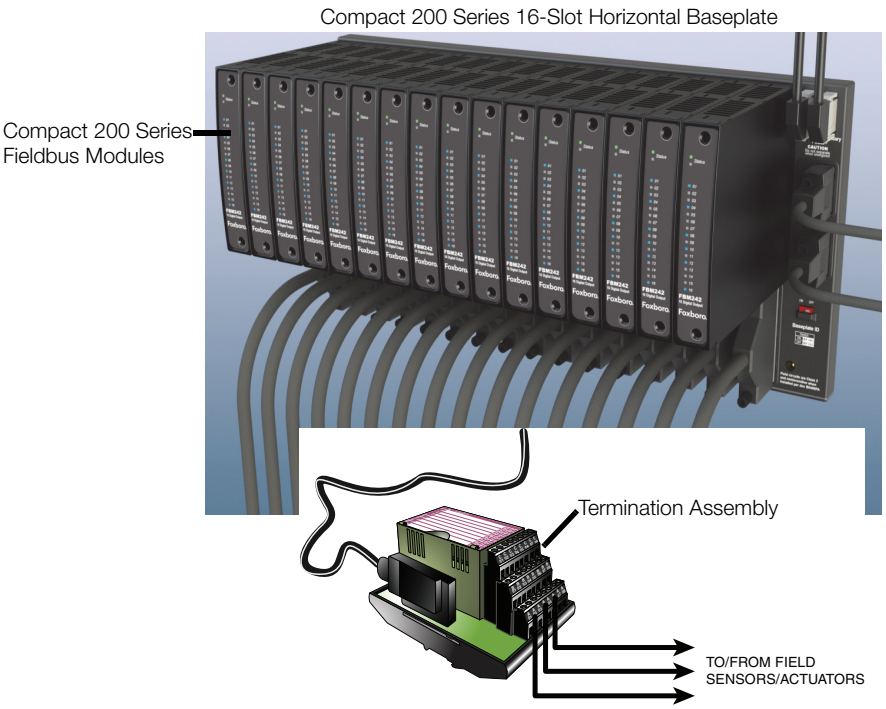
Foxboro Evo™ Process Automation System

Product Specifications

PSS 31H-2COV B3

Compact 200 Series I/O Subsystem Overview



The Foxboro Evo™ system's Compact 200 Series I/O subsystem is an environmentally rugged set of control electronics that can be distributed throughout your plant. This permits significant reduction in field cabling and associated raceway and conduit installation, thereby reducing the initial cost of the installation. The Compact 200 Series I/O subsystem is fully compatible with existing I/A Series® systems with 200 Series I/O equipment and/or legacy 100 Series I/O equipment.

FEATURES

Key features for the Compact 200 Series I/O subsystem are:

- Allows you to locate control processor and field input/output modules in strategic plant areas
- High performance, reduced size Compact Fieldbus Modules (FBMs)
- Enclosures to provide various levels of environmental protection
- Compact 200 Series baseplate and Compact 200 Series FBMs reduce equipment footprint over the traditional DIN rail mounted subsystem
- Optional redundant power
- High performance, high accuracy, fast updates
- 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.

OVERVIEW

The Compact 200 Series I/O subsystem provides innovative equipment packaging, together with the integrated use of Fast Ethernet networks for communication between equipment domains. This permits local or remote distribution of your process I/O points.

The Compact 200 Series I/O subsystem consists of a full line of high performance Compact 200 Series Fieldbus Modules (FBMs), as well as standard 200 Series FBMs, along with the following integrally designed elements:

- Field Control Processor 280 (FCP280) and Field Control Processor 270 (FCP270) – A compact module that provides a control interface between the FBMs and the control network and allows you to locate the control processor in strategic plant areas.
- Z-Module Control Processor 270 (ZCP270) – In the Z-module form factor for use with 100 Series FBM racks, this control processor provides control operations for the 200 Series and 100 Series FBMs and allows you to locate the control processor in strategic plant areas. This CP uses Fieldbus Communications Modules (FCMs) to facilitate communications between the FBMs and the ZCP270 via The Mesh control network.
- FBI200 Fieldbus Isolator/Filter - These optional modules, among other functions, extend the Module Fieldbus between FCP280s/FCP270s and 200 Series FBMs up to 305 m (1000 ft) over twinaxial cable.
- Compact 200 Series Baseplates – These provide a communications backplane and a solid base for mounting the Compact 200 Series FBMs, allowing for a variety of remote equipment mounting configurations.
- Enclosures – Several basic types provide various levels of environmental protection and equipment grouping for the 200 Series equipment.

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

HIGH PERFORMANCE, HIGH ACCURACY, FAST UPDATES

The Compact 200 Series FBMs offer high resolution, high accuracy, and repeatable design. The Sigma-Delta, fast integrating analog-to-digital 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.

REDUCED COMPONENT COUNT FOR ULTRA-HIGH AVAILABILITY

All logic functions (I/O process, I/O specific logic, communication processor, and other inter-connecting logic functions) are integrated into a single Application Specific Integrated Circuit (ASIC). The use of ASIC:

- Reduces the number of components in the module
- Reduces the size of the module
- Reduces the heat generated by the module
- Reduces the cost of the module
- Produces a module having ultra-high reliability and quality.

A single module has an expected availability of about 0.999974 for most modules [on the basis that the module resides in a baseplate with redundant power, and a mean time to repair (MTTR) of two hours].

Most of the optionally redundant modules have an expected availability above 0.9999964 (on the basis that the module resides in a baseplate with redundant power, and a MTTR of two hours). The redundancy of the module pair, coupled with the high coverage of faults, provides a very high subsystem availability time.

OPTIONAL REDUNDANCY

The Compact 200 Series I/O subsystem is optionally available with total redundancy, for high availability. Redundancy is available for – the power supplies, The Mesh control network, the FCMs, the control processors, Modular Fieldbus cables between baseplates, and certain Compact 200 Series FBM I/O module types.

REDUCED VOLUME

The Compact 200 Series baseplate and the Compact 200 Series FBMs have less volume than that required by the standard 200 Series modular baseplate and standard 200 Series FBMs. One Compact 200 Series baseplate requires less space than two standard 200 Series modular baseplates.

RUGGED, INNOVATIVE PACKAGING

The DIN rail mounted Fieldbus Modules (Compact and standard 200 Series FBMs) are packaged as plug-in modular assemblies.

The Compact 200 Series FBMs have a molded plastic exterior. The operating temperature for Compact 200 Series FBMs is rated at 60°C (140°F). Refer to the specific Product Specification Sheet (see “Compact 200 Series Fieldbus Modules” on page 14) for each Compact 200 Series FBM for the specifications for that module.

The Compact 200 Series I/O 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
- CENELEC (DEMKO) certification for use in potentially explosive atmospheres
- CE approved.
- RoHS compliant

For additional information about the Compact 200 Series I/O subsystem certifications, refer to Reference 1 and Reference 2. (See Table 3, “Reference Documents,” on page 16 at the end of this document.)

COMPACT BASEPLATE MODULE MOUNTING

The Compact 200 Series Fieldbus Modules mount on specially designed Compact 200 Series baseplates (Figure 1), which fasten to a structurally supported non-isolated horizontal 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 Compact 200 Series baseplate on a 19-inch rack). The Compact 200 Series baseplate provides increased overall system installation functionality by providing unit increments of 16 module positions with various operational functionality in combination with horizontal mounting. The Compact 200 Series baseplates can thus be mounted in small, distributed cabinets or in a variety of other mounting configurations.

The Compact 200 Series baseplates include the following:

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

Any Compact 200 Series FBM can be removed from their baseplate without removing or disturbing external field device wire terminations or internal cable terminations or connections.

Shielded twisted-pair cables for Compact 200 Series 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 the Compact 200 Series baseplate. It supports the Compact 200 Series FBMs only. Refer to *Compact 200 Series 16-Slot Horizontal Baseplate* (Reference 3) for additional information on this baseplate.

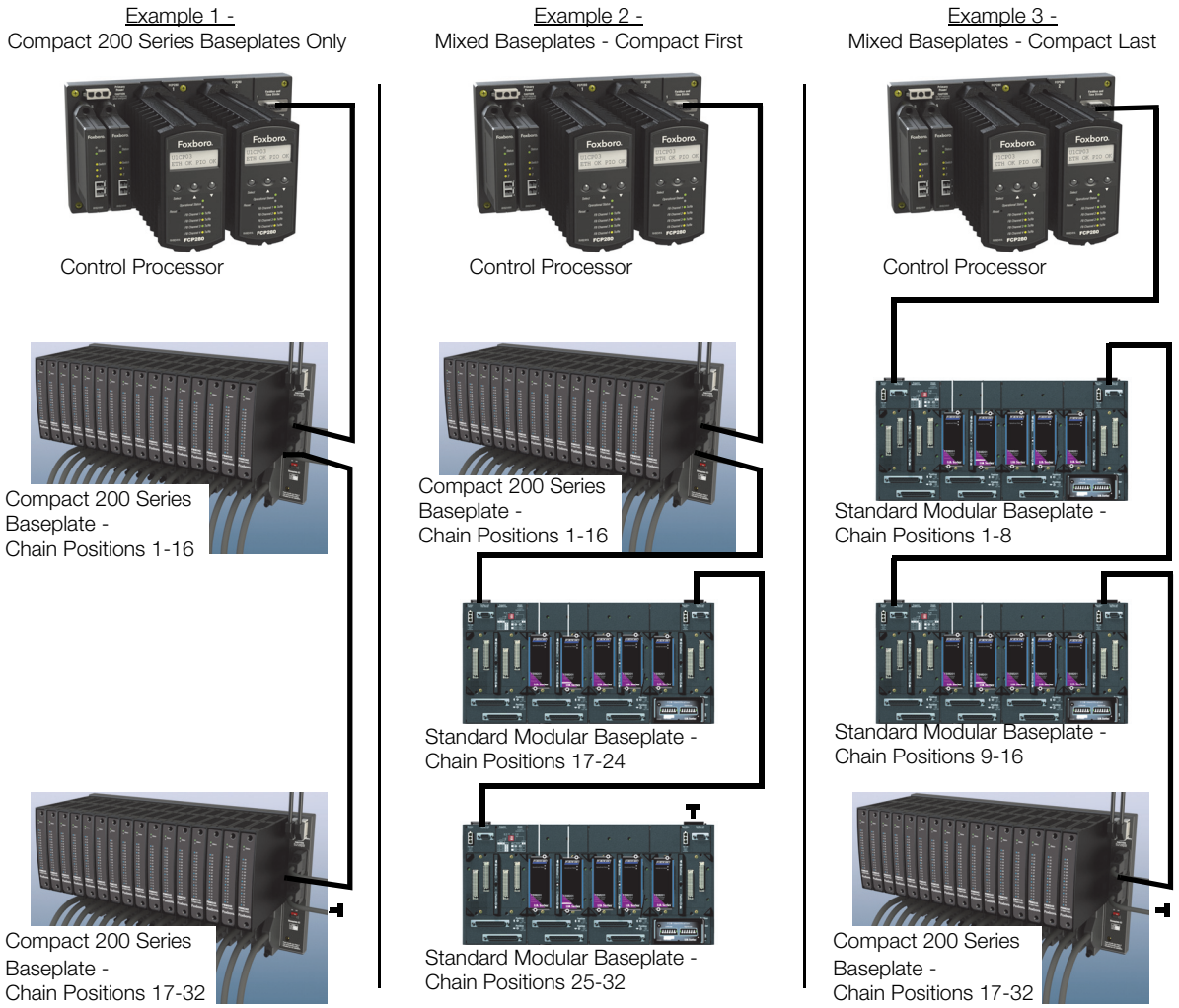
Figure 1. Compact 200 Series 16-Slot Horizontal Baseplate

COMPACT 200 SERIES BASEPLATE CONFIGURATIONS

The Compact 200 Series I/O subsystem supports either:

- The use of Compact 200 Series baseplates exclusively, or
- A mix of standard 200 Series modular baseplates and Compact 200 Series baseplates.

Acceptable example configurations are shown in Figure 2.



NOTE: A 200 Series baseplate chain has up to 32 200 Series FBMs. The numbers assigned to these FBMs for addressing differ from those listed in this figure.

Figure 2. Example Configurations with Compact and Standard 200 Series Baseplates

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. 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.

ENCLOSURES

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

The G-Series enclosures are floor-standing units which accommodate baseplates for mounting FBMs, FEMs, FCMs, and FCP280s/FCP270s, and/or termination assemblies or terminal blocks for marshalling. The G-Series enclosures which support Compact 200 Series I/O subsystem equipment (G13 and G14) are available for use in ordinary (IP 43/54) rated environments.

Several product lines of metal enclosures are offered with the Compact 200 Series I/O subsystem:

- G-Series 800x800 Front and Rear Access Compact Enclosures (G13 system enclosure, G14 system and termination enclosure)
- G-Series 800x800 Front and Rear Access Enclosures (G11 termination enclosure)

Each of the enclosures includes DIN rails for mounting equipment, power supplies, and terminal blocks for connection of line power, utility power, and dc power distribution. For additional information regarding each enclosure, refer to *G-Series Enclosures Overview* (Reference 5).

DISTRIBUTED LOCAL/REMOTE MOUNTING

Innovative design of the equipment packaging allows the Compact 200 Series Fieldbus Modules to be distributed closer to the process without special environmentally conditioned control or equipment rooms. Multiple control network configurations can be designed using the Ethernet fiber optic cables and switches. This allows construction of small-to-large size systems located within one or more mounting areas.

Figure 3, Figure 4, and Figure 5 show basic network configurations that can be implemented for the Compact 200 Series I/O subsystem. Both of these configurations offer connection to Ethernet switches, allowing the FBMs to be remotely mounted with the field control processor (FCP280 or FCP270) or remotely mounted from the Z-module control processor (ZCP270).

The Field Control Processor configuration (Figure 3 or Figure 4) can be used where:

- Groupings of FBMs are concentrated in a more localized area,
- Groupings of FBMs are located in the same enclosure as the FCP280 or FCP270.

This control network configuration thus allows distribution of the FBMs over a wide plant area.

When used with the FBI200, the FCP270 can communicate with both the 100 Series and 200 Series FBMs (dual baud functionality). The FBI200 filters and isolates the 268 Kbps messages for the 100 Series FBMs, ensuring their proper operation is not interrupted by the 2 Mbps messages for 200 Series FBMs.

The FBI200 is used with FCP280 to extend the distance of a 2 Mbps or 268 Kbps HDLC fieldbus. It is not required for filtering and isolation with the FCP280.

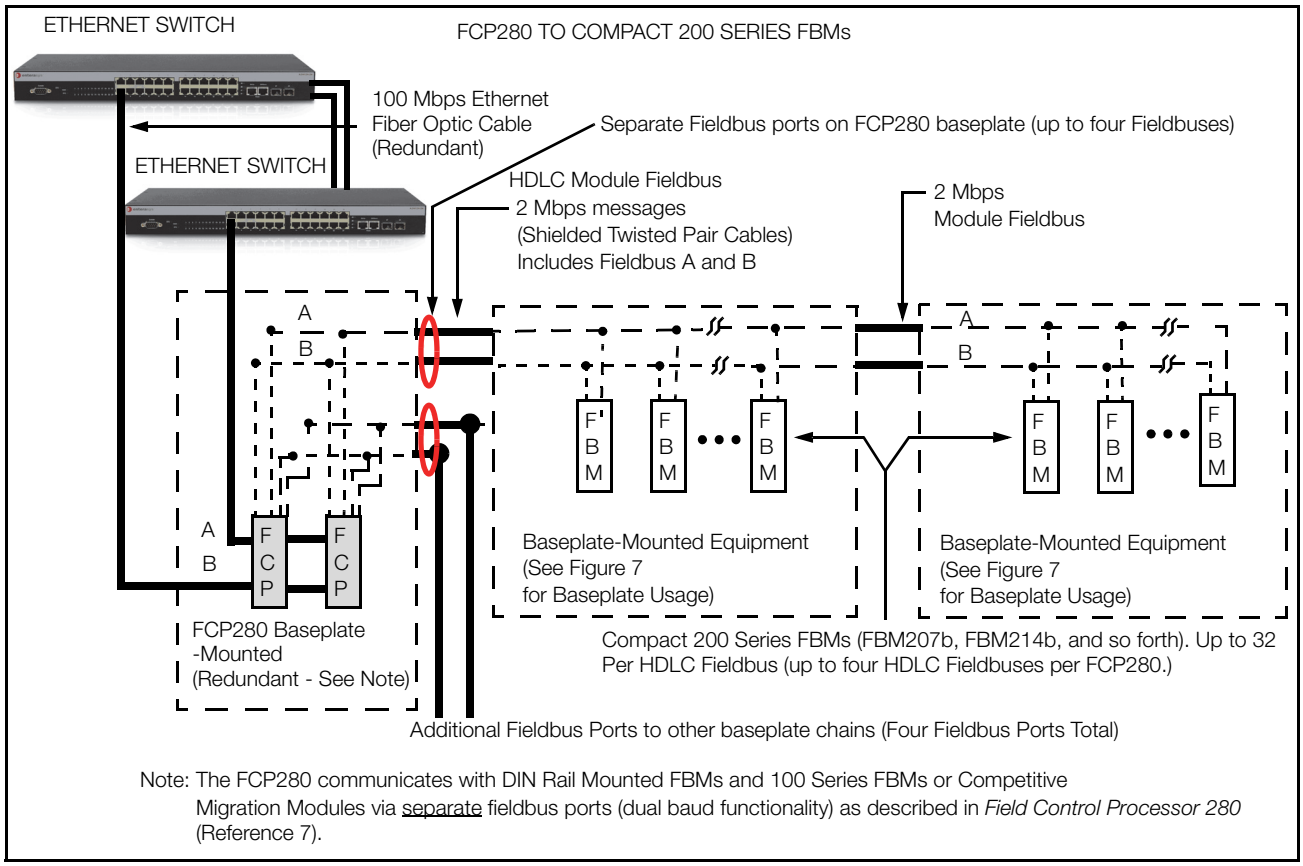


Figure 3. Compact 200 Series I/O Subsystem, Typical FCP280 Configuration (Conceptual)

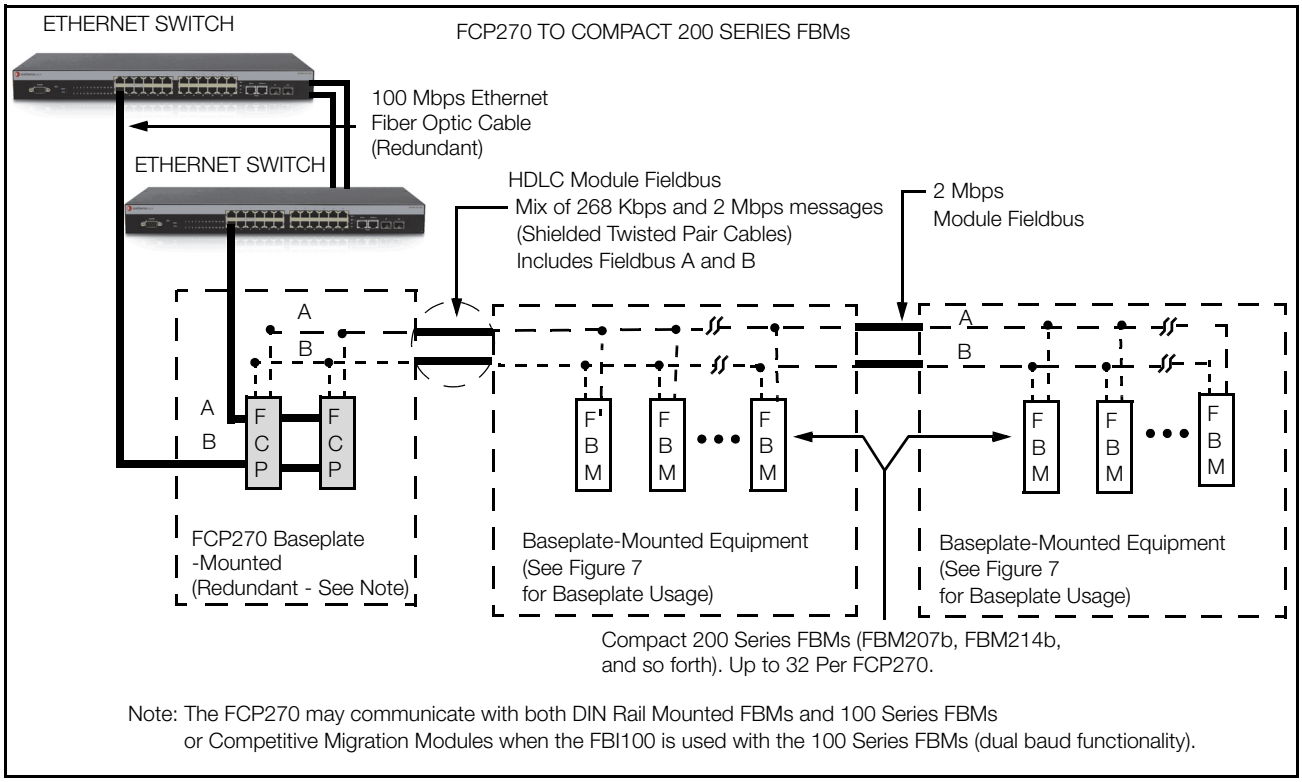


Figure 4. Compact 200 Series I/O Subsystem, Typical FCP270 Configuration (Conceptual)

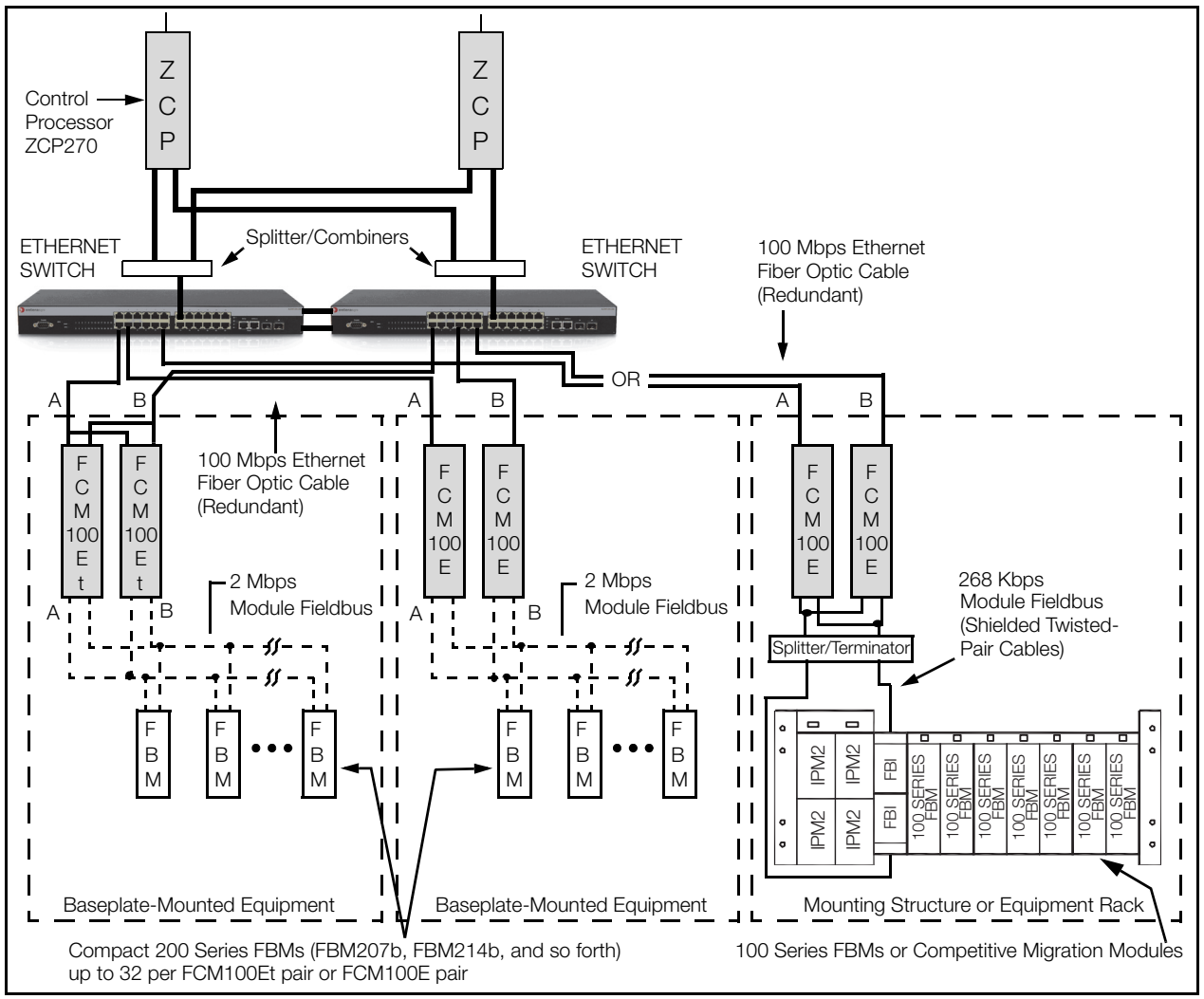
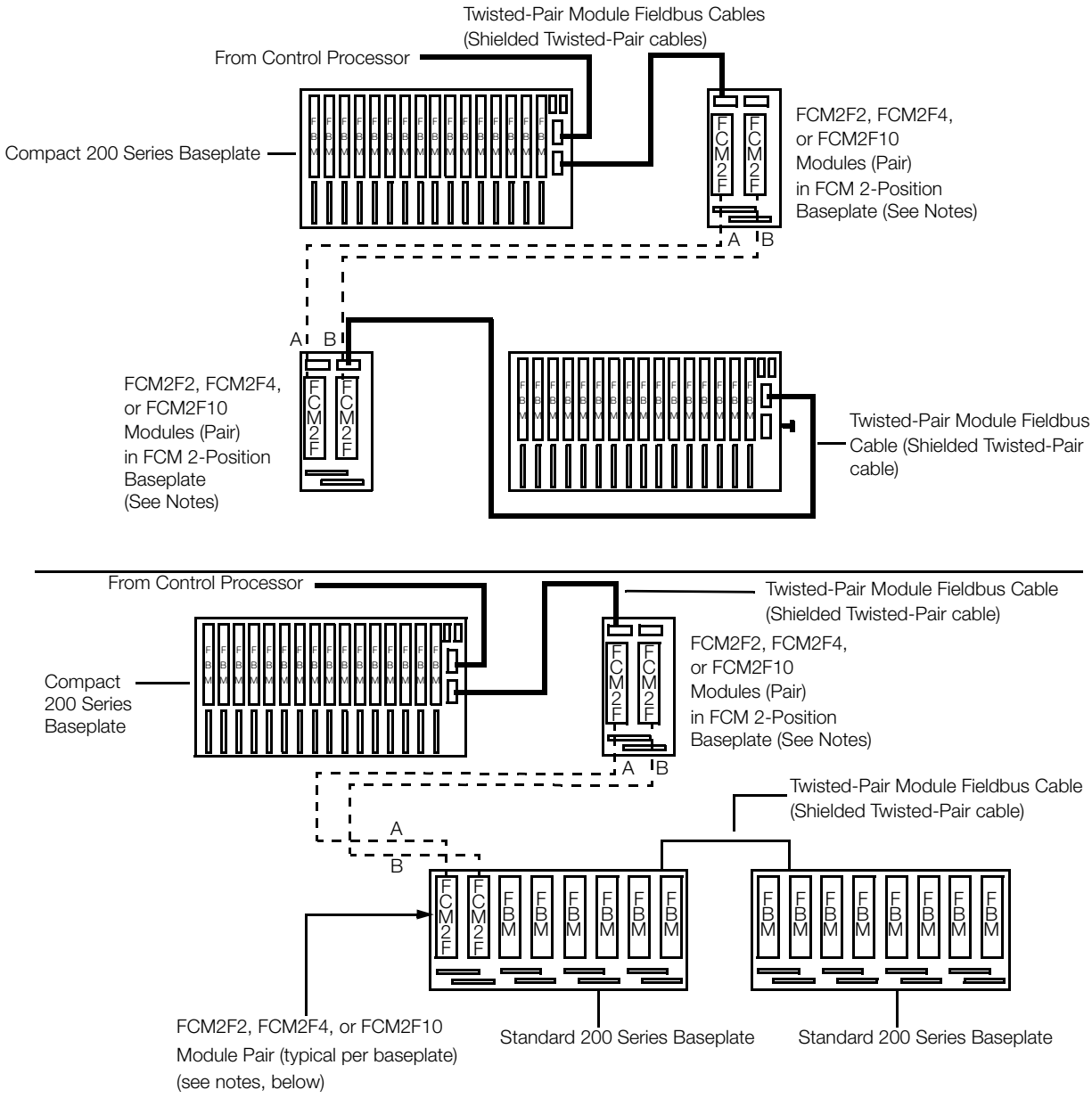


Figure 5. Compact 200 Series I/O Subsystem, Typical FCM Configuration

FCM2F Fieldbus Communications modules (see Figure 6) provide baseplate-to-baseplate fiber optic extension of the Module Fieldbus. This allows Compact 200 Series FBMs to be locally, or remotely distributed in multiple enclosures for cost-effective placement of input/output points.

The three versions of the FCM2Fs – FCM2F2, FCM2F4, and FCM2F10 – offer three different maximum baseplate-to-baseplate fiber optic cabling distances: up to 2 km (1.24 mi), up to 4 km (2.48 mi), and up to 10 km (6.2 mi), respectively. FCM2F2 and FCM2F4 are used with multimode graded-index fiber cable, and FCM2F10 is used with single-mode fiber cable.

The FCM2Fs are mounted on the baseplates in pairs for redundancy, one each for the “A” and “B” cables of the Fieldbus. Non-redundant configurations require only a single FCM2F.



NOTES:

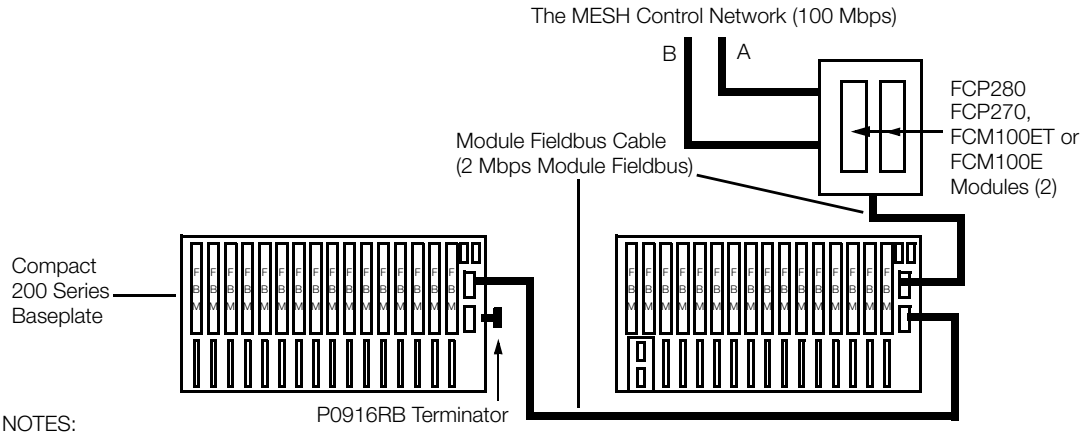
1. Redundant configuration is shown. Non-redundant configuration uses one FCM2F per baseplate, connected to either Fieldbus “A” or “B”. Up to two pairs of FCM2Fs are allowed in series; two sets of two FCM2F10s allow up to 20 km (12.4 mi) total distance for the Fieldbus. (The number of FCM100E/Ets are 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. Compact and Standard 200 Series Baseplate Interconnections Using Fiber Optic Cable

COMPACT 200 SERIES BASEPLATE IMPLEMENTATION

The Compact 200 Series baseplate mounting of the Compact FBMs provides added versatility in applications. These baseplates are interconnected by shielded module Fieldbus cables. 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 Compact 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 Compact 200 Series baseplates) are available in lengths of 0.25 to 60 meters.



NOTES:

1. Maximum Fieldbus Module quantity is listed in Functional Specifications.
2. Maximum total cable run of all 2 Mbps Module (HDLC) Fieldbus is 60 m (198 ft) (includes any cabling to FBI200, if present).
3. Up to four of these baseplate chains can be connected to the FCP280 baseplate with four HDLC fieldbuses.

Figure 7. Compact 200 Series Baseplate Implementation Example

STANDARD 200 SERIES SUBSYSTEM UPGRADE

Existing standard 200 Series subsystems can be updated to use the equipment in the Compact 200 Series I/O subsystem.

Standard horizontal 200 Series baseplates can be removed and replaced with Compact 200 Series horizontal baseplates. See *DIN Rail Mounted Modular Baseplates* (Reference 4) for the dimensions of the standard 200 Series baseplates, and to *Compact 200 Series 16-Slot Horizontal Baseplate* (Reference 3) for the dimension of the Compact 200 Series baseplates. When planning this upgrade:

- Ensure there are sufficient horizontal DIN rails available in the desired mounting location to support the Compact 200 Series baseplates.
- Ensure sufficient power is provided for the Compact 200 Series baseplates. These baseplates support power from the FPS480-24, FPS400-24, FPS240-24, or FPS120-24 power supplies. For custom enclosures, select the appropriate power supplies based upon the power budget within your enclosure.
- Ensure there are sufficient cooling systems in the enclosure for the Compact 200 Series baseplates. One fan tray is required for every two *adjacent* Compact 200 Series baseplates. "Adjacent" means that there is one Compact 200 Series baseplate located directly above the lower Compact 200 Series baseplate.(1)

As well, the standard termination cables for the standard 200 Series FBMs must be replaced with the cables listed in the "Cable Types and Part Numbers" tables in the equivalent Compact 200 Series FBMs' Product Specification Sheets listed in Table 1 on page 14.

The control processors and other support hardware or the new Compact 200 Series equipment must fulfill the requirements listed in "SUBSYSTEM SPECIFICATIONS" on page 18.

POWER SUPPLY AND EARTHING (GROUNDING)

Earthing (Grounding)

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

- IEC 61000-5-1 General Considerations, and
- IEC 61000-5-2 Earthing and Cabling (or local equivalents).

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

For each 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 Compact 200 Series baseplates.

A redundant power distribution configuration consists of redundant power supplies and redundant power distribution to the 200 Series 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.

The power supplies need to be earthed (grounded).

(1) If the Compact 200 Series baseplates are distributed throughout the enclosure, then one (1) fan tray is required per Compact 200 Series baseplate.

Power Alarming

Failure of a single or redundant 24 V dc power supply is detected by each Compact FBM. If the power supply fails, the following occurs:

- The color of the module's icon on the equipment displays in SMDH is changed
- Power status messages are displayed on the System Monitor display
- A system message is printed.

Since the host loses communication with the module(s), the color of the host module's icon in SMDH is changed. The above occurs for the following failures:

- A single power supply system
- A single power supply in a redundant system, if configured for alarming
- Both power supplies in a redundant system.

ELECTRICAL ISOLATION AND FIELD DEVICE POWER

Electrical isolation and field device power are functions of the individual FBM types. The various FBM types provide, on an individual basis, channel isolated analog inputs and outputs, differential analog inputs, channel isolated digital inputs and outputs, and group isolated digital inputs. The FBMs also provide the necessary field device power for analog transmitters, current to pneumatic (I/P) converters, contact sensing, and solid state switch or relays.

The three levels of isolation available with specific FBMs are:

- Channel Isolated – Each channel is galvanically isolated from all other channels, earth (ground) and module logic. Isolated inputs and outputs use a per point isolated power supply, built into the FBM, for each channel.
- Differential Isolated – Each channel has a differential input to allow voltage differences between channels without introducing errors. The channels are galvanically isolated from earth (ground) and module logic; they are not isolated from other channels. Differential group isolated inputs and outputs use the FBM subsystem power supply for field power.
- Group Isolated – Input channels are isolated as a group from earth (ground) and module logic circuitry. Group isolated inputs use the subsystem power supply for field circuit power. For certain FBMs with group isolation, specific Termination Assemblies provide channel isolation to the FBMs' inputs.

COMPACT FIELDBUS MODULES

Each Compact FBM is configurable for operation with the applicable field sensors and/or actuators. This is effected through execution of appropriate application programs, and in conjunction with configurable program options. The Compact FBMs and their executable programs and software functions are identified in Table 1. Also listed are the Product Specification Sheets (PSSs) for the individual FBMs.

Table 1. Compact 200 Series Fieldbus Modules

Compact Module	Function(s)	Application Program	Software Function(s)[a]	PSS
FBM207b	Redundant Ready 16-Channel 24 V dc Contact Sense, Channel Isolated	Discrete Input or Ladder Logic	Input Filter Time	Reference 8
FBM214b	8-Channel 4 to 20 mA, HART® Input, Channel-Isolated	Analog Input and HART Input	Conversion Time, Rate of Change Limits	Reference 9
FBM215	8-Channel 4 to 20 mA, HART Output	Analog Output and HART Output	Output Fail-Safe Configuration (Hold/Fall-back on a per channel basis)	Reference 10
FBM216b	Redundant 8-Channel 4 to 20 mA, HART Input Channel-Isolated	Analog Input and HART Input	Conversion Time, Rate of Change Limits	Reference 11
FBM218	Redundant 8-Channel 4 to 20 mA, HART Output	Analog Output and HART Output	Output Fail-Safe Configuration (Fail-Safe is configured on a per channel basis)	Reference 12
FBM242	16-Channel Externally Sourced Discrete Output, Channel Isolated	Discrete Output or Ladder Logic	Fail-Safe Configuration	Reference 13

(a) Software functions for inputs are exercised on a per module basis; those for outputs are exercised on a per channel basis.

FIELDBUS COMMUNICATIONS MODULES

Fieldbus Communications Modules used in conjunction with the Fieldbus Modules are listed in Table 2 on page 15.

REDUNDANT FIELDBUS MODULES

Redundant fieldbus modules, such as the Compact FBM216b, must be installed in pairs along with a redundancy adapter. Two single modules are combined at the associated baseplate with the field signals wired to one common termination assembly. Compact FBM216b and FBM218 use RIN and ROUT blocks to interface to their inputs and outputs.

With regards to the redundant HART output modules, only the Master Compact FBM writes to the outputs. The Tracker Compact FBM is always 1 mA below the Master.

REDUNDANT READY COMPACT FIELDBUS MODULES

Redundant ready Compact FBMs, such as the Compact FBM207b, may be used in either non-redundant mode by installing a single module or in redundant mode by installing two modules along with a redundancy adapter. In either configuration, the modules are identical. In the redundant configuration, two single modules are combined at the associated baseplate, with the field output signals wired to one common termination assembly. The input current for redundant modules is doubled. A redundant digital input block in the control software validates each input in conjunction with information to/from the module, and selects the input with the highest quality for processing in the control strategy.

CALIBRATION

The analog Fieldbus Modules are calibrated at the factory prior to shipment and cannot be calibrated in the field. In addition, discrete input/output Fieldbus Modules do not require field adjustments. Therefore, the Fieldbus Modules do not contain local (that is, module-mounted) manual controls or jumpers.

Table 2. Fieldbus Communications Modules

Module Type	Function	PSS
FCM100Et	Converts 100 Mbps fiber optic signals to 2 Mbps signals used by the DIN rail mounted FBMs (used in pairs for redundancy).	Reference 14
FCM100E	Converts 100 Mbps fiber optic signals to 2 Mbps signals used by the DIN rail mounted FBMs (used in pairs for redundancy), or to the 268 Kbps Fieldbus used by the 100 Series FBMs.	Reference 15
FCM2F	Available in three models: FCM2F2, FCM2F4, and FCM2F10 (for 2, 4, and 10 km cabling, respectively). Used to extend the Module Fieldbus, allowing greater distance between 200 Series baseplates (used in pairs for redundancy).	Reference 16

RELATED PRODUCT DOCUMENTS

Table 3. Reference Documents

Reference	Document Number	Description
1	PSS 31H-2W2 B3	DIN Rail Mounted Equipment, Agency Certifications
2	PSS 31H-2W12 B3	DIN Rail Mounted Compact 200 Series I/O Equipment, Agency Certifications
3	PSS 31H-2C200 B4	Compact 200 Series 16-Slot Horizontal Baseplate
4	PSS 21H-2W6 B4	DIN Rail Mounted Modular Baseplates
5	PSS 31H-2GOV B4	G-Series Enclosures Overview - (for current Enclosures)
6	PSS 21H-2Y18 B4	FBI200 Fieldbus Isolator/Filter
7	PSS 31H-1B11 B3	Field Control Processor 280 (FCP280)
8	PSS 31H-2C207 B4	Compact FBM207b Contact Sense Input Interface Modules
9	PSS 31H-2C214 B4	Compact FBM214b, HART® Communication Input Interface Module
10	PSS 31H-2C215 B4	Compact FBM215 HART® Communication Output Interface Module
11	PSS 31H-2C216 B4	Compact FBM216b, HART® Communication Redundant Input Interface Module
12	PSS 31H-2C218 B4	Compact FBM218 HART® Communication Redundant Output Interface Module
13	PSS 31H-2C242 B4	Compact FBM242, Externally Sourced, Discrete Output Interface Module
14	PSS 21H-2Y10 B4	FCM100Et Redundant Fieldbus Communications Module
15	PSS 21H-2Y11 B4	FCM100E Redundant Fieldbus Communications Module
16	PSS 31H-2Y3 B3	Fieldbus Communications Module, FCM2F2/FCM2F4/FCM2F10
17	B0700FY	Field Control Processor 280 (FCP280) Sizing Guidelines and Excel Workbook
18	B0700AV	Field Control Processor 270 (FCP270) Sizing Guidelines and Excel Workbook
19	B0700AW	Z-Module Control Processor 270 (ZCP270) Sizing Guidelines and Excel Workbook

For reference purposes, Table 3 and Table 4 list the Product Specification Sheets (PSSs) for additional hardware and software elements in the Compact 200 Series I/O subsystem. Table 3 and Table 5 list the Product Specification Sheets (PSSs) for additional hardware and software elements in the standard DIN rail mounted subsystem. The ZCP270 is mounted in a 1x8 Mounting Structure, but is listed herein for its relationship to DIN rail mounted equipment.

Table 4. Other Related Product Specification Sheets - for Compact 200 Series I/O Equipment

PSS Number	Title
PSS 31H-2C480 B4	Compact Power Supply - FPS480-24
PSS 31H-2G13 B4	G13 System Enclosure
PSS 31H-2G14 B4	G14 System and Termination Enclosure

Table 5. Other Related Product Specification Sheets - for Standard 200 Series I/O Equipment

PSS Number	Title
PSS 21H-2W1 B3	DIN Rail Mounted Subsystem Overview
PSS 21H-2W1 B4	100 Series Fieldbus Module Upgrade Subsystem Overview
PSS 31H-2W3 B4	DIN Rail Mounted Power Supplies - FPS400-24
PSS 31H-2W7 B4	DIN Rail Mounted Power Supplies - FPS240-24 and FPS120-24
PSS 21H-2Y14 B4	FEM100 Fieldbus Expansion Module
PSS 21H-1B9 B3	Field Control Processor 270 (FCP270)
PSS 21H-1B10 B3	Z-Module Control Processor 270 (ZCP270)

SUBSYSTEM SPECIFICATIONS

Software Requirements

I/A Series software v8.8 or Foxboro Evo Control Core Services v9.0 or higher

Compatible Foxboro Control Processor

Control Processor FCP280, FCP270 or ZCP270

Equipment Quantities

FBMS HOSTED BY FCP280(2)
100 Series FBMs - 64 maximum
200 Series FBMs - up to 128 200 Series FBMs, or up to 128 of a combination of 100 Series and 200 Series FBMs (with no more than 64 100 Series FBMs in this configuration)

FBMS HOSTED BY FCP270(3)
100 Series FBMs - 64 maximum
200 Series FBMs - 32 maximum (without FEM100) or 128 maximum (with FEM100)

FBMS HOSTED BY ZCP270(4)
Up to 128 100 Series or 200 Series FBMs per ZCP270 with FCM100E (dependent upon the number of FCM100Es implemented)

FCM100Et PAIRS PER ZCP270
32 maximum

FBMS HOSTED BY FCM100Et(4)
32 maximum

FBMS HOSTED BY FCM100E(4)
100 Series FBMs - 64 maximum
200 Series FBMs - 32 maximum

(2) Depending on control processor sizing constraints [Refer to *Field Control Processor 280 (FCP280) Sizing Guidelines and Excel Workbook* (Reference 17).]
(3) Depending on control processor sizing constraints [Refer to *Field Control Processor 270 (FCP270) Sizing Guidelines and Excel Workbook* (Reference 18).]
(4) Depending on control processor sizing constraints [Refer to *Z-Module Control Processor 270 (ZCP270) Sizing Guidelines and Excel Workbook* (Reference 19).]

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