

The diagram illustrates a fiber optic bus system architecture. It features three vertical modules representing the bus stations, labeled from left to right as 'END BUS MODEM', 'MID BUS MODEM', and 'END BUS MODEM'. These modules are interconnected by a network of 'FIBER OPTIC CABLES'. Below the bus modules, there are two main components: 'END BUS AND MID BUS MODEMS' and a 'POWER DISTRIBUTION UNIT'. The 'END BUS AND MID BUS MODEMS' component is shown as a black unit with multiple ports and connectors. The 'POWER DISTRIBUTION UNIT' is a vertical unit with a power switch and a power cord. The diagram also shows 'FIELD BUS ISOLATOR' and 'FIELD BUS MODULES' integrated into the system.

Major components which comprise a Fiber Optic Fieldbus cabling system are:

- End Bus Modems - Perform bidirectional conversion between twinaxial and fiber optic media
- Mid Bus Modems - Perform essentially the same function as the End Bus Modems, but also serve as fiber optic signal repeaters
- Power Distribution Unit - Distributes power to the Mid Bus Modems
- Fiber Optic Cabling - Customer-supplied fiber optic cabling conforming to the specifications presented herein.

The Fiber Optic Fieldbus may be used in conjunction with all Fieldbus configurations, including those based on the Control Processor and the Tank Processor. It can be installed as part of a new I/A Series system installation or can be added to an existing I/A Series system. The addition of the Fiber Optic Fieldbus to an existing system can be performed on-line, without interrupting system operations, provided that the system is powered by a nonstop (redundant) power source.

The Fiber Optic Fieldbus requires continuous application of power (whether from a primary or backup power source) for its operation. Thus, the Fiber Optic Fieldbus is considered an “active” element, as compared to the twinaxial Fieldbus, which is “passive.” This point is of particular importance when planning the upgrade of an existing system (with the addition of the Fiber Optic Fieldbus), or when considering backup power options for any system that will use the Fiber Optic Fieldbus.

ENVIRONMENTAL SPECIFICATIONS

Mid Bus or End Bus Modem

TEMPERATURE

Operating

0 to 60°C (32 to 140°F)

Storage

-40 to 70°C (-40 to 158°F)

RELATIVE HUMIDITY

5 To 95% (noncondensing) at 30°C dry bulb

CONTAMINATION

Class G3 (Harsh) as defined in ISA® Standard S71.04

HEAT DISSIPATION

5 W (maximum)

RFI SUSCEPTIBILITY

10 V/m at 27 to 1000 Mhz

ELECTROSTATIC DISCHARGE (ANY SURFACE)

6 kV current discharge

HIGH FREQUENCY TRANSIENTS

(REF. IEC 801-4)

1 kV (twinaxial port)

LIGHTNING TRANSIENTS (REF. IEC 801-5)

1 kV (twinaxial port)

ALTITUDE

-300 TO 3,000 M (-990 to 9,900 ft)

MECHANICAL VIBRATION

0.5 g (5 to 200 Hz)

Power Distribution Unit

TEMPERATURE

Operating

0 to 60°C (32 to 140°F)

Storage

-40 to 70°C (-40 to 158°F)

RELATIVE HUMIDITY

5 to 95% (noncondensing) at 30°C (86°F)

CONTAMINATION

Class G3 (Harsh) as defined in ISA Standard S71.04

HEAT DISSIPATION

The PDU does not consume power or dissipate heat

ALTITUDE

-300 to 3,000 M (-990 TO 9,900 ft)

MECHANICAL VIBRATION

0.5 g (5 to 200 Hz)

FUNCTIONAL SPECIFICATIONS

Fiber Optic Cables (Customer Supplied)

MAXIMUM LENGTH BETWEEN MODEMS

3 km (1.8 mi.)

MAXIMUM OVERALL LENGTH

20 km (12.4 mi)

MAXIMUM ATTENUATION

3.5 dB/km at 850 nm wavelength

Mid Bus or End Bus Modem

INPUT POWER

Voltage

15 to 42 V dc

Consumption

5 W

FIBER OPTIC CABLE PORTS

Input

Power Range

-9 dBm to -36.0 dBm average

Output

Transmit Level

-17.5 dBm average minimum

Center Wavelength

860 nm (nominal)

Spectral Width

50 nm (maximum)

Rise/Fall Time

100 ns (maximum)

DATA TRANSFER RATE

268.75 Kbits per second

INDICATORS

Power, Clock, Fieldbus, Fiber 1, Check 1, Fiber 2, (Mid Bus Modem only), Check 2 (Mid Bus Modem only)

Modem Battery Backup Options

IPM06 BATTERY BACKUP

One IPM06 Industrial Power Module will service up to 2 modems, providing up to 30 minutes of backup power in the event of a power failure.

EXTERNAL BATTERY BACKUP POWER

External battery backup power may be provided for the modems from an external battery source via the Memory Battery Backup and Status Tap assembly, optional with each enclosure.

Configurational Limitations

MODEMS PER CONFIGURATION

Up to 14 Mid Bus Modems and 2 End Bus Modems per fiber Optic Fieldbus configuration

MODEMS PER POWER DISTRIBUTION UNIT

Up to 4 modems per PDU

MODEMS/PDUs PER ENCLOSURE

(See Table below)

ENCLOSURE TYPE	MODEMS	PDUs
IE16	4	1
IE32	8	2
IE32A (1/2 AP50)	4	1
1x8 M.S.	2	1
FE8	2	1
Metal FE8	2	1
Metal IE24	6	3
Metal IE24 (Two 1x8s)	4	2
Metal IE24 (One 1x8)	2	1
Metal IE32	8	4
Metal IE32A	4	2

PHYSICAL SPECIFICATIONS

Mid Bus or End Bus Modem**MASS**

0.9 kg (2 lb)

DIMENSIONS

(See Figure 1)

MOUNTING

Mounts on standard 35 mm DIN rail

CONNECTORS

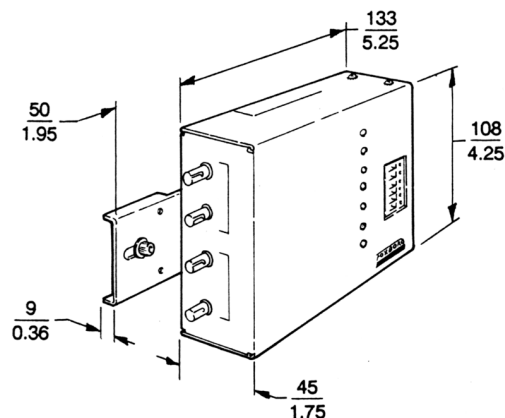
Screw terminal type for twinaxial cable, ST type for fiber optic cable

POWER CORD

Modem Power Cable (P0903QQ) supplies power from Power Distribution Unit

POWER CORD LENGTH

1.8 m (6 ft)



NOTE: MID BUS MODEM
SHOWN AS TYPICAL.

Figure 1. Modem Dimensions

Power Distribution Unit**MASS**

342 g (12 oz)

DIMENSIONS

(See Figure 2)

MOUNTING*Structural Foam Enclosure*

Mounts on the right (or if required left) structural panel, in the enclosure I/O wiring area.

Metal Enclosure

Mounts at the rear of a 1x8 mounting structure in the enclosure.

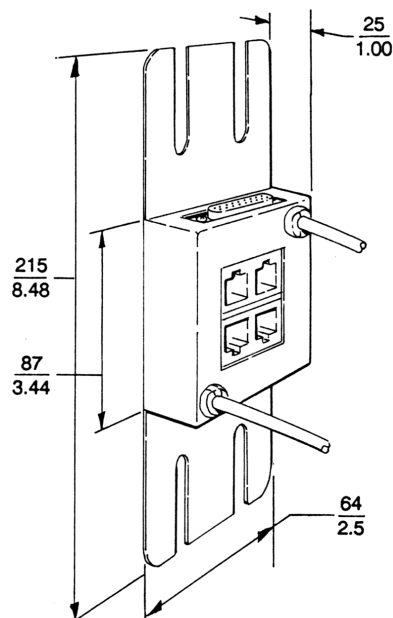


Figure 2. Power Distribution Unit Dimensions

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