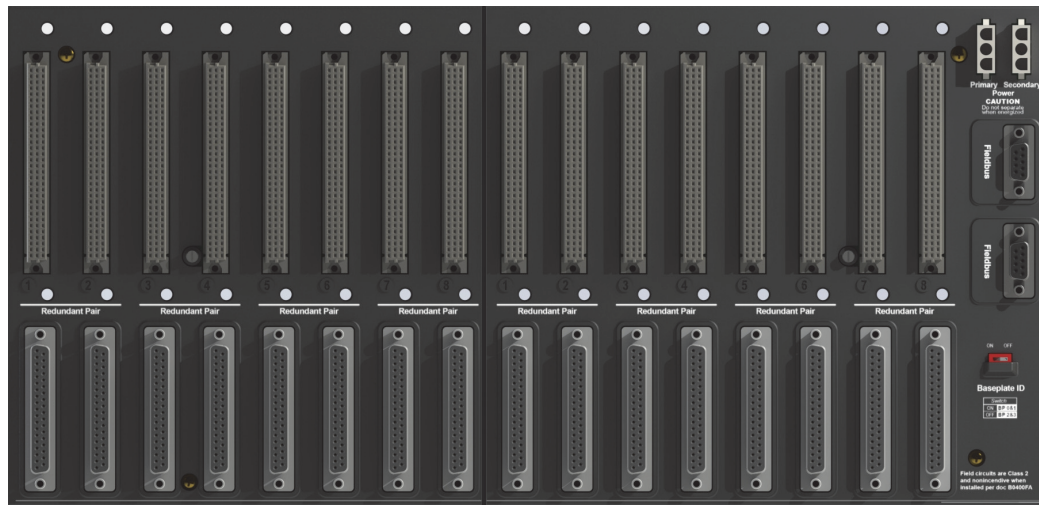


Compact 200 Series 16-Slot Horizontal Baseplate



The Compact 200 Series 16-slot horizontal baseplate mounts up to sixteen Compact 200 Series Fieldbus Modules with their associated field signal terminations. Both simplex and redundant Compact Fieldbus Modules are supported. Redundant power rails and redundant communications channels are built into a passive backplane for increased system reliability.

FEATURES

Key features of the Compact 200 Series 16-slot horizontal baseplate are:

- ▶ 16 Compact 200 Series Fieldbus Module positions
- ▶ Horizontal mounting only
- ▶ Redundant connections to the 2 Mbps Module Fieldbus
- ▶ Primary and secondary 24 V dc power
- ▶ Field connection for I/O termination assemblies
- ▶ Redundant adapter for each pair of redundant modules
- ▶ DIP switch for Baseplate identification
- ▶ Adding Compact or standard 200 Series baseplates without removing the system from service (requires redundant bus)
- ▶ Passive backplane to increase system reliability

OVERVIEW

The Compact 200 Series 16-slot horizontal baseplate mounts up to sixteen Compact 200 Series Fieldbus Modules with their associated field signal terminations. Both simplex and redundant Compact Fieldbus Modules are supported. The baseplate supports distributed control and monitoring for small, medium, and large Foxboro Evo™ systems as well as installed and upgraded I/A Series® systems. It is designed for mounting on a horizontal DIN rail or rack.

COMPACT 200 SERIES BASEPLATE MOUNTING

The Compact 200 Series baseplates are available in the horizontal DIN rail mounting configuration only (see Figure 1). This configuration can be employed internal to an enclosure, external to an enclosure, or mounted on a secure DIN rail.

For Compact 200 Series Fieldbus Modules only
16-position, RH101AA

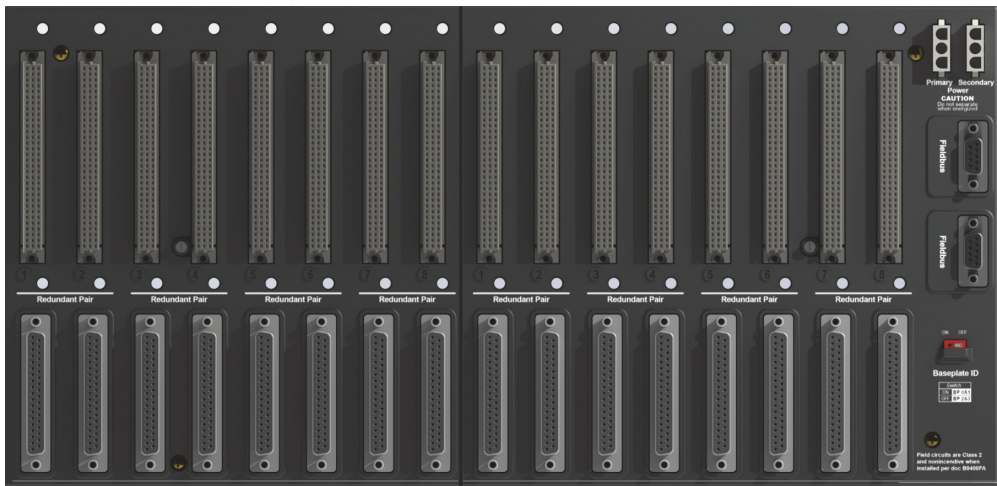


Figure 1. Compact 200 Series 16-Slot Horizontal Baseplate

MODULE IDENTIFICATION

The baseplate-mounted Compact 200 Series FBMs are identified to the system software by means of a unique, 6-character string called a “letterbug”. The Compact 200 Series baseplate includes a DIP switch to help set this letterbug for the Compact 200 Series FBMs. For details on how letterbugs are set for standard 200 Series equipment, refer to the PSSes associated with the equipment. The standard 200 Series baseplates are discussed in Reference 1. (See Table 1, “Reference Documents,” on page 13 at the

- end of this document).
- The letterbugs for the Compact 200 Series FBMs mounted in the baseplate grouping are not physically installed, but are derived (and reported to system software) from the following factors:
- ▶ The number of the baseplate (0 and 1, or 2 and 3 for Compact 200 Series baseplates) in the group, as set by means of the baseplate ID DIP switch.
 - ▶ The physical position (see Figure 4) of the module on the Compact or standard 200 Series baseplate.

Accordingly, each Compact FBM in the baseplate chain has the same unique first four characters. For the last two characters:

- ▶ Each Compact 200 Series FBM has its fifth character derived from the baseplate number (0 - 3, or 0 - F if an FEM100 is used with an FCP270); 0 or 1 for the first Compact 200 Series baseplate in the chain, or 2 or 3 for the last Compact 200 Series baseplate in the chain. (The baseplate number is set by the baseplate ID switch shown in Figure 2.) FBMs in the first eight slots in the Compact 200 Series baseplate are assigned the first baseplate number (i.e. 0 for the first baseplate in the chain, or 2 for the last baseplate in the chain), and FBMs in the last eight slots in the Compact 200 Series baseplate are assigned the second baseplate number (i.e. 1 for the first baseplate in the chain, or 3 for the last baseplate in the chain).
- ▶ Each Compact 200 Series FBM has its sixth character derived from the physical position (1 - 8) of the module on the baseplate. (First part of baseplate 0/2 and module numbers 1 - 8 and second part of baseplate 1/3 and module numbers 1-8)

This is explained in detail in “Compact 200 Series Fieldbus Module Addressing” in *DIN Rail Mounted Subsystem User's Guide* (Reference 3).



Figure 2. Compact 200 Series Baseplate ID DIP Switch

COMPACT 200 SERIES BASEPLATE COMBINATIONS AND IMPLEMENTATION

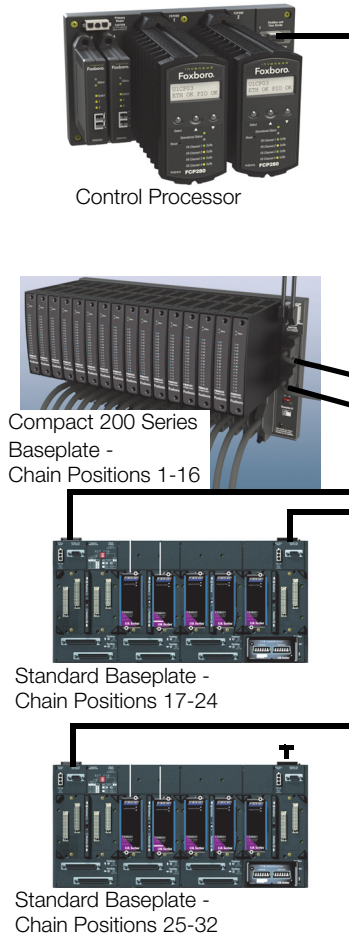
The Compact 200 Series baseplates provide slots for the Compact 200 Series FBMs exclusively.

The Compact 200 Series baseplates can be installed in a baseplate chain with the standard 200 Series baseplates as shown in Figure 3. However, they must be installed as either the first (0 and 1) or last (2 and 3) baseplate in the chain.

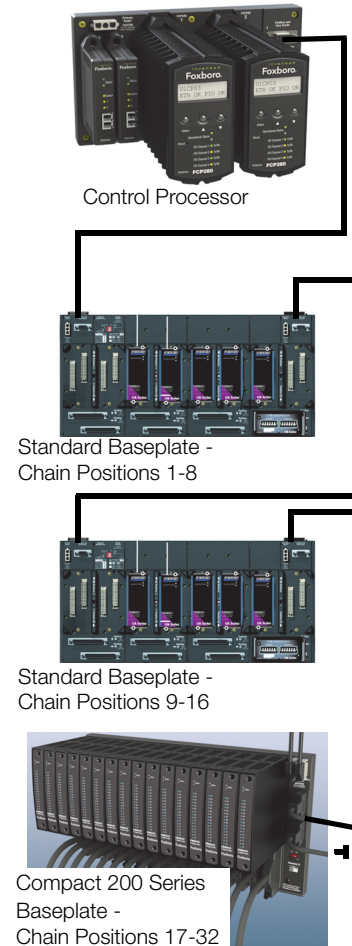
Example 1 -
Compact 200 Series Baseplates Only



Example 2 -
Mixed Baseplates - Compact First



Example 3 -
Mixed Baseplates - Compact Last



NOTES:

- 1) This icon (■) indicates the P0916RB terminator.
- 2) 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 3. Example Configurations with Compact 200 Series Baseplates and Standard 200 Series Baseplates

COMPACT 200 SERIES BASEPLATE INTERCONNECTIONS

The Compact 200 Series baseplates are interconnected over a 2 Mbps HDLC, redundant, serial bus (Module Fieldbus). All Compact 200 Series baseplate inter-connections for A/B Module Fieldbus connections are shielded twisted-pair cables to reduce the effects of noise.

All connectors are labeled to indicate their position and/or function on the Compact 200 Series baseplate (see Figure 4). All module connectors have guides to ensure the correct insertion of the module into the baseplate. Primary and Secondary power connectors are direct connections from the power supply. (The Compact 200 Series baseplate accepts 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.)

Field I/O connectors provide connections to various termination assemblies for connection to the I/O signals in the plant.

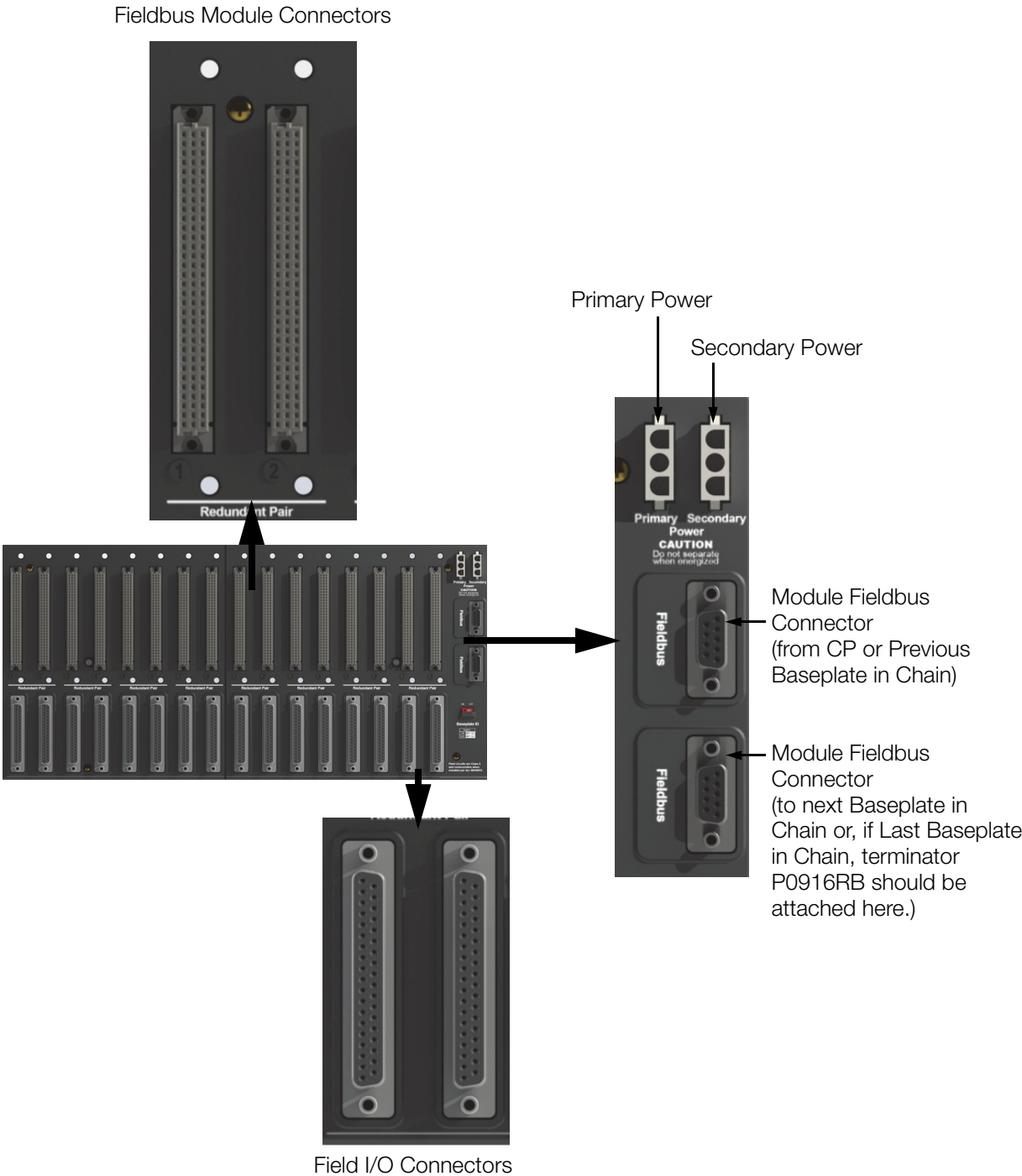


Figure 4. Compact 200 Series Baseplate Connections (Example)

FCM2F2/4/10 modules provide for fiber optic extension (baseplate-to-baseplate) of the Module Fieldbus, as shown in Figure 5.

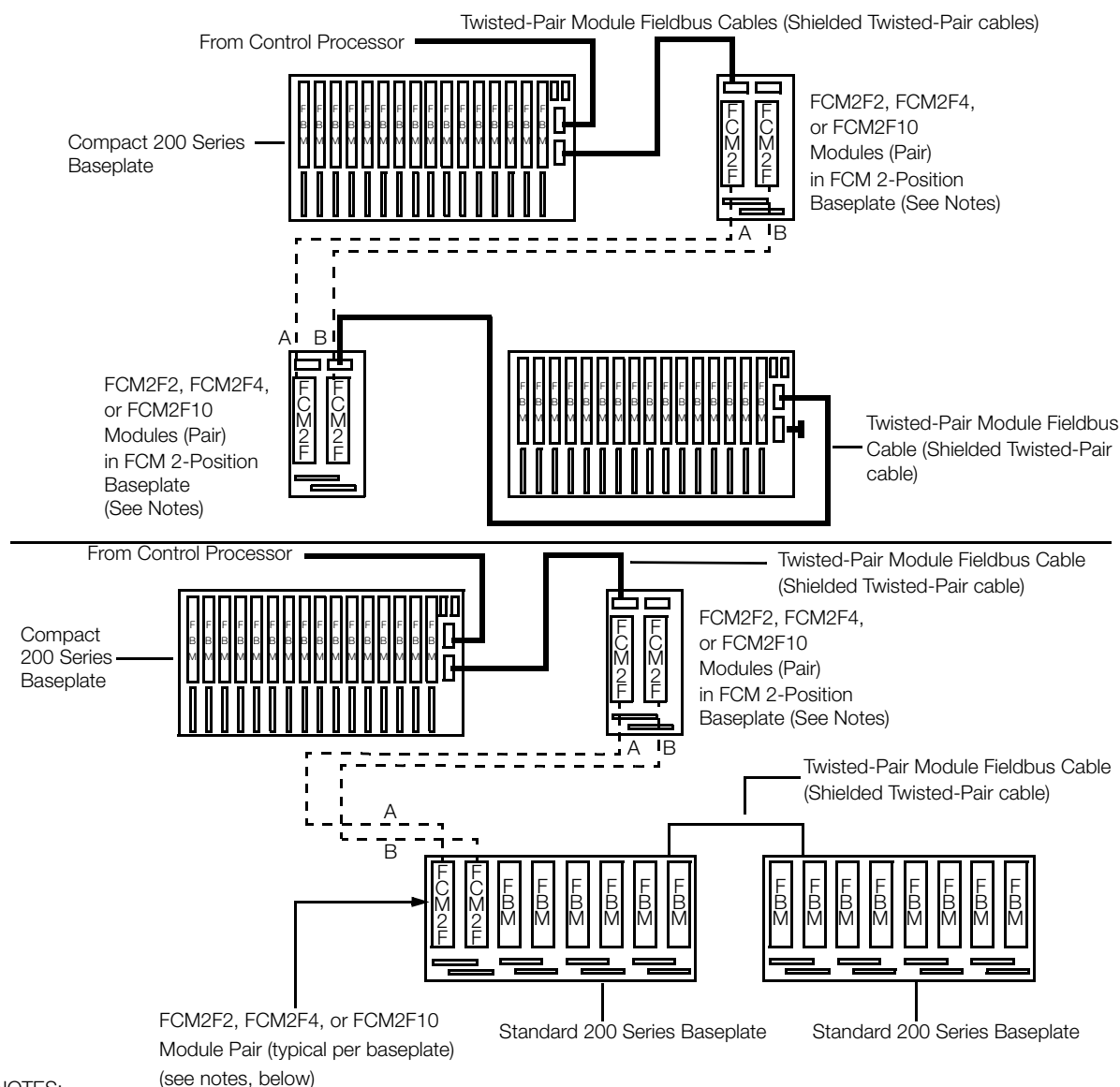


Figure 5. Compact 200 Series Baseplate Interconnections Using Fiber Optic Cable

Figure 6 shows a redundant adapter installed on a Compact 200 Series baseplate for a redundant pair of Compact 200 Series FBMs.

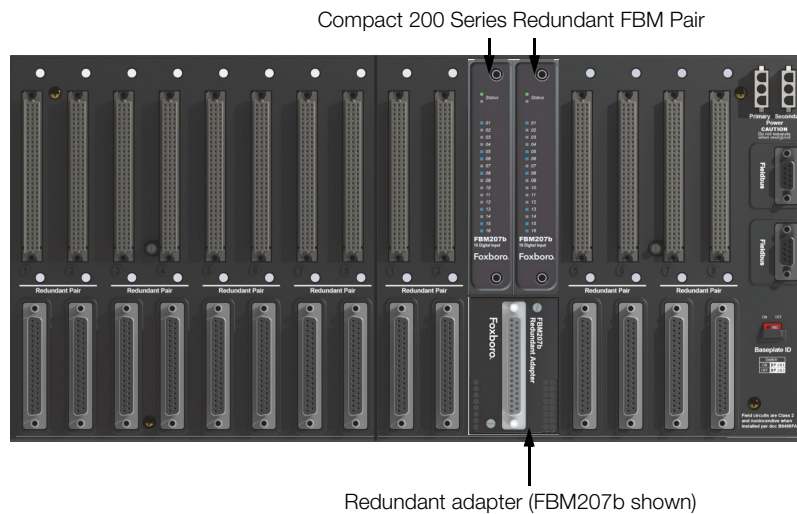


Figure 6. Redundant Adapter

MODULE PLACEMENT AND REMOVAL

The following rules must be observed to place Compact 200 Series FBMs on the Compact 200 Series baseplate. (See Reference 2 for the various communication topologies used with the Compact 200 Series baseplates.)

- ▶ Non-redundant FBMs – Can be placed in any available position
- ▶ Redundant FBMs – Must be placed in adjacent odd/even paired positions

Compact 200 Series FBMs can be removed/replaced from the baseplates without removing field termination cabling, power, or communications cabling.

SPLITTERS AND TERMINATORS

The following splitters and/or terminators can be used with Compact 200 Series baseplates:

- ▶ The Fieldbus Baseplate Terminator (P0916RB) is used to terminate either the CP end of the HDLC fieldbus or the last baseplate in the daisy chain when split A/B fieldbus cables are not required. (See Figure 7.)
- ▶ Fieldbus Baseplate Terminator/Splitter (P0926KW) allows splitting of the A and B Module Fieldbus signals into different cables. This splitter can be used to interconnect optional redundant cables between baseplates. It can also be used to terminate the fieldbus signals. (See Figure 8.)

For the total allowable distances of the 2 Mbps HDLC fieldbus with various control processors, FCM100E/Et, see Reference 1, Reference 2, and Reference 4.

The Compact 200 Series baseplate does not support GPS time strobe signals, as the 200 Series FBMs do not need GPS time strobe signals.

(P0916RB)

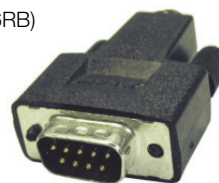


Figure 7. Fieldbus Baseplate Terminator

(P0926KW)

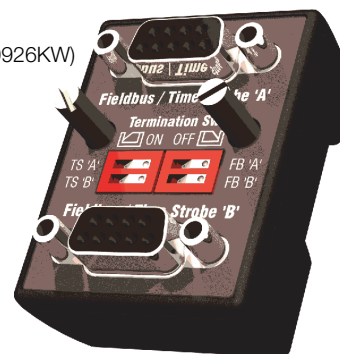


Figure 8. Fieldbus Baseplate Terminator/Splitter - for Non-FCP280 Baseplates

ADDING 200 SERIES BASEPLATES

You can add Compact or standard 200 Series baseplates to an existing baseplate chain without removing the system from service. (See Figure 3.) To add Compact or standard 200 Series baseplates while the system is operational requires that the system have redundant (A and B) buses. A/B Module Fieldbus splitter/terminators are used to split the A/B Module Fieldbus (2 Mbps) allowing redundant baseplate-to-baseplate cabling as well as the addition of baseplates without interrupting bus communication.

FUNCTIONAL SPECIFICATIONS

Power Requirements

INPUT VOLTAGE RANGE (REDUNDANT)

24 V dc +5%, -10%

POWER CABLING

Cable Lengths

0.4 m (16 in) up to 2.1 m (7 ft)

Regulatory Compliance

ELECTROMAGNETIC COMPATIBILITY (EMC)

European EMC Directive 89/336/EEC

Meets: EN 50081-2 Emission standard

EN 50082-2 Immunity standard

EN 61326 Annex A

(Industrial environment)

CISPR 11, Industrial Scientific and Medical (ISM) Radio-frequency Equipment -

Electromagnetic Disturbance Characteristics - Limits and Methods of Measurement

Meets: Class A Limits

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 in dc power lines; ± 1.5 kV on I/O lines

IEC 61000-4-5 Surge Immunity

± 2 kV on dc power lines; ± 1 kV on I/O and communications lines

IEC 61000-4-6 Immunity to Conducted

Disturbances Induced by Radio-frequency Fields

3 V (rms) at 150 kHz to 80 MHz on I/O,

dc power and communication lines

IEC 61000-4-8 Power Frequency Magnetic Field Immunity

30 A/m at 50 and 60 Hz

Regulatory Compliance (Cont.)

PRODUCT SAFETY

Underwriters Laboratories (UL) for U.S. and Canada

UL/UL-C listed as suitable for use in Class I, Groups A-D; Division 2; temperature code T4 enclosure based systems. Conditions for use are as specified in the *DIN Rail Mounted Subsystem User's Guide* (Reference 3).

European Low Voltage Directive 2006/95/EC and Explosive Atmospheres (ATEX) directive 94/9/EC

ATEX (DEMKO) Ex nA IIC T4 Gc certified when connected as described in the *DIN Rail Mounted Subsystem User's Guide* (Reference 3). For use in an enclosure suited for an ATEX Zone 2 classified area.

ENVIRONMENTAL SPECIFICATIONS⁽¹⁾

Operating

TEMPERATURE

-20 to +60°C (-4 to +140°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 (Non-Enclosure Mounted)

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

Contamination (Enclosure Mounted)

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

PHYSICAL SPECIFICATIONS

Mounting

DIN RAIL

The Compact 200 Series horizontal baseplate mounts on a non-isolated, mechanically supported DIN rail, which can be internal to, or external to an enclosure. The Compact 200 Series baseplate attaches to the DIN rail by means of fasteners.

RACK MOUNT

A mounting kit (P0930AS) is available for horizontal mounting of the Compact 200 Series 16-slot horizontal baseplate in a standard, 483 mm (19-inch) rack. This kit provides a 25.4 mm (1 inch) mounting depth.

Size

See Figure 9.

Mass (Without Modules)

Maximum 1.8 kg (4.0 lb) for Compact 200 Series 16-slot horizontal baseplate.

Rack Mounting Bracket

Material: Steel, Cold-Rolled, 0.0598 mm (16 Gauge)

Construction

MATERIAL

PC and ABS, inflammability UL94 V0

COLOR

Black

Module Fieldbus Cabling

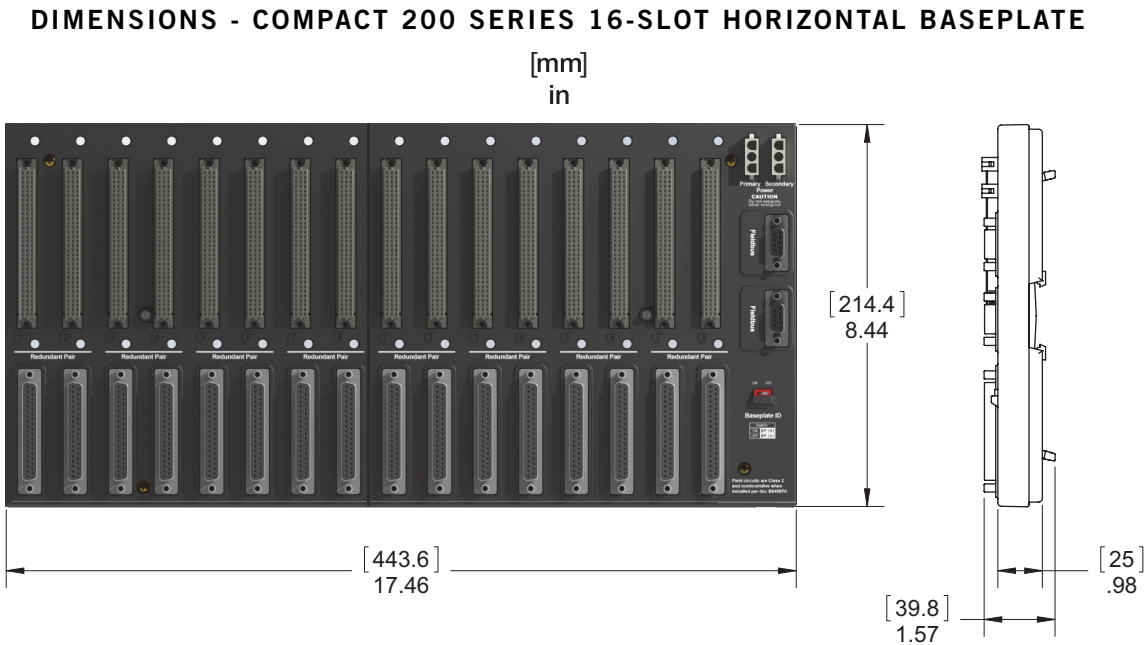
CABLE LENGTHS

0.125 m (5 in) up to 60 m (198 ft)

OVERALL CABLE LENGTH

60 m (198 ft) total allowable cable length

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



NOTE: To determine clearance required for a Compact 200 Series baseplate populated with Compact 200 Series FBMs, refer to the dimensions listed in the PSSes for the Compact 200 Series FBMs.

Figure 9. Dimensions - Compact 200 Series 16-Slot Horizontal Baseplate

RELATED PRODUCT DOCUMENTS

Table 1. Reference Documents

Reference	Document Number	Description
1	PSS 21H-2W6 B4	DIN Rail Mounted Modular Baseplates
2	PSS 31H-2COV B3	Compact 200 Series I/O Subsystem Overview
3	B0400FA	DIN Rail Mounted Subsystem User's Guide
4	PSS 21H-2W1 B3	DIN Rail Mounted Subsystem Overview

