# Installation Instructions for
FIB1-1000ES 10/100/1000BASE-TX / 1000BASE-SX/LX
Fiber Transceiver Converters

Description

The Fiber Transceiver Converter Series gives you the option to choose from most popular fiber cabling connectors. The *FIB1-1000ES* provides you with two versions which support SFP socket with LC type connectors for your fiber optic cables and an RJ-45 connector for 10/100/1000Base-TX twisted pair cable connection. For the UTP side, auto-negotiation is default. These units will automatically tailor themselves to 10/100/1000Base-Tx and both half-duplex or full-duplex signals depending on your specific network needs. FX side is fixed in full-duplex only. The Fiber Transceiver Converters give you the freedom to extend your 1000Mbps cabling distance by allowing connectivity up to 0.5Km in multi-mode or 80Km in single mode. Six LED indicators signal the power status of the converter, UTP port, Link/RX and duplex status.

Fiber Connection

LEDs

Ethernet Connection
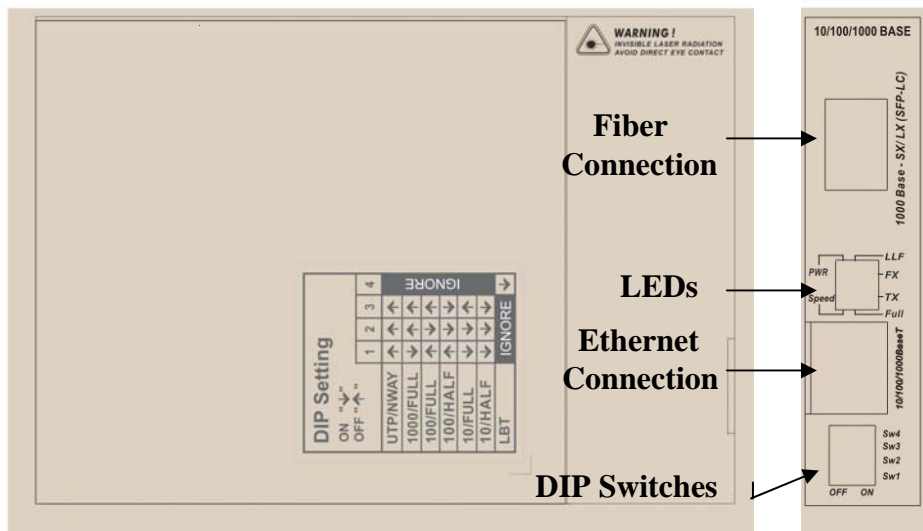
DIP Switches

Front Panel DIP Switch Setting

Off   On
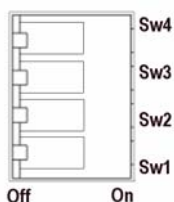
Sw1&2&3: Set different mode of LAN
         port ; speed and full duplex
         or half duplex modes
Sw4: Set LBT function
    (Loop Back Test for fiber channel)

DIP Setting				
ON "↓" OFF "↑"	1	2	3	4
UTP/NWAY	↑	↑	↑	IGNORE
1000/FULL	↓	↑	↑	
100/FULL	↑	↓	↑	
100/HALF	↑	↓	↓	
10/FULL	↓	↓	↑	
10/HALF	↓	↓	↓	
LBT	IGNORE			↓

Jumpers Setting (on PCB)

ON   OFF

LLF (J2) Function : On means enable, off means disable the function of LLF
                (Link Loss Forwarding Function, detail please check 2nd page)

Specifications

Standard
IEEE802.3 10Base-T, IEEE802.3u 100Base-TX, IEEE802.3ab 1000Base-TX, IEEE802.3z 1000Base-SX/LX, Gigabit Standards
Supports Full Duplex Ethernet mode (2000Mbps)

1000BASE-TX RJ-45 Connectors
One RJ-45 connector is provided for connection to either MDI-X (To PC) or MDI (To HUB) equipment. Utilizing Auto MDI/MDIX allows all UTP connections to be made using only a common straight-through UTP cable. .

RJ-45 Pin	568-A type	568-B type
5	Pair1-Tip	Pair1-Tip
4	Pari1-Ring	Pair1-Ring
3	Pair2-Tip	Pair3-Tip
6	Pair2-Ring	Pair3-Ring
1	Pair3-Tip	Pair2-Tip
2	Pair3-Ring-	Pair2-Ring
7	Pair4-Tip	Pair4-Tip
8	Pair4-Ring	Pair4-Ring

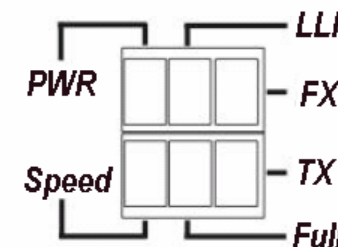| Environment	Dimension	Power
Temperature : 0ºC – 50ºC	122.6mm x 85.6mm x 20mm	+12V / 1A maximum
Humidity 10-90% non condensing	**(H x W x D)**	DC plug type : center Positive

1000BASE-TX UTP Cable
Cable type: 1000Base-TX; 4 pair , Cat. 5, EIA/TIA-568, STP/UTP
Maximum cable distance: 100 meters (328 feet)

Fiber Optic Connectors
SFP socket with LC is provided

LED Indicators

LED	Function	State	Status
PWR	Power indicator	On	Converter has power.
		Off	Converter has no power.
		Blinking	Loop back testing and Get CPE status function enable.
Full	mode display	On	Full duplex mode (2000Mbps).
		Off	Half-duplex mode.
FX	Fiber link	On	The fiber link is ok.
		Off	No link or the link is faulty.
		Blinking	Receiving data on the fiber.
Speed	mode display	Yellow	Force the LAN speed in 1000Base.
		Green	Force the LAN speed in 100Base.
		Off	Force the LAN speed in 10Base.
LLF	mode display	On	Link loss forwarding function enable.
		Off	Link loss forwarding function disable.
TX	Ethernet link	On	The UTP link is ok.
		Off	No link or the link is faulty.
		Blinking	Receiving data on Ethernet.

Installation

Connect the fiber interface cable to the FIB1-1000ES. Using a straight through or cross UTP cable, connect the Ethernet connection to the appropriate RJ-45 jack. Set the "Duplex" switch (full and half) according to the specifications of your equipments. Follow the connection examples below. Install the fiber converter with the DC power adapter provided (+12VDC) and connect the adapter to an AC outlet.

Connections

The following example illustrates the connection scheme when connecting from a 1000BASE-TX port of one HUB to a 1000BASE-SX/LX port of another HUB through the fiber converter.
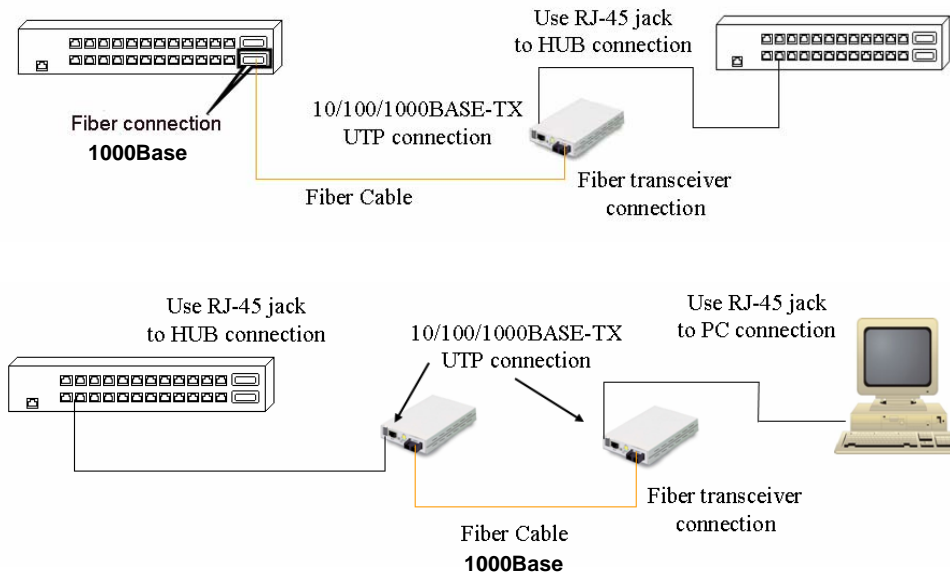
The following example illustrates the connection scheme when connecting from a 1000BASE-TX port of one HUB to a 1000BASE-TX Network Interface Card (NIC) in a computer through the fiber converter.

Link-Loss-Forwarding (LLF) Application Note

This media converter incorporates a Fiber Link Forwarding feature which allows indirect sensing of a Fiber Link Loss via the 1000 Base-TX UTP connection. Whenever the media converter detects a Link Loss condition on the Receive fiber (Fiber LNK OFF), it disables its UTP transmitter so that a Link Loss condition will be sensed on the receive UTP port. (See the following figure) The link loss can then be sensed and reported by a Network Management agent at the remote UTP port's host equipment.

This feature has no effect on the media converter's UTP LNK LED, which continues to function normally, independent of the state of the Fiber LNK LED and the UTP transmitter.
This feature is enabled by default on all the FIB1-1000 family media converters.
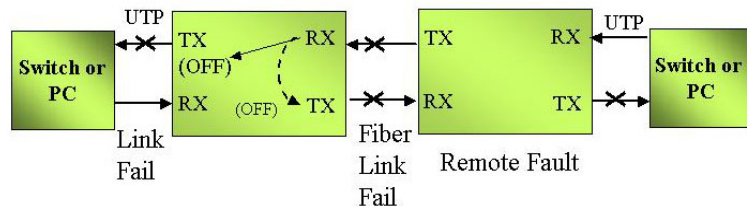

Figure : Fiber Break Responses

Loop-back Testing(LBT)& Get CPE status Application Note : (While this feature is operating the fiber side transmission will be halted)

This media converter incorporates a Fiber Loop-back Testing feature which allows the system to confirm that the fiber or Ethernet circuit loop is complete or not. The local-side unit will send out a detect message which includes both command and test-pattern data to the remote-side unit and request for an answer. When the remote-side unit receives the message, first it will try to recognize the command. After the remote-side unit recognizes the command message, then it will deliver the received test-pattern data back to the local-side unit. In this way, the circuit loop is complete. This feature is enabled by the DIP switch#4 on the front panel.

The get remote side status feature allows the system (both available for FIB1 & FRM301 series application) to monitor the remote side status. First, the unit will send out a message which includes a command to the remote side unit and request for an answer. When the remote side unit receives the message, first it will try to recognize the command. After the remote side unit recognize the command message, it will delivery the remote side status back to the rack mount unit. In this way, the rack mount unit can easily monitor every remote side unit. The remote side status message include the fiber side - link status and duplex status, the UTP side - link status, duplex status and speed status, the power status, transmission status and fiber (Tx side) failure status.

The FIB1 series is compatible with FRM301 series on this feature so you may test the whole application with FIB1 & FRM301.

Situation 1 : If the local side can not access to remote side under LBT is running then only the power LED will still flash rapidly alone.
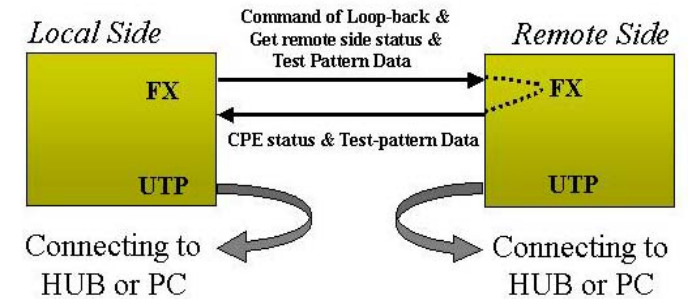
TRADEMARKS

Ethernet is a registered trademark of Xerox Corp.

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WARNING:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual may cause harmful interference in which case the user will be required to correct the interference at his own expense. NOTICE: (1) The changes or modifications not expressively approved by the party responsible for compliance could void the user's authority to operate the equipment. (2) Shielded interface cables and AC power cord, if any, must be used in order to comply with the emission limits.

CISPR PUB.22 Class A COMPLIANCE:
This device complies with EMC directive of the European Community and meets or exceeds the following technical standard. EN 55022 - Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment. This device complies with CISPR Class A.

WARNING:
This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

CE NOTICE
Marking by the symbol CE indicates compliance of this equipment to the EMC directive of the European Community. Such marking is indicative that this equipment meets or exceeds the following technical standards: EN 55022:1994/A1:1995/A2:1997 Class A and EN61000-3-2:1995, EN61000-3-3:1995 and EN50082-1:1997   Ver. 1.0