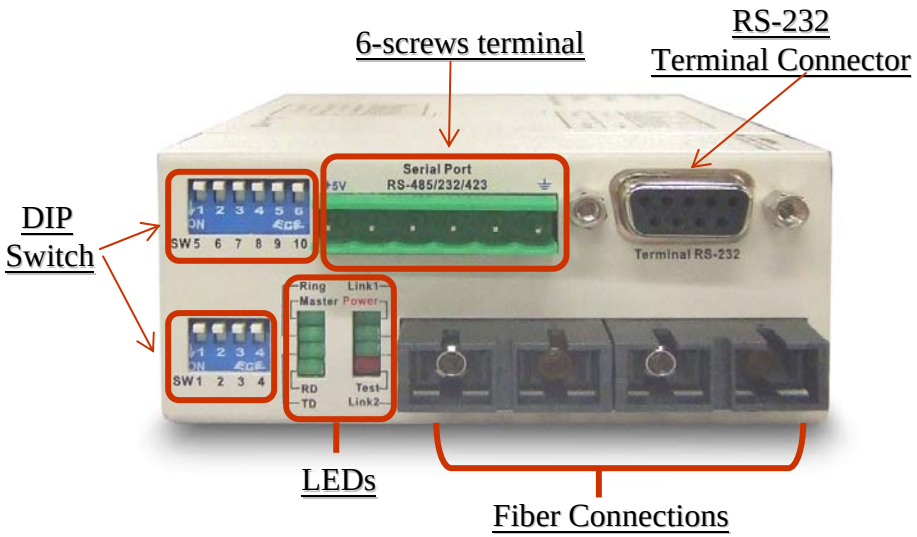
Installation Instructions for
FIB1- SERIAL/FDC
RS-485/RS-423/RS-232 to Fiber Converter with Fiber Daisy Chain (Ring Application)

Description

The ***FIB1-SERIAL/FDC*** is an asynchronous fiber optic Ring/Daisy chain modem which operates over a fiber link to connect remote terminals and computers, connected in multi drop, to a central host. The ***FIB1-SERIAL/FDC*** allows for totally redundant, fault tolerant, self-healing operation, providing uninterrupted communications between networks nodes, even if a fiber break occurs in one or more devices in the ring or chain fails.

The ***FIB1-SERIAL/FDC*** will extend RS-485 transmission distance up to 2Km over multimode fiber or up to 120Km over single mode fiber. The converter is equipped with multiple interface circuits, for connection to RS-232, RS-423, or RS-485 (2 or 4-wire). The ***FIB1-SERIAL/FDC*** secures data transmissions at speeds up to 256kbps for RS-232, or up to 1024kbps for RS-422/485.



Front Panel Serial Port Definition & DIP Switch Setting

SW1			Functions
1	2	3	Data mode
○	○	○	485-4W
●	○	○	485-2W
○	●	○	232-5W
●	●	○	232-3W
○	○	●	423-5W
●	○	●	423-3W
○	●	●	TTL-3W
4			RS485-Terminal
○			Disable
●			Enable
"On" ● " OFF" ○ "			

SW2		Functions
5	6	Work mode
○	○	Slave
●	○	Master
○	●	Submaster
7		Data Port RLB
○		Disable
●		Enable
8		Data Port LLB
○		Disable
●		Enable
9	10	485-2W hold time
○	○	0.4ms
●	○	0.8ms
○	●	1.6ms
●	●	3.2ms

Specifications

Optical

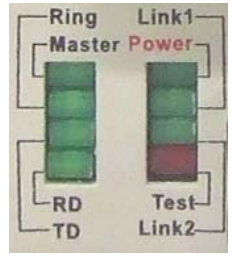
Wavelength:	850, 1310 or 1550nm
Optical Mode:	Single Mode(S/M), or Multimode(M/M)
Operating Distance:	2Km over multimode fiber or up to 120Km over single mode fiber
Fiber Type:	50/125um, 60/125um for M/M ; 9/125um for S/M
Power Margin:	11dB(2Km, M/M), 12dB ~ 35dB(15 ~ 120Km, S/M)
Data Rate:	31.104Mbps
Line Coding:	Scrambled NRZ
Bit Error Rate:	Less than 10^{-11}

Connectors Specifications

Optical:	ST/SC type or WDM type (SC)
Data:	6-Position detachable screw terminal

DATA SIGNAL Specifications

Data Formats:	RS-485/422 2-Wire RS-485/422 4-Wire RS-232 + RTS/CTS 5-Wire RS-232 3-Wire RS-423 + RTS/CTS 5-Wire RS-423 3-Wire TTL 3-Wire
Baud Rate:	RS-485/422 up to 1024kbps RS-232/423 up to 256kbps TTL up to 1024kbps



LED Indicators

LED	Function	State	Status
Power	Power indicator	Green(On)	Converter has power
		Off	Converter has no power
Link1	Fiber1 link	Green(On)	The fiber1 link is up
		Off	The fiber1 link is down or no signal
Link2	Fiber2 link	Green(On)	The fiber2 link is up
		Off	The fiber2 link is down or no signal
Test	Mode display	Red(On)	Any loopback test is on
		Off	Normal status
Master	Mode display	Green(On)	Master
		Off	Slave
		Blinking	Submaster
Ring	Ring status	Green(On)	The ring is up
		Off	The ring is down
TD	Data in status	Green(On)	"TD Signal" is on "Space" position
		Off	"TD Signal" is on "Mark" position
		Blinking	Normal Data Transmitting Status
RD	Data out status	Green(On)	"RD Signal" is on "Space" position
		Off	"RD Signal" is on "Mark" position
		Blinking	Normal Data Transmitting Status

Six-screws Terminal Block

RS-232 3-Wire I/F
DIP Switch –1-2-3: On, On, Off

PIN No#	Function
1	+5VDC output
2	NC
3	RS-232 OUT
4	NC
5	RS-232 IN
6	Ground

RS-232 +RTS/CTS 5-Wire I/F
DIP Switch –1-2-3: Off, On, Off

PIN No#	Function
1	+5VDC output
2	RS-232 RTS/CTS IN
3	RS-232 OUT
4	RS-232 RTS/CTS OUT
5	RS-232 IN
6	Ground

RS-485 2-Wire I/F
DIP Switch –1-2-3: On, Off, Off

PIN No#	Function
1	+5VDC output
2	NC
3	NC
4	RS-485 +
5	RS-485 -
6	Ground

RS-485 4-Wire I/F
DIP Switch –1-2-3: Off, Off, Off

PIN No#	Function
1	+5VDC output
2	RS-485 OUT+
3	RS-485 OUT-
4	RS-485 IN+
5	RS-485 IN-
6	Ground

RS-423 3-Wire I/F
DIP Switch –1-2-3: On, Off, On

PIN No#	Function
1	+5VDC output
2	NC
3	RS-423 OUT
4	NC
5	RS-423 IN
6	Ground

RS-423 +RTS/CTS 5-Wire I/F
DIP Switch –1-2-3: Off, Off, On

PIN No#	Function
1	+5VDC output
2	RS-423 RTS/CTS IN
3	RS-423 OUT
4	RS-423 RTS/CTS OUT
5	RS-423 IN
6	Ground

"Master" and "Slave" mode selections

In daisy-chain mode (using the model with two fiber interfaces), the unit has a pair of transmitters and a pair of receivers. FIB1-SERIAL/FDC can be set up as a Master or Remote unit. A multidrop circuit has only one Master, located at the host computer, which sends out polling data to downstream Remote units. In the master mode, transmit data from the RS-232 interface is sent downstream to the Remote units, in parallel over the two transmitters. Receive data coming in on the receivers is OR'ed and is presented on the RS-232 interface. In the remote mode, the data is daisy chained. Data coming in on receiver 1 is sent to the RS-232 receive port, and is regenerated to the transmitter 2 fiber optic link. Data coming in on receiver 2 is regenerated and sent out over transmitter 1 and this data is not seen on the Local RS-232 interface. RS-232 transmit data on the local unit is sent out over transmitter 1, upstream back to the master.

Master mode

Transmitters 1 and 2 operate in parallel, sending data downstream from the RS-232 interface. Receivers 1 and 2 are logically OR'd back to the RS-232 interface.

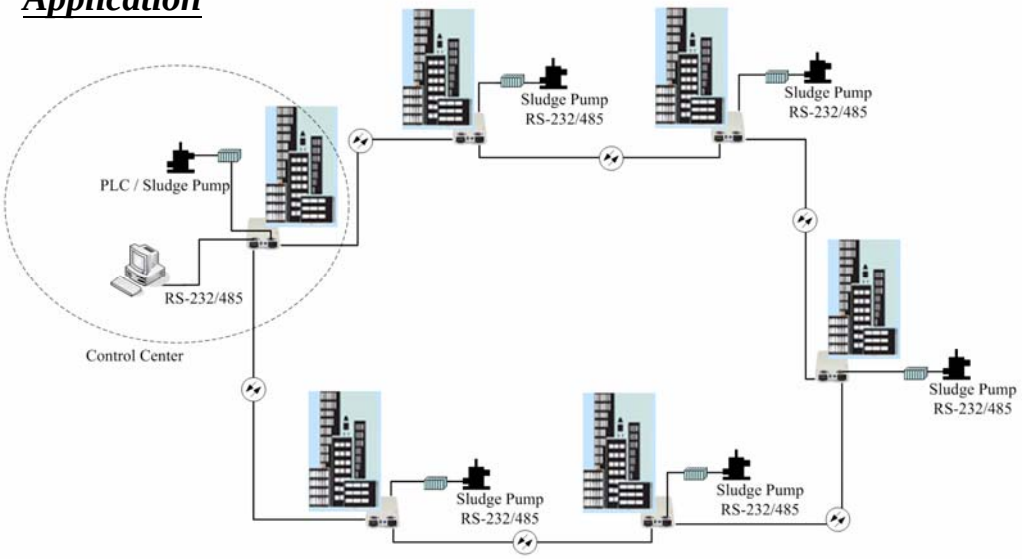
Local Mode, Daisy chain

Data comes in on fiber receiver 1, passed on downstream on transmitter 2 and is presented on the RS-232 interface. Data coming upstream to the unit on receiver 2 is passed upstream on transmitter 2.

Daisy Chain

Links may be daisy chained, where the unit will regenerate data over the second full duplex fiber link. The choices are implemented via DIP switch.

Application



General Specifications

Environment
Temperature : 0℃ - 50℃(operating)
-20℃ - 70℃ (storage)
Humidity 10-90% non condensing

Dimension
138mm x 86mm x 40mm
(H x W x D)

Weight : 450g

Power
+12V / 1A maximum
DC plug type : center Positive

TRADEMARKS
Ethernet is a registered trademark of Xerox Corp.
ST® is a registered trademark of AT&T.

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