Foxboro™ DCS

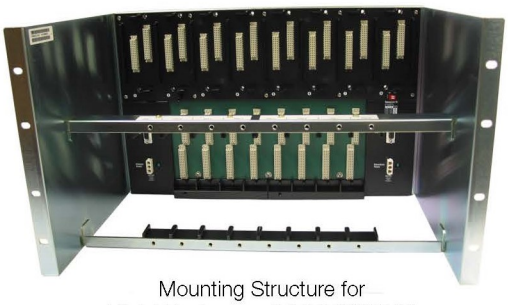
100 Series Conversion Mounting Structures

PSS 41H-2W8

Product Specification

August 2019

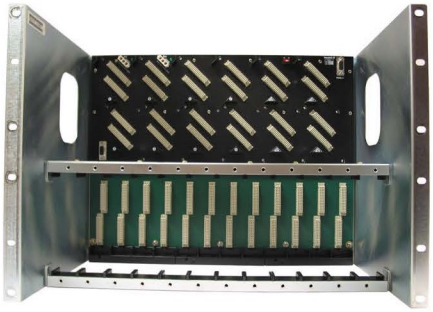
Mounting Structure for
IE16/IE32 (P0923US)



Mounting Structure for
Metal Enclosures (ME) (P0923UV)

Mounting Structure
for Molded
Structural
Foam Field
Enclosure 8
(FE8) (P0924JC)

Mounting Structure for
Metal Enclosure 60
(ME60) (P0923ZU)



Legal Information

Overview

The 100 Series conversion mounting structures provide the power, signal I/O, and backplane connections for the Foxboro™ DCS modules used to replace the 100 Series Fieldbus Modules (FBMs) and Fieldbus Isolators (FBIs). These mounting structures are designed for installation in existing industrial, metal, field, and local enclosures with 100 Series equipment. The 100 Series upgrade equipment accepts field I/O wiring from existing 100 Series TCAs, allowing customers to simply replace the equipment within existing enclosures to complete the 100 Series upgrade process.

These mounting structures support distributed control for both small and large systems and specifically support these Foxboro DCS 200 Series modules:

- (200 Series) Fieldbus Modules (FBMs), in groups of 4, 8 or 12, depending on the mounting structure
- Fieldbus Isolator/Filter Module (FBI200A)
- Termination Assembly Adapter Modules (TAA)

The conversion mounting structures have an upper set of slots for the 200 Series FBMs, and a lower set of slots for the FBI200As and TAAs. Each FBM slot has an equivalent TAA slot, from which the FBM communicates with the field I/O (via the TCA). However, if a pair of FBI200As are used in a mounting structure, they must be installed in the first TAA slot and the equivalent FBM slot must be left empty. As well, if an FBM requires both a Main and Expander TAA, the equivalent FBM slot for the Expander TAA must be left open.

Certain conversion mounting structures include an optional DIN rail on their rear for mounting the FPS120-24, FPS-240-24 or FPS400-24 power supplies.

All mounting structures are grounded to their enclosures.

Conversion Mounting Structures in Baseplate Chains

Up to four conversion mounting structures can be interconnected in a baseplate chain to support up to 32 200 Series FBMs, with module fieldbus cables, each available up to 60 m (198 ft). The total length from the first mounting structure in the chain to the last is 60 m (198 ft).

The first and last mounting structure in the chain must have its unused HDLC Fieldbus connector terminated with the Fieldbus Baseplate Terminator (P0916RB), discussed in *Terminator, page 10*.

Features

- Installation in existing enclosures for 100 Series equipment
- Connection to the 2 Mbps Module Fieldbus for FCP280
- Primary and secondary 24 V dc power and communications connections
- Field connection for existing Termination Cable Assemblies (TCAs) for each 200 Series FBM
- DIP switch for mounting structure identification
- Passive backplane to increase system reliability
- Reduced depth compared with the depth of the mounting structures they replace; after the upgrade process, additional space in the rear of these mounting structures may be available for additional equipment, cabling, or air flow

Conversion Mounting Structures

The 100 Series conversion mounting structures available are listed in Table 1:

Table 1 - 100 Series Conversion Mounting Structures

Description	P/N	# of FBM Slots	Available in Kit	Shown In
Mounting Structure for Industrial Enclosures 16/32 (IE16/IE32)	P0923US	8	P0924JL	Figure 1
Mounting Structure for Metal Enclosures (ME)	P0923UV	8	P0924JM	Figure 2
Mounting Structure for Metal Enclosure 60 (ME60)	P0923ZU	12	P0924JN	Figure 3
Mounting Structure for Molded Structural Foam Field Enclosure 8 (FE8)	P0924JC	4	P0924JP	Figure 4

Mounting Structure for Industrial Enclosures 16/32 (IE16/IE32)

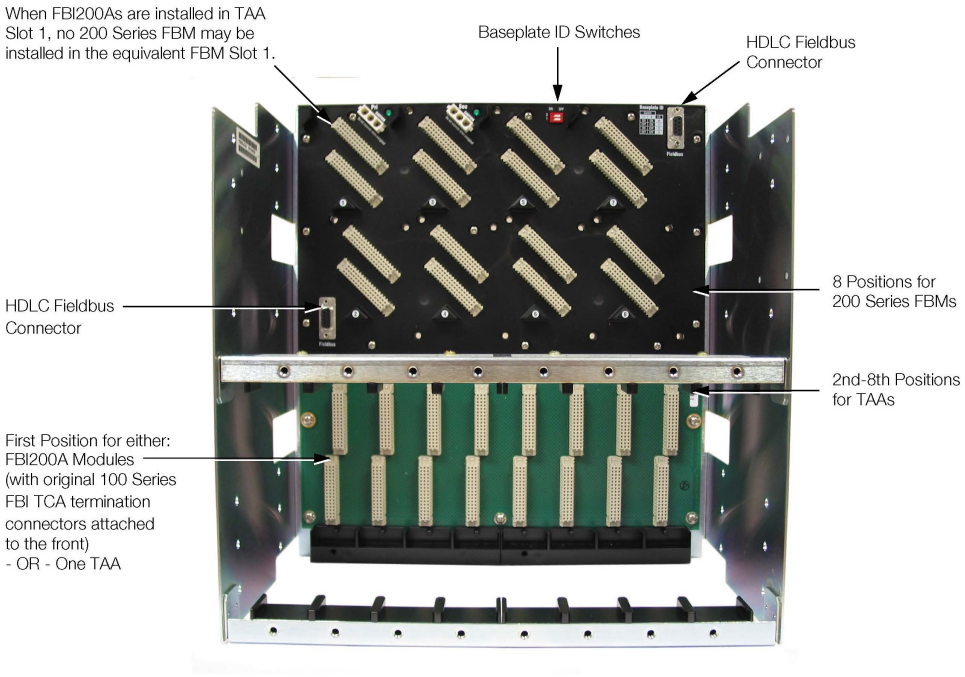
The Mounting Structure for Industrial Enclosures 16/32 (IE16/IE32) supports:

- Up to eight 200 Series FBMs, or seven FBMs if a pair of FBI200As are in TAA slot 1
- Up to eight Termination Assembly Adapter modules (TAA), or seven TAAs if a pair of FBI200As are in TAA slot 1

Details about the IE16/IE32 are provided in *Molded Structural Foam Enclosures* (PSS 21H-5B1 B3).

This mounting structure is shown in Figure 1.

Figure 1 - Mounting Structure for Industrial Enclosures 16/32 (IE16/IE32) (P0923US)



Mounting Structure for Metal Enclosures (ME)

The Mounting Structure for Metal Enclosures (ME) can be used in the following legacy enclosures:

The IEMFA (Industrial Enclosure Metal Front Access), the IEMFR (Industrial Metal Front and Rear Access). Details about these enclosures are provided in the *System Equipment Installation* document (B0193AC).

The sealed metal Field Enclosure 8. Details about this enclosure are provided in the *Metal Field Enclosure 8 and Metal Enclosures P42, P43 and P371* (PSS 21H-5C1 B3).

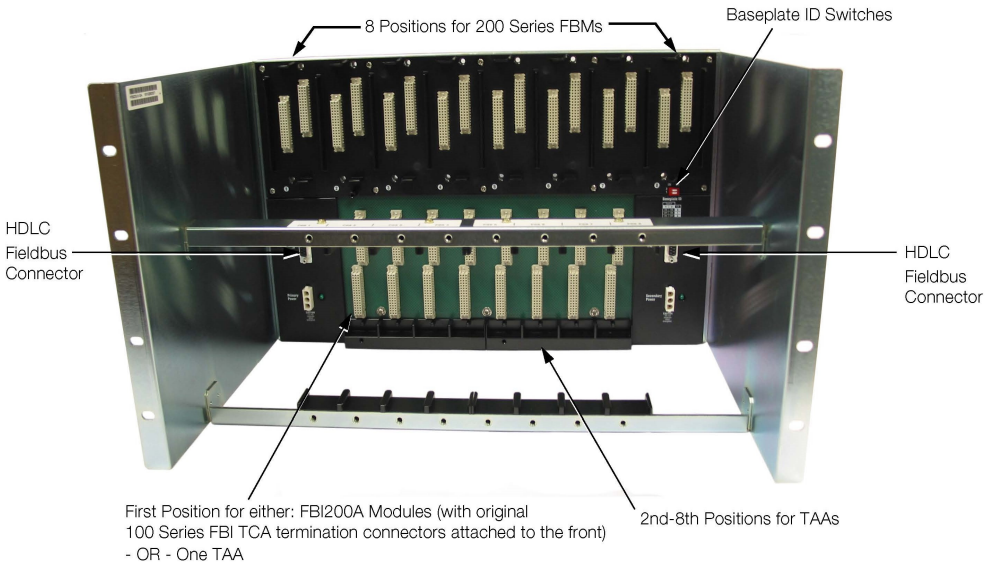
The P42, P43 and P371 Metal Enclosures. Details about these enclosures are provided in *Metal Field Enclosure 8 and Metal Enclosures P42, P43 and P371* (PSS 21H-5C1 B3).

This mounting structure supports:

- Up to eight 200 Series FBMs, or seven FBMs if a pair of FBI200As are in TAA slot 1
- Up to eight Termination Assembly Adapter modules (TAA), or seven TAAs if a pair of FBI200As are in TAA slot 1

This mounting structure is shown in Figure 2.

Figure 2 - Mounting Structure for Metal Enclosures (ME) (P0923UV)



Mounting Structure for Metal Enclosure 60 (ME60)

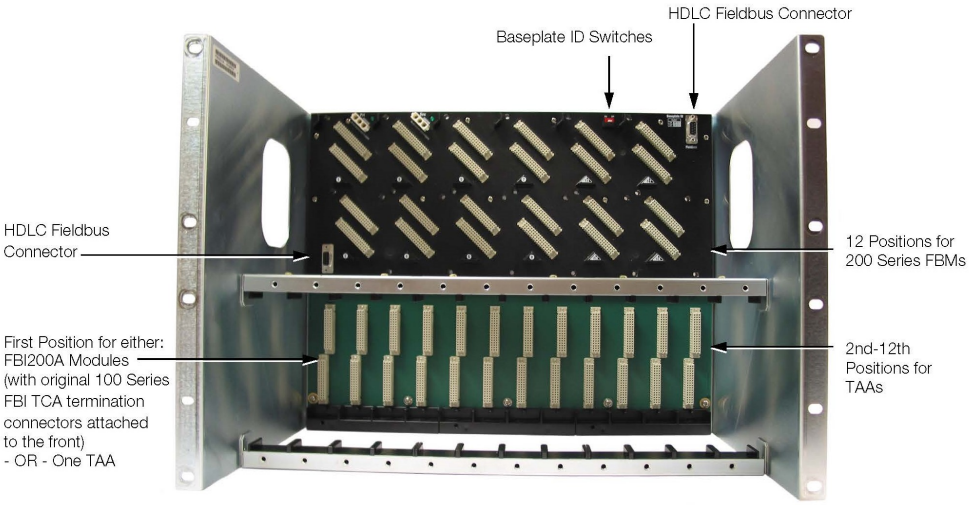
The Mounting Structure for Metal Enclosure 60 (ME60) supports:

- Up to twelve 200 Series FBMs, or eleven FBMs if a pair of FBI200As are in TAA slot 1
- Up to twelve Termination Assembly Adapter modules (TAA), or eleven TAAs if a pair of FBI200As are in TAA slot 1

Details about this enclosure are provided in *Fieldbus Module Metal Enclosure 60* (PSS 21H-5C1 B4).

This mounting structure is shown in Figure 3.

Figure 3 - Mounting Structure for Metal Enclosure 60 (ME60) (P0923ZU)



Mounting Structure for Molded Structural Foam Field Enclosure 8 (FE8)

Field Enclosure 8 (FE8)

The 100 Series upgrade process for a Molded Structural Foam Field Enclosure 8 (FE8) requires two Mounting Structures for FE8 - one in the upper-half and one in the lower-half on the enclosure.

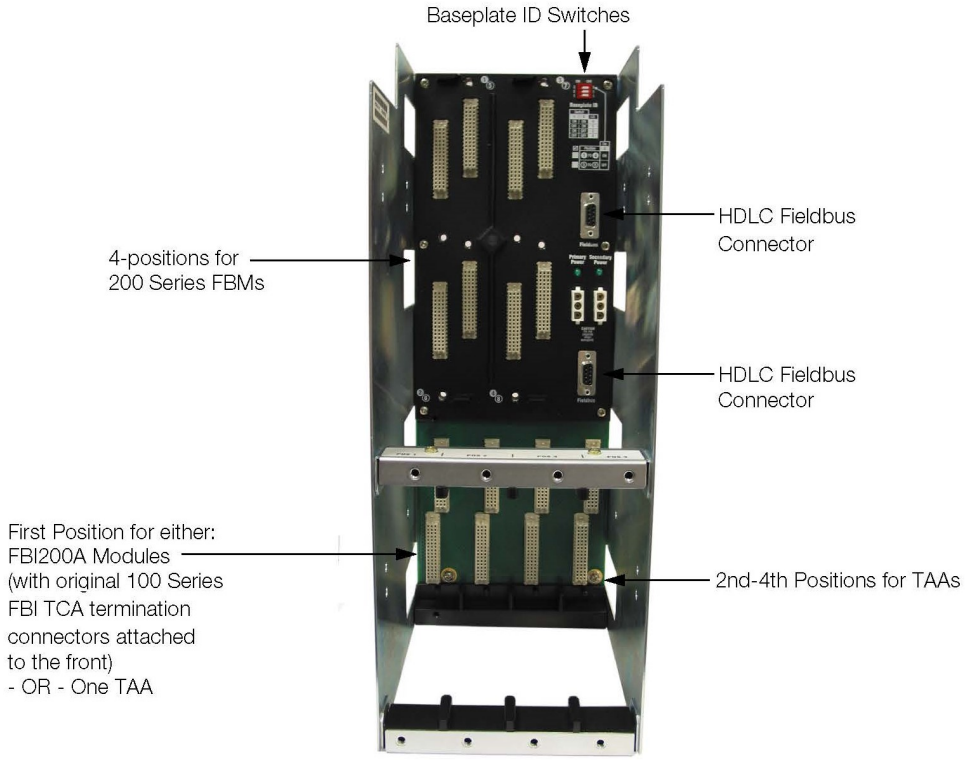
Each mounting structure supports:

- Up to four 200 Series FBMs, or three FBMs if a pair of FBI200As are in TAA slot 1
- Up to four Termination Assembly Adapter modules (TAA), or three TAAs if a pair of FBI200As are in TAA slot 1

Details about the FE8 are provided in *Molded Structural Foam Enclosures* (PSS 21H-5B1 B3).

This mounting structure is shown in Figure 4.

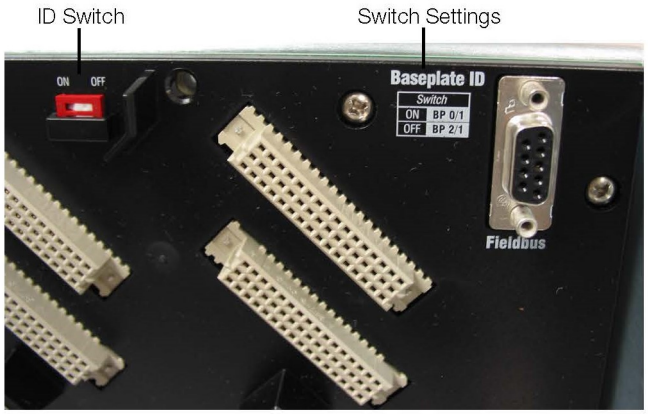
Figure 4 - Mounting Structure for Molded Structural Foam Field Enclosure 8 (FE8) (P0924JC)



Module Identification

The conversion mounting structures include a DIP switch to help set the baseplate ID for the FBMs, as shown in Figure 5.

Figure 5 - Conversion Mounting Structure ID Switch



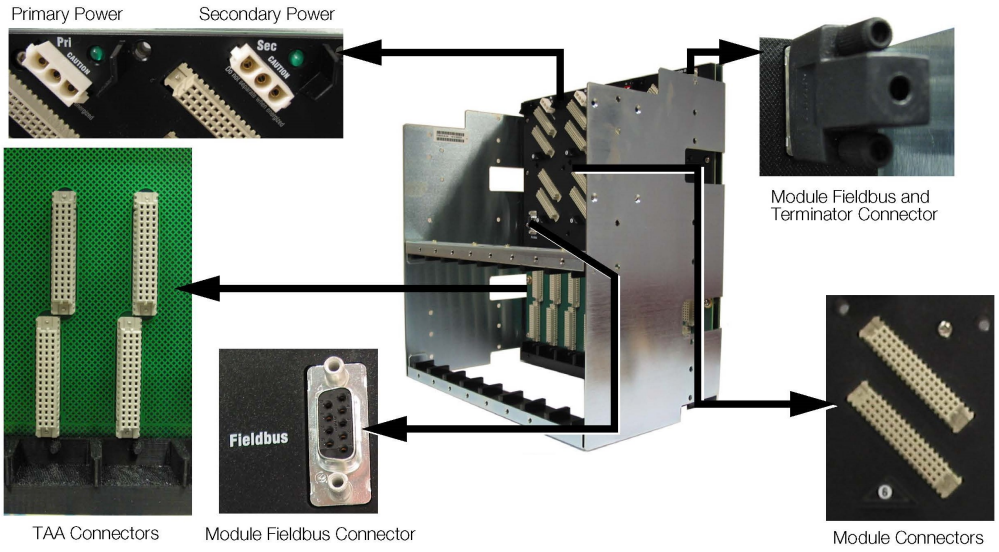
Conversion Mounting Structure Interconnections

The FBMs within the conversion mounting structures communicate over a 2 Mbps HDLC, redundant, serial bus (Module Fieldbus). All conversion mounting structure 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 conversion mounting structure (see Figure 6). All module positions have module guides to help ensure the correct insertion of the module into the conversion mounting structure. Primary and Secondary power connectors are direct connections from the FPS400-24, FPS120-24 or FPS240-24 power supply. TAA connectors provide connections to various TAAs for connection to the existing TCAs, which lead to I/O points in the plant.

FCM2F2/4/10 modules can provide fiber optic extension (baseplate-to-baseplate) of the Module Fieldbus.

Figure 6 - Conversion Mounting Structure Connections (Example)



Module Placement and Removal

The following rules must be observed with regard to placement of modules (FBMs, TAAs, or FBI200As) on the conversion mounting structures. See *Standard 200 Series Subsystem Overview* (PSS 31H-2S200) for the various communication topologies used with the conversion mounting structures.

Non-redundant FBMs	Can be placed in any available position
Redundant FBMs	Must be placed in adjacent odd/even paired positions
FBI200As	If used, a pair of FBI200A module(s) must be positioned in the first TAA slot. Their equivalent FBM slot must be left empty.
TAAs	Must be placed in the equivalent TAA slot to its FBM. For example, if a TAA's FBM is in FBM slot 3, the TAA must be installed in TAA slot 3.
Main TAA and Expander TAA	Must be grouped in adjacent odd/even slots (i.e. 1/2, 3/4, etc.). The TAAs can occupy these slots in either order - with the Main TAA in the first slot with the Expander TAA in the second, or vice versa. However, their FBM must be installed in the equivalent FBM slot to the TAA slot in which the Main TAA is installed. The equivalent FBM slot for the Expander TAA must be left open.

FBMs, TAAs, or FBI200As can be removed/replaced from the conversion mounting structures without removing field device termination cabling, power, or communications cabling.

Terminator

The Fieldbus Baseplate Terminator (P0916RB) is used to terminate the first and last conversion mounting structure in the daisy chain when Time Strobe or split A/B fieldbus cables are not required. (See Figure 7.)

Figure 7 - Fieldbus Baseplate Terminator (P0916RB)

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 on I/O, dc power and communication lines • *IEC 61000-4-5 Surge Immunity*: 2kV on ac and dc power lines; 1kV on I/O and communications lines • *IEC 61000-4-6 Immunity to Conducted Disturbances Induced by Radio-frequency Fields*: 10 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: Product Safety	• *Underwriters Laboratories (UL) for U.S. and Canada*: UL/UL-C listed as suitable for use in UL/UL-C listed Class 1, 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 73/23/EEC and Explosive Atmospheres (ATEX) directive 94/9/EC*: CENELEC (DEMKO) certified as EEx nA IIC T4 for use in CENELEC certified Zone 2 enclosure certified as associated apparatus for supplying non-incendive field circuits for Zone 2, Group IIC, potentially explosive atmospheres when connected to specified Foxboro DCS processor modules as described in the *Standard and Compact 200 Series Subsystem User's Guide* (B0400FA).

Environmental Specifications

	Operating	Storage
Temperature	-20 to +60°C (-4 to +140°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 (-1,000 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 conversion mounting structures may be enhanced by the type of enclosure containing the Modular Baseplate. Refer to the applicable Product Specification Sheet (PSS) that describes the specific type of enclosure that is to be used.

Physical Specifications

Mounting	• Mounting Structures for IE and FE8: Mounting Structures for Industrial Enclosures (IE) and Molded Structural Foam Field Enclosure 8 (FE8) mount to the walls of their respective enclosures. The conversion mounting structures attach to the walls by means of fasteners included with their kit. • Mounting Structures for ME and ME60: Conversion mounting structures for Metal Enclosures (ME) and Metal Enclosure 60s (ME60) mount on mechanically supported vertical system rails, which are internal to an enclosure. The conversion mounting structures attach to the system rails by means of fasteners included with their kit.
Size	See Figure 8, Figure 9, and Figure 10. Be aware that the Mounting Structures for Metal Enclosures (P0923UV and P0923ZU) are higher than the 100 Series Mounting Structures they replace. See *Table 2*.
Weight (Without Modules)	• IE16/IE32 Mounting Structure (P0923US) 4.1 kg (9 lb) • ME Mounting Structure (P0923UV) 5.0 kg (11 lb) • ME60 Mounting Structure (P0923ZU) 5.9 kg (13 lb) • FE8 Mounting Structure (P0924JC) 2.7 kg (6 lb)
Construction	Material: PC and ABS, inflammability UL94 V0
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 from the first mounting structure in the baseplate chain to the last

Table 2 - Dimension Comparisons for 100 Series Mounting Structures and Conversion Mounting Structures for Metal Enclosures

Mounting Structure	Height	Width	Depth
ORIGINAL:1x8 FBM Mounting Structure	266.7 mm (10.5 in)	482.6 mm (19 in)	266.7 mm (10.5 in)
REPLACEMENT:Mounting Structure for Metal Enclosures (P0923UV)	277.5 mm (10.9 in)	482.6 mm (19 in)	260.4 mm (10.3 in)
ORIGINAL:1x12 FBM Mounting Structure	266.7 mm (10.5 in)	482.6 mm (19 in)	274.3 mm (10.8 in)
REPLACEMENT:Mounting Structure for Metal Enclosure 60 (P0923ZU)	344.4 mm (13.6 in)	482.6 mm (19 in)	260.4 mm (10.3 in)

Dimensions - Conversion Mounting Structures

Figure 8 - Dimensions - Mounting Structures for Industrial Enclosures 16/32 (P0923US) and Metal Enclosures (P0923UV)

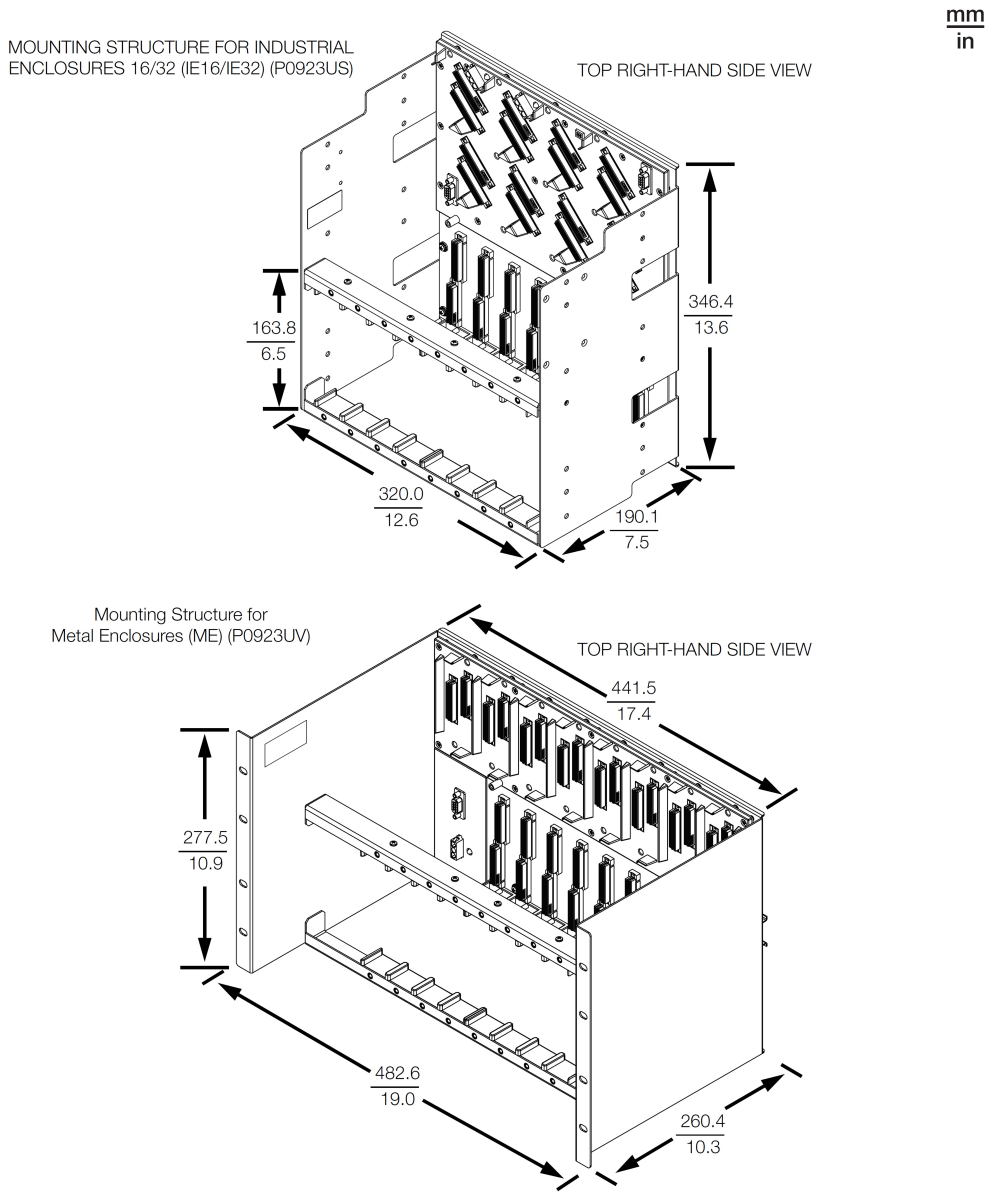


Figure 9 - Dimensions - Mounting Structure for Metal Enclosure 60 (P0923ZU)

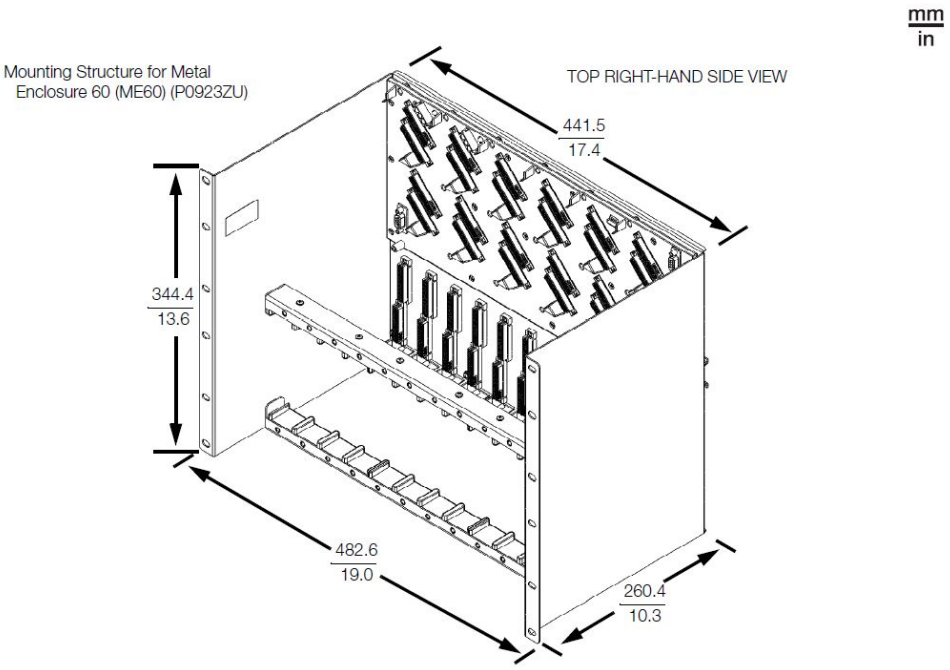
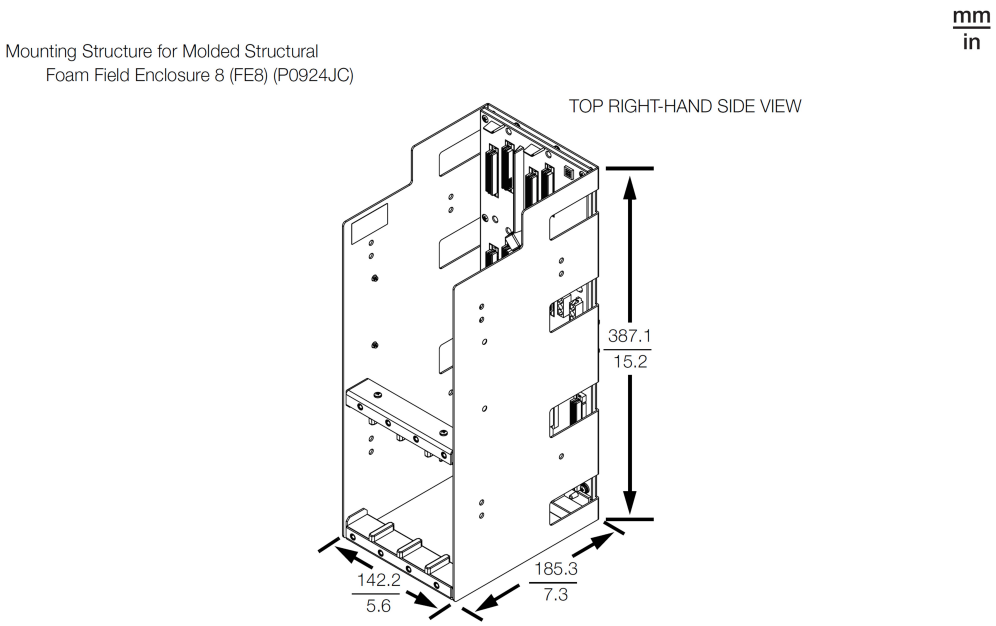


Figure 10 - Dimensions - Mounting Structure for Molded Structural Foam Field Enclosure 8 (P0924JC)



Related Product Documents

Document Number	Description
PSS 31H-2S200	*Standard 200 Series Subsystem Overview*
B0400FA	*Standard and Compact 200 Series Subsystem User's Guide*
PSS 41H-2W100	*100 Series Fieldbus Module Upgrade Subsystem Overview*
PSS 41H-2CERTS	*Standard and Compact 200 Series I/O - Agency Certifications*
PSS 41H-2W4	*Termination Assembly Adapter Modules for 100 Series Upgrade*
PSS 41H-2SBASEPLT	*Standard 200 Series Baseplates*
PSS 41H-2FPS	*200 Series Power Supplies - FPS240-24 and FPS120-24*
PSS 21H-5B1 B3	*Molded Structural Foam Enclosures*
PSS 21H-5C1 B3	*Metal Field Enclosure 8 and Metal Enclosures P42, P43 and P371*
PSS 21H-5C1 B4	*Fieldbus Module Metal Enclosure 60*

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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