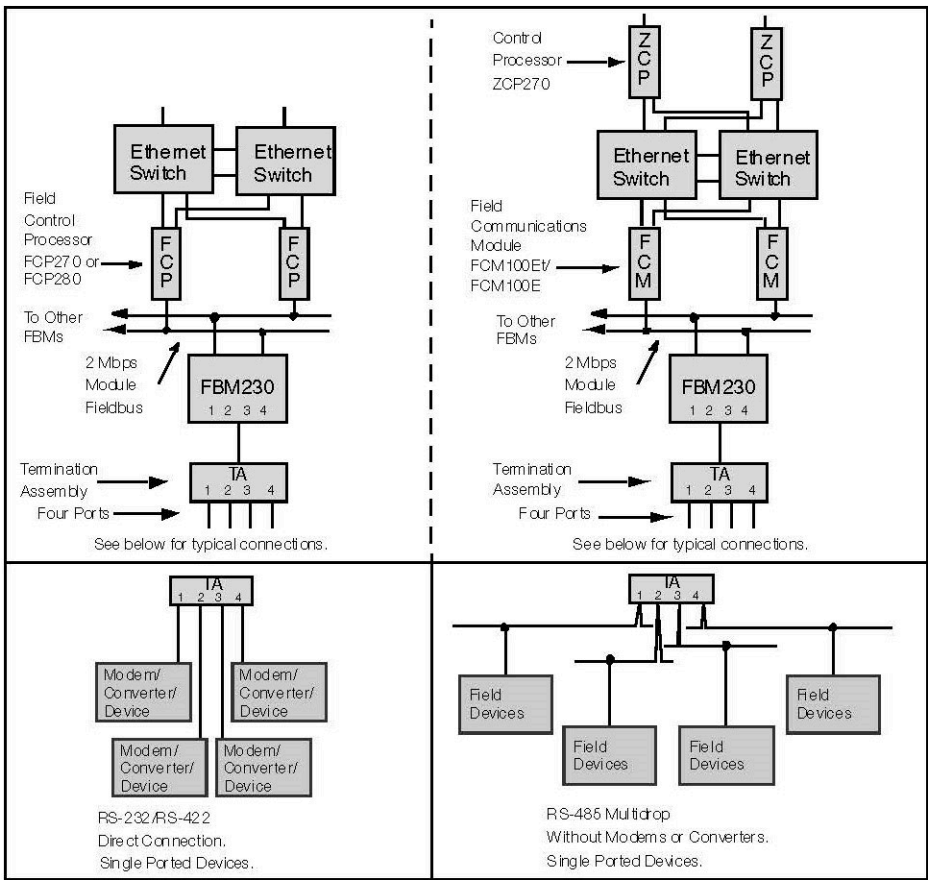
Overview

The FBM230 Field Device System Integrator (FDSI) module provides a serial interface between single-ported field I/O devices and the EcoStruxure™ Foxboro™ DCS system.

The FBM230 has four ports - each can be individually configured in software for RS-232, RS422 or RS-485. This provides a single FBM230 the flexibility to connect to multiple similar but not identical devices. Physical wiring is in accordance with Electronic Industrial Association (EIA) standard RS-232, RS422 or RS-485.

The FBM230 and its associated termination assembly (TA) accommodate several types of connections to single ported devices; direct connection to devices; connection to modems when used with the RS-232 communication interface, and multidrop connections to RS-485 devices. Intrinsic safety devices can be connected between the TA and the field device. The general network configurations are shown in Figure 1.

Figure 1. FBM230 in Typical Network Configurations



NOTE: Each FBM230 port (1 through 4) can be individually configured for RS-232, RS-422, or RS-485 communication standards.

Features

The key features of the FBM230 are:

- Four ports - each can be individually configured in software for RS-232, RS422 or RS-485
- Supports RS-232, RS-422 or RS-485 communication interface standards
- I/O software drivers downloadable from a library of available protocols
- Up to 2000 DCI block connections
- Communicates with up to 64 RS-485 or up to 4 direct connect RS-232 or RS-422 devices
- Integrates field device data into a Foxboro DCS control database
- Field mounted
- Class G3 (harsh) environments.

Serial Link Setup

Data communication between the FBM230 and field devices are through the 4-ported termination assembly (TA). Two different TAs, one with compression screw connections and the other with ring lug connections, have terminals for each port for RS-422 and RS-485 wiring, with DIP-switch-selectable bus termination resistors per port. For RS-232 wiring, the TA has four standard DB-25 male connectors and a break-out bank of 24 DIP switches for each port that can be used for any RS-232 wiring configuration (for example, to connect Clear-to-Send to Request-to-Send).

I/O Drivers

This FBM is a generic hardware module in which different software drivers can be loaded. These drivers configure the FBM to recognize a particular protocol used by the field device. Several of the software drivers are standard product offerings. Other custom drivers can be developed to meet specific needs. These drivers are dynamically downloaded to the FBM230 with software code specifically designed to interface with the third party device’s protocol.

The configuration procedures and the software requirements for each driver are unique to the device(s) being integrated into the system.

Configurator

The FDSI configurator sets up the FBM230 port via XML device configuration files. The port configurator allows for easy setup of the communication parameters for each port (such as, communication interface standard, baud rate, parity). The device configurator is not needed for all devices, but when needed it configures device specific and point specific considerations (such as, scan rate, address of the data to be transferred and the amount of data to be transferred in one transaction).

Functional Specifications

<table>
<tr>
<td>Device Communications</td>
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Interface

Four serial I/O communication ports provide interface to up to four direct connect RS-232, RS-422 devices or up to 64 devices via four RS-485 buses (Up to 16 devices per port). Each port is a single logical port to single ported devices.

Bus Characteristics

General
Electronic Industrial Association (EIA) RS-232, RS-422 or RS485 communications selectable on a per port basis. The RS-485 physical communication medium consists of twisted-pair shielded copper cable containing a single conductor pair. The RS-422 is a 4–wire physical communication medium. The RS-232 physical communication medium is a DB-25 cable to a customer supplied device/modem/converter.
EIA RS-232, RS-422 and RS-485 I/O Communication

Asynchronous communication, direct connect link (RS-232)
Transmission Rate: 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600 and 115200 baud.
Protocol: 8-bit characters; odd, even or no parity, 1 or 2 stop bits.

NOTE: For driver specific limitations on I/O Capacity and Data Types Transferred, refer to the corresponding driver PSS or User’s Guide.

I/O Capacity

Up to 64 devices per FBM230 maximum (number of actual devices is performance dependent) with up to 2000 DCI connections.

Data Types Transferred

2-byte or 4-byte signed or unsigned integers, 4byte IEEE single- precision floating values, or binary values. Automatic conversion for other types as implemented by the downloadable driver.

Fastest Allowed ECB Block Period

500 msec

Channel Isolation

Each communication channel is galvanically isolated and referenced to earth (ground). The module can withstand, without damage, a potential of 600 VAC applied for one minute between either channel and earth.

⚠⚠DANGER
HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH
Although the module can withstand a maximum of 600 VAC applied for one minute between any channel, DO NOT apply voltages beyond the published input ranges. The channels are NOT intended for permanent connection to hazardous voltage circuits. Understand that connection of these channels to voltages greater than 30 VAC or 60 VDC violates electrical safety code requirements and may expose users to electric shock.
Failure to follow these instructions will result in death or serious injury.
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<tr>
<td>Module Fieldbus Communication</td>
<td>Communicates with its associated FCM100Et, FCM100E, FCP270, or FCP280 via the redundant 2 Mbps module Fieldbus.</td>
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Physical Specifications

Mounting	The FBM230 mounts on a Modular Baseplate. The Modular Baseplate can be mounted horizontally or vertically on a DIN rail, or mounted horizontally in a 19-inch rack using a mounting kit. Refer to PSS 31H-2SBASPLT for details. The TA has a combination foot that supports 32 or 35 mm DIN rail mounting.
Part Numbers	• Module: P0926GU • TA Ring Lug: P0926PA • TA Compression Screw: RH926GH (supersedes P0926GH)
Dimensions (Module)	• Height: 102 mm (4 in) 114 mm (4.5 in) including mounting lugs • Width: 45 mm (1.75 in) • Depth: 104 mm (4.11 in)
Dimensions (TA)	See Dimensions — Nominal, page 13.
Mass	• Module: 284 g (10 oz) approximate • Termination Assembly ◦ Ring Lug (P0926PA): 363 g (0.8 lb) approximate ◦ Compression Screw (RH926GH (supersedes P0926GH)): 272 g (0.6 lb) approximate
Cables	• FBM230 to TA Lengths 1 m (3.2 ft) to 5 m (16.4 ft) • Termination Cable Type Type 5 - seeTermination Cable Types and Part Numbers, page 12. • TA RS-232 Connection (DB-25 Cable) to Modem/Converter/Device Up to 15 m (50 ft) for custom cables per EIA Standard RS232. • RS-422 and RS-485 Up to 1200 m (3937 ft)