Foxboro Evo™ Process Automation System

Product Specifications

Foxboro®

by Schneider Electric

PSS 31H-2G50

G50 Server Enclosure

Note: Shown without Cable Base (Included)

The Foxboro Evo™ G50 Server Enclosure with front and rear access provides environmental protection and housing for compatible Foxboro Evo workstations, servers and the Foxboro Evo Control Network switches.

OVERVIEW

The Foxboro Evo G50 server enclosure is a general purpose unit designed for housing compatible servers, switches and related equipment on shelves or on its 19-inch racks. The G50 enclosure is available as a vented enclosure only.

The enclosure's rails provide 42 U of available vertical mounting space for rack-mounted or other equipment. The upper and lower halves of the enclosure are customizable, and may be either left empty or populated with various equipment configurations:

- Up to two sliding shelves; shelves can support the Windows® based tower workstations and servers, such as the Model H91 server, depending on the size and ventilation requirements of the equipment.

NOTE

It is recommended that when using sliding shelves, only one shelf is pulled out at a time to prevent the enclosure from becoming unbalanced.

- Equipment secured directly to the rails, such as the control network switches - depending on the sizing, power, cabling and ventilation requirements of the equipment.

  NOTE
  Typically, workstations and servers are installed for access from the enclosure front, while switches are installed for access from the enclosure rear.

The G50 enclosure is a free-standing, floor mounted unit with an NEMA 1(1) rating for location in protected indoor environmental areas. No fans are provided with this enclosure as all enclosed equipment (servers, switches, and so forth) are assumed to have their own fans.

FEATURES

The G50 server enclosure with front and rear access offers the following features:

- 600w x 1000d x 2000mm high enclosure, available as vented only
- Front and rear accessible 19-inch system rails, with 42 U of available vertical mounting space (1U = 44mm (1.75 in))
- Enclosure front access with left- or right-side mounted door - rear access with half-width doors
- Main power entry includes 16 A, Type D, double pole circuit breakers for 120/240 V ac systems.
- Enclosure selection for use in indoor NEMA 1 rated (not IP rated) temperature-controlled environments
- Enclosure can accommodate:
  - Up to two sliding shelves per enclosure for Model H90 server, H91 server or Model H92 workstations; each shelf with up to two pairs of power strips (16A max/10A per socket)
  - Rack-mounted equipment secured directly to the 19-inch rails, such as the control network switches, depending on sizing, power, cabling and ventilation requirements.
- Compact design to minimize use of floor space with both front and rear access that allow maximum density of enclosures in a control room environment
- Bottom or top cable entry for power wiring, but can be customer configured for simultaneous top and bottom cable entry
- Up to four redundant power strips (four primary and four secondary) per enclosure (eight total)
- Conveniently placed eyebolts for transporting and lifting the enclosures
- A 100 mm (3.9 in) plinth - total enclosure height of 2160 mm (85.0 in)
- Comfort handles with push-button/keylocks
- Standard safety earthing (grounding) studs.

(1) The G50 enclosure does not have an IP rating as air flow is allowed through ceiling, floor and all walls.

SAMPLE CONFIGURATIONS

The G50 enclosure can fit a variety of servers, switches and their associated power supplies and support equipment.

The following examples are provided as viable examples for configurations in this enclosure.

Figure 1 illustrates configurations for the control network switches in the G50 enclosure.

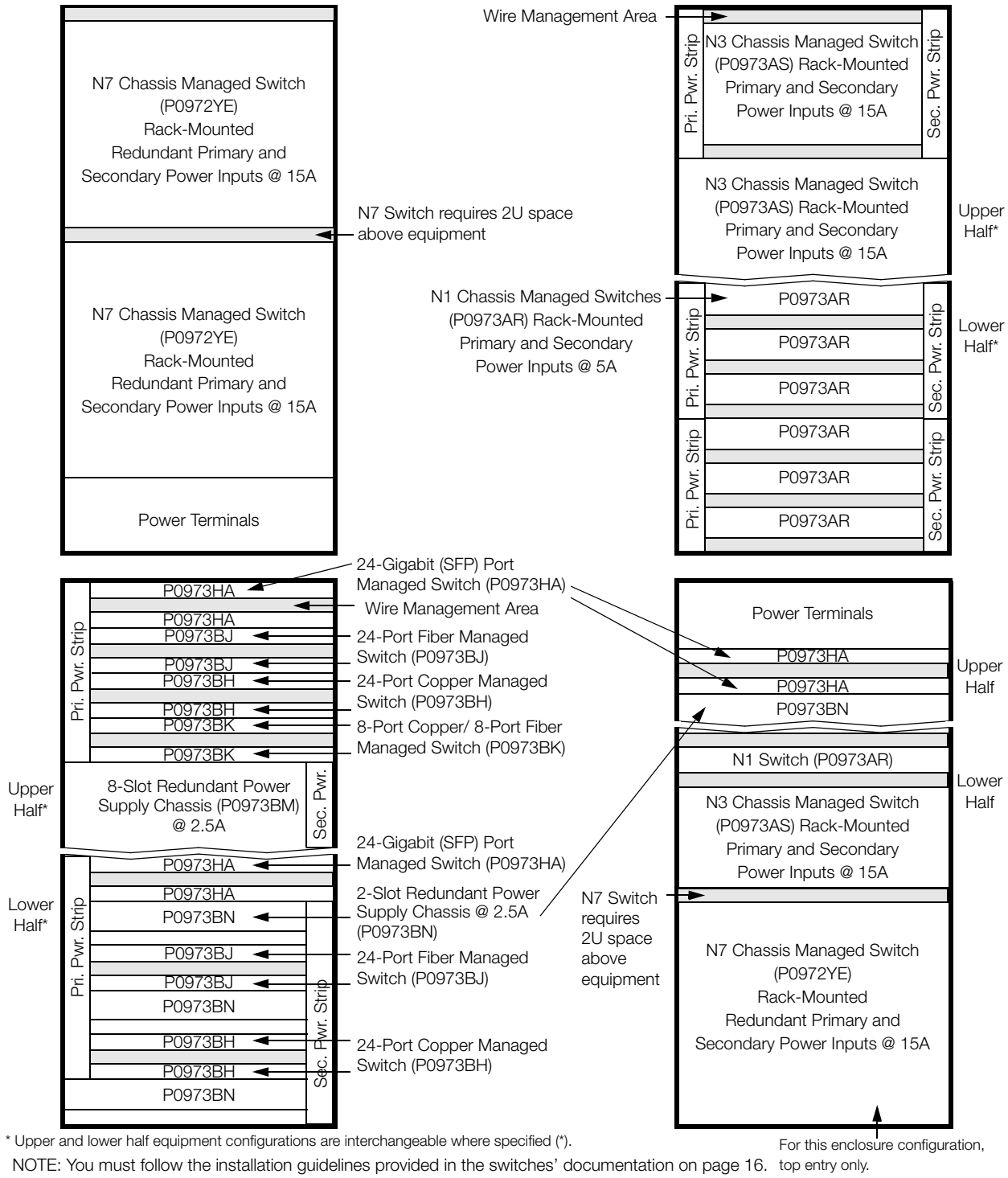
NOTE

All switches must be installed in the G50 enclosure with the site requirements listed in their documentation. Refer to “SITE PLANNING FOR SWITCHES” on page 17 to locate the appropriate documentation.

Figure 2 and Figure 3 illustrate configurations for the servers or workstations in the G50 enclosure.

NOTE

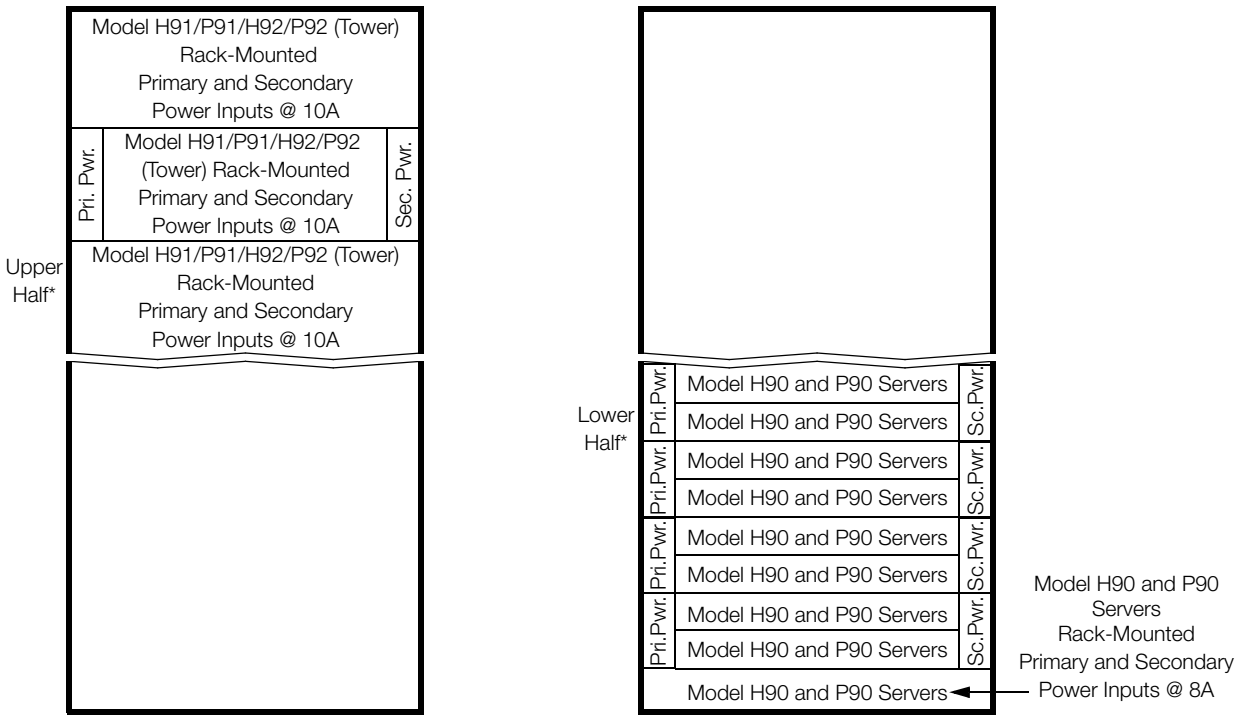
In the following figures, the power strips are shown on the sides of the switches/servers to represent their association with the switches/servers on their half of the enclosure. In the field, power strips are mounted on front or rear side of the enclosure based on the configuration.



* Upper and lower half equipment configurations are interchangeable where specified (*).

NOTE: You must follow the installation guidelines provided in the switches' documentation on page 16.
All part numbers are subject to change. Other equipment may be installed, per its specifications.

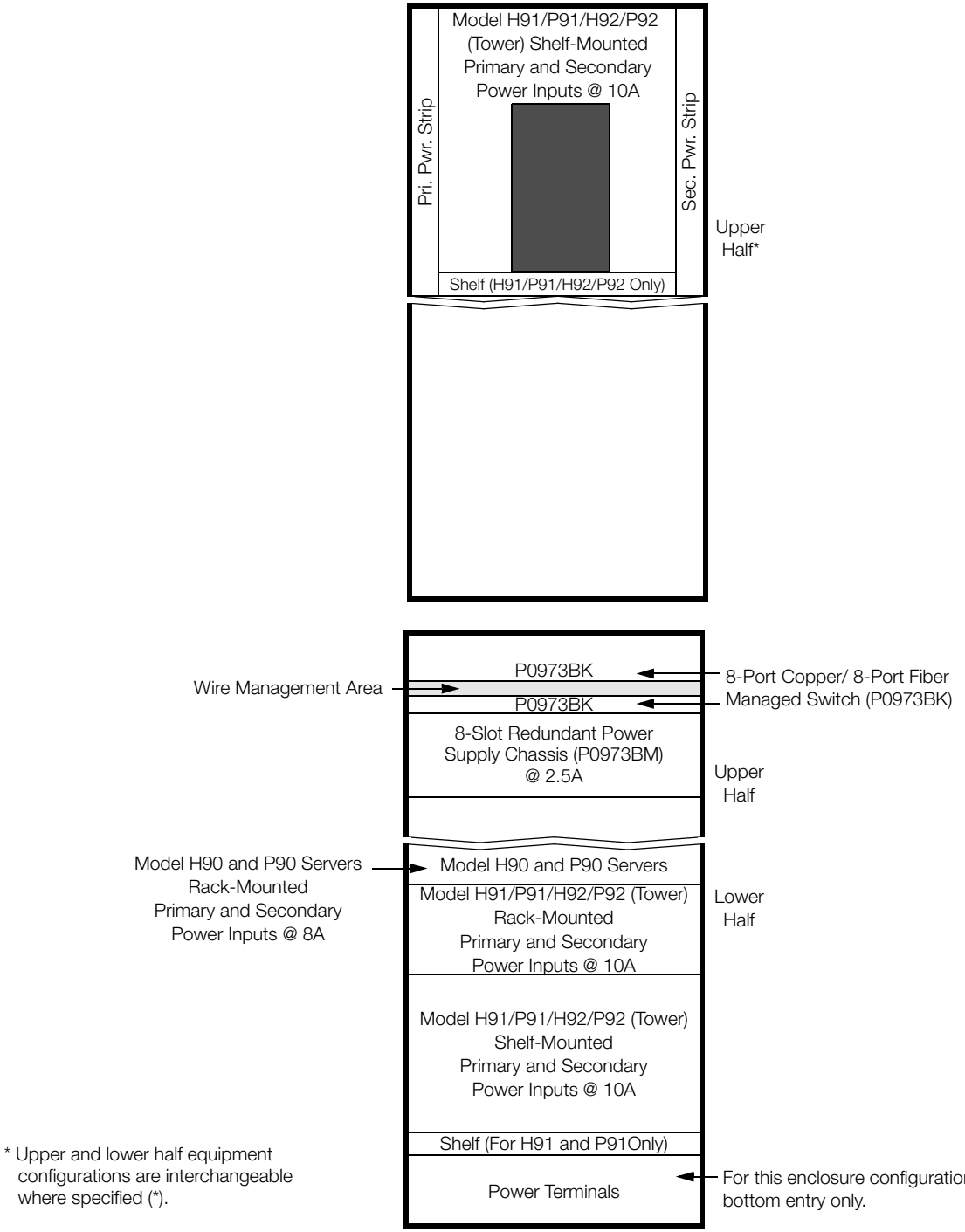
Figure 1. Example Configurations for The Foxboro Evo Control Network Switches in G50 Enclosure (Part 1)



* Upper and lower half equipment configurations are interchangeable where specified (*). Be aware that a G50 enclosure can have no more than four primary and four secondary power strips.

NOTE: All part numbers are subject to change. Other equipment may be installed, per its specifications.

Figure 2. Example Configurations for Control Core Services Workstations and Servers in G50 Enclosure (Part 1)



NOTE: You must follow the installation guidelines provided in the switches' documentation on page 16.
All part numbers are subject to change. Other equipment may be installed, per its specifications.

Figure 3. Example Configurations for Control Core Services Workstations and Servers in G50 Enclosure (Part 2)

BAYING G50 ENCLOSURES

Multiple G50 enclosures can be installed connected to one another to maximize the use of floor space and ease of cabling. The enclosures can be bayed together using kit P0931VV, discussed in the *Enclosures and Mounting Structures - Site Planning and Installation User's Guide* (B0700AS).

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION RATING

The metal enclosures provide the outer layer of protection for the equipment contained within to support a NEMA 1 rating. When the equipment includes covers or layers built into the equipment itself, a minimum of contaminants in the plant environment reaches the equipment, thus greatly extending its life.

The enclosures support convenient top or bottom cable entry for power wiring.

EQUIPMENT MOUNTING

All equipment installed in this enclosure must be attached to the 19-inch rails directly or indirectly via a sliding shelf. As well, all equipment must be able to fit within the physical constraints of the enclosure with sufficient space for air flow and associated cabling, including cable routes, sufficient bend radius and dressing.

All servers, switches and similar equipment which require air intake must be installed to maintain a consistent air flow in a single direction in the enclosure. The air intakes for these equipment must face the same direction, and their exhausts must face the same direction to ensure that no hot exhaust from one piece of equipment enters in the air intake of another.

NOTE

Ensure that the front and rear doors on the enclosure allow for unrestricted air flow, and are not obstructed by objects such as print pockets.

INPUT POWER CABLING

The enclosures can be configured for bottom cable entry or top cable entry or modified by the customer for simultaneous top and bottom cable entry.

For the top cable entry version, customer power feeds enter through customer-configured cable glands.

For the bottom entry version, the power cables enter through removable gland plates, located at the bottom (inside) of the enclosure, which can be removed, drilled, or punched for cable routing.

POWER AND EARTHING (GROUNDING)

Power wiring to the enclosure is routed through the bottom (through removable gland plates) or top of the enclosure. Customer-supplied dual power input feeds terminate at circuit breaker assemblies.

All enclosure structural elements are integrally earthed by the enclosure design to meet the appropriate industry regulations and standards.

Earthing (Grounding)

Two M8 studs (one for each enclosure side) provide a central earth (ground) point and dedicated earthing points when baying enclosures together.

Power Distribution

Each enclosure is available with a dedicated assembly for customer redundant main power. Power distribution is provided by 16 A, Type D, double pole circuit breakers for 120/240 V ac systems.

The enclosure may be ordered without these power distribution circuit breakers when the customer has requirements for power distribution specific to regional electrical codes.

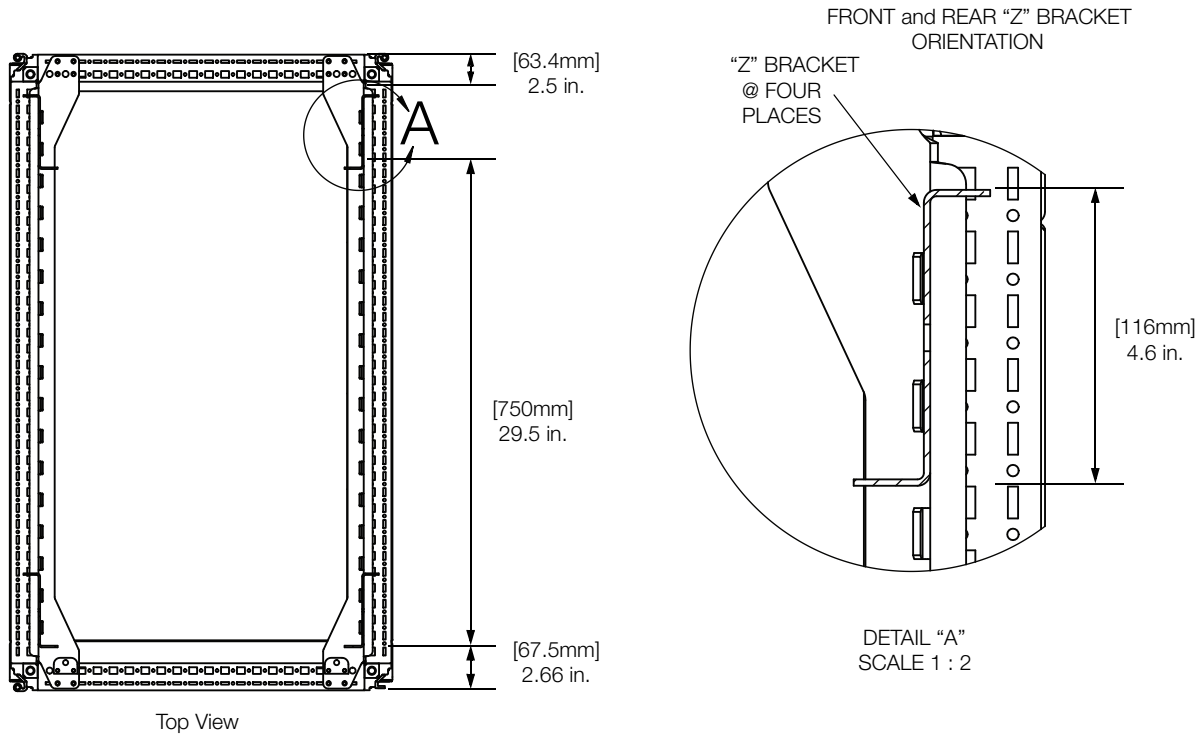


Figure 4. G50 Server Enclosure - Top View - Rails

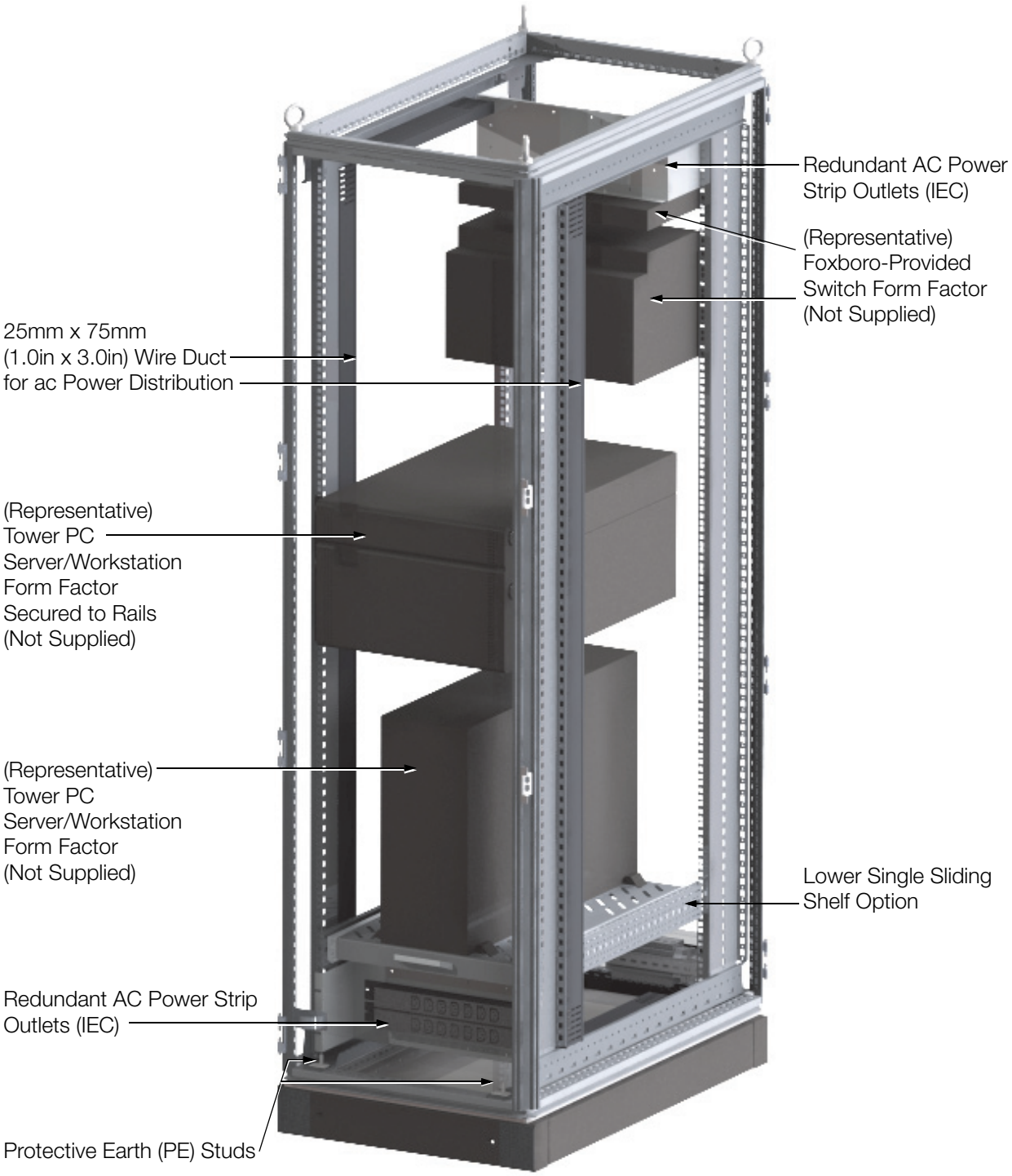


Figure 5. G50 Server Enclosure With Server, Bottom Entry, Front View

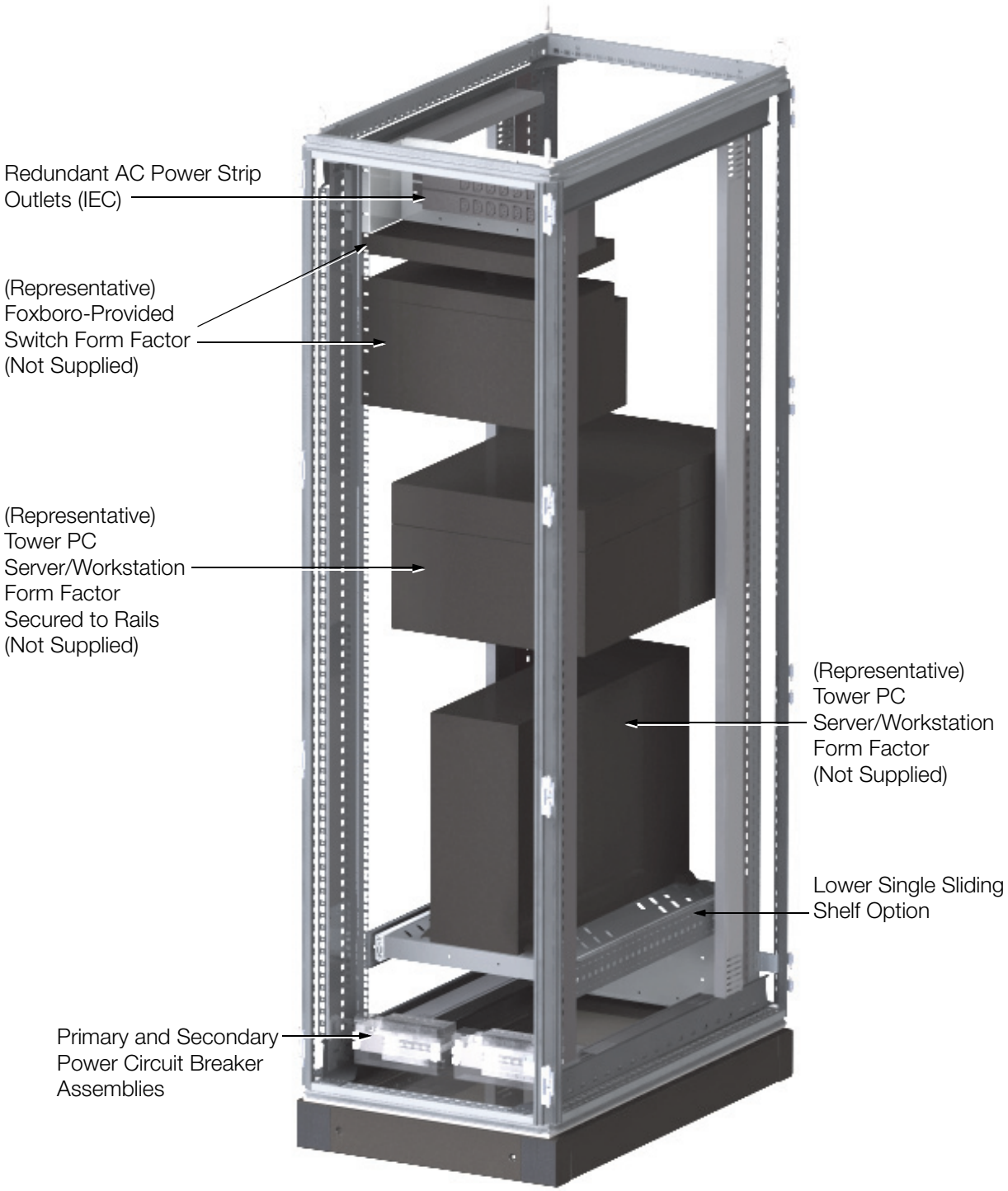


Figure 6. G50 Server Enclosure With Server, Bottom Entry, Rear View

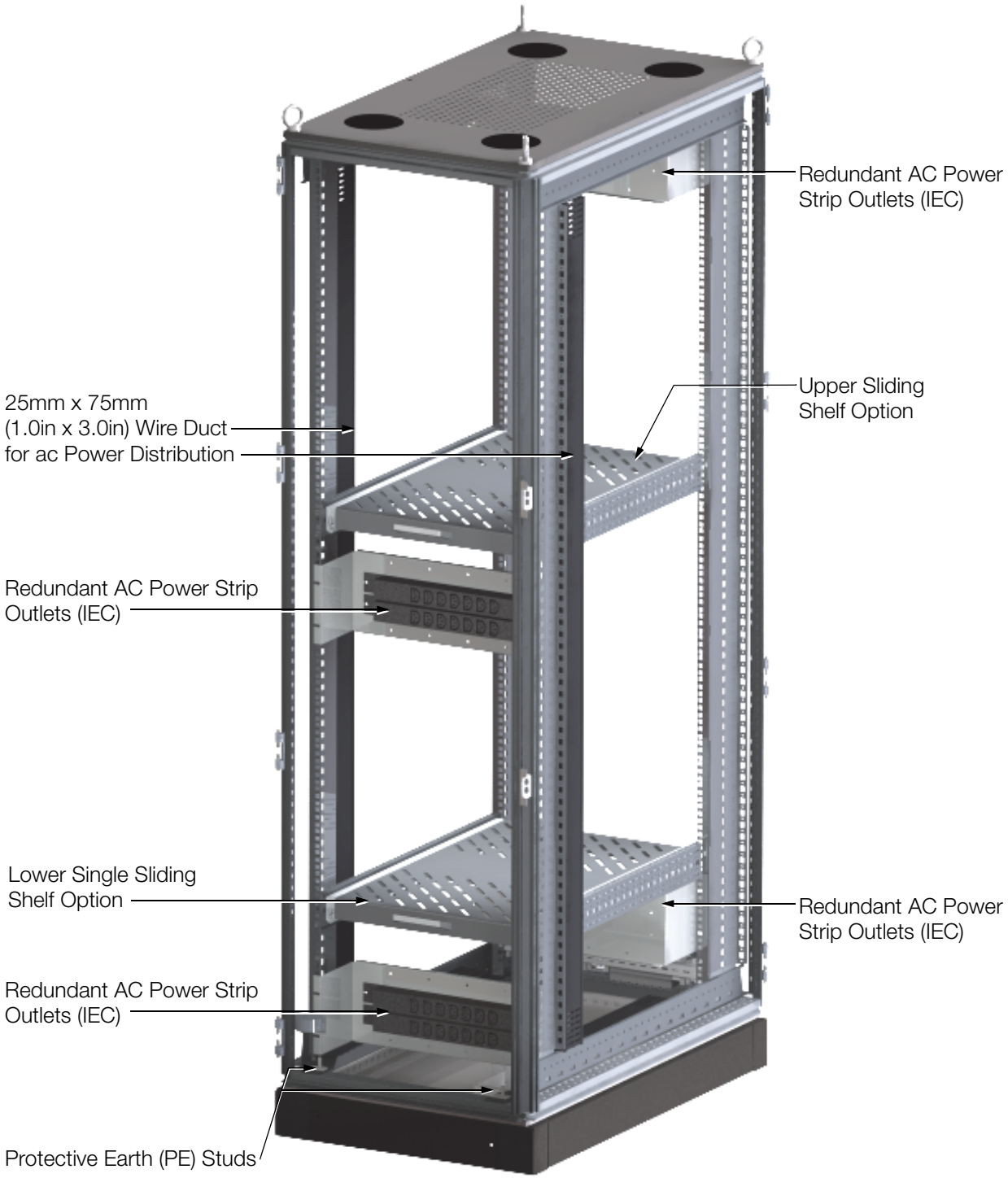


Figure 7. G50 Server Enclosure, Empty, Bottom Entry, Front View

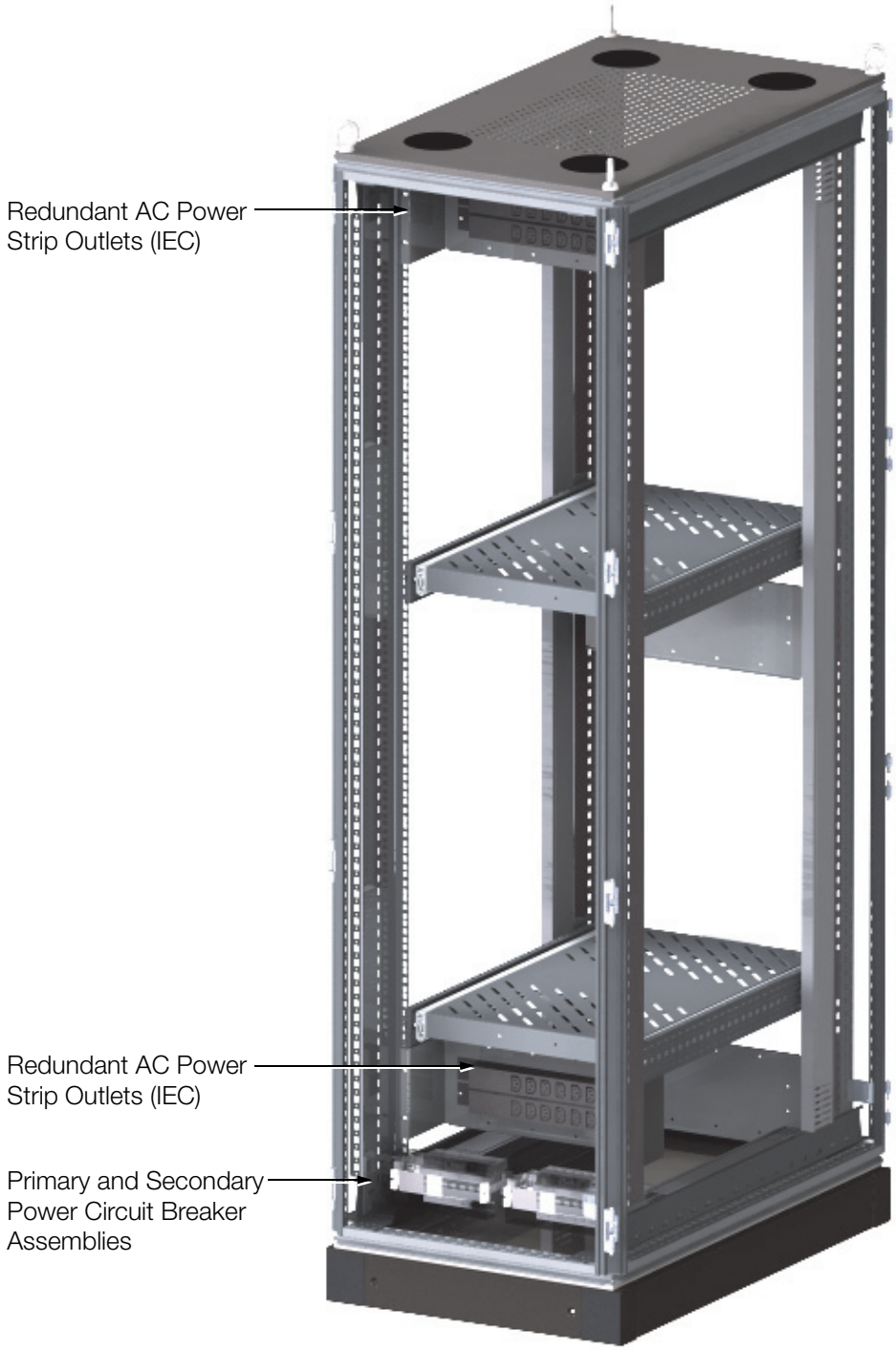


Figure 8. G50 Server Enclosure, Empty, Bottom Entry, Rear View

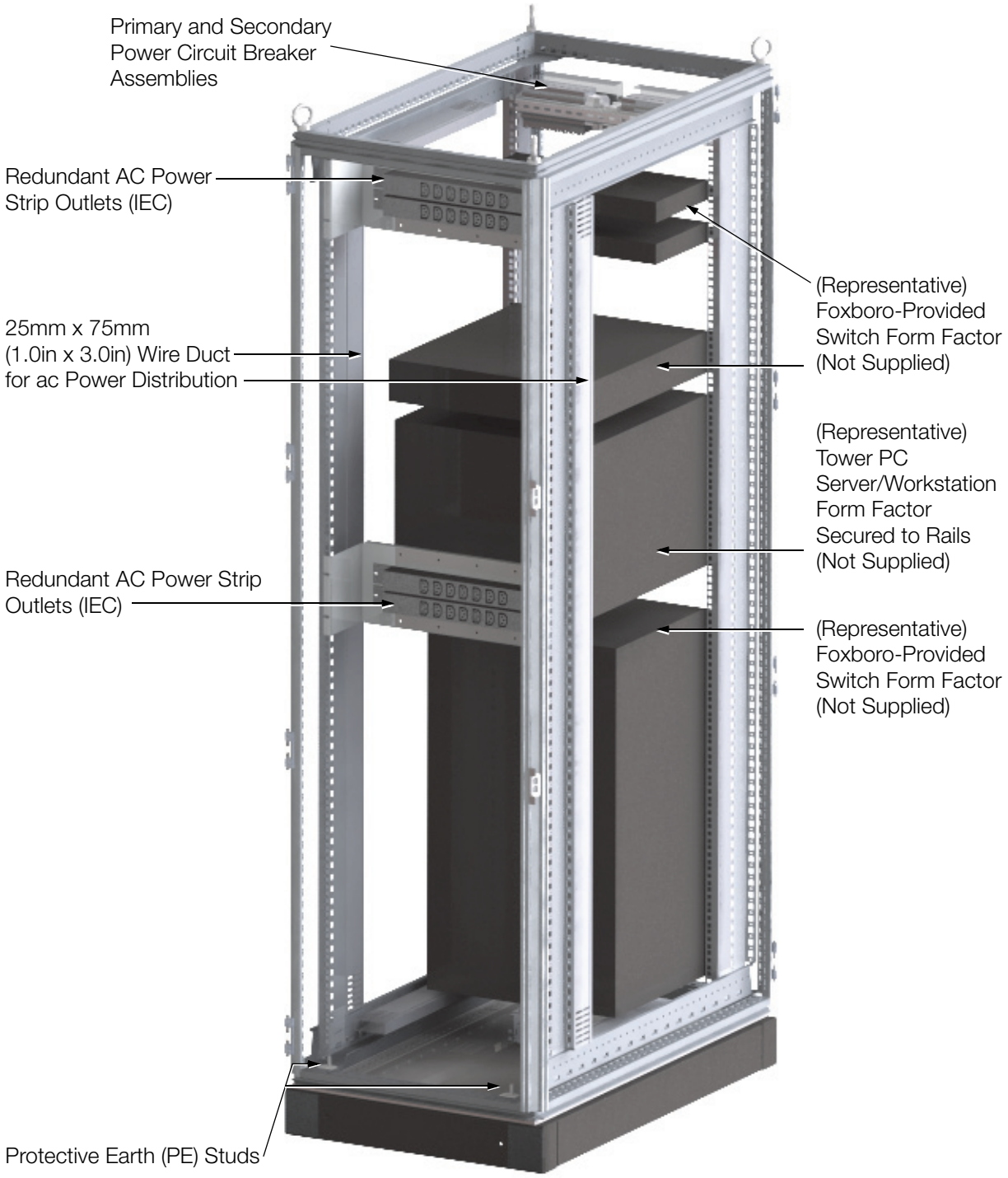


Figure 9. G50 Server Enclosure With Server, Top Entry, Front View

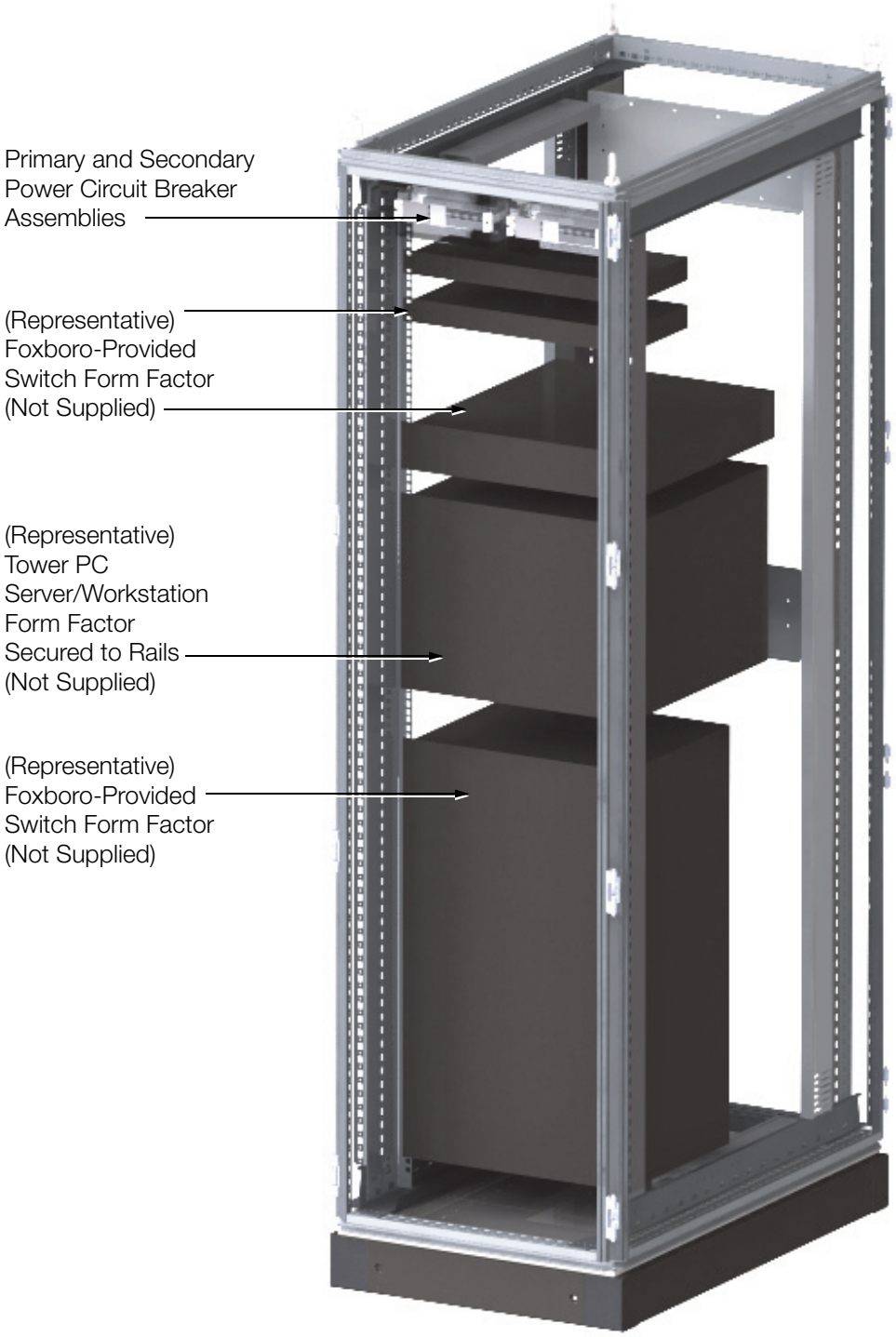


Figure 10. G50 Server Enclosure With Server, Top Entry, Rear View

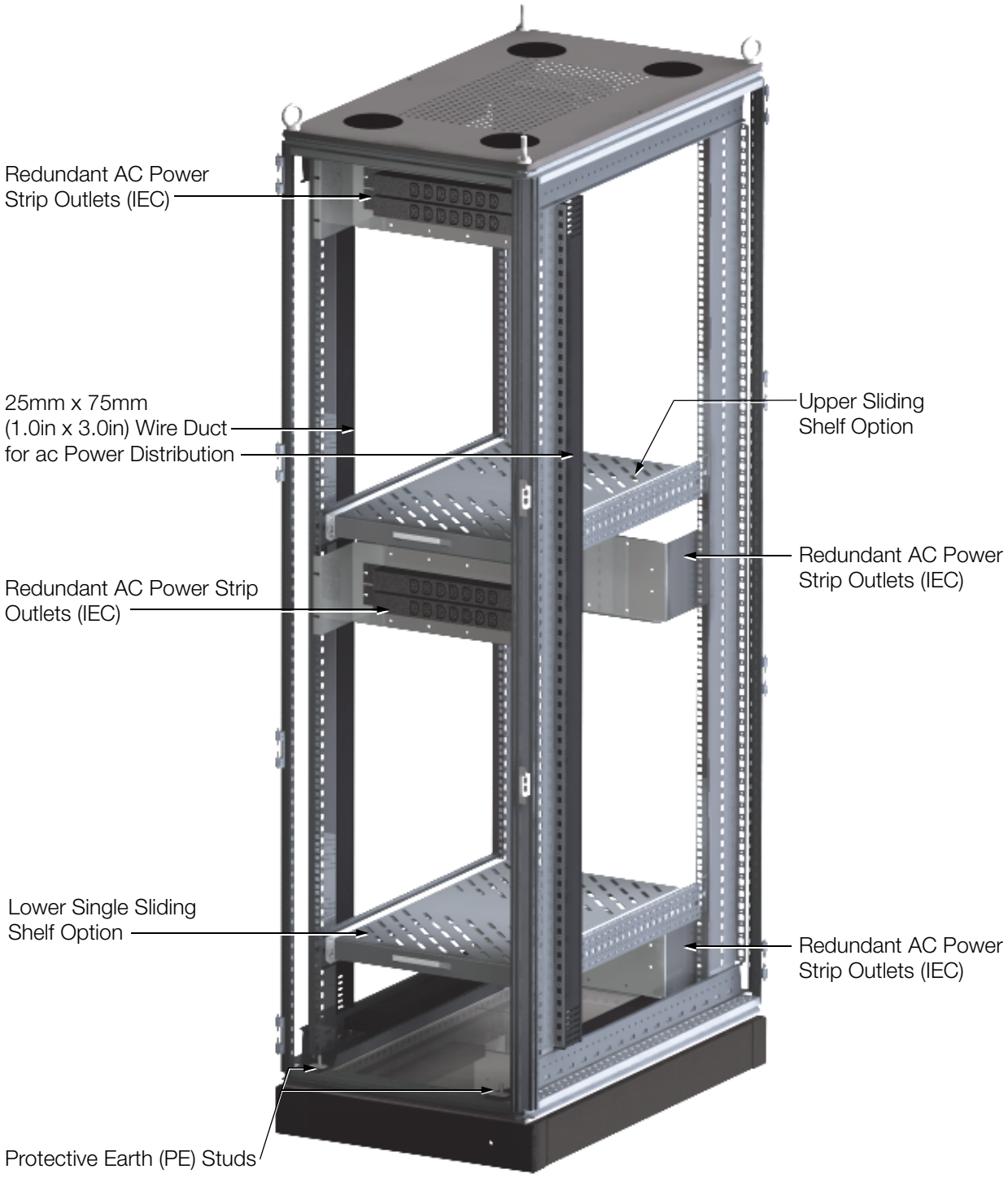


Figure 11. G50 Server Enclosure, Empty, Top Entry, Front View

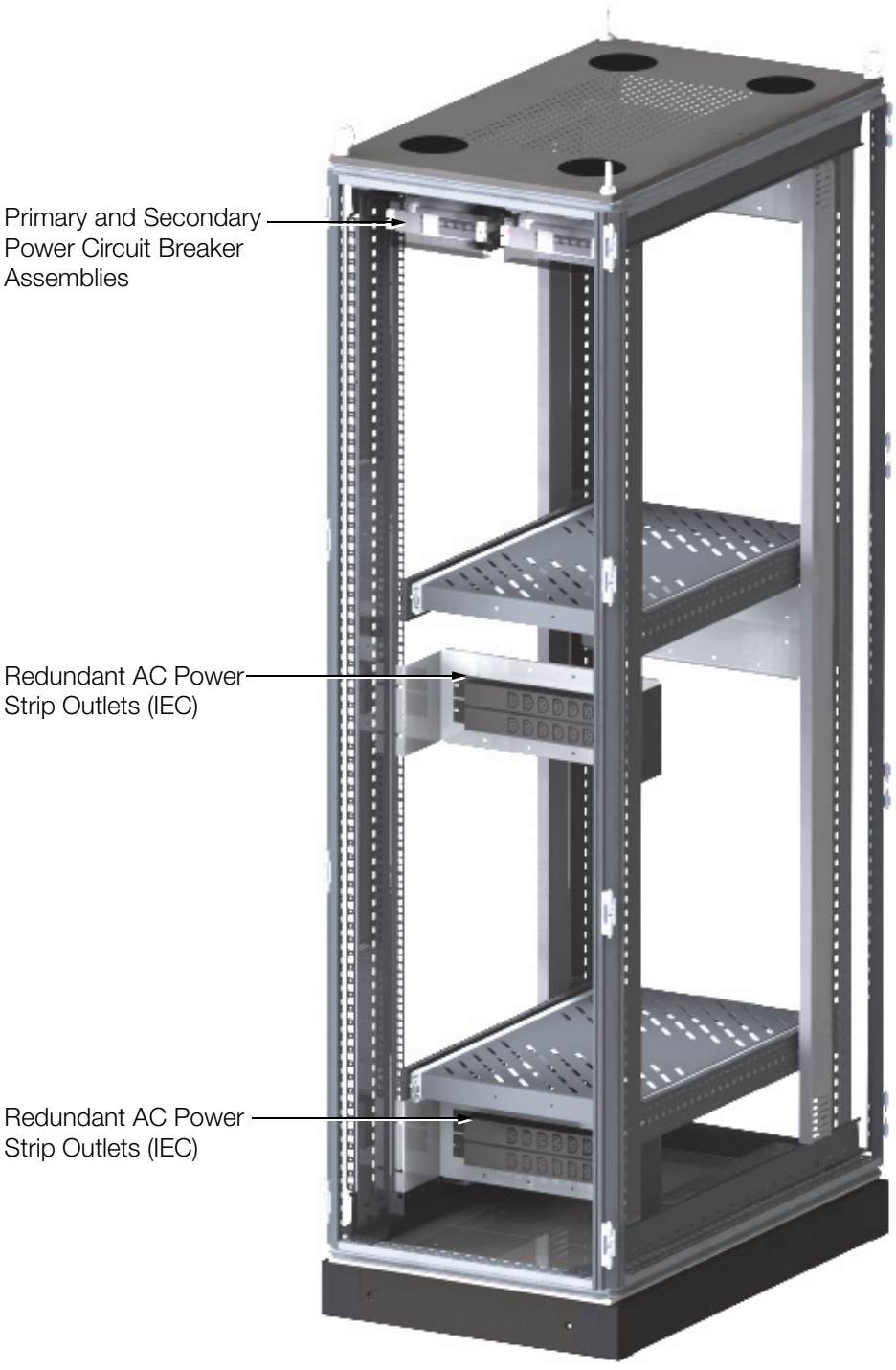


Figure 12. G50 Server Enclosure, Empty, Top Entry, Rear View

SITE PLANNING FOR SWITCHES

When planning a G50 enclosure with switches installed, you must ensure that the site requirements for the switches are maintained within the enclosures. These site requirements are in the documentation provided by Foxboro®.

Table 1 lists the Foxboro documentation for the switches currently offered(2). Refer to *The MESH Control Network Ethernet Equipment* (PSS 31H-7C3) for the complete list of switches and their associated Foxboro documentation.

Table 1. Foxboro Switches Currently Offered for G50 Enclosure

Description	Foxboro Manual
A-Series 24-Port Copper Managed Switch (P0973BH)	B0700CH
A-Series 24-Port Fiber Managed Switch (P0973BJ)	B0700CH
A-Series 8-Port Copper/ 8-Port Fiber Managed Switch (P0973BK)	B0700CH
C-Series 24-Gigabit (SFP) Port Managed Switch (P0973HA)	B0700CJ
N-Series N1 Chassis Managed Switch (P0973AR)	B0700CK
N-Series N3 Chassis Managed Switch (P0973AS)	B0700CK
N-Series N7 Chassis Managed Switch (P0972YE)	B0700CK
A4-Series Switches (P0973JM/P0973JN/P0973JP)	B0700CF
C-Series Switches (P0973KJ/P0973HA/P0973BL)	B0700CJ
B-Series Switches (P0973LK)	B0700CJ
V-Series Switches (P0972WP/P0972YC)	B0700CL
I-Series Industrial Switches (P0973GA/P0973GB/P0973HB/P0973HC)	B0700CN

(2) This list is subject to change. Refer to *The MESH Control Network Ethernet Equipment* (PSS 31H-7C3) for the most up-to-date list of switches offered.

ENCLOSURE FEATURES AND OPTIONS

The G50 enclosure is provided with the following features, some of which are optional.

Table 2. G50 Enclosure Features and Options

Feature	Availability
Base Enclosure	Vented NEMA 1 rated (not IP rated) enclosure (no fans)
Enclosure Access	Front and rear access
Front Door	Solid front door with inlet vents
Front Door Mounting	Universal mounting for left and right-hand door swing (left-hand is default)
Rear Door Mounting	Half-width door with inlet vents
Cable Entry	Bottom cable entry or top cable entry
Sidewalls	Options configurable based on baying requirements
Door Handle	Comfort handle with push-button/keylock
Equipment Supported (In Upper or Lower Half of Enclosure)	Rack-mounted equipment secured directly to the rails (no support provided) Up to two sliding shelves for Model H91 and P91 Servers (tower form)
Power Cord Sets (In Upper or Lower Half of Enclosure)	Two, four, six or eight IEC-320 male/female cord sets
Enclosure Lighting	None
Earthing (Grounding)	Two protective earth (ground) studs
Main Power	100-250 V ac, 50-60Hz input redundant power with 16 A, Type D, double pole circuit breakers, located in either the top or bottom of the enclosure Additionally, customer configured power entry (no provision for powering devices)

FUNCTIONAL SPECIFICATIONS

Enclosure

The enclosures are free-standing, floor mounted, steel industrial enclosures containing DIN rail mounted compatible servers, the control network switches and related equipment, as discussed in this document.

ENVIRONMENTAL SPECIFICATIONS

National Electrical Manufacturers Association Ratings

Not IP rated/NEMA 1

Operating Temperatures

Dependent on equipment loaded in the enclosure. Refer to the specifications listed in the equipment's Product Specification Sheet or other documentation.

THERMAL WATTAGE LIMITS (FOR NON-ADJOINED ENCLOSURES)(3)

Dissipation of 1000 W generates a +5°C (9°F) heat rise

Storage Temperature

-40 to 70°C (-40 to 158°F)

Relative Humidity

5 to 95% (noncondensing)

Acoustic Noise Level

Ambient / Ambient

Agency Certification

Empty enclosure is UL and UL-C approved. Enclosure meets all applicable European Union directives and is CE compliant. Final installed enclosures populated with your equipment should be inspected by your local UL/CSA committee, or other local safety governing organization if required.
A complete listing of certifications is available from enclosure vendor. For installed Foxboro Evo equipment, refer to PSS 31H-2CERTS.

Area Designation

Vented for general purpose areas.

(3) The effective heat rise should be added to the planned ambient temperature and the result should be lower than the rated maximum ambient temperature of the equipment to be installed.

PHYSICAL SPECIFICATIONS

Weight
The weight of the enclosure is dependent upon the particular configuration and equipment selected. Consult with an Foxboro representative if precise weight figures are required.

ENCLOSURE (MAX. CONFIGURATION)
600 mm wide x 1000 mm deep - 234 kg (516 lb)

SIDE PANEL
2000 mm high x 1000 mm deep - 6 kg (14 lb)

Mounting
Floor

CAUTION

To prevent injury, this enclosure must be bolted down. Refer to the installation guide.

Construction
MATERIAL

Doors
Sheet steel, 2.0 mm (14 ga)
Frame, Roof, Side Panels, Gland Plates
Sheet steel, 1.5 mm (16 ga)
Base/Plinth
Sheet steel and plastic

FINISH

Frame
Dipcoat-primed, RAL 7044 smooth
Doors, Roof, Side Panels
Dipcoat-primed, powder-coated, RAL 7035 (light gray) textured
Base/Plinth
Dipcoat-primed, RAL 7022 (umbra gray) smooth, plastic cover caps RAL 9005 (jet black)
Gland Plates and Internal Hardware
Zinc-plated, passivated

Cable Entry
Bottom through gland plate(s)
Top through customer cutouts in enclosure top

Earthing (Grounding)
ROOF, SIDEWALLS, GLAND PLATES
Automatic potential equalization built in

FRONT AND REAR DOORS
Dedicated 4 mm^2 (11 ga) ground strap to enclosure frame

ENCLOSURE
Two protective earth (ground) M8 studs (one for each enclosure side)

Power Input Terminals
CIRCUIT BREAKERS

Type
Compression
Wire Size
Solid: Up to 6 mm^2 (3 AWG)
Stranded: Up to 4 mm^2 (8 AWG)

Enclosure Equipment Cabling
Universal mounting straps are supplied for securing, routing and strain relieving of enclosure equipment cables. Each strap supports up to a 75 mm (3 in) diameter cable bundle.

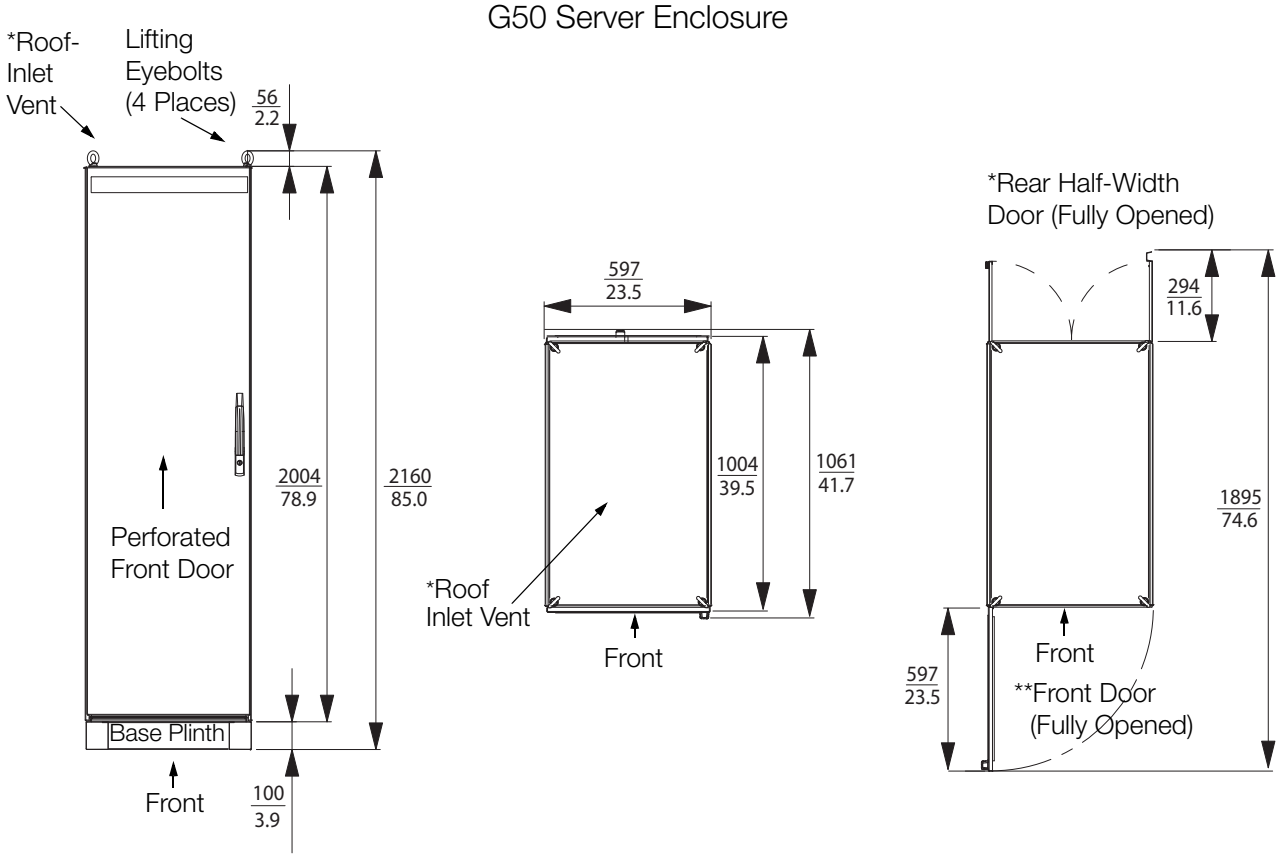
FOR MORE INFORMATION

For additional information describing Foxboro Evo enclosures with 200 Series subsystem equipment, refer to the following documentation:

Document Number	Description
PSS 31H-2GOV	G-Series Enclosures Overview
PSS 21H-4U6	Model H91 Workstation Servers for Windows Server 2008 R2 Operating System
PSS 21H-4U12	Model H90 Workstation Servers for Windows Server 2008 R2 Operating System
PSS 21H-4D13 B4	Model H92 Workstations Windows® 7 Professional Operating System
PSS 31H-7C3	The MESH Control Network Ethernet Equipment
B0700CH	A-Series (P0973BH/P0973BJ/P0973BK) Switches, Hardware and Software Configuration Instructions
B0700CJ	The MESH Control Network Hardware Instructions for C-Series Switches (P0973BL/HA)
B0700CK	The MESH Control Network Hardware Instructions for N-Series Switches (P0973AR/P0973AS/P0972YE)
ISA-S71.04-1985 (not Foxboro-supplied)	Environmental Conditions for Process Measurement and Control Systems: Airborne Contaminants

DIMENSIONS - NOMINAL

G50 Server Enclosure



* VENTED ENCLOSURES ONLY - DOORS AND ROOFS ARE PERFORATED TO ALLOW AIR FLOW.
** FRONT DOORS ARE FACTORY-CONFIGURED FOR LEFT-HAND SWING, BUT CAN BE RECONFIGURED AT SITE FOR RIGHT-HAND SWING.

Foxboro®

by Schneider Electric

Invensys Systems, Inc
10900 Equity Drive
Houston, TX 77041
United States of America
http://www.invensys.com

Global Customer Support
Inside U.S.: 1-866-746-6477
Outside U.S.: 1-508-549-2424
Website: https://support.ips.invensys.com

MB 031 1214