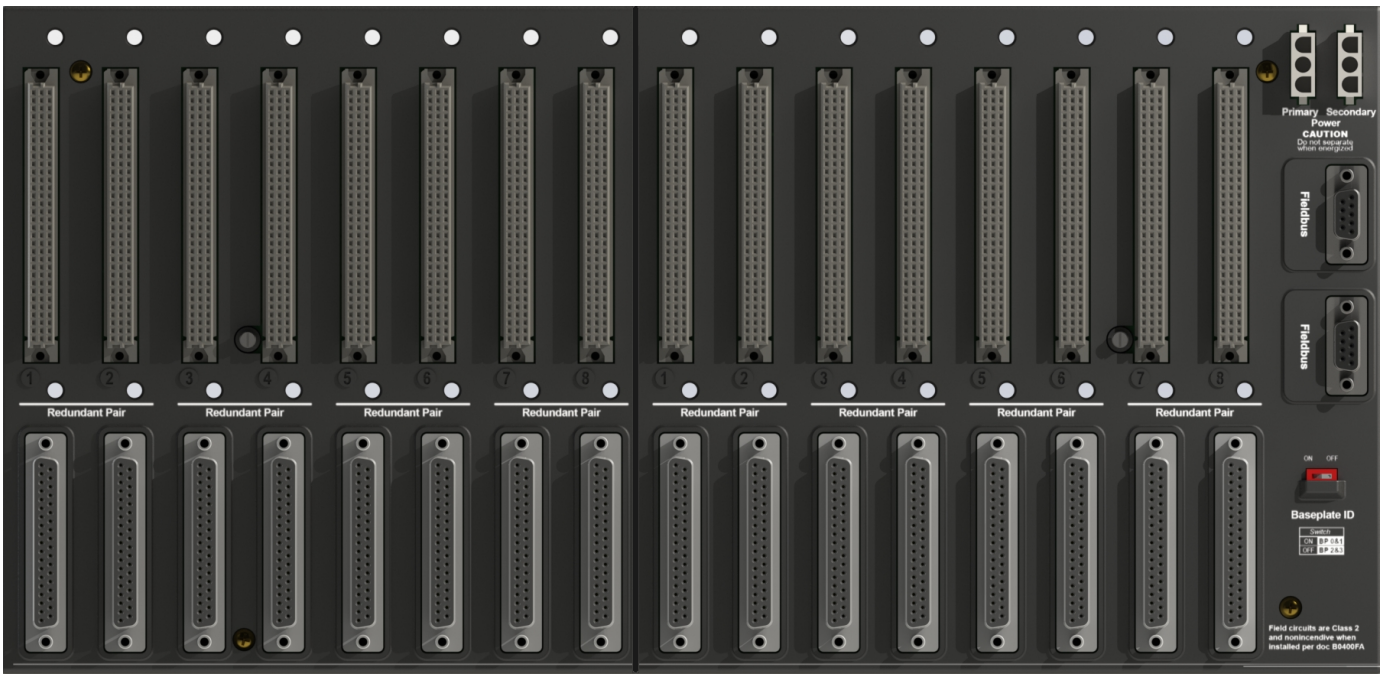
Foxboro™ DCS

Compact 200 Series 16-Slot Horizontal Baseplate

PSS 41H-2C200

Product Specification

August 2019



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Legal Information

Overview

The Compact 200 Series 16–slot horizontal baseplate mounts up to sixteen Compact 200 Series Fieldbus Modules (FBMs) with their associated field signal terminations. Both simplex and redundant Compact FBMs are supported. The baseplate supports distributed control and monitoring for small, medium, and large Foxboro™ DCSs.

It is designed for mounting on a horizontal DIN rail or rack.

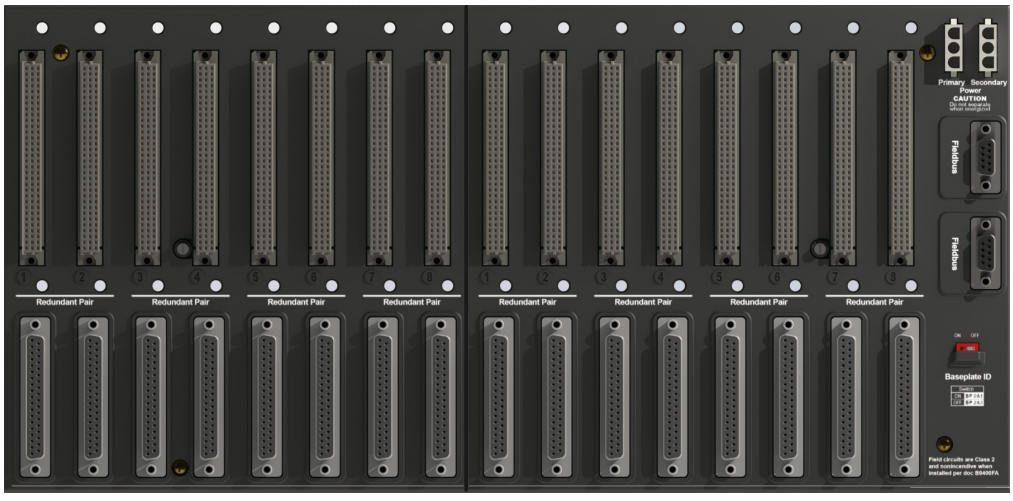
Features

- 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

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 DIN rail.

Figure 1 - Compact 200 Series 16-Slot Horizontal Baseplate



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

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 PSSs associated with the equipment. The Standard 200 Series baseplates are discussed in the *Standard 200 Series Baseplates* Product Specification (PSS 41H-2SBASPLT).

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:

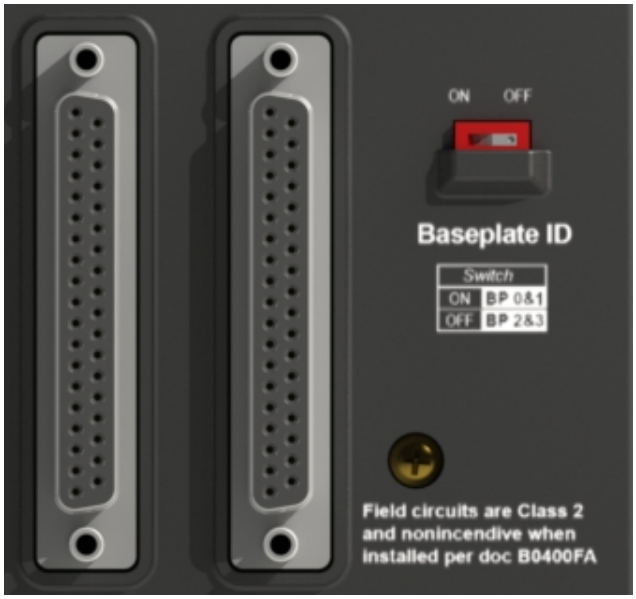
- The number of the baseplate (0 and 1, or 2 and 3 for Compact 200 Series baseplates) in the group, as set by means of the baseplate ID DIP switch.
- The physical position (see *Figure 4*) of the module on the Compact or standard 200 Series baseplate.

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); 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 *Standard and Compact 200 Series Subsystem User’s Guide* (B0400FA).

Figure 2 - Compact 200 Series Baseplate ID DIP Switch

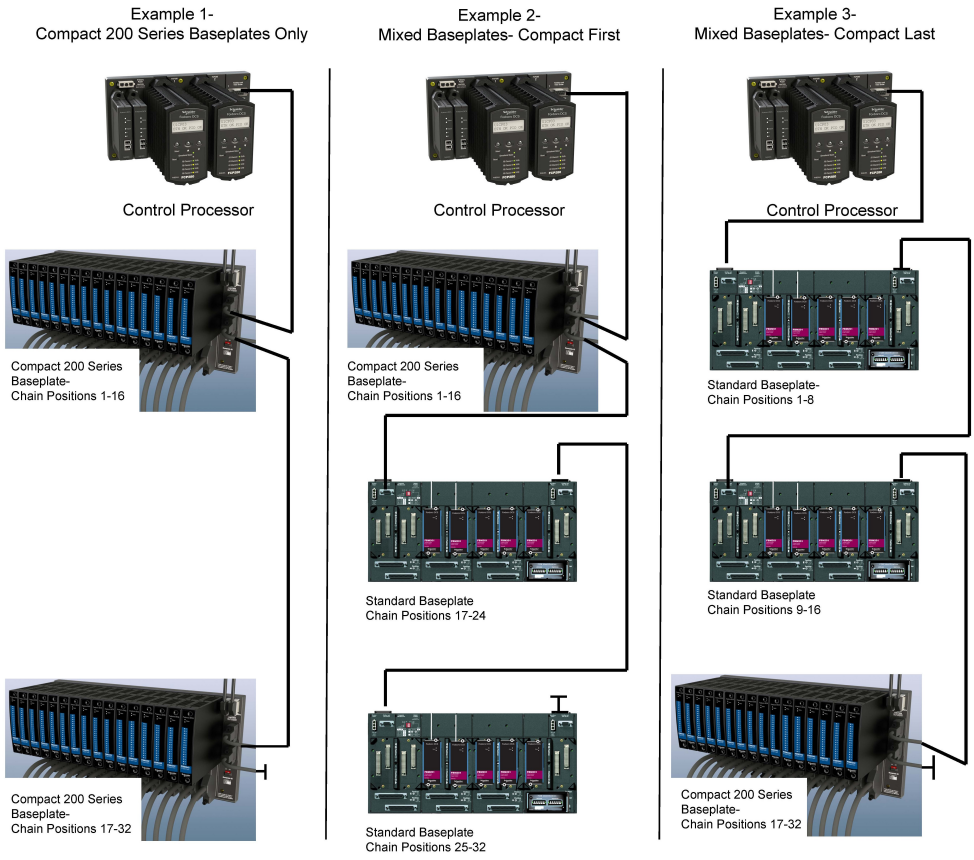


Compact 200 Series Baseplate Combinations and Implementation

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.

Figure 3 - Example Configurations with Compact 200 Series Baseplates and Standard 200 Series Baseplates



NOTE: The ⊤ icon indicates the RH916RB terminator.

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.

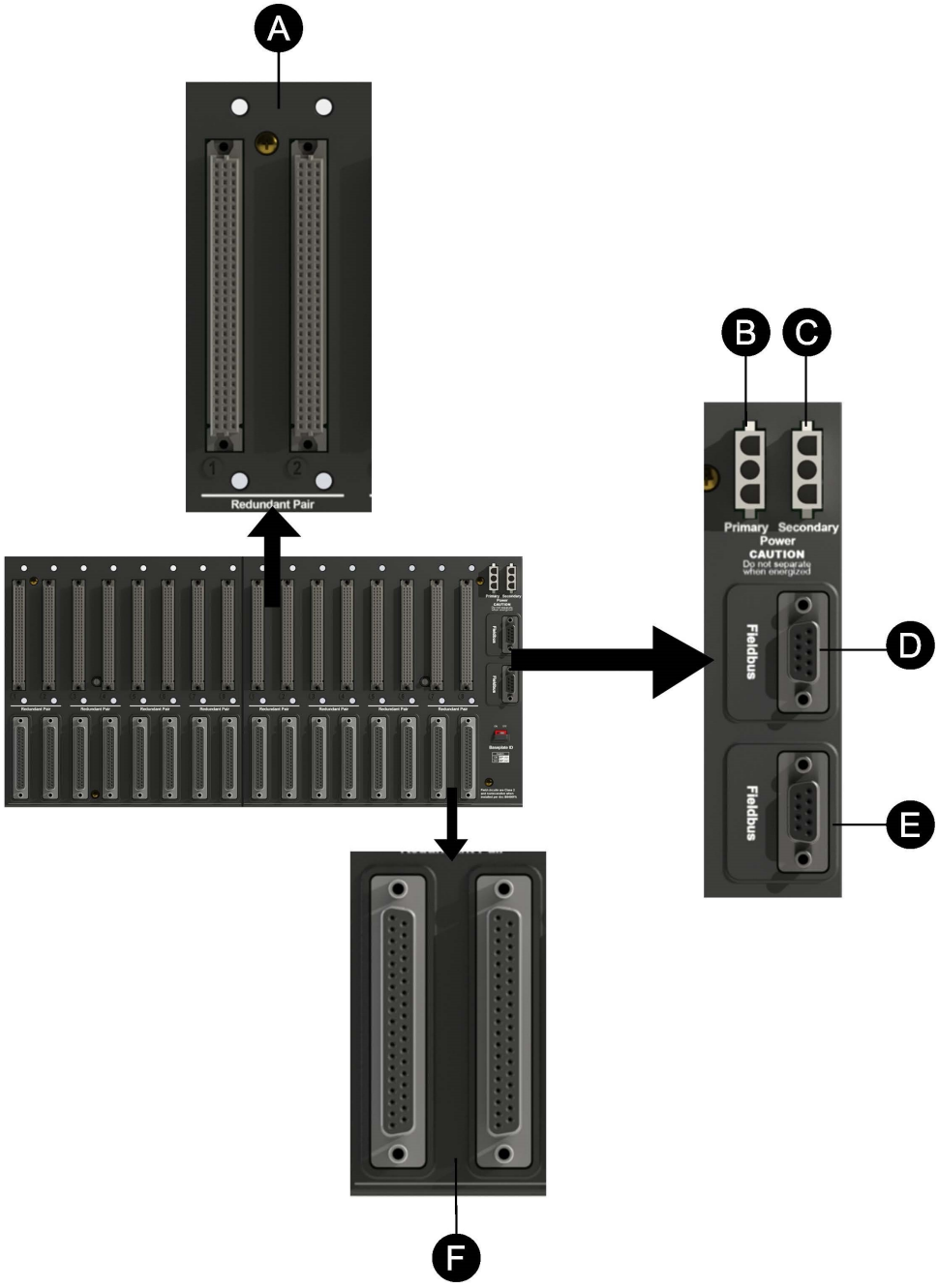
Compact 200 Series Baseplate Interconnections

The Compact 200 Series baseplates are interconnected over a 2 Mbps HDLC, redundant, serial bus (Module Fieldbus). All Compact 200 Series baseplate interconnections 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 help 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.

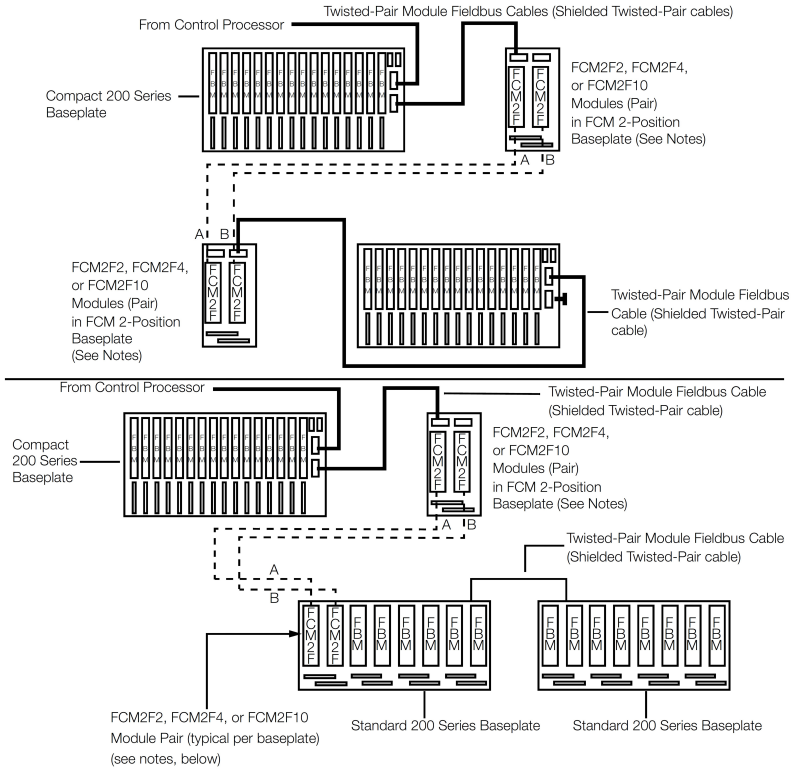
Figure 4 - Compact 200 Series Baseplate Connections (Example)



Item	Description
A	Fieldbus Module Connectors
B	Primary Power
C	Secondary Power
D	Module Fieldbus Connector (from CP or Previous Baseplate in Chain
E	Module Fieldbus Connector (to next Baseplate in Chain or, if Last Baseplate in Chain, terminator RH916RB should be attached here.
F	Field I/O Connectors

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



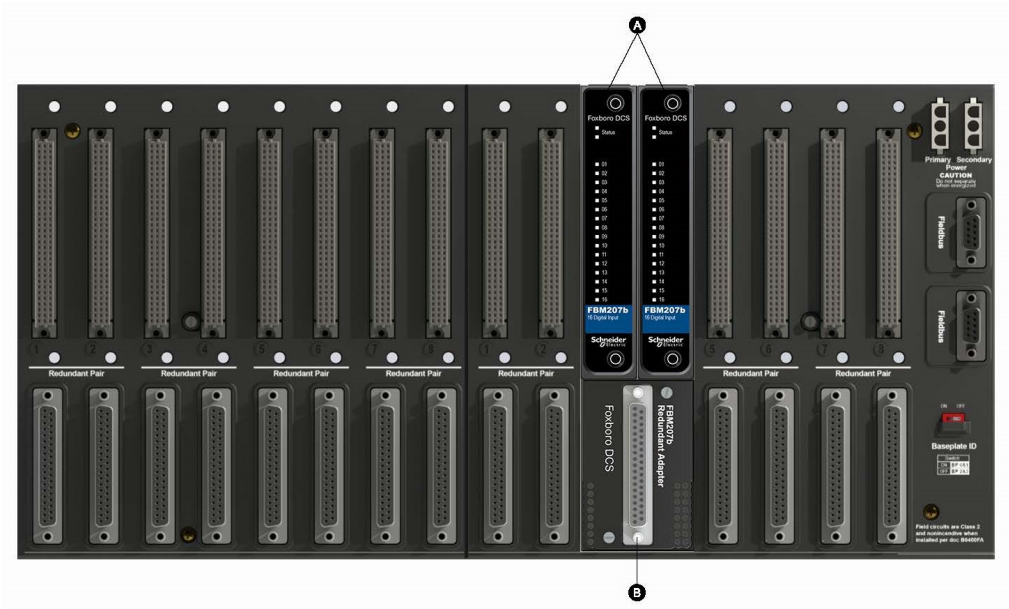
NOTE: Redundant configuration is shown. Non-redundant configuration uses one FCM2F per baseplate, connected to either fieldbus “A” or “B.” Up to two pairs of FCM2Fs are allowed in series; two sets of two FCM2F10s in series allow up to 20 km (12.4 mi) total distance for the fieldbus.

NOTE: 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 (6.2mi).

NOTE: The ⊤ icon indicates the RH916RB terminator.

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



Item	Description
A	Compact 200 Series Redundant FBM Pair
B	Redundant Adapter (FBM207b shown)

Module Placement and Removal

The following rules must be observed to place Compact 200 Series FBMs on the Compact 200 Series baseplate. (See the *Compact 200 Series I/O Subsystem Overview* Product Specification (PSS 41H-2COV) 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 RH916RB 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 (RH926KW (supersedes 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, see:

- *Standard 200 Series Baseplates Product Specification* (PSS 41H-2SBASPLT)
- *Compact 200 Series I/O Subsystem Overview Product Specification* (PSS 41H-2COV)
- *Standard 200 Series Subsystem Overview Product Specification* (PSS 41H-2SOV)

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

Figure 7 - Fieldbus Baseplate Terminator (RH916RB)

Figure 8 - Fieldbus Baseplate Terminator/Splitter - for Non-FCP280 Baseplates (RH926KW supersedes P0926KW)

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*.) Adding 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 2014/30/EU*: Meets: EN61326:2013 Class A Emissions and Industrial Immunity Levels
Regulatory Compliance: 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 *Standard and Compact 200 Series Subsystem User's Guide* (B0400FA). • *European Low Voltage Directive 2014/35/EU and Explosive Atmospheres (ATEX) directive 2014/34/EU* ATEX (DEMKO) Ex nA IIC T4 Gc certified when connected as described in the *Standard and Compact 200 Series Subsystem User's Guide* (B0400FA). For use in an enclosure suited for an ATEX Zone 2 classified area.
RoHS Compliance	Complies with European RoHS Directive 2011/65/EU, including amending Directives 2015/863 and 2017/2102.

Environmental Specifications

	Operating	Storage
Temperature	-20 to +70°C (-4 to +158°F)	-40 to +70°C (-40 to +158°F)
Relative Humidity	5 to 95% (noncondensing)	5 to 95% (noncondensing)
Altitude	-300 to +3,000 m (-1000 to +10,000 ft)	-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	

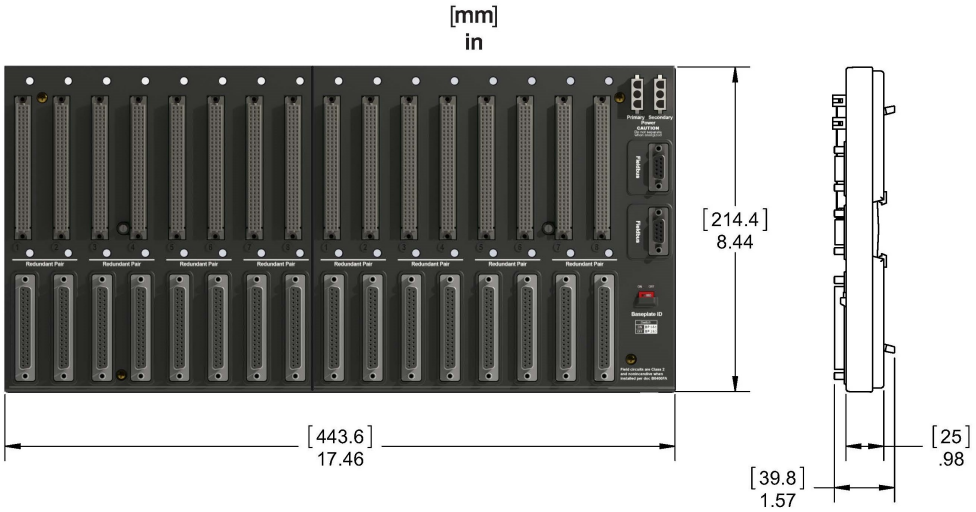
NOTE: The environmental limits of the Compact baseplates may be enhanced by the type of enclosure containing the Compact baseplate. Refer to the applicable Product Specification Sheet (PSS) that describes the specific type of enclosure that is to be used.

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, page 15*
Weight (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

Dimensions - Compact 200 Series 16-Slot Horizontal Baseplate

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



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

Related Product Documents

Document Number	Description
PSS 41H-2SBASPLT	*Standard 200 Series Baseplates*
PSS 41H-2COV	*Compact 200 Series I/O Subsystem Overview*
B0400FA	*Standard and Compact 200 Series Subsystem User's Guide*
PSS 41H-2SOV	*Standard 200 Series Subsystem Overview*

WARNING: This product can expose you to chemicals including lead and lead compounds, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information, go to www.p65warnings.ca.gov/.

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PSS 41H-2C200, Rev A