19" rack with DC mainboard, including fans

Power Cards

PX-F01-FRM4-AC Fibre Converter Rack, AC universal power board
 PX-F01-FRM4-48 Fibre Converter Rack, DC/24~ -48V power board

Optional SNMP Card

PX-F01-FRM401-SNMP SNMP plug-in card, MIB file and manual

PX-F01-FRM401- 10/100X / XX XX F

Fibre Type

S: Single Mode
 M: Multi Mode
 W: WDM

Connector Type

ST: ST/PC
 SC: SC/PC
 **FC
 Available upon request

Distance Connectivity

002: 2km (Multi-mode only)
 015: 15km
 030: 30km
 050: 50km
 120: 120km
 *20A: 20km [WDM, SC only]
 *20B: 20km [WDM, SC only]
 *40A: 40km [WDM, SC only]
 *40B: 40km [WDM, SC only]
 *A type must be coupled with B type

Advanced Features

F: 1) Link-Loss-Forwarding
 2) Loop-Back test
 3) Remote monitor status
 4) Two Frame lengths

Example:

PX-F01-FRM401-10/100S/ST030F Single Mode, ST type connector, 30km with Advanced Features
 PX-F01-FRM401-10/100M/ST002 Multi Mode, ST type connector, 2km without Advanced Features
 PX-F01-FRM40110/100W/SC20A WDM, SC Type Connector, 20km without Advanced Features & must be coupled with FIB1-10/100W/ST20B

*Special note for WDM: because WDM utilizes different wave lengths on the same physical fibre cable, the WDM units must be matched in pairs (which we designate as A and B). Failure to match in pairs (A unit to B unit) will not allow any transmission on the fibre link as the transmit wavelength of one unit in the pair must match the receive wavelength of the other unit in the pair.