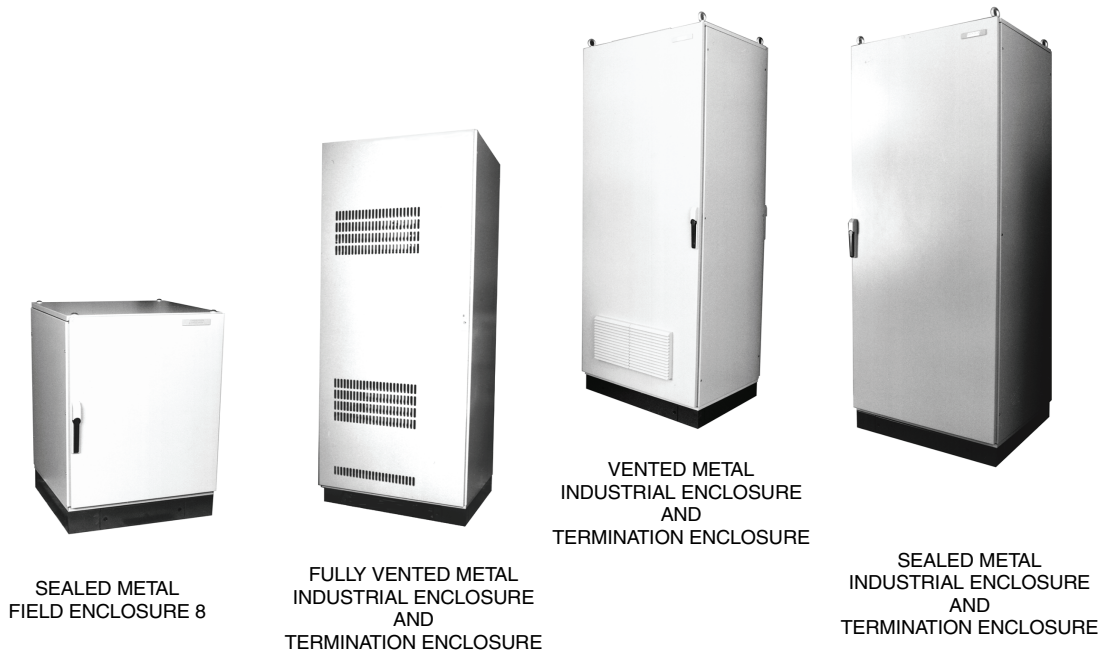


Metal Field Enclosure 8 and Metal Enclosures P42, P43 and P371



The I/A Series® metal enclosures extend the design of the system by providing a range of mounting options to match application requirements. The innovative design of the packaging allows the control and input/output modules to be installed closer to the process without the need for special, environmentally conditioned, control or equipment rooms.

FEATURES

I/A Series metal enclosures offer the following features:

- ▶ Rugged protection to permit mounting in harsh environments
- ▶ Compact design to minimize use of floor space in models with front access only, or models with both front and rear access that allow maximum density of enclosures in a control room environment
- ▶ Generous amount of space for customer wiring, intrinsic safety barriers, individual loop fuses, and loop disconnects
- ▶ Standard 19-inch mounting rails
- ▶ NEMA® 4/IEC certification (IP56 Metal Industrial Enclosures; IP66 Metal Field Enclosure 8) with moisture and contaminant protection using painted steel construction and sealed doors
- ▶ Simultaneous top and bottom cable entry
- ▶ Conveniently placed eyebolts for transporting and lifting the enclosures.

ENVIRONMENTAL PROTECTION

The metal enclosures provide the outer layer of protection for the control electronics. Other layers are provided by the module covers and built into the modules. This approach to protection means that a minimum of contaminants in the plant environment reaches the control components, thus greatly extending the life of the equipment.

At installations with only moderate levels of airborne contaminants, enclosure interiors can be exposed to allow plant air to circulate and remove the heat generated within the modules. Ventilation fans are installed along with vented doors to induce forced air convection for heat removal.

In areas where there are no requirements to filter the air to which the instruments in the metal enclosure are exposed (such as office areas), a fully vented door can be used for increased circulation. This configuration is ideal for mounting heat intensive processors or workstations.

In severely contaminated or wet environments, sealed doors are used on NEMA 4 certified enclosures. Fans circulate the air within the enclosure to remove and transfer heat to the interior surfaces of the enclosure. Heat is then dissipated by the enclosure's exterior surfaces into the plant environment. Air is not exchanged between the enclosure's interior and the outside environment; therefore, contaminants are not brought inside the enclosure.

METAL ENCLOSURE TYPES

The four types of metal enclosures are:

- ▶ Field Enclosure 8 (Front and Rear Access) Sealed
- ▶ P42 Industrial Enclosure (Front Access Only) - Vented, Fully Vented, or Sealed
- ▶ P43 Industrial Enclosure (Front and Rear Access) - Vented, Fully Vented, or Sealed

- ▶ P371 Termination Enclosure (Front and Rear Access) - Vented or Sealed.

METAL FIELD ENCLOSURE 8

This rugged sealed enclosure contains up to four power modules and has 8 slots which accept both processor and Fieldbus Modules or Fieldbus Modules only. All power wiring to the enclosure can be routed through both its top and/or bottom sections. Field I/O wires enter the enclosure in a similar manner, terminate at assemblies mounted below the modules in the front of the enclosure.

Optional bracket mounting of the field enclosure on a wall permits secure, space-saving mounting of equipment close to the processing equipment.

The Metal Field Enclosure 8 is available with two temperature range options: standard and extended range. Either can be used outdoors in sheltered locations. It is also available in FM/CSA Class 1, Division 2 versions.

METAL INDUSTRIAL ENCLOSURE CONFIGURATIONS

The Metal Industrial Enclosures offer four major variations: front access only (P42), front and rear access (P43 and P371), 800x600 sizes, or 800x800 sizes. The P42 and P43 enclosures are physically capable of supporting combinations of, workstations, data storage devices, Ethernet switches, Fieldbus Modules and DIN rail modules. All the Metal Industrial Enclosures are free-standing, floor-mounted and offer a selection of 800x600 or 800x800 sizes. This allows enclosures of the same size to be physically joined to one another to maximize the use of floorspace.

Sealed enclosures may require temperature derating when data storage devices are present. See your local Invensys Foxboro customer representative for details.

Enclosures with standard vented doors can be located in main equipment areas. Enclosures with fully vented doors require an environment with office air quality. Sealed NEMA 4 versions can be used outdoors in sheltered locations. Metal Industrial Enclosures support convenient simultaneous top or bottom cable entry for field and power wiring.

Metal Industrial Enclosures can contain any of the following configurations of mounting structures or Ethernet switches:

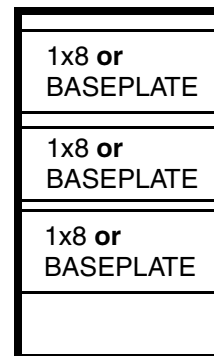
- ▶ 1x8 Mounting Structure (MS) for mounting up to eight Z-form factor modules
- ▶ Baseplate for mounting up to eight DIN rail modules
- ▶ Modular Mounting Structure (MMS) which contains combinations of data storage devices
- ▶ Dual Height Modular Mounting Structure (2xMMS) which contain combinations of workstations, D-Size data storage devices and Ethernet switches.
- ▶ Matrix E7 Ethernet switch.

P42 Metal Industrial Enclosure

The (front access only) P42 Metal Industrial Enclosure (front access only) contains up to 24 slots for mounting Z-form factor modules (including Fieldbus Modules) or DIN rail modules. Field signal wires are routed via protected openings in the top and bottom of the right side of the enclosure to termination cable assemblies (TCAs), installed on the front-mounted DIN rails. This type of enclosure requires front door access only, saving floorspace by allowing positioning against walls.

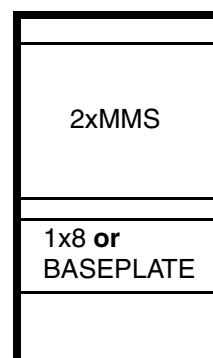
The P42 Metal Industrial Enclosure (front access only) configurations include:

- ▶ 24 slots for mounting Z-form factor modules (including Fieldbus Modules) or DIN rail modules.



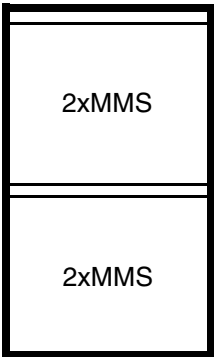
ENCLOSURE WITH
(3) 1x8s OR BASEPLATES
VENTED OR SEALED

- ▶ 8 slots for the Z-form factor modules (including Fieldbus Modules) or DIN rail modules and one dual height Modular Mounting Structure (2xMMS) containing combinations of workstations, D-size data storage devices and Ethernet switches.



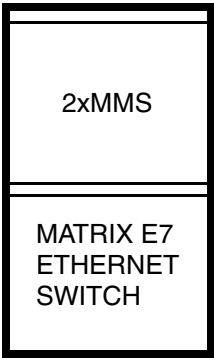
ENCLOSURE WITH
(1) 2xMMS AND
(1) 1x8 OR
BASEPLATE
VENTED ONLY

- ▶ Two dual height Modular Mounting Structures (2xMMS) containing combinations of workstations, D-size data storage devices, and Ethernet switches.



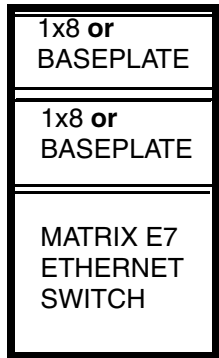
ENCLOSURE WITH
(2) 2xMMS
VENTED ONLY

- ▶ One dual height Modular Mounting Structure (2xMMS) containing combinations of workstations, D-size data storage devices, and Ethernet switches and one Matrix E7 Ethernet switch.



ENCLOSURE WITH
(1) 2xMMS AND
(1) MATRIX E7
ETHERNET SWITCH
VENTED ONLY

- ▶ 16 slots for the Z-form factor modules (including Fieldbus Modules) or DIN rail modules and one one Matrix E7 Ethernet switch.



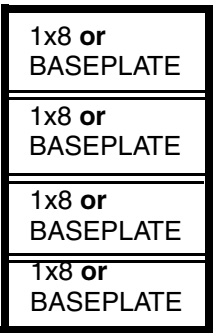
ENCLOSURE WITH
(2) 1x8s OR
BASEPLATES
AND
(1) MATRIX E7
ETHERNET
SWITCH

P43 Metal Industrial Enclosure

The P43 Metal Industrial Enclosure (front and rear access) contains up to 32 slots for mounting Z-form factor modules or DIN rail modules. This type of enclosure has rear-mounted DIN rails for accepting Termination Cable Assembly (TCA) signal wires. The wires are routed via top and bottom access into the wireway on the right side of the enclosure and terminated at the rear of the enclosure. This provides separate access for operations via the front door and interface wiring via the rear door.

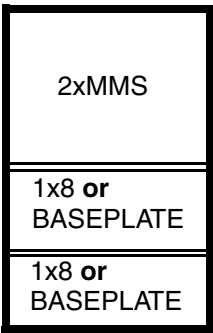
The Metal Industrial Enclosure P43 (front and rear access) configurations include:

- ▶ 32 slots for mounting Z-form factor modules (including Fieldbus Modules) and DIN rail modules.



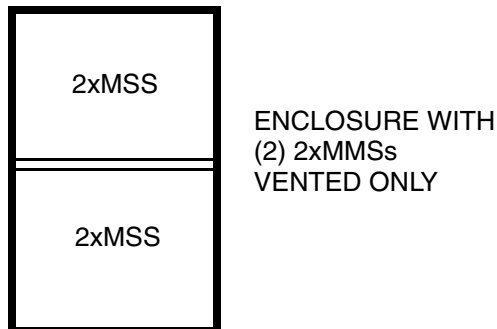
ENCLOSURE WITH
(4) 1x8s OR BASEPLATES
VENTED OR SEALED

- ▶ 16 slots for Z-form factor modules (including Fieldbus Modules) or DIN rail modules and one dual height Modular Mounting Structure (2xMMS) containing combinations of workstations, D-size data storage devices and Ethernet switches

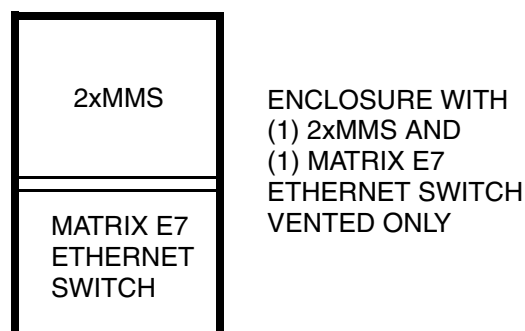


ENCLOSURE WITH
(1) 2xMMS AND
(2) 1x8s OR
BASEPLATES
VENTED ONLY

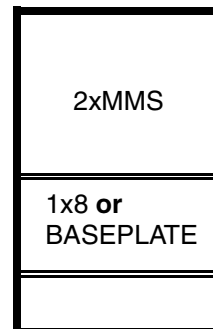
- ▶ Two dual height Modular Mounting Structures (2xMMS) containing combinations of workstations, D-size data storage devices and Ethernet switches.



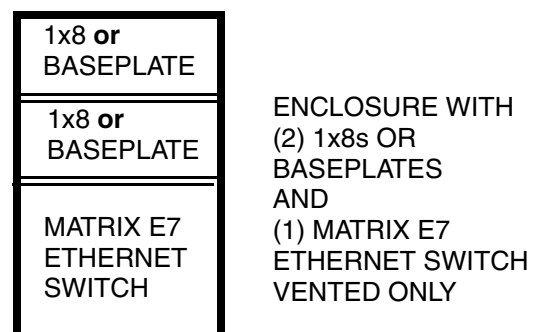
- ▶ One dual height Modular Mounting Structure (2xMMS) containing combinations of workstations, D-size data storage devices, and Ethernet switches.



- ▶ Eight slots for the Z-form factor modules (including Fieldbus Modules) or DIN rail modules and one dual height Modular Mounting Structure (2xMMS) containing combinations of workstations, D-size data storage devices and Ethernet switches.



- ▶ 16 slots for Z-form factor modules (including Fieldbus Modules) or DIN rail modules and one Matrix E7 Ethernet switch



P371 Metal Termination Enclosure

The P317 Termination Enclosure, 800x600 or 800x800, is physically the same size as the Metal Industrial Enclosures and contains a full size internal vertical panel provided for additional mounting of field terminations or other interface electronics. The panel can be positioned front to back. Selection of termination hardware and interface electronics is up to the discretion of the user. This enclosure can be physically joined to any of the Metal Industrial Enclosures to provide additional wiring and termination space.

FUNCTIONAL SPECIFICATIONS

Enclosures

METAL INDUSTRIAL ENCLOSURE

Vented⁽¹⁾ (2) See Environmental Specifications.

METAL INDUSTRIAL ENCLOSURE

Sealed⁽³⁾ (4)

METAL FIELD ENCLOSURE 8

Sealed⁽³⁾

TERMINATION ENCLOSURE

Vented⁽²⁾

TERMINATION ENCLOSURE

Sealed⁽³⁾

Input Power

METAL INDUSTRIAL ENCLOSURES

120, 220, 240 V ac, 50/60 Hz

METAL FIELD ENCLOSURE 8

120, 220, 240 V ac, 50/60 Hz

ENVIRONMENTAL SPECIFICATIONS

Operating Temperatures

(External Ambient, Fully Loaded)

METAL INDUSTRIAL ENCLOSURE

NO PERIPHERALS (VENTED)

0 to 50°C (32 to 122°F)

METAL INDUSTRIAL ENCLOSURE

NO PERIPHERALS (SEALED)

0 to 40°C (32 to 104°F)

METAL INDUSTRIAL ENCLOSURE

WITH PERIPHERALS (VENTED)

0 to 40°C (32 to 104°F)

METAL INDUSTRIAL ENCLOSURE

WITH PERIPHERALS (SEALED)

0 to 30°C (32 to 86°F)

METAL INDUSTRIAL ENCLOSURE

WITH PROCESSORS (VENTED)

0 to 35°C (32 to 95°F)

METAL FIELD ENCLOSURE 8

STANDARD RANGE

0 to 50°C (32 to 122°F)

METAL FIELD ENCLOSURE 8

EXTENDED TEMPERATURE RANGE

-30 to 50°C (-22 to 122°F)⁽⁵⁾

Storage Temperature (All Enclosures)

-40 to 70°C (40 to 158°F)

Contamination Class

ALL ENCLOSURES EXCEPT FULLY VENTED

METAL ENCLOSURE

Class GX (Severe) as defined in

ISA® Standard, S71.04

FULLY VENTED METAL ENCLOSURE

Class G1 (Mild) as defined in

ISA Standard, S71.04

Relative Humidity

5 to 100% (noncondensing)

Agency Certification

FE8 - FM/CSA Class 1, Division 2 with proper FBM selections (refer to Agency Certification listed in PSS 21H-5E1 B3)

FM/CSA Class 1, Division 2 with proper FBM selections (refer to Agency Certification listed in PSS 21H-5E1 B3)

(1) If peripheral devices are installed, contamination class and temperature range of the enclosure are derated to reflect specifications for these devices.

(2) All vented enclosures are NEMA 12/IEC IP52 rated.

(3) Sealed doors provide NEMA 4/IEC (IP56 for Industrial Enclosures; IP66 for the Field Enclosure 8) moisture protection.

(4) If peripheral devices are installed, temperature range of the enclosure is derated to reflect the specifications for these devices.

(5) The enclosure requires a one (1) hour warm-up period from a cold start at -30°C (-22°F).

PHYSICAL SPECIFICATIONS

Mass

METAL INDUSTRIAL ENCLOSURE

(P42 front access only, fully loaded)
216 kg (476 lb)

METAL INDUSTRIAL ENCLOSURE

(P43 front/rear access, fully loaded)
259 kg (573 lb)

METAL TERMINATION ENCLOSURE

(P371 empty)
176 kg (388 lb)

METAL FIELD ENCLOSURE 8

(Fully loaded)
71.3 kg (157.2 lb)

Field-Wire Termination (Maximum)

METAL INDUSTRIAL ENCLOSURE

(P42 front access only)
48 Termination Assemblies for 24 slots
(three 1x8 MS or DIN rail baseplates)
32 Termination Assemblies for 16 slots
(two 1x8 MS or DIN rail baseplates configured
with one MMS or two 1x8 MS or DIN rail
baseplates configured with one 2xMMS)
16 Termination Assemblies for 8 slots
(one 1x8 MS or DIN rail baseplates configured
with two MMS)

METAL INDUSTRIAL ENCLOSURE

(P43 front/rear access)
64 Termination Assemblies for 32 slots
(four 1x8 MS or DIN rail baseplates)
32 Termination Assemblies for 16 slots
(two 1x8 MS or DIN rail baseplates configured
with two MMS or two 1x8 MS or DIN rail
baseplates configured with one 2xMMS)

METAL TERMINATION ENCLOSURE

Large internal panel available
Wiring content per discretion of customer

METAL FIELD ENCLOSURE 8

16 Termination Assemblies

Field Termination Connections

ALL ENCLOSURES

Discrete wire block or 34-pin plug connector
(mates with Burndy MSD34 PM118 or equivalent)
or DIN rail module Termination Assemblies

Configurations for Modular Mounting Structures (MMS)

Refer to *19-Inch Modular Mounting Structure Assemblies* (PSS 21H-5B4 B4) for MMS configurations.

Configurations for Dual Height Modular Mounting Structures (2xMMS)

Refer to *19-Inch Modular Mounting Structure Assemblies* (PSS 21H-5B4 B4) for 2xMMS configurations.

Mounting

METAL INDUSTRIAL ENCLOSURES

19-inch mounting rails

METAL TERMINATION ENCLOSURE

Floor

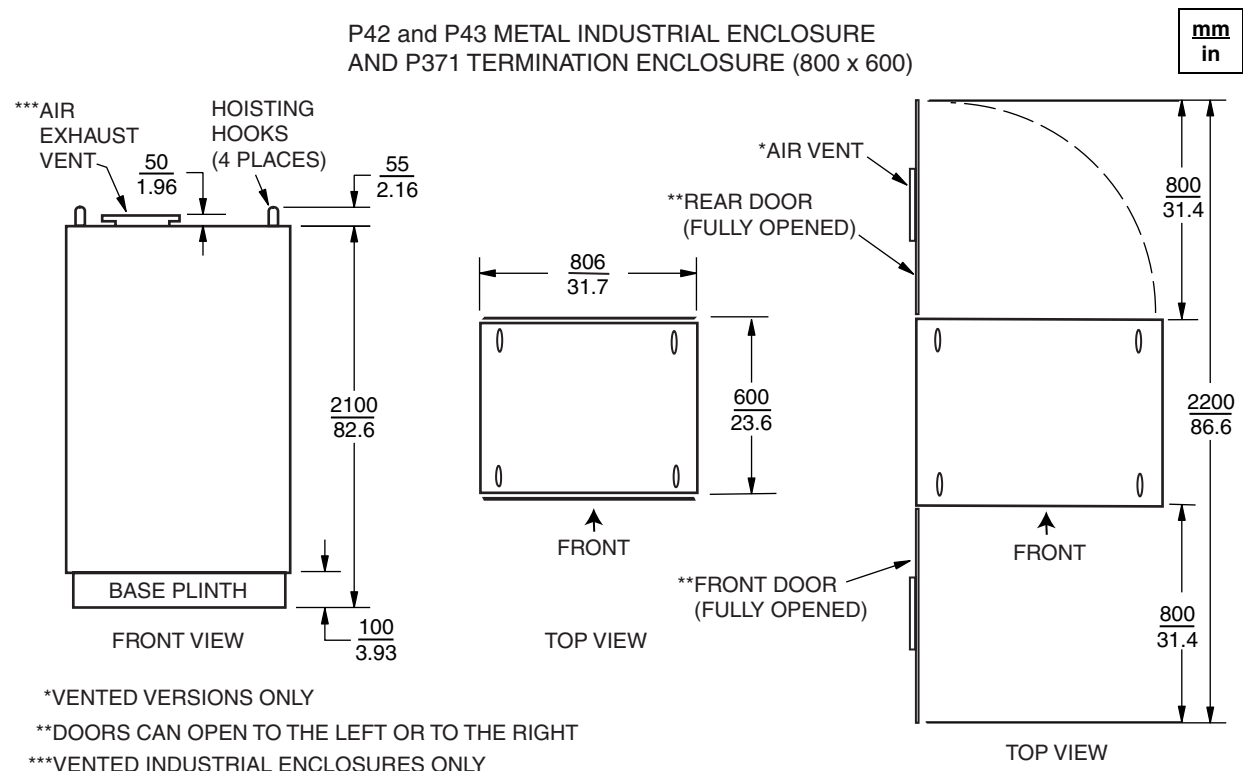
METAL FIELD ENCLOSURE 8

Floor, Wall

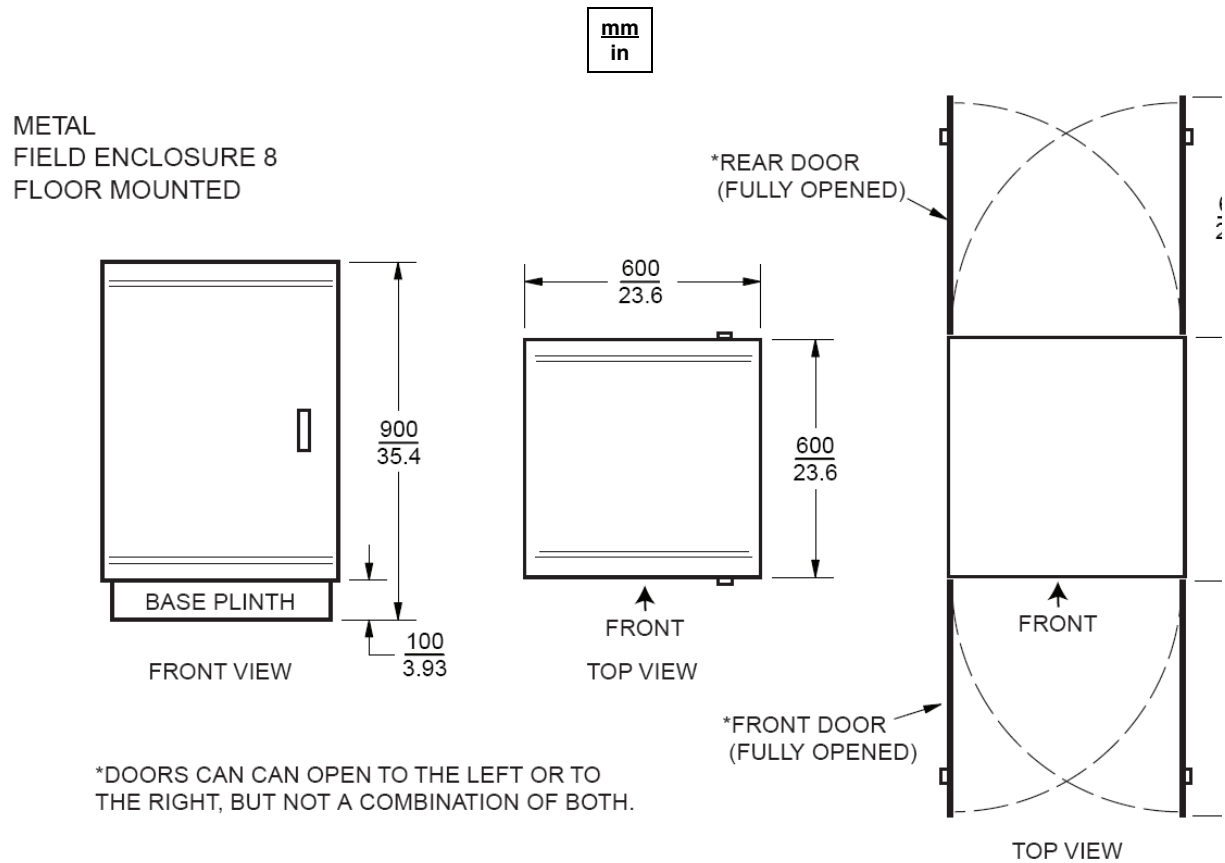
Construction (All Enclosures)

Sheet steel, electrophoresis dip bath primer, modified alkyd enamel paint, textured finish

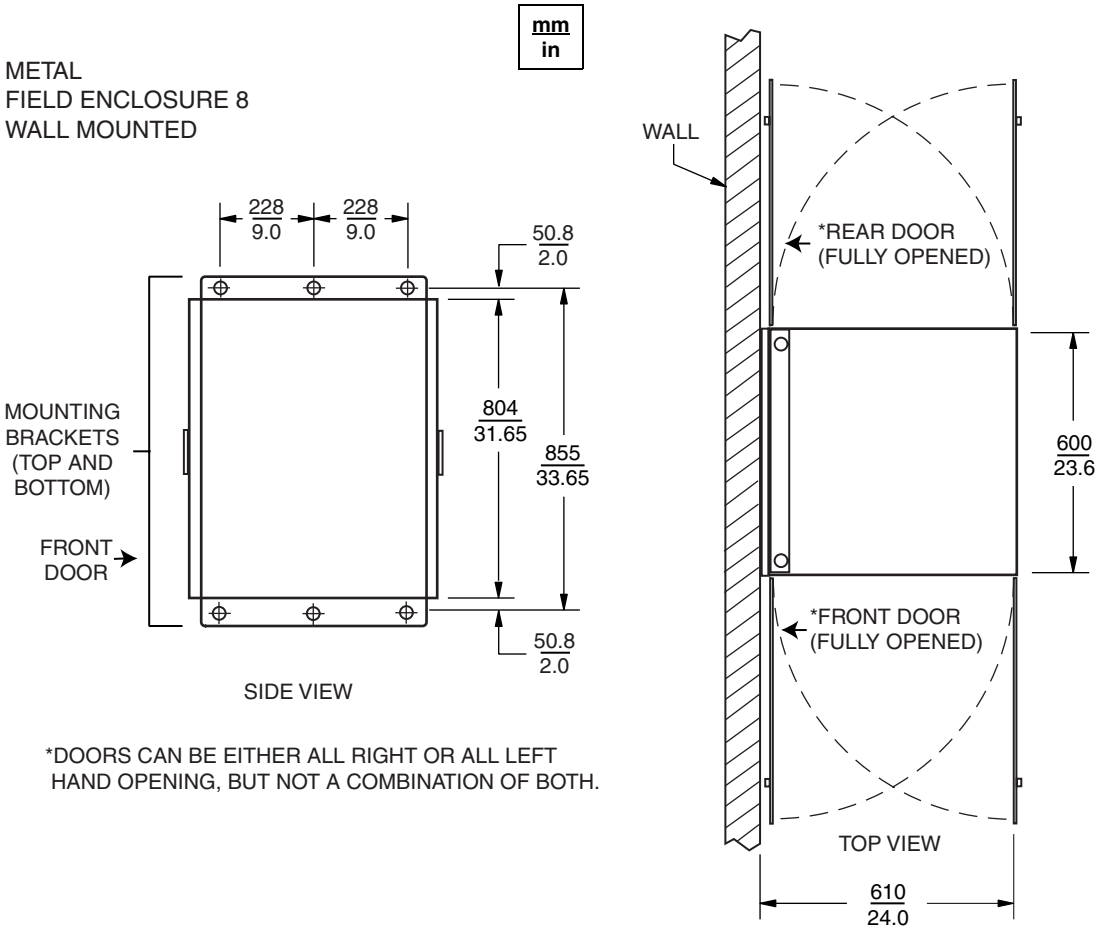
DIMENSIONS - NOMINAL



DIMENSIONS - NOMINAL



DIMENSIONS - NOMINAL



RELATED PRODUCTION SPECIFICATION SHEETS (PSS)

PSS Number	Description
PSS 21H-5B4 B4	19-Inch Modular Mounting Structure Assemblies
PSS 21H-5E1 B3	Enclosure Agency Certification
PSS 21H-2W1 B3	DIN Rail Mounted FBM Subsystem Overview
PSS 21H-4F1 B4	FNEMA 4/4X Hardened Enclosure
PSS 21H-2X3 B4	B03 Enclosure
PSS 21H-2X4 B4	B04 Enclosure
PSS 21H-2X5 B4	B05 Enclosure



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