allows you to locate the control processor in strategic plant areas.

- Fieldbus Communications Modules (FCMs) – Similar in size to the FBMs, these compact modules provide a communication interface between the FBMs and the ZCP270 via the control network.
- FBI200 Fieldbus Isolator/Filter - Similar in size to the FBMs, these compact, optional modules, among other functions, extend the 268 kbps Module Fieldbus between FCP280s/FCP270s and 100 Series FBMs up to 1830 m (6000 ft) over twinaxial cable.
- Standard Baseplates – These provide a communications backplane and a solid base for mounting the CPs, FBMs, and FCMs, allowing for a variety of remote equipment mounting configurations.
- Intrinsically Safe Baseplates (ISTA-BPs) – Compatible with standard 200 Series baseplates, the ISTA-BPs were co-developed with Pepperl and Fuchs and provide an Intrinsically Safe solution for 200 Series FBM applications.
- Enclosures – Several basic types provide various levels of environmental protection and equipment grouping for the 200 Series equipment.

The 200 Series FBMs provide full support for analog measurement, digital sensing, and analog or discrete control capabilities. The FBMs are rugged, high performance distributed process I/O modules designed for all process control tasks. Operating in conjunction with the Foxboro Evo control processor (FCP280, FCP270, or ZCP270), these FBMs provide for process management and control of continuous, batch and discrete control schemes.

FEATURES

Key features for the standard 200 Series subsystem are:

- Allows you to locate control processor and field input/output modules in strategic plant areas
- High performance Fieldbus Modules (FBMs)
- Enclosures to provide various levels of environmental protection
- Optional redundant power
- Variety of modular mounting configurations
- High performance, high accuracy, fast updates
- Optional Intrinsically Safe baseplates for FBMs
- Reduced component count, for ultra-high reliability and quality
- Optional redundancy
- Harsh (Class G3 - ISA S71.04) contamination protection
- Distributed local and/or remote I/O
- Power security and alarming
- Electrical isolation and field device power
- High-speed system communication.

HIGH PERFORMANCE, HIGH ACCURACY, FAST UPDATES

The 200 Series FBMs offer high resolution, high accuracy, and repeatable design. The Sigma-Delta, fast integrating converter used on the analog inputs provides new readings as fast as every 25 ms, suitable for high-speed regulatory control applications. The analog inputs use a built-in configurable moving average filter that efficiently removes process noise and power line frequencies.

OPTIONAL REDUNDANCY

The standard 200 Series subsystem is optionally available with total redundancy, for high reliability and availability. Redundancy is available for; the power supplies, the control network, the FCMs, the FEMs(1)), the CPs, Modular Fieldbus cables between baseplates, and certain FBM I/O module types.

RUGGED, INNOVATIVE PACKAGING

The standard 200 Series Fieldbus Modules are packaged as structurally identical plug-in modular assemblies. To permit mounting in harsh environments, each module has a rugged, extruded aluminum exterior, without open vent holes, for physical protection of the circuits. Heat generated within the module is conducted from the module via the aluminum finned cover. This approach to protection prevents contaminants in the plant environment from reaching the control components, greatly extending the life of the equipment. The operating temperature for a module is rated at either 50°C, 60°C, or 70°C depending on the module and termination assembly type. The specific Product Specification Sheet (see "Standard 200 Series Fieldbus Modules" on page 14) for each module lists the specific operating temperature for the module.

The standard 200 Series subsystem has the following product safety certifications:

- Underwriters Laboratories (UL) listing for both US (NRTL) and Canadian (UL-C) requirements for both ordinary and hazardous locations
- ATEX (DEMKO) certification for use in potentially explosive atmospheres
- CE approved

As well, the Standard 200 Series subsystem is ABS Type Approved and Bureau Veritas Marine Certified for Environmental Category EC11.

For additional information about certifications, refer to PSS 31H-2CERTS.

Light-emitting diodes (LEDs) incorporated into the front of each module provide visual status indications of the Fieldbus Module functions.

The small size of these FBMs allows ample room in an enclosure to terminate field wiring near the FBM.

200 SERIES BASEPLATE MODULE MOUNTING

The 200 Series Fieldbus Modules mount on 200 Series baseplates which have been specially designed to support them (see Figure 1, only vertical baseplates shown - also FBMs do not mount on the FCP270-only, FCM-only, or FBI-only baseplates).

The baseplates shown in Figure 1 fasten to a structurally supported non isolated DIN rail for mounting inside or outside an enclosure. (As an alternative to DIN rail mounting, a mounting plate can be used for horizontal mounting of the 200 Series baseplate on a 19-inch rack). These baseplates can thus be mounted in small, distributed cabinets or in a variety of other mounting configurations.

The baseplates are backwards compatible with existing I/O subsystems allowing for future expansion without additional interface hardware and includes the following:

- Primary and secondary 24 V dc power connections
- Two Module Fieldbus connections (for A/B Module Fieldbus daisy chain)
- Power/communication connection and field I/O connection for each FBM
- DIP switch for baseplate identification
- A/B Module Fieldbus and optional time strobe splitter/terminator connection
- Adding additional baseplates without removing the system from service (requires redundant Module Fieldbus).

(1) FEM100 modules are not used with the FCP280.

The baseplates which support FBMs provide increased overall system installation functionality by providing unit increments of 2, 4, and 8 module positions with various operational functionality in combination with vertical and horizontal mounting.

Any FBM (except FBM232/233) can be removed from a FBM-supporting baseplate without removing or disturbing external field device wire terminations or internal cable terminations or connections.

FCPs and FCMs require removal of wiring to the control network.

Shielded twisted-pair cables for baseplate interconnections are available in various lengths of 0.25 m (10 in) up to 60 m (198 ft). The maximum twisted-pair cable length interconnecting all baseplates is 60 m (198 ft).

Figure 1 shows selected vertical DIN rail mounted baseplates. Horizontal DIN rail mounted baseplates are available in similar styles as the vertical mounted baseplates, but equivalents for each style are not all available. Refer to PSS 31H-2SBASEPLT and PSS 31H-2C200 B4 for additional information on the remaining Standard and Compact 200 Series baseplates.

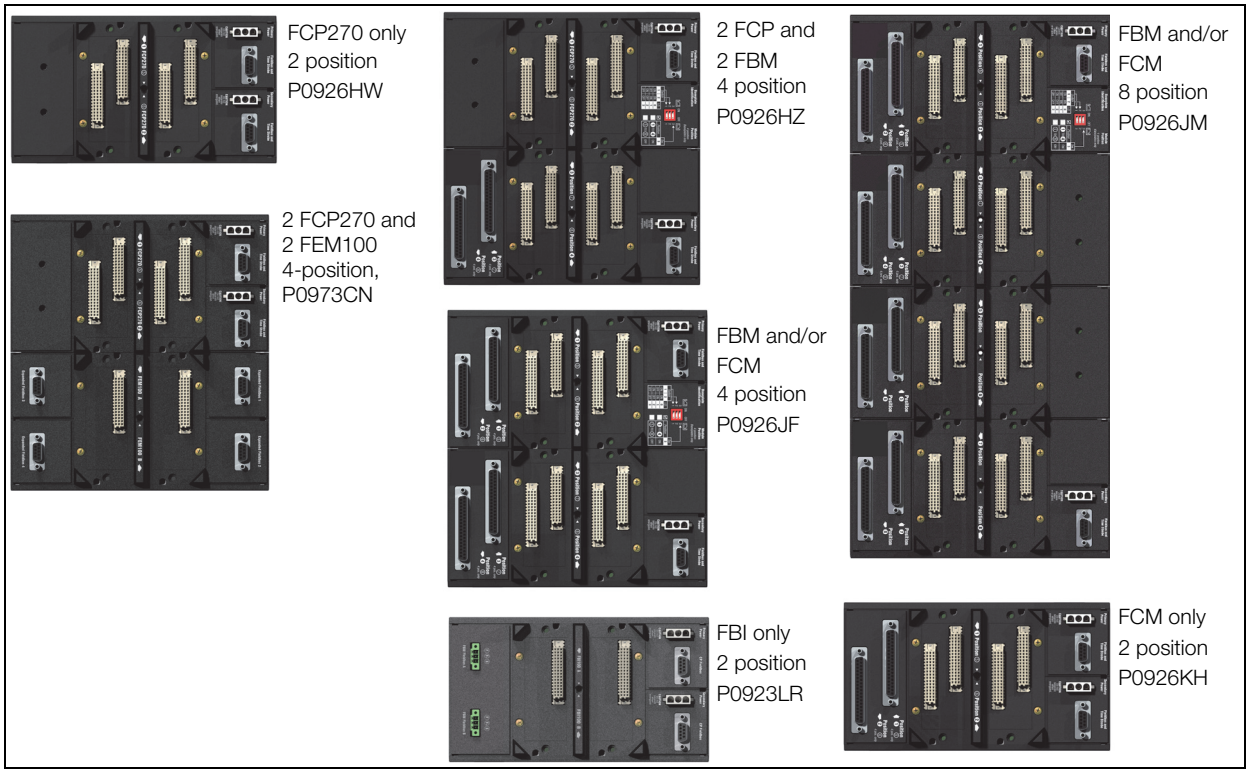


Figure 1. Vertically Mounted Standard 200 Series Baseplates (Selected Models)

FIELD I/O TERMINATIONS

Field I/O signal connections are made at termination assemblies (TAs) mounted on DIN rails within or external to the enclosure. Termination assemblies are connected to the associated baseplate by dedicated cables, which can be 0.5 m (1.7 ft) up to 30 m 100 ft) in length. These various cable lengths allow the termination assemblies to be mounted in the same enclosure as the FBMs, or in an adjacent enclosure.

Analog and discrete I/O FBMs are used with specific termination assemblies to handle a variety of input/output signals. When used in high voltage applications, discrete I/O termination assemblies adapt the module to 120 V ac, 125 V dc, or 240 V ac inputs.Termination assemblies (TAs) with built-in relays are available for switching high voltage and high current digital outputs. Some TAs readback the state of the contacts to confirm the state of the relay.

INTRINSICALLY SAFE TERMINATION ASSEMBLY – BASEPLATE (ISTA-*BP*)

The ISTA-*BP* is a combination of a baseplate with integrated terminals fitted with one or two Fieldbus modules (FBMs) and eight galvanic isolators. This solution consists of a printed circuit board and therefore does not require any additional wiring on the board, offering a reliable interface between the control processor and field I/O sensors and actuators. As a result this compact packaging offers a noticeable space saving in the interface cabinet. This is a joint Foxboro® / Pepperl+Fuchs product. For details, refer to PSS 31H-2Y12.

ENCLOSURES

Enclosures extend the design of the 200 Series FBMs by providing a range of mounting options to match application requirements.

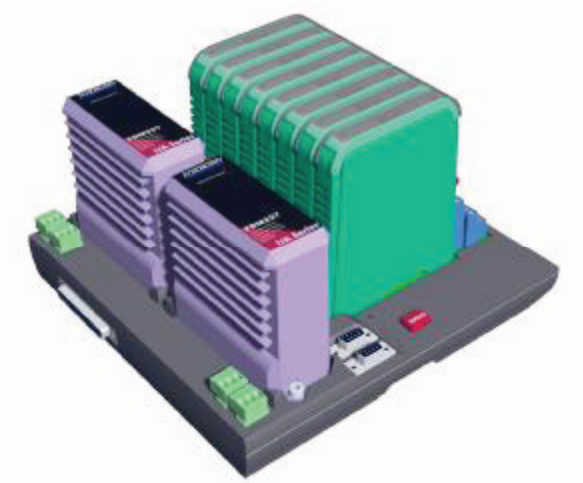
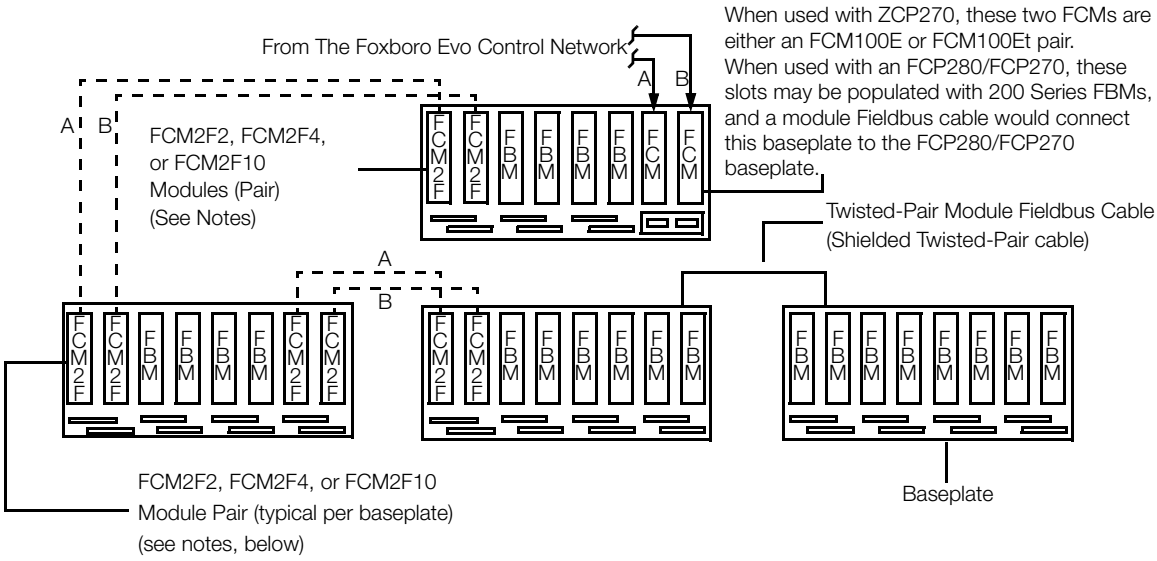


*Figure 2. Dual or Redundant ISTA-*BP**

The G-Series enclosures are floor-standing units which accommodate 200 Series baseplates for mounting FBMs, FEMs, FCMs, and CPs, and/or termination assemblies or terminal blocks for marshalling. Most are available for use in ordinary (IP 43/54) or harsh (IP 55/65) rated environments.

Several product lines of metal enclosures are offered with the standard 200 Series subsystem:

- G-Series 800x800 Front and Rear Access Enclosures (G10 system enclosure, G11 termination enclosure, G12 system and termination enclosure)
- G-Series 800x600 Front and Rear Access Enclosures (G20 system enclosure, G21 termination enclosure, G22 system and termination enclosure)
- G-Series 800x800 Front-Only Access Enclosures (G15 system enclosure, G16 termination enclosure, G17 system and termination enclosure)



NOTES:

1. Redundant configuration is shown. Non-redundant configuration uses one FCM2F per baseplate, connected to either Fieldbus "A" or "B". Up to two pairs of FCM2Fs are allowed in series; two FCM2F10s allow up to 20 km (12.4 mi) total distance for the Fieldbus. (The number of FCM100E/Ets are not included when determining how many FCM2Fs are permissible in the baseplate chain.)
2. Three versions of the FCM2F provide three different fiber optic cabling distances: FCM2F2 = 2 km (1.24 mi); FCM2F4 = 4 km (2.48 mi); FCM2F10 = 10 km (6.2 mi).

Figure 6. 200 Series Baseplate Interconnection Using Fiber Optic Cable

200 SERIES BASEPLATE IMPLEMENTATION

200 Series baseplate mounting of the FBMs and associated FCMs provides added versatility in application of the 200 Series equipment. The 200 Series baseplates, which provide for convenient physical grouping of the CPs and FBMs are interconnected by coaxial cable. Figure 7 shows basic baseplate configuration using shielded twisted-pair connections. Optional redundant cables for the Module Fieldbus can be used by connecting the cables to A/B Module Fieldbus splitter/terminators.

Figure 7 shows a basic baseplate configuration using shielded twisted-pair connections. This configuration is used when the 200 Series baseplates are mounted within an enclosure or enclosures in the same location (for example, in multiple enclosures in the same area). Shielded twisted-pair cables (for interconnecting the 200 Series baseplates) are available in lengths of 0.25 to 60 meters.

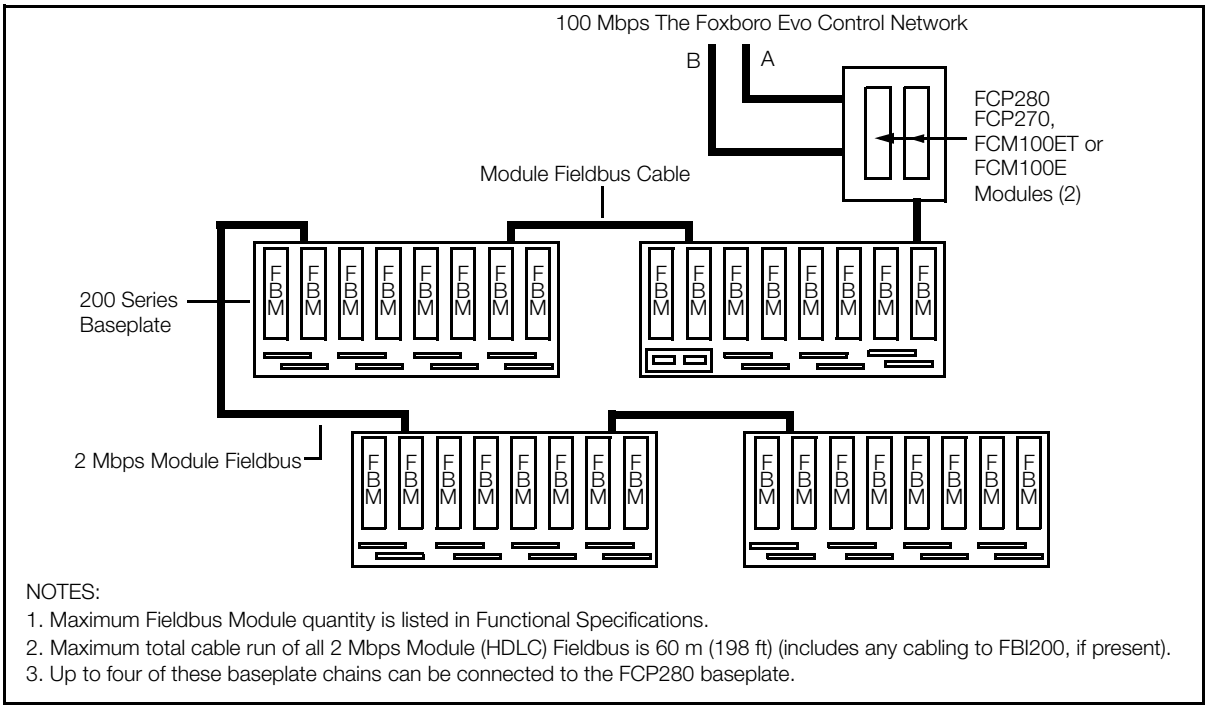


Figure 7. 200 Series Baseplate Implementation Example

POWER SECURITY

Power Distribution

Earthing practices for all enclosures and the subsystem meet the earthing practices and requirements of:

- IEC 61000-5-1 General Considerations, and
- IEC 61000-5-2 Earthing and Cabling.

The 24 V dc power supplies (FPS480-24, FPS400-24, FPS240-24 and FPS120-24) are agency certified for use in Class I, Division 2 applications.

For each 200 Series FBM enclosure, you can select single or redundant power distribution. A single power distribution configuration consists of a single power supply and single power distribution to the 200 Series baseplates.

A redundant power distribution configuration consists of redundant power supplies and redundant power distribution to the baseplates. This provides power security on power module failure for process loops where continued operation is necessary. The dual power feed distribution network protects against any single-point power failures, and protects all modules against power main failures and internal short circuits.

Module software is downloaded to and retained in flash memory by the FCP280, FCP270, or ZCP270 for faster reboot after power outages.