I/A Series® Hardware
Fieldbus Communications Module, FCM10E



The FCM10E Fieldbus Communications Module is a communications interface which allows the DIN rail mounted Fieldbus Modules (FBMs) to communicate with I/A Series control stations via the high speed, optionally redundant 10 Mbps Ethernet trunk Fieldbus (see Figure 1). The FCM10E converts 10 Mbps Ethernet signals used by the control station to 2 Mbps signals used by the FBMs, and vice versa. They also provide galvanic isolation between the 10 Mbps Ethernet trunk Fieldbus and the 2 Mbps module Fieldbus.

The FCM10E modules are used in pairs for redundancy. An FCM10E (or pair of FCM10E modules) can support up to 30 FBMs.

FCM10E modules have a compact design, with a rugged extruded aluminum exterior for physical protection of the circuits. Up to 30 FCM10E pairs can be connected to the Ethernet trunk Fieldbus.

Enclosures specially designed for mounting of DIN rail mounted FBM equipment provide various levels of environmental protection for the Fieldbus Communications Modules, up to harsh environments per ISA Standard S71.04.

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The FCM10E can be removed/replaced without removing power or communications cabling.

Six light-emitting diodes (LEDs), incorporated into the front of the FCM10E Fieldbus Communications Modules, indicate the status of network activity to/from the control station and the associated FBMs, and the operational status of the FCM10E.

For redundant configurations, two FCM10E modules are required for each FBM grouping. A non-redundant configuration requires a single FCM10E for each grouping. Figure 1 shows how FCM10E modules are used in a typical subsystem configuration.

BASEPLATE MODULE MOUNTING

The FCM10E mounts on a baseplate, which is either DIN rail mounted or rack mounted and includes signal connectors for Fieldbus, power, and I/O cable connections. A baseplate can support up to eight FBMs, or a combination of FBMs and FCMs.

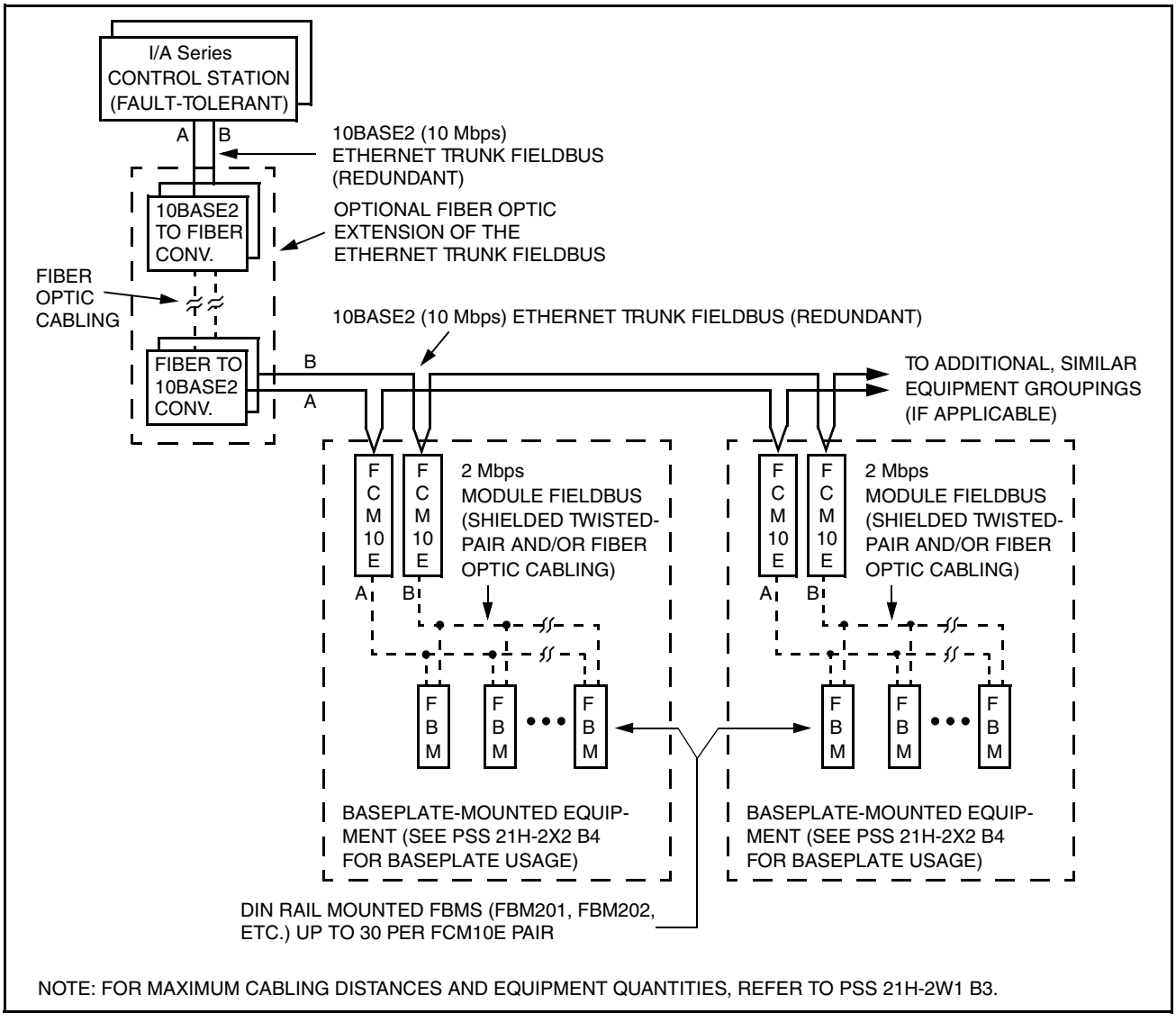


Figure 1. FCM10E Fieldbus Communications Modules in a Typical Configuration

FUNCTIONAL SPECIFICATIONS

Power Requirements
INPUT VOLTAGE RANGE (REDUNDANT)
24 V dc +5%, -10%
CONSUMPTION
7 W (maximum) at 24 V dc
HEAT DISSIPATION
7 W (maximum) at 24 V dc

Vibration
0.75 g (5 to 200 Hz)

Calibration Requirements
Calibration of the module is not required.

Regulatory Compliance
ELECTROMAGNETIC COMPATIBILITY (EMC)
European EMC Directive 89/336/EEC
EN 50081-2 Emission standard
EN 50082-2 Immunity standard

IEC 61000-4-2 ESD Immunity
Contact 4 kV, air 8 kV

IEC 61000-4-3 Radiated Field Immunity
10 V/m at 80 to 1000 MHz

IEC 61000-4-4 Electrical Fast Transient/Burst Immunity
2 kV

IEC 61000-4-5 Surge Immunity
2kV on ac and dc power lines; 1kV on I/O and communications lines

IEC 61000-4-6 Immunity to Conducted Disturbances
10 V

IEC 61000-4-8 Power Frequency Magnetic Field Immunity
30 A/m

IEC 61000-4-11 Voltage Dips, Short Interruptions and Voltage Variations Immunity

Regulatory Compliance (Cont.)
PRODUCT SAFETY
European Low Voltage Directive 73/23/EEC
PRODUCT CERTIFICATION
Underwriters Laboratories (UL)
UL/UL-C listed as suitable for use in UL/UL-C listed Class I, Groups A-D; Division 2; temperature code T4 enclosure based systems. The modules are also UL and UL-C listed as associated apparatus for supplying non-incendive communication circuits for Class I, Groups A-D, Division 2 hazardous locations when connected to specified I/A Series processor modules as described in the *I/A Series DIN Rail Mounted FBM Subsystem User's Guide* (B0400FA). Communications circuits also meet the requirements for Class 2 as defined in Article 725 of the National Electrical Code (NFPA No.70) and Section 16 of the Canadian Electrical Code (CSA C22.1). Conditions of use are as specified in the *I/A Series DIN Rail Mounted FBM Subsystem User's Guide* (B0400FA).

CENELEC
CENELEC (DEMKO) certified as EEx nA IIC T4 for use in CENELEC certified Zone 2 enclosure based systems. The modules are CENELEC certified as associated apparatus for supplying non-incendive field circuits for Zone 2, Group IIC, potentially explosive atmospheres when connected to specified I/A Series processor modules as described in the *I/A Series DIN Rail Mounted FBM Subsystem User's Guide* (B0400FA).

EUROPEAN UNION COMPLIANCE
Meets all applicable European Union directives including the Explosive Atmospheres (ATEX) directive 94/9/EC, and bears the CE mark.

ENVIRONMENTAL SPECIFICATIONS(a)

Operating
TEMPERATURE
-20 to +70°C (-4 to +158°F)
RELATIVE HUMIDITY
5 to 95% (noncondensing)
ALTITUDE
-300 to +3,000 m (-1,000 to +10,000 ft)

Storage
TEMPERATURE
-40 to +70°C (-40 to +158°F)
RELATIVE HUMIDITY
5 to 95% (noncondensing)
ALTITUDE
-300 to +12,000 m (-1,000 to +40,000 ft)

Contamination
Class G3 (Harsh) as defined in ISA Standard, S71.04. Pollution degree 2 as defined in IEC 664-1.

(a) The environmental limits of this module may be enhanced by the type of enclosure containing the module. [Refer to the applicable Product Specification Sheet (PSS) which describes the specific type of enclosure that is to be used.]