FDM2 Series
Fiber Optic Digital Modem

FEATURES

- **Master, Auxiliary Master or Remote operation**
- ***Intuitive Ring Status Display***
- **ROS Memory System utilized to provide migration path and upgradeability**
- **Configurable Multiple Fiber Topology**
- **Immune to optical overloads**
- **All settings are externally switch selectable**
- **Key-on-data (KOD) functionality**

Description

The FDM2 Fiber Digital Modem is specifically designed for SCADA RS232/485/422 applications up to 115.2 Kb/s Asynchronous over Single or Dual Fiber Optic Rings. The FDM2 is 100% compatible with all modems in the FDM Series, e.g. FDM-FiberHub, FDM170 Plug-in for the 170 Controller and the FDM2070-6D Plug-in for the 2070 Controller.

The FDM2 represents a new generation of fiber optic modems utilizing a Replaceable Operating System. As ITS requirements change, or new features become available, a new ROS Memory System can be created so as to provide a Migration Path to upgrade the existing system.

The modems can operate in the following topologies:

Point to Point
Single Ring
Daisy Chain
Self-Healing Dual Counter Rotating Rings (DCRR)

When the FDM2 is operated in the DCRR format, it supports redundant communications paths, any single point of failure such as a modem failure or fiber cable cut, the system will automatically self heal around the point of failure making it the ideal choice for critical data communications.

Should the Master fail, a designated Auxiliary Master will automatically take over, this Aux-Master can be co- located with the Master or can be located anywhere in the ring. Any modem can be switched to operate as a Master, Auxiliary Master or Slave.

Each modem has an *Intuitive Ring Status Display* that graphically mimics the switching status of the modem providing instant recognition as to the switching state of the modem and the ring system. Should a fold-back occur at a modem the display shows a pictorial view of the fold-back, its direction and all the other modems receive notification of this condition and flash the fold-back indication on their screens.

Automatic Receive Fiber Identification will flash either a 1 or 2 to identify the Ring 1 or Ring 2 fiber

The Modem can operate over Multimode or Singlemode fibers, is immune to optical overloads and therefore does not require the insertion of optical attenuators. The modems ergonomic design has no internal adjustments and all connections, adjustable options and their labeling are on the recessed front and rear panels making these units user friendly and stackable.

The modem can act as an DTE device and generate RTS signals based on data received from the fiber system.

Anti-Streaming times are computer generated in precise, digitally programmed, 2 seconds increments starting from a base of 2 seconds to a maximum of 126 seconds to meet the demands for systems that require precise timing schemes.

The modem features a second or auxiliary RS232 port that can be utilized to connect to a hardwire or spread spectrum modem that will allow alternate communications mediums to be attached to a fiber communications system in addition to the local controller.

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SPECIFICATIONS

INTERFACES

Electrical

Standalone	Dual parallel RS-232 or RS485/422 DB9 or RJ45 jacks Optional internal FSK modem in addition to above mentioned ports
Data Rate	Up to 115.2 Kbps (Asynchronous)
Bit Error Rate	Better than $1x10^{-9}$ within specified dynamic range
MTBF	In excess of 100,000 Hrs
Control Lines	RTS, CTS
Optional FSK	1200, 2400, 9600, or 19200 bps

Optical

Connectors	ST, FC, SC
Dynamic Range	12db @ 1300nm MM.
(Minimum)	23db @ 1310nm SM.

USER ADJUSTABLE OPTIONS

Front Switches

Anti-Streaming	Clear (push button)

Note: The anti-streaming feature clears automatically when a normal condition returns but the ERROR indicator stays on until cleared manually with the front panel push button.

Rear Switches

Daisy Chain	Daisy Chain Configuration
Master/Slave	Master/Slave select
Aux-Mast	On/Off
2 Rings/1 Ring	Ring configuration
RS232/RS485	Data port operation selection
RTS/CTS	On/off
CTS	Delay time selection (0 or 8 ms)
Anti-Streaming	On/Off
Anti-streaming	Adjustable in 2 second increments from 2 to 126 seconds
Data Rate	Switch selectable 1200, 2400, 9600, 19200, 38400 56700, 115200 Bps
Parity	None, Odd, or Even

Specifications subject to change without notice

INDICATORS

Front Panel

TX DATA	Transmit RS232/485/422 Data
RX DATA	Received RS232/485/422 Data
ANTI-STRM	Anti–Streaming
PWR	DC Power
FIBER STATUS	Dual seven segment display

FORM FACTOR

Stand Alone	6.15” H x 2.306” W x 8” D Aluminum case

POWER REQUIREMENTS

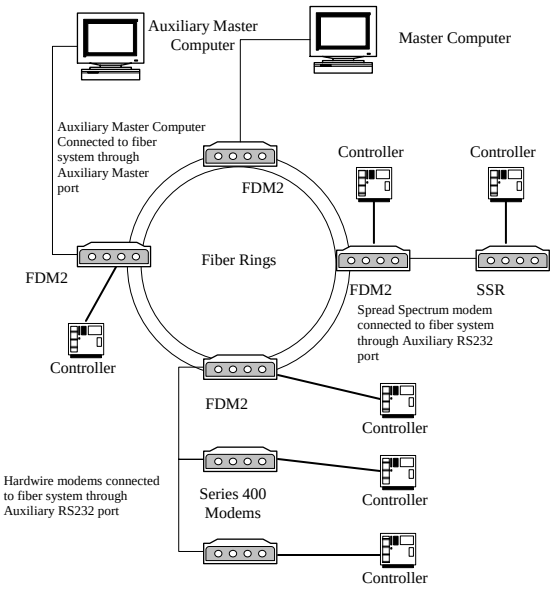
Stand Alone	18-30 VDC
Optional	External 115 VAC Supply External 220-240 VAC Supply Internal Battery Back-up for optical continuity

ENVIRONMENTAL

Temperature	-37 to +74° C
Humidity	95% non-condensing

Optional:

Internal FSK Modem
Internal Spread Spectrum Modem



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