SIEMENS

PX Series Enclosures and Service Boxes Technical Reference Manual

Siemens Industry, Inc.
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Technical specifications and availability subject to change without notice.

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PX Series Enclosures

The PX series enclosures are for indoor use to house both electronic and pneumatic components. They protect personnel from incidental contact with components and protect components from dust and dirt.

Enclosures are available in three sizes to match installation needs: 18-, 19-, and 34-inch.

- General features of the 18-inch enclosure include:
  - UL 508A NEMA Type 1 enclosure, which is acceptable for UL 916 applications.
  - Pull-box type utility cabinet for low cost installations.
  - Multiple knockouts along the top, sides, and bottom.
  - Equipped with a factory-installed 16" × 12" perforated panel and DIN rail.
- General features of the 19- and 34-inch enclosures include:
  - UL Smoke Control listed NEMA Type 1 enclosures when installed according to the *19" and 34" PX Series Enclosure Assemblies Installation Instructions* (553-130).
  - Multiple knockouts and venting along the top, sides, and bottom.
  - Equipped with a factory-installed backplane assembly, which includes DIN rails and wire tie bars.
  - Hinged door with lock.
  - Label pouch.
  - Service Box mounting studs.

PX Series Enclosure Specifications

PX Series 18" Enclosure Specifications

Dimensions (H × W × D)

PXA-ENC18	18" × 14" × 6" (457.2 mm × 355.6 mm × 152.4 mm) UL Listed NEMA Type 1 Enclosure, Pull-box style

Operating Environment

Ambient operating environment	+32°F to +122°F (0°C to +50°C), 93% rh (Non-condensing)
Mounting Surface	Building wall or structural member (Do not mount on HVAC components or any other vibrating surface)

Agency Listings

Agency Compliance	UL 508A (acceptable for UL 916 applications) FCC Compliance

PX Series 19" and 34" Enclosure Specifications

Dimensions (H × W × D)

PXA-ENC19	19" × 22" × 5.75" (482.6 mm × 558.8 mm × 146.05 mm) UL Listed NEMA Type 1 Enclosure, Hinged Door with lock
PXA-ENC34	34" × 22" × 5.75" (863.6 mm × 558.8 mm × 146.05 mm) UL Listed NEMA Type 1 Enclosure, Hinged Door with lock

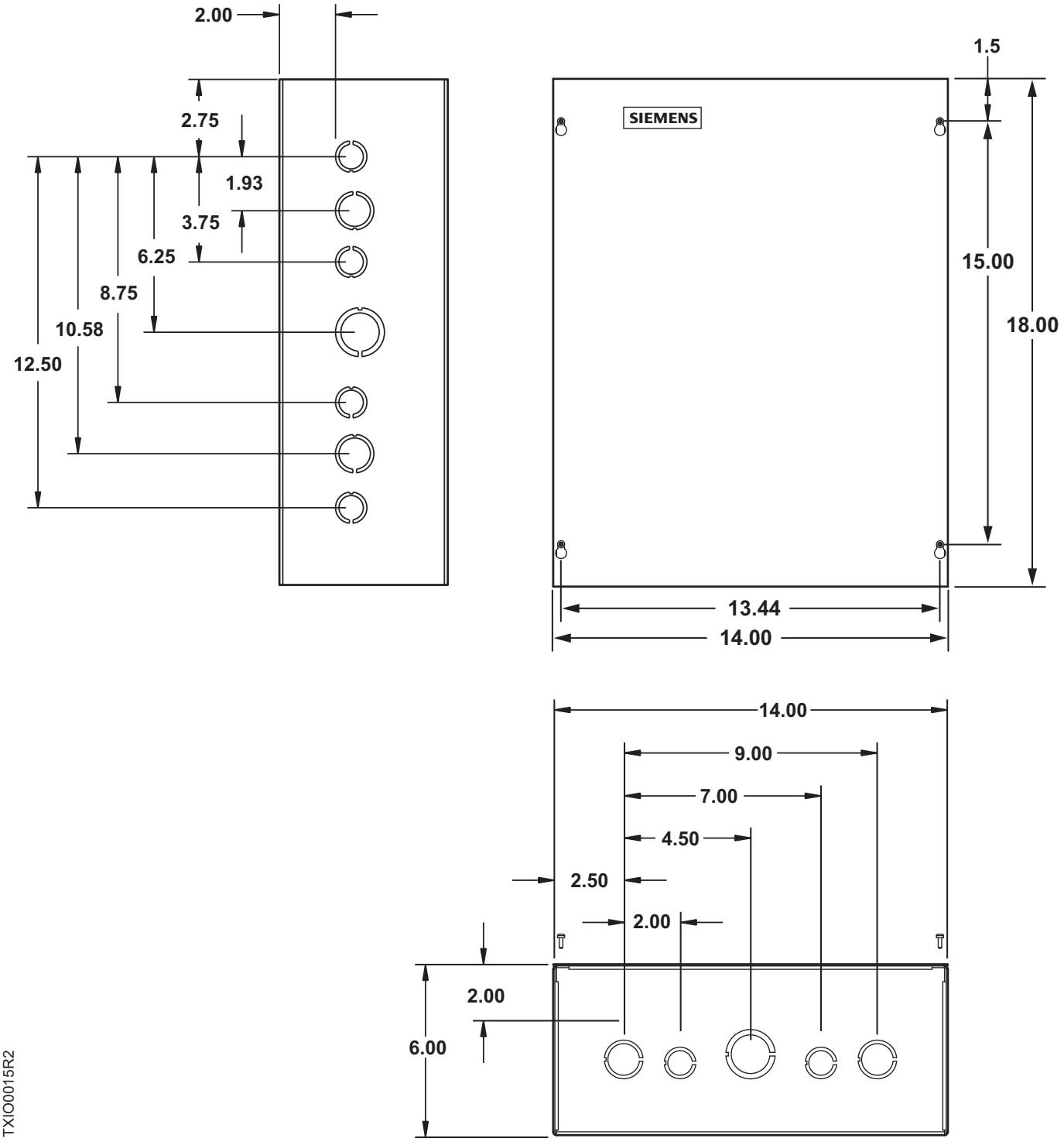
Operating Environment

Ambient operating environment	+32°F to +122°F (0°C to +50°C), 93% rh (Non-condensing)
Mounting Surface	Building wall or structural member (Do not mount on HVAC components or any other vibrating surface.)

Agency Listings

UL	UL 864 UUKL Smoke Control Equipment ULC-C100 UUKL7 UL 916 PAZX UL 508A
Agency Compliance	FCC Compliance Australian EMC Framework - with metal enclosure, maximum opening size is 34" European EMC Directive (CE) - with metal enclosure, maximum opening size is 34" European Low Voltage Directive (LVD)

PX Series Enclosure Dimensions



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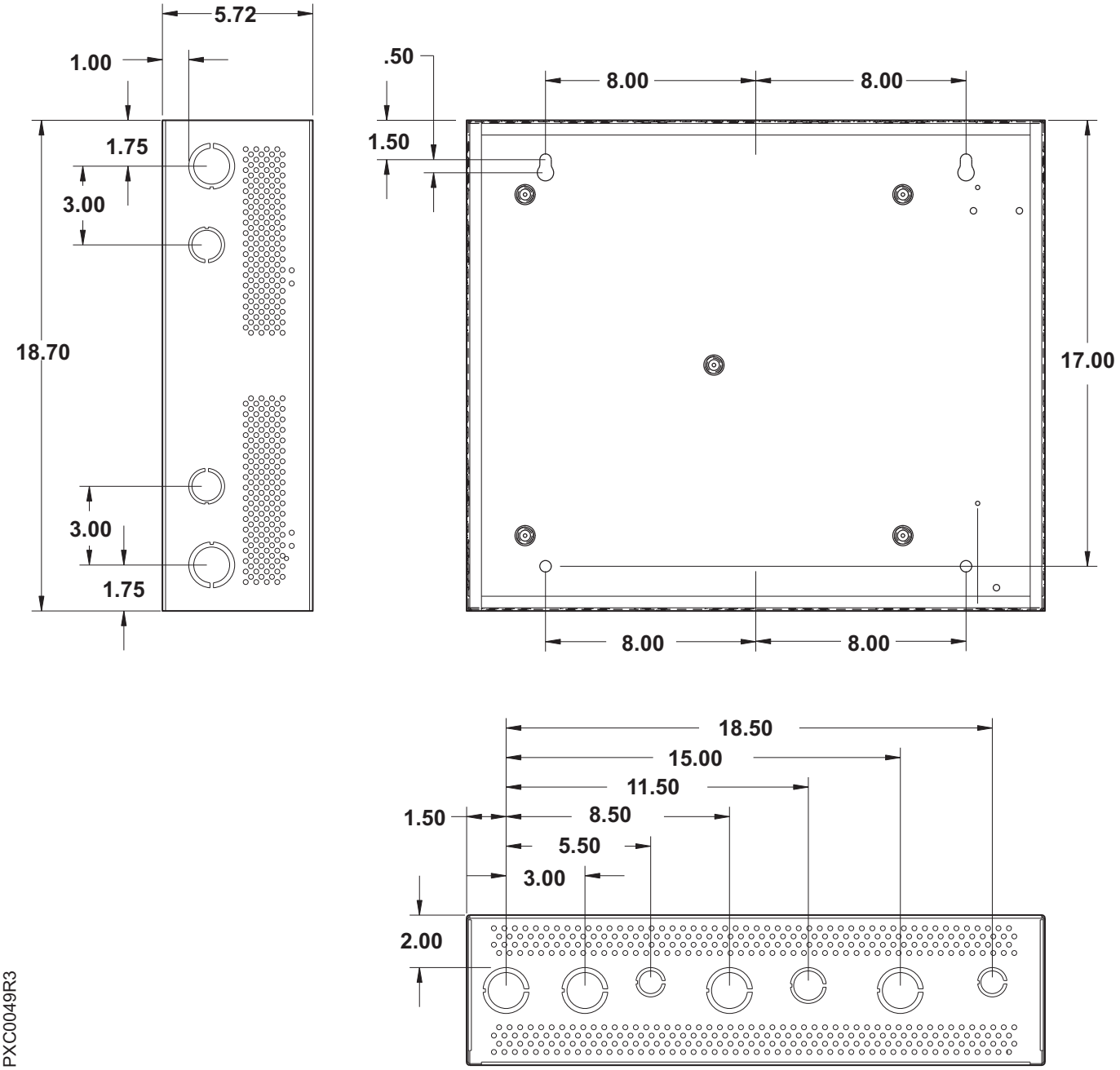
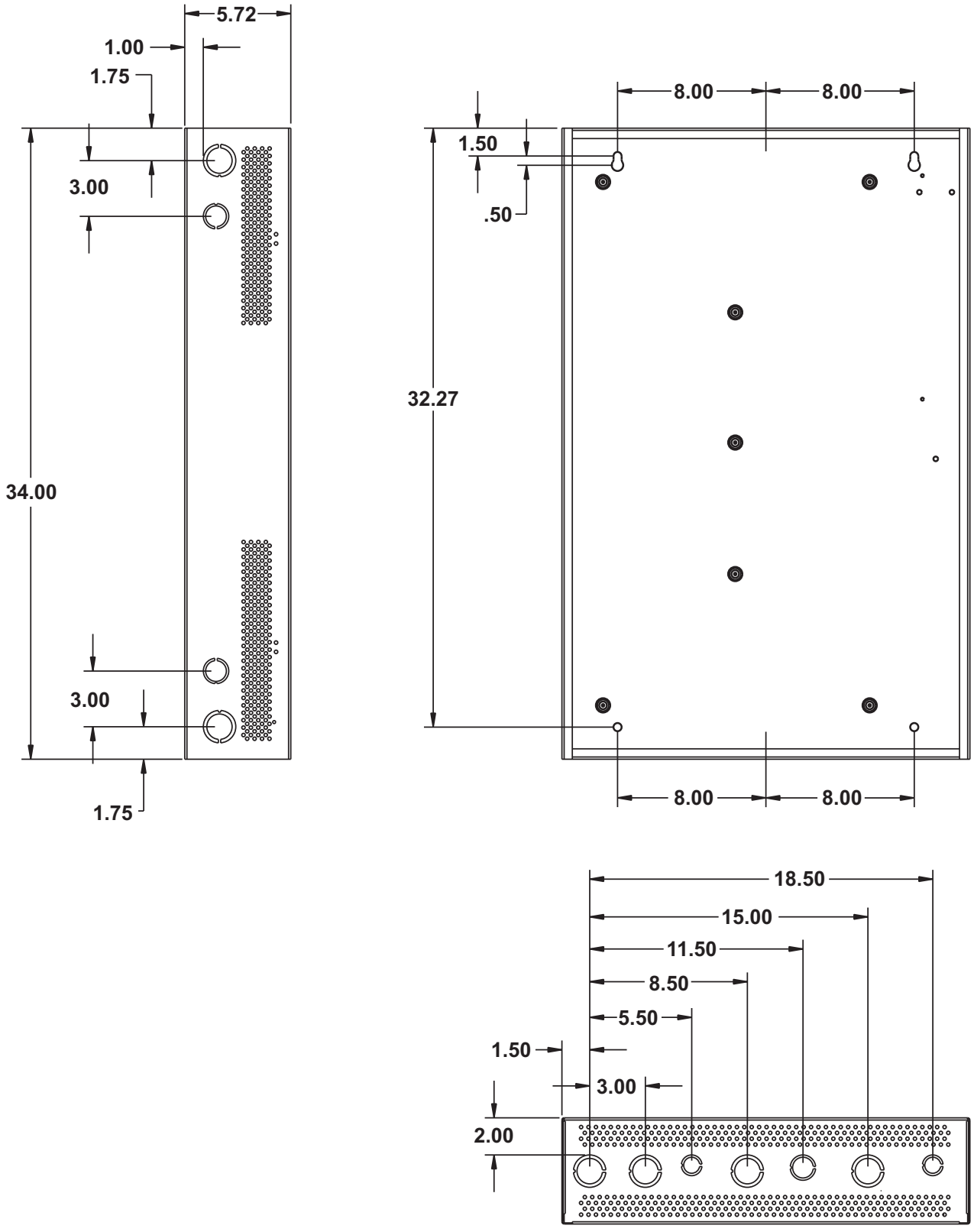
PX Series 18“ Enclosure Dimensions.



PX Series 19" Enclosure Dimensions.



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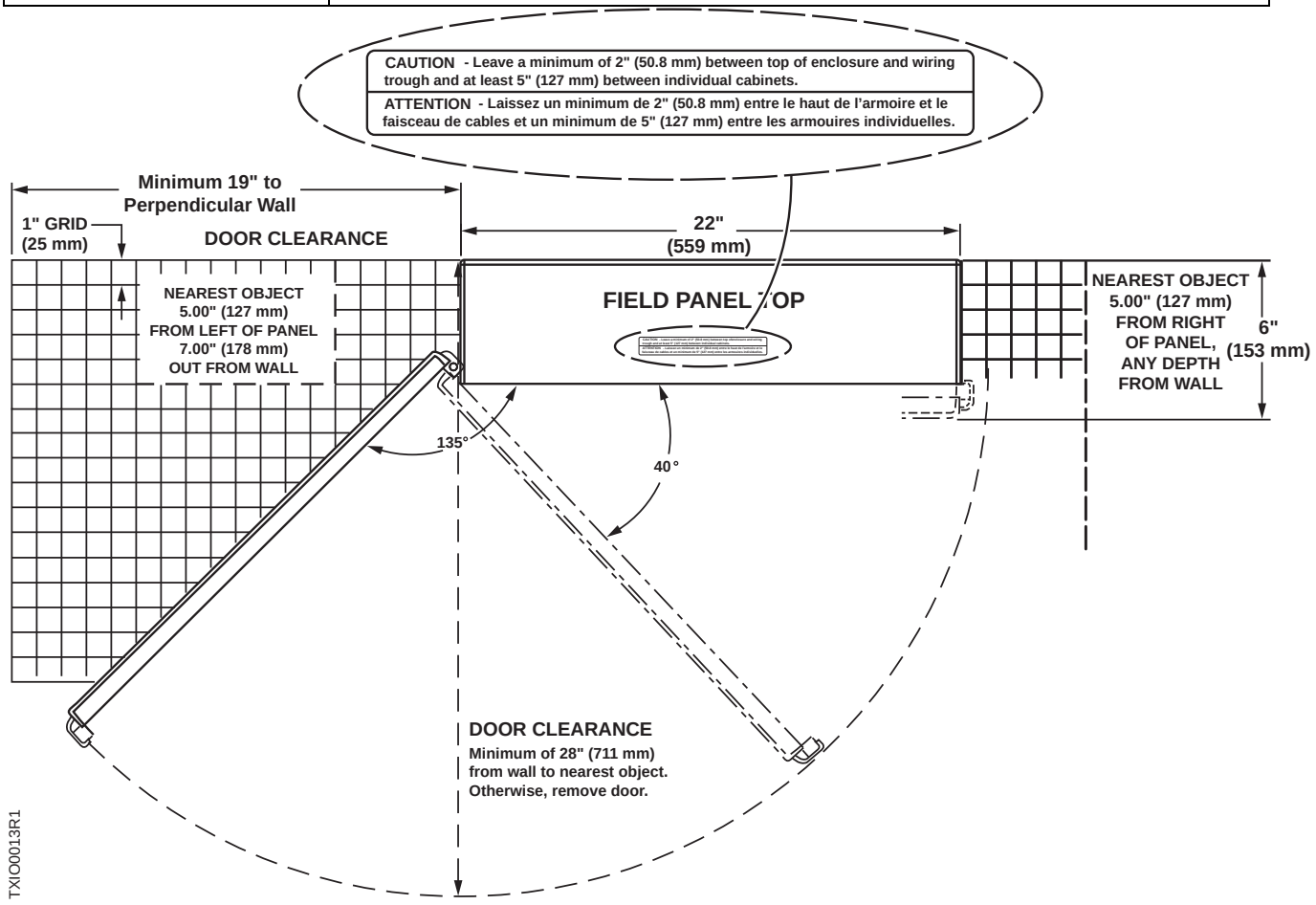
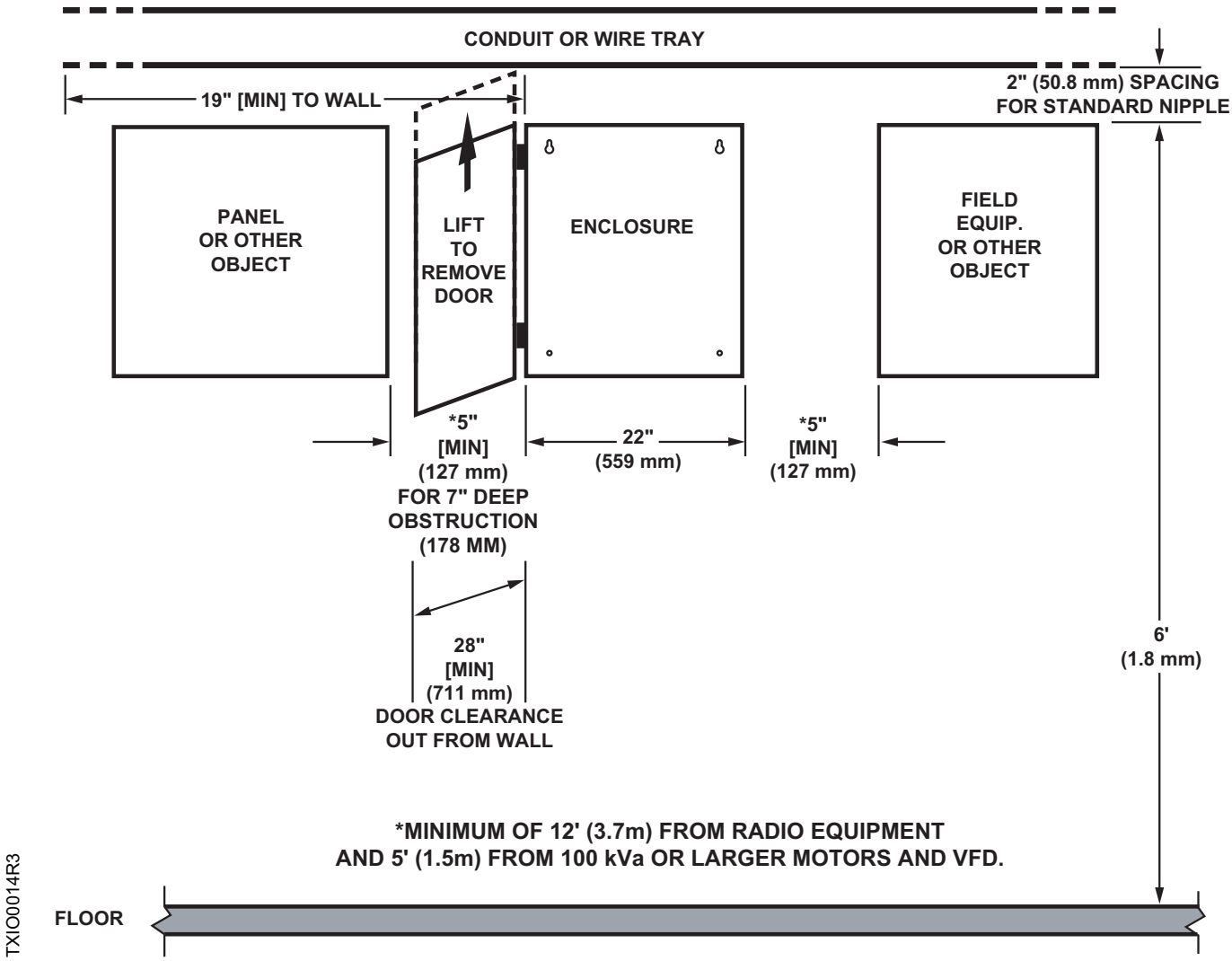
PX Series 34" Enclosure Dimensions.

PX Series Enclosure Placement

	⚠ CAUTION Do not mount the enclosure on ductwork, HVAC components, or any other vibrating surface. ● Mount the enclosure at least 12 feet (3.7 m) away from devices that can generate Radio Frequency Interference (RFI), such as Electro-pneumatic devices (EPs), relays, and walkie-talkies. ● Mount the enclosure at least 5 feet (1.5 m) away from 100 kVa or larger motors and variable frequency drives (VFD).
	⚠ CAUTION If the enclosure is mounted under a wire trough or any other obstruction, provide a minimum vertical clearance of 2 inches (50.8 mm) to allow for installation and removal of the enclosure door.





- Space between door panel and opening obstruction must be at least 11 inches (279.4 mm) to allow for door removal at 40 degrees, or 28 inches (711 mm) with a cabinet mounting at least 19 inches (483 mm) from the left side wall to allow door to completely open at 135 degrees.
- 5 inches (127 mm) minimum horizontal distance between the enclosure and any obstruction to the left and right.
- 7 inches (178 mm) minimum depth out from the wall on the left (hinged) side for door clearance.

PX Series Service Boxes

	**⚠ CAUTION** A Service Box is required for UL864 and NFPA92A compliant installations.
	**⚠ CAUTION** Do not connect inductive loads, such as drill motors, vacuum cleaners, or compressors, to the duplex receptacle on the 115V Service Box.

Table 34. PX Series Service Box Source Requirements and Outputs

			Maximum Input		Maximum 24 Vac Output	
PX Series Service Box Model	**Input Voltage**	**Line Frequency**	**Transformer**	**Service Outlets**	**Total**[1]	**Class** [2]
115V 192VA	115 Vac	50/60 Hz	2A	2A[2]	192 VA	96 VA
115V 384VA	115 Vac	50/60 Hz	4A	2A[2]	384 VA	96 VA
230V 192VA	230 Vac	50/60 Hz	1A	N/A	192 VA	96 VA
230V 384VA	230 Vac	50/60 Hz	2A	N/A	384 VA	96 VA

1) Total 24 Vac Output Power is distributed to both Class 1 Power Limited Terminations, for use inside the enclosure only, and a Class 2 Termination, which may also be used outside the enclosure.

2) Service outlets (115 Vac only) are not fused or switched, but are restricted to continuously-powered network devices (0.5A) and reserve power for laptop PCs (1.5A). Plan Branch circuit for each additional 2A.

PX Series Service Box Features

The PX Series Service Box Assemblies transform either 115 Vac or 230 Vac to 24 Vac sized for either 192 VA or 384 VA.

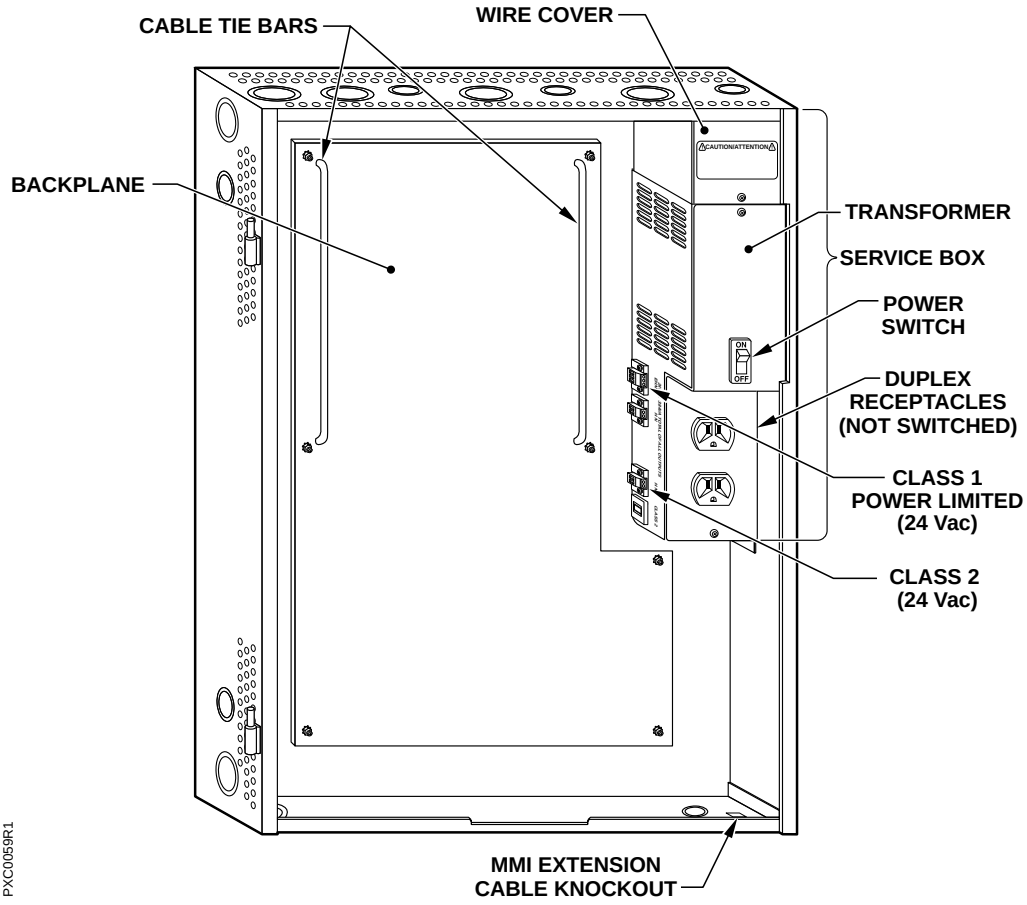
- The 192 VA service boxes mount directly inside a 19- or 34-inch PX Series Enclosure.
- The 384 VA service boxes provide additional power for larger systems and mount only in the 34-inch PX Series Enclosure.

The service boxes provide protection against electrical transients and are Smoke Control and Energy Management listed when installed according to the *Service Box Assemblies Installation Instructions* (553-131).

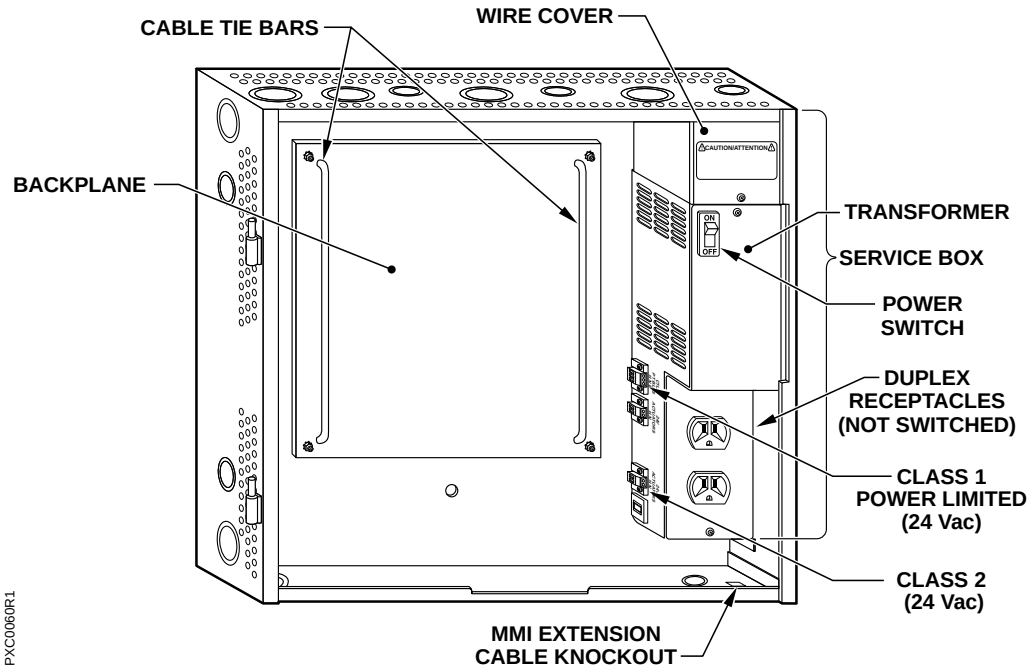
The service box assemblies consist of the following:

- Chassis for mounting inside enclosure.
- ON/OFF circuit breaker for transformer.
- Two Class 1 power limited 24 Vac outputs, which include one terminal for earth ground for use inside enclosure only.
- One Class 2 output with circuit breaker to distribute up to 96 VA for use outside the enclosure.

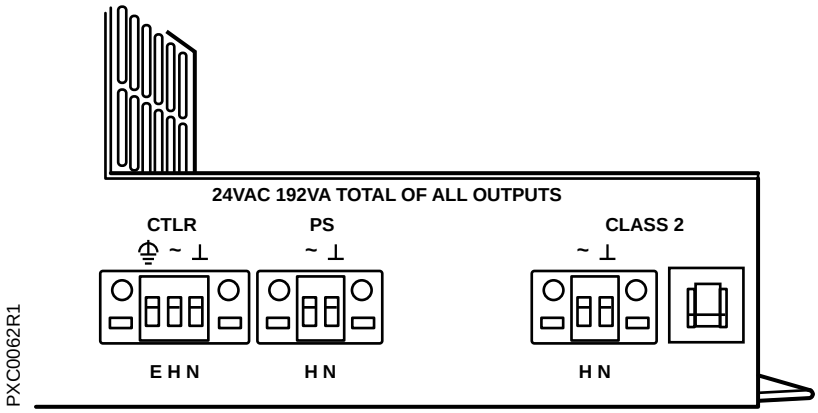
- Wire cover for field connections.
- Duplex Service Outlet (115 Vac models only).
- Optional sidewall kits PXA-SW192VA and PXA-SW384VA may be used for installation in third-party enclosures, such as motor control cabinets.



PX Series Service Box (115V), 34-inch enclosure.



PX Series Service Box (115V), 19-inch enclosure.



PX Series Service Box Connectors.

- Each Service Box distributes the total 24 Vac power provided to the plug-in terminations on the left side.
  - Two Class 1 power-limited terminations distribute up to the total power to controllers and power supplies inside the same enclosure.
  - Earth ground is provided on the CTLR termination.
  - One Class 2 termination distributes up to 96 VA to auxiliary devices outside of the enclosure.
- Each 115VAC Service Box has a duplex outlet on the front to power accessory devices such as modems and Portable Operator's Terminals.

PX Series Service Box Specifications

Power Requirements for 115 Vac Service Boxes	**PXA-SB115V192VA** Input: 115 Vac +/- 15%, 50/60Hz +/- 5%, 220VA maximum, 2A CB Output: 24Vac +/- 20%, 50/60Hz +/- 5%, 192VA maximum **PXA-SB115V384VA** Input: 115 Vac +/- 15%, 50/60Hz +/- 5%, 440VA maximum, 4A CB Output: 24Vac +/- 20%, 50/60Hz +/- 5%, 384VA maximum 115 Vac models also have a duplex outlet, which is protected by Mains 20A or 15A CB for use internal to enclosure to power laptop and peripheral devices.
Power Requirements for 230 Vac Service Boxes	**PXA-SB230V192VA** Input: 230Vac +/- 15%, 50/60Hz +/- 5%, 220VA maximum, 1A CB Output: 24Vac +/- 20%, 50/60Hz +/- 5%, 192VA maximum **PXA-SB230V384VA** Input: 230 Vac +/- 15%, 50/60Hz +/- 5%, 440VA maximum, 2A CB Output: 24Vac +/- 20%, 50/60Hz +/- 5%, 384VA maximum
Service Box Output Jacks	One 3-terminal and one 2-terminal NEC Class 1 output jack for use internal to enclosure to power system components. One 2-terminal NEC Class 2 output jack with 4A CB for use external to enclosure to power actuators.

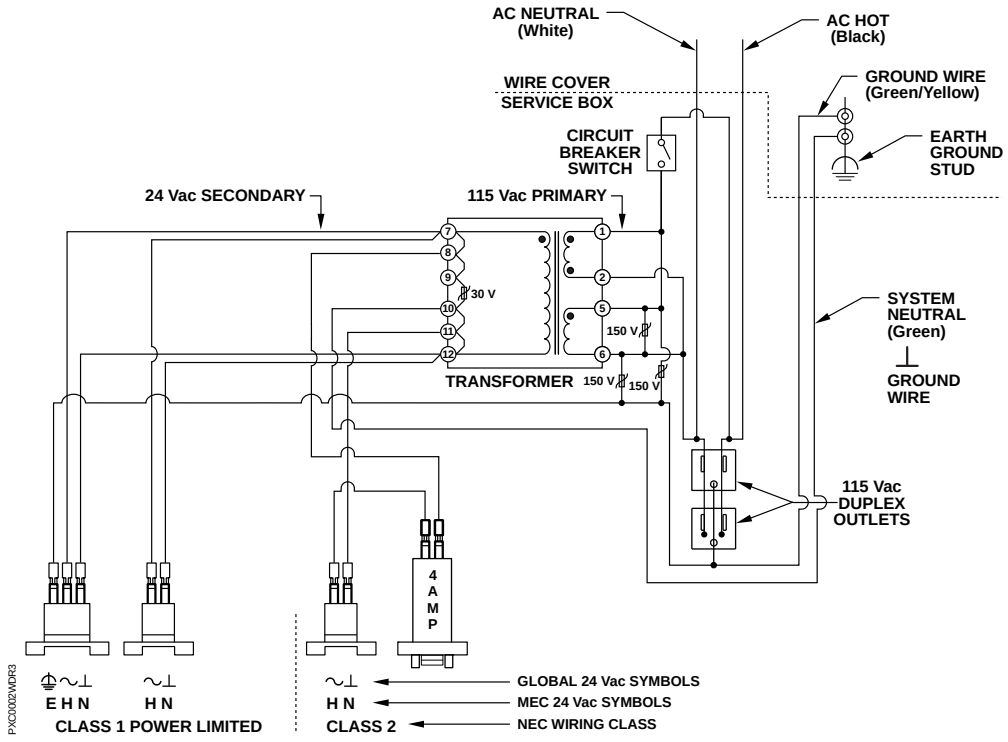
PX Series 115V Service Boxes (192 VA or 384 VA)

	DANGER Possible shock hazard! The power switch only disables power to the control side of the 24 Vac transformer. Power remains ON at the duplex receptacle (115V versions) and in the service box. Power may be present at the field devices. To avoid injury, follow proper safety precautions.

115 Vac source power to the service box enters the enclosure from the top right or right-hand side conduit knockouts. Source voltage must be current-limited to 20 amps or less (15 amps or less for Smoke Control), depending on the requirements of the particular installation.

Two pigtails and an earth grounding stud are provided under the wire cover for easy connection by an electrician. The AC hot is pre-wired to the transformer through a single pole On/Off switch and a circuit breaker. The pigtails are also connected to a duplex receptacle, which is not internally switched or fused. MOVs (3 × 150V) are installed on input power. Earth ground is available at the CTLR connector and at the duplex receptacle. Transformer secondary neutral (green) and Service Box earth ground (green/yellow) have ring terminals for mounting on earth ground stud.

Low voltage is routed from the transformer and supplies 24 Vac power at either 192 VA or 384 VA maximum. The CTLR and PS connectors are rated Class 1 power limited and connected equipment must reside in the enclosure with the service box. The Class 2 connector is limited to 96 VA and may also be connected to equipment outside of the enclosure. A MOV (30V) is installed on the transformer secondary. See the following figure for a wiring diagram.



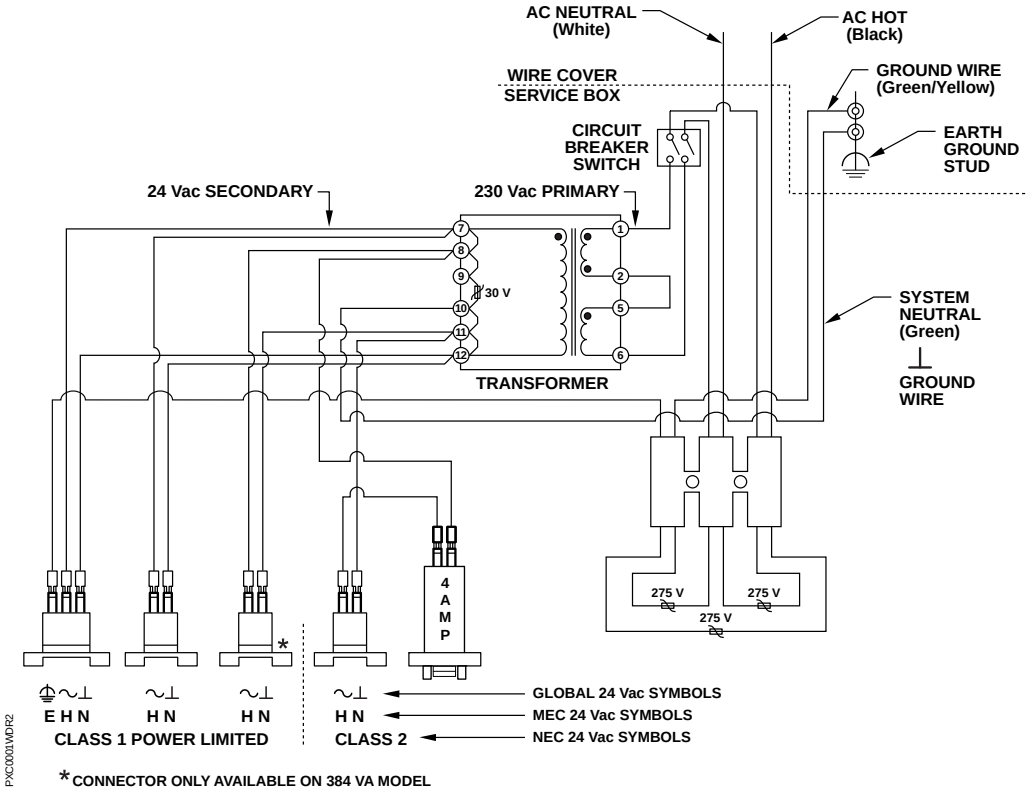
Wiring Diagram for 115V Service Box (192 VA or 384 VA).

PX Series 230V Service Boxes (192 VA or 384 VA)

230V (high-voltage) source power to the service box enters the enclosure from the top right or right-hand side conduit knockouts. Source voltage must be current limited to 10 amps or less, depending on the requirements of the particular installation.

A termination block for power and ground termination is provided on the wire cover for easy connection by an electrician. The termination block is pre-wired to the transformer through a double pole On/Off switch and a circuit breaker. MOVs (3 × 275V) are installed on input power. Termination block earth ground (green/yellow), transformer secondary neutral (green) and Service Box earth ground (green/yellow) have ring terminals for mounting on earth ground stud.

Low voltage is routed from the transformer and supplies 24 Vac power at either 192 VA or 384 VA maximum. The CTLR and PS connectors are rated Class 1 power limited and connected equipment must reside in the enclosure with the service box. The Class 2 connector is limited to 96 VA and may also be connected to equipment outside of the enclosure. A MOV (30V) is installed on the transformer secondary. See the following figure for a wiring diagram.



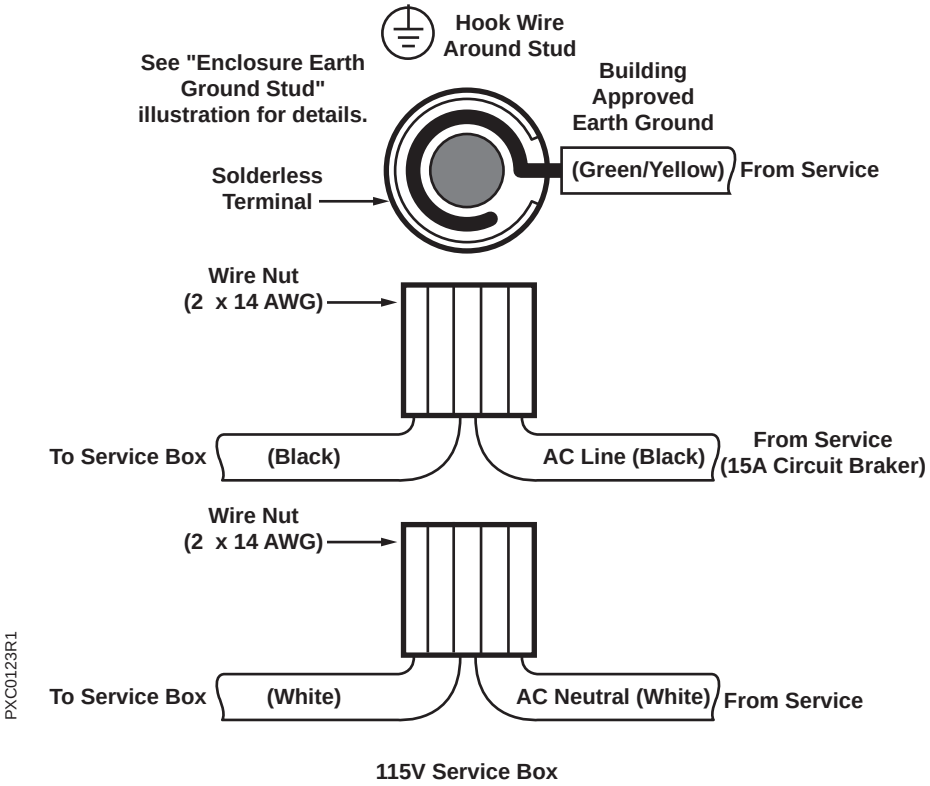
Wiring Diagram for 230V Service Box (192 VA or 384 VA).

PX Series Service Box Grounding

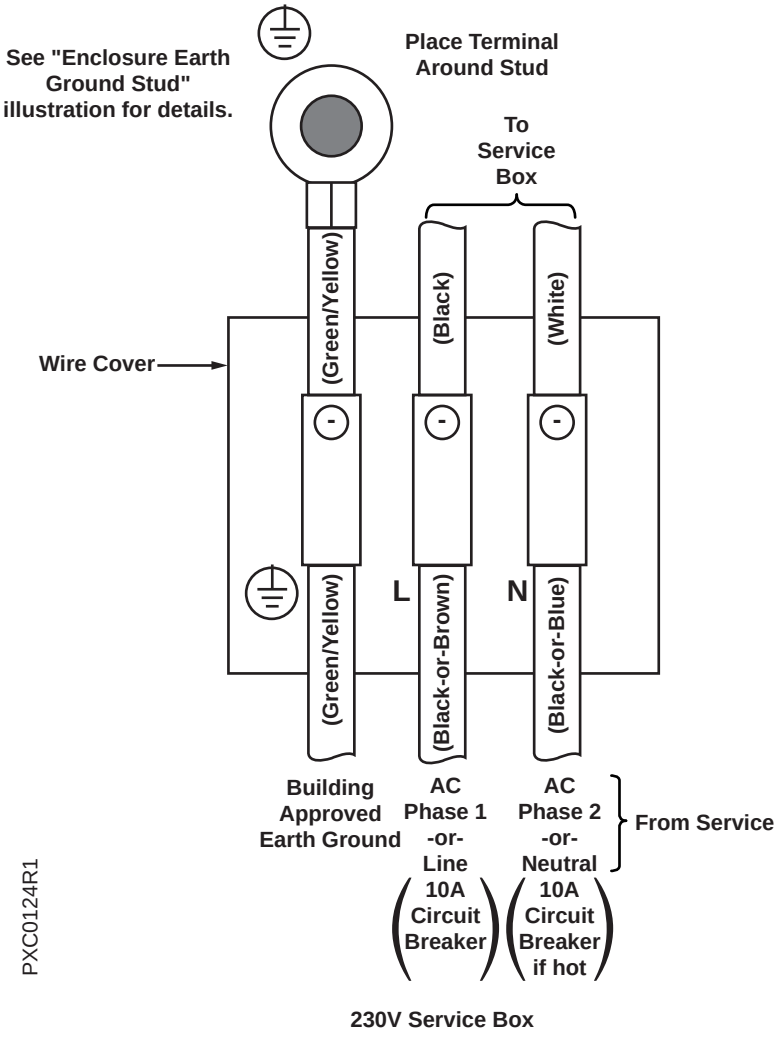
	**⚠ DANGER**
	The transformer secondary neutral (⏚) must be connected to the building approved earth ground (⏚) whenever the transformer primary is greater than 150 Vac.
	**⚠ CAUTION**
	To reduce system electrical noise, connect the secondary of the separately-derived power source to earth ground.

The PX Series Service Box has a grounded neutral system, which is internally grounded through the solid green wire. When required, the neutral system must be connected to the building approved earth ground at the enclosure where the Service Box is installed.

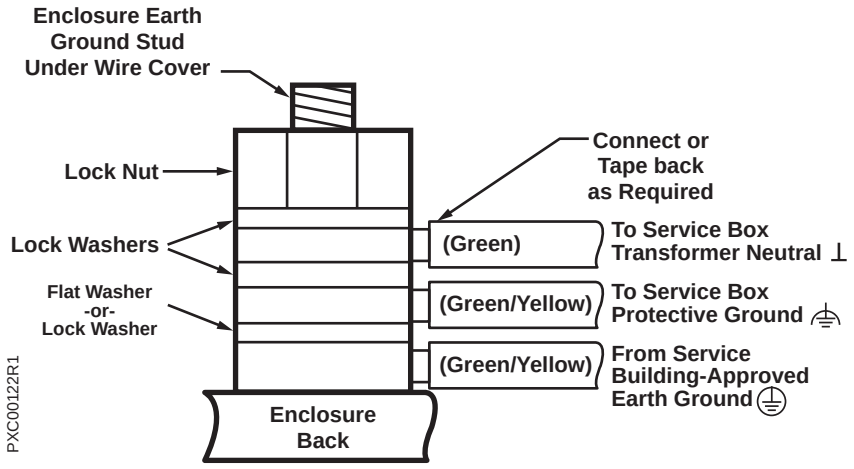
See the following figures for wiring information.



Grounding Diagram for 115V Service Box (192 VA or 384 VA).



Grounding Diagram for 230V Service Box (192 VA or 384 VA).



Detail of PX Series Enclosure Earth Ground Stud (Under Wire Cover).

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