FOXBORO®

PSS 21H-5C1 B4

I/A Series® Hardware
Fieldbus Module Metal Enclosure 60

The Fieldbus Module Metal Enclosure 60 (ME60) is a metal enclosure subsystem which provides power, housing, and communications exclusively for 60 Fieldbus Modules (FBMs), or 57 FBMs and three (optionally redundant) Fieldbus isolators.

The ME60 complete hardware package includes the following:

- ME60 vented enclosure with front and rear access
- Five 1x12 Fieldbus Module Mounting Structures to mount FBMs and Fieldbus isolators on the internal mounting rails; with optional power supply alarm circuits to monitor power levels
- Two fan assemblies to circulate air and disperse heat
- Power supply (optionally redundant) to provide and maintain power for the five 1x12 FBM Mounting Structures
- Power Distribution Unit (optionally redundant) to direct factory power to power supplies and fan assemblies
- Over temperature sensor to indicate elevated temperature
- All necessary cabling.

All hardware listed above is mounted on standard 483 mm (19 inch) mounting rails in the ME60, except for one type of power supply tray, which is mounted on 660 mm (26 inch) rails.

HARDWARE DESCRIPTIONS

The hardware in the following sections is included in the Fieldbus Module Metal Enclosure 60 (ME60).

As symbolized by the "**CE**" Logo marking, the Fieldbus Module Metal Enclosure 60 is in compliance with all applicable European Union directives when installed according to the instructions in the "*1x12 Fieldbus Module Configurable Mounting Structure Kit Installation and Wiring Instructions*", Foxboro Part No. B0400PK.

The ME60 and its associated equipment is shown in Figure 1.

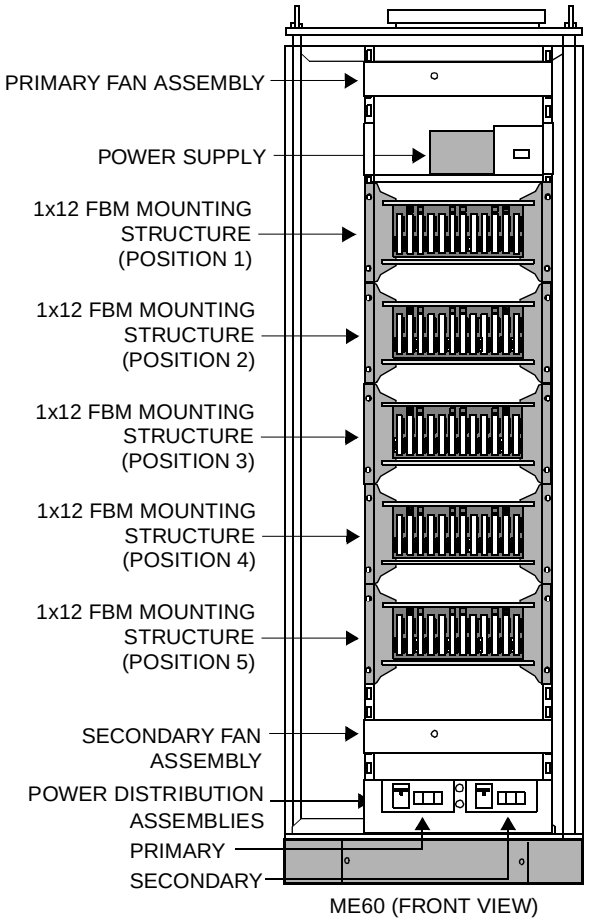

Figure 1. ME60 Enclosure

Fieldbus Module Metal Enclosure 60 (ME60)

The ME60 is a NEMA 12 vented metal enclosure with front and rear access with a compact design to minimize use of floor space, and maximize density of enclosures in a control room environment. The ME60 has dimensions of 800 x 800 x 2200 mm (31.5 x 31.5 x 86.6 in), and allows bottom cable entry. Its exterior has tool-operated door locks on the front and rear doors.

There are four eyebolts for transporting and lifting the enclosures. A ground bus located on the rear of the enclosure accommodates the termination of field input cable shields.

The ME60 enclosure provides the outer layer of protection for the FBMs and associated equipment. Other layers are provided by the module covers and protection within the module. This approach to protection allows a minimum of contaminants in the plant environment to reach the control components, greatly extending the life of the equipment.

Vertical mounting rails are installed in the front and rear of the ME60. The front mounting rails are 483 mm (19 inch) apart and support the 1x12 FBM Mounting Structures, a power supply tray, fan assemblies, and Power Distribution Units. The rear rails support an optional second power supply tray.

Field wiring entry is available via access plates at the base on the enclosure.

Rear Mounting Rails

The rear mounting rails are set up in one of two configurations to support the Termination Cabling Assemblies (TCAs) more efficiently:

- to install TCAs on ten horizontally mounted DIN rail supports, the rear mounting rails are configured 483 mm (19 inch) apart.
- to install TCAs on four vertically mounted DIN rail supports, the rear mounting rails are configured 660 mm (26 inch) apart.

There are three types of TCAs, depending on the FBMs used in the ME60: a single unit TCA for most analog FBMs with wire termination, a double unit TCA for digital FBMs with wire termination, and a four unit TCA for digital FBMs with ring terminals. The rear DIN rails are installed horizontally when the majority of TCAs in the ME60 are single or double sized units. In this configuration, the DIN rails each have space for nine units of TCAs, for a total of 90 units of space.

The rear DIN rails are installed vertically when multiple four unit sized TCAs used required in the ME60. In this configuration, the DIN rails each have space for 38 units of TCAs, for a total of 152 units of space.

Both these DIN rail configurations are shown in Figure 2.

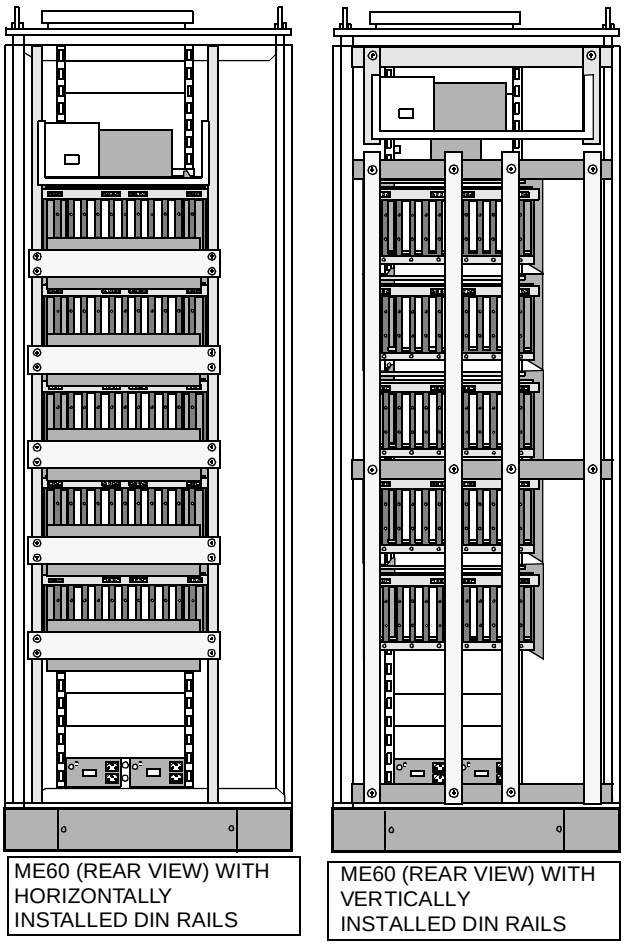

Figure 2. DIN Rail Configurations

1x12 Fieldbus Module Mounting Structure

The 1x12 FBM Mounting Structure is a 19 inch wide rack-mounted assembly designed to house and distribute power to up to twelve FBMs, or eleven FBMs and one (optionally redundant) Fieldbus isolator. It contains three four-slot molded connector blocks (for a total of twelve slots) numbered one through twelve on the front of the structure. All twelve slots can be assigned to a single Fieldbus.

The first slot connector block can accept Fieldbus isolator modules (for Bus A and Bus B) to allow remote Fieldbus communication. With the isolator(s) located in the 1st slot position, up to eleven (11) FBMs in this structure can communicate with an I/A Series Control Processor.

A short telephone plug style jumper cable can link two structures to support up to 24 FBMs on a single Fieldbus, the maximum number of FBMs that a single Fieldbus can maintain.

Each structure can contain optional power supply alarm circuits, which alert customer-supplied equipment when the incoming supply voltage for each structure drops below normal operative levels.

The 1x12 FBM Mounting Structure complies with the European Low Voltage Directive 73/23/ECC and Electro Magnetic Compatibility Directive 89/336/EEC when used according to Foxboro's installation instructions for European Applications.

The ME60 contains five 1x12 FBM Mounting Structures.

Power Supply

The 1500 W power supply distributes sufficient power to support 60 FBMs in the ME60. The power supply can support systems with 120 V ac, and 220 to 240 V ac power.

Each power supply includes a power supply tray for mounting the supply on its respective mounting rails. The primary power supply includes a tray which mounts on the front 483 mm (19 inch) mounting rails in the ME60. The secondary power supply (if needed) includes one of two trays which can be installed on the rear DIN rails:

- a 483 mm (19 inch) tray for enclosures with TCAs mounted on horizontally installed DIN rail supports
- a 660 mm (26 inch) tray for enclosures with TCAs mounted on vertically installed DIN rail supports.

A shroud on the tray covers the power supply input/output terminals.

Fan Assembly

Each fan assembly contains three 100 mm (4 inch) fans which circulate air inside the ME60 enclosure to cool the FBMs and their associated equipment. It is mounted on the front 483 mm (19 inch) mounting rails in the ME60 enclosure.

The ME60 contains two fan assemblies. There are two versions: with 120 V ac, and 220 to 240 V ac.

Power Distribution Unit (PDU)

Power Distribution Units (PDUs) accept customer power and direct it to the power supplies and fan assemblies.

PDUs are mounted on the 483 mm (19 inch) front mounting rails with a PDU mounting bracket. One PDU is required for primary power, and a second PDU is required for secondary power, if applicable.

Over Temperature Sensor

Each 1x12 Fieldbus Module Mounting Structure Kit includes an over temperature sensor for installation in the enclosure. This sensor contains a normally open contact which closes if the internal enclosure temperature exceeds normal operating levels.

Connections from the sensor can be made to an FBM (such as the FBM07) for monitoring and alarming within the I/A Series system or to an external alarm device.

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FUNCTIONAL SPECIFICATIONS

ME60
Vented doors

Input Voltage (ME60)
120, 220 to 240 V ac +10, - 15%

Input Frequency
50 to 60 Hz
47 to 63 Hz

Power Supply Voltage
INPUT VOLTAGE
120, 220 to 240 V ac 50/60 Hz (47-63 Hz)
+10%, - 15%
OUTPUT VOLTAGE
28 Vdc

1x12 FBM Mounting Structures
The environmental specifications for the 1x12 FBM Mounting Structures are fully dependent upon the limits and constraints of the Fieldbus Modules and Fieldbus isolators residing within.
ALARM RELAY CONTACTS - POTENTIAL FREE OR ISOLATED FORM C
3 W at 28 V dc (maximum) noninductive

ME60 ENVIRONMENTAL SPECIFICATIONS

Operating
TEMPERATURE
0 to 40°C (32 to 104°F)
RELATIVE HUMIDITY
5 to 95% (noncondensing)
ALTITUDE
-300 to +3,000 m (-1,000 to +10,000 ft)
VIBRATION
5 to 200 Hz, 0.1 G peak amplitude

Storage Temperature (Fully Loaded)
-40 to 85°C (-40 to 185°F)

Contamination Class
Class G1 (Mild) as defined in ISA Standard, S71.04

Regulatory Compliance
EUROPEAN DIRECTIVES
EMC Directive 89/336/EEC
Low Voltage Directive (LVD) 73/23/EEC
CE Marking 93/465/EEC
ADDITIONAL DIRECTIVES
Canadian Standards Association (CSA) C22.2 No. 142
Factory Mutual (FM) FM 3810
See PSS 21H-5E1 B3 for details on CSA and FM certification.

PHYSICAL SPECIFICATIONS

Mass

ME60 - FULLY LOADED WITH REDUNDANT POWER SUPPLIES, 57 FBMS AND TCAS
350 kg (780 lb)

1X12 FBM MOUNTING STRUCTURE
Empty
4.95 kg (10.9 lb)

Fully Loaded (12 FBMs)
16.96 kg (37.3 lb)

POWER SUPPLY TRAY
483 mm (19 in) wide
1.80 kg (3.98 lb)

FAN ASSEMBLY
3.36 kg (7.41 lb)

POWER SUPPLY
10.2 kg (22.5 lb)

Mounting (ME60)

FRONT RAILS
483 mm (19 in) mounting rails

REAR RAILS
483 mm (19 in) horizontally installed mounting rails, or 660 mm (26 in) vertically installed mounting rails

Construction

ME60 ENCLOSURE
Sheet steel, electrophoresis dip bath primer, modified alkyd enamel paint, textured finish

1X12 FBM MOUNTING STRUCTURE
(Case) Molded plastic and sheet metal

POWER SUPPLY TRAY
Sheet metal

FAN ASSEMBLY
Stamped sheet metal

Field-Wire Termination (Maximum) for ME60 (Front and Rear Access)(a)

HORIZONTALLY MOUNTED DIN RAILS
Two DIN rail supports per 1x12 FBM Mounting Structure (10 total), with space for 9 units per DIN rail support

VERTICALLY MOUNTED DIN RAILS
Four DIN rail supports, with space for 38 units per DIN rail support

Field Termination Connections

Discrete Wire Block or 34-Pin Plug Connector (mates with Burndy MSD34 PM118 or equivalent)

(a) Three TCAs are used, depending on the FBM: a single-sized unit TCA for most analog FBMs with wire termination, a double-sized unit TCA for digital FBMs with wire termination, and a quadruple-sized unit TCA for digital FBMs with ring terminals.

DIMENSIONS - NOMINAL

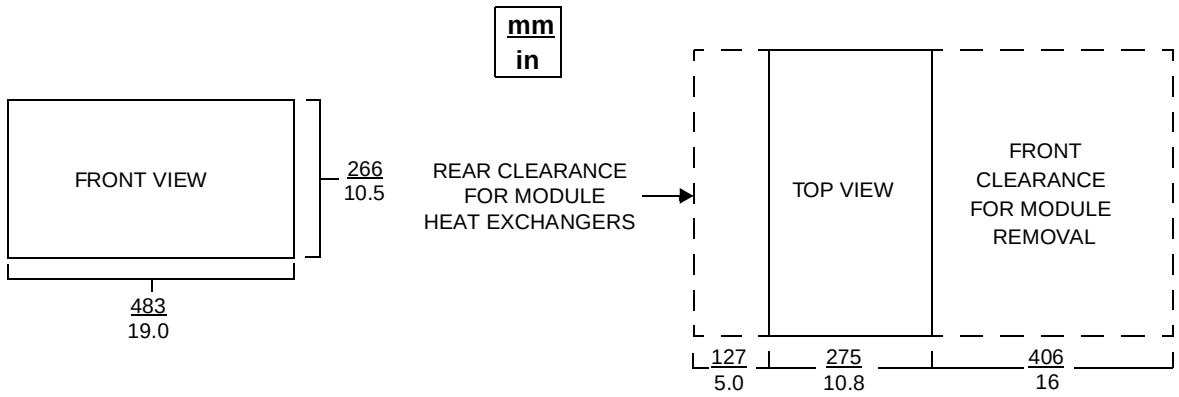


Figure 3. 1x12 Fieldbus Module Mounting Structure Dimensions

DIMENSIONS - NOMINAL (CONT.)

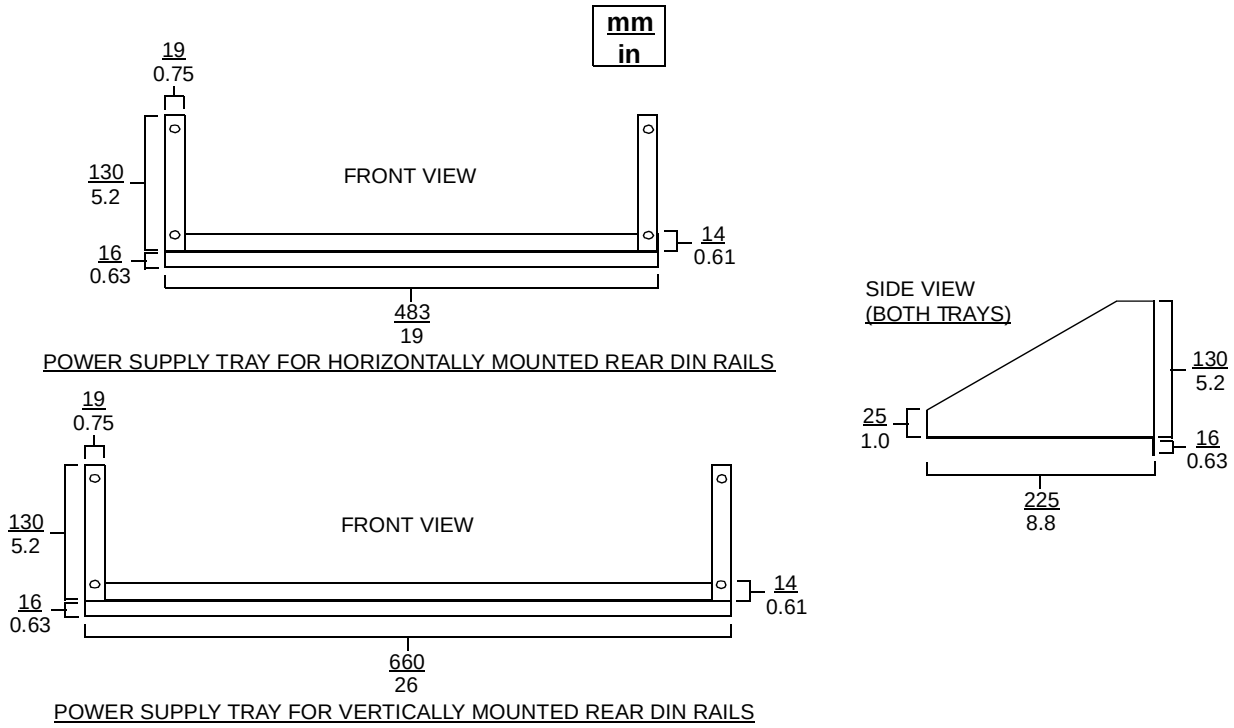


Figure 4. Power Supply Tray Dimensions

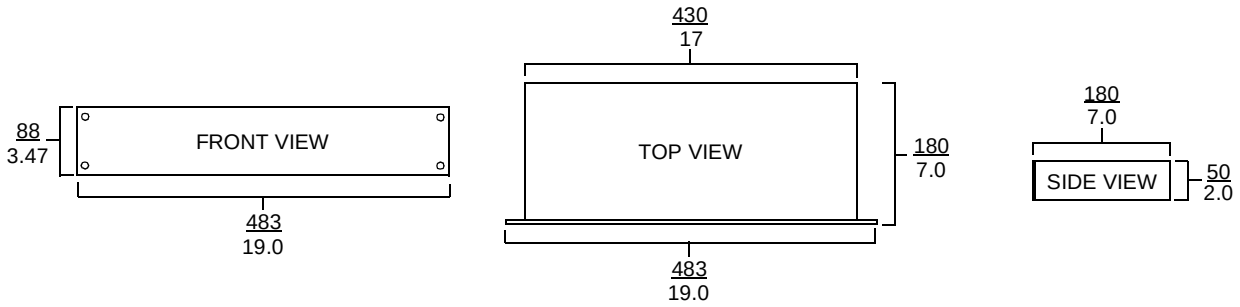


Figure 5. Fan Assembly Dimensions

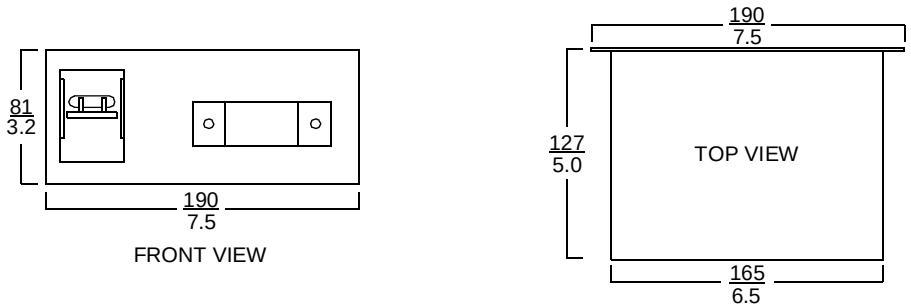
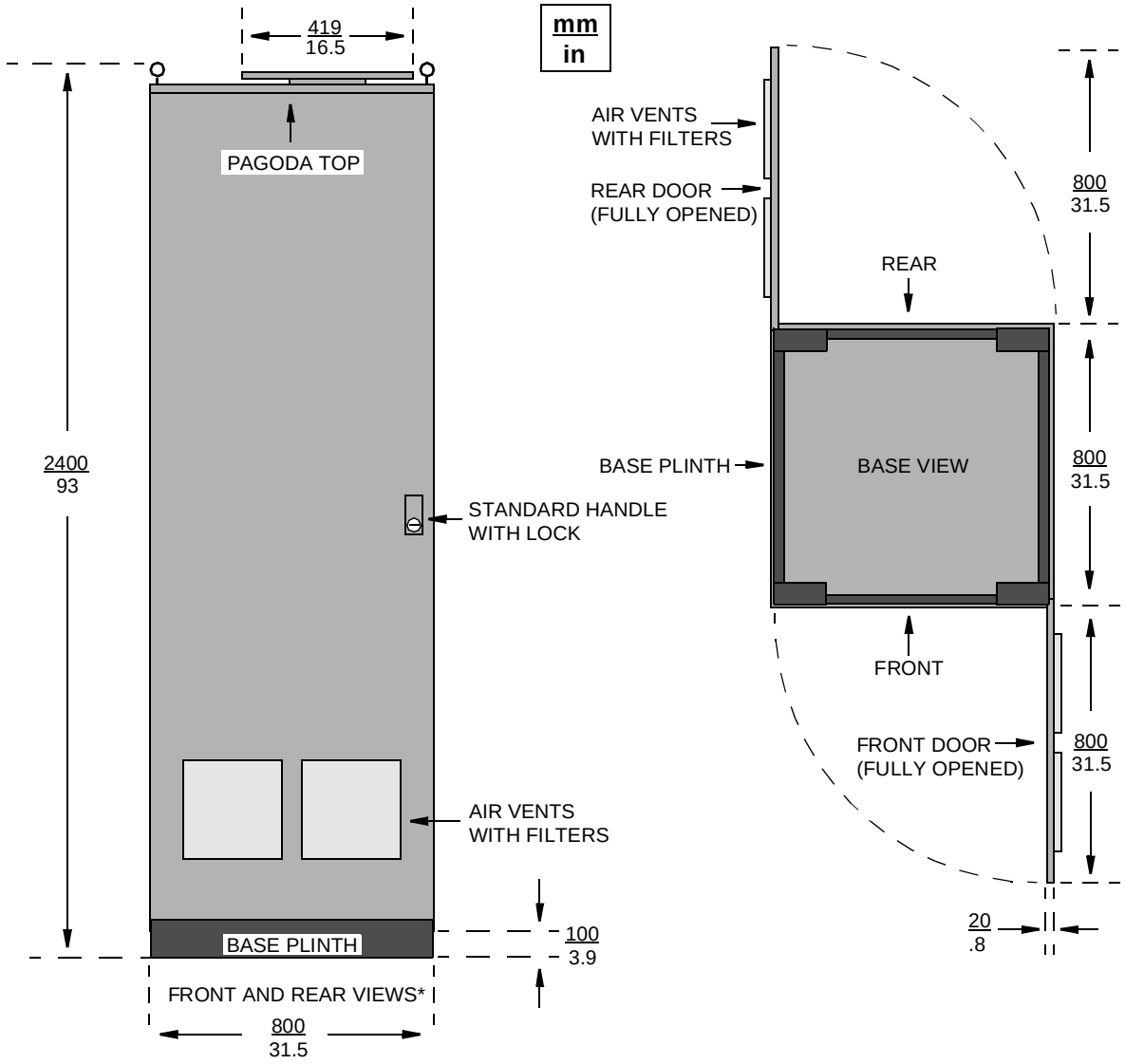


Figure 6. Power Distribution Unit Dimensions

DIMENSIONS - NOMINAL (CONT.)



* FRONT AND REAR VENTED DOORS ARE IDENTICAL.

Figure 7. Fieldbus Module Metal Enclosure 60 Outer Dimensions

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