XTE PTS Series
PEIL/PESB Power Transfer Switches

Description and Installation Manual

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Technical Support Site

If you encounter any installation or operational issues with your product, check the pertinent section of this manual to see if the issue can be resolved by following outlined procedures.

Visit https://www.vertiv.com/en-us/support/ for additional assistance.

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Admonishments Used in this Document

DANGER! Warns of a hazard the reader ***will*** be exposed to that will ***likely*** result in death or serious injury if not avoided. (ANSI, OSHA)

WARNING! Warns of a potential hazard the reader ***may*** be exposed to that ***could*** result in death or serious injury if not avoided. This admonition is not used for situations that pose a risk only to equipment, software, data, or service. (ANSI)

CAUTION! Warns of a potential hazard the reader ***may*** be exposed to that ***could*** result in minor or moderate injury if not avoided. (ANSI, OSHA) This admonition is not used for situations that pose a risk only to equipment, data, or service, even if such use appears to be permitted in some of the applicable standards. (OSHA)

ALERT! Alerts the reader to an action that ***must be avoided*** in order to protect equipment, software, data, or service. (ISO)

ALERT! Alerts the reader to an action that ***must be performed*** in order to prevent equipment damage, software corruption, data loss, or service interruption. (ISO)

FIRE SAFETY! Informs the reader of fire safety information, reminders, precautions, or policies, or of the locations of fire-fighting and fire-safety equipment. (ISO)

SAFETY! Informs the reader of general safety information, reminders, precautions, or policies not related to a particular source of hazard or to fire safety. (ISO, ANSI, OSHA)

Important Safety Instructions

Safety Admonishments Definitions

Definitions of the safety admonishments used in this document are listed under “Admonishments Used in this Document” on page v.

You Must Follow Approved Safety Procedures

DANGER! Performing the following procedures may expose you to hazards. These procedures should be performed by qualified technicians familiar with the hazards associated with this type of equipment. These hazards may include shock, energy, and/or burns. To avoid these hazards:

a) The tasks should be performed in the order indicated.

b) Remove watches, rings, and other metal objects.

c) Prior to contacting any uninsulated surface or termination, use a voltmeter to verify that no voltage or the expected voltage is present. Check for voltage with both AC and DC voltmeters prior to making contact.

d) Wear eye protection.

e) Use certified and well maintained insulated tools. Use double insulated tools appropriately rated for the work to be performed.

Buried Utilities

CAUTION! When installing the enclosure, ensure the site is free of any buried utilities. Call 811 before installation. Severe damage, serious injury, or death can occur if buried utilities are not identified prior to installation.

Personal Protective Equipment (PPE)

DANGER! ARC FLASH AND SHOCK HAZARD.
Appropriate PPE and tools required when working on this equipment. An appropriate flash protection boundary analysis should be done to determine the “hazard/risk” category, and to select proper PPE.

Only authorized and properly trained personnel should be allowed to install, inspect, operate, or maintain the equipment.

Do not work on LIVE parts. If required to work or operate live parts, obtain appropriate Energized Work Permits as required by the local authority, per NFPA 70E “Standard for Electrical Safety in the Workplace”.

1 About this Document

This practice provides a description of the Vertiv XTE PTS Series PEIL/PESB Power Transfer Switches as well as installation instructions.

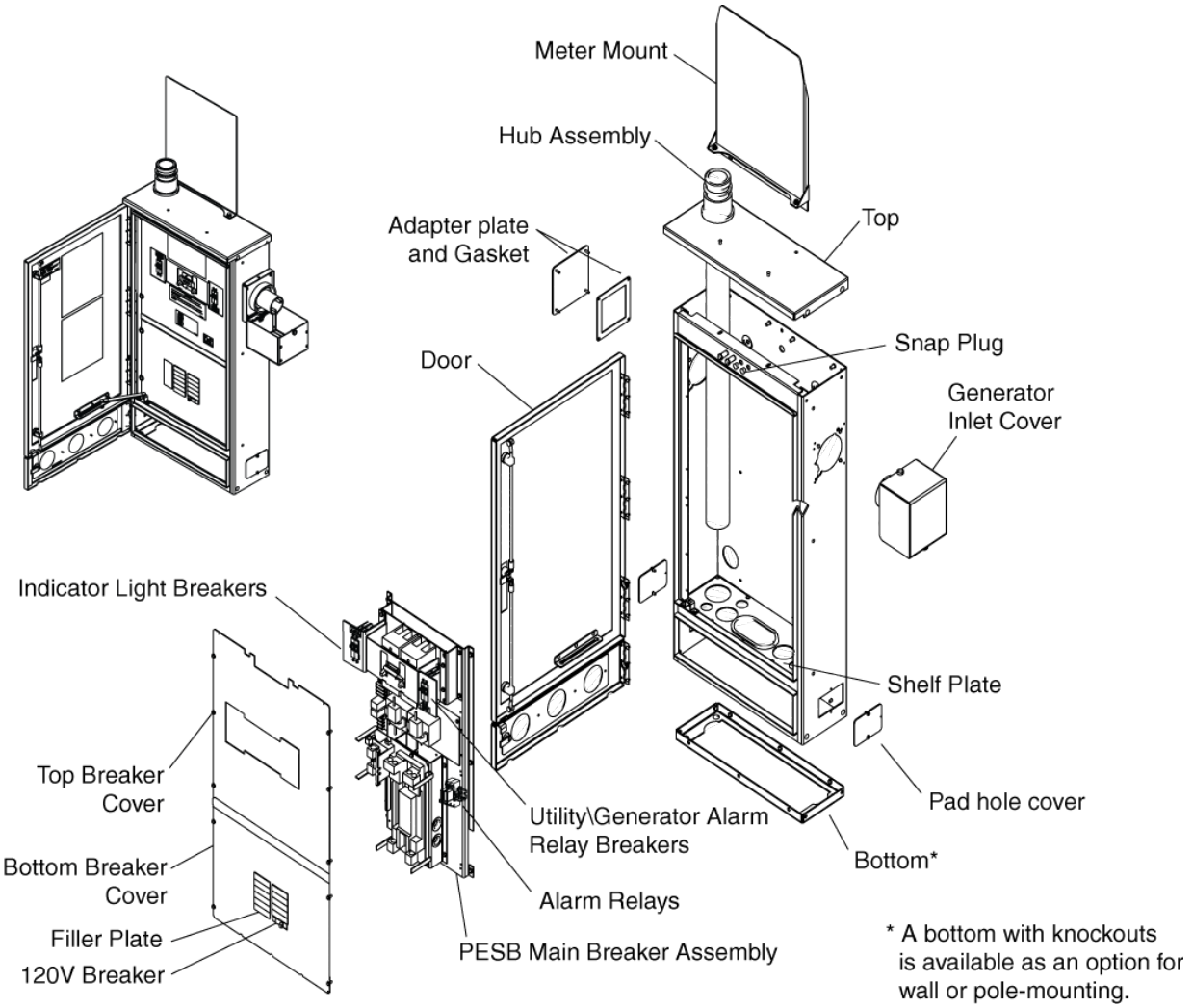
2 Description

2.1 Application

The XTE PTS Series PEIL/PESB Power Transfer Switches (shown in **Figure 1** and **Figure 2**) provide weatherproof housing and surge protection for the electrical components that transfer/distribute commercial and generator power. They have a wide range of standard features and options to suit a variety of applications.

Figure 1: Power Transfer Cabinet

Figure 2: Power Transfer Cabinet (Exploded View)



2.2 Cabinet Dimensions

The dimensions of both the XTE PTS Series PEIL/PESB Power Transfer Switches are:

- height: 433/16 inches (109.7 cm)
- width: 213/8 inches (54.3 cm)
- depth: 9 inches (22.9 cm)

NOTE! *When a meter is added, the height from the bottom of the cabinet to the top of the meter is 6011/16 inches (154.1 cm).*

2.3 Construction

The XTE PTS Series PEIL/PESB Power Transfer Switches are manufactured from heavy gauge aluminum finished with a durable paint process that meets Telcordia specifications for protection against corrosion, water intrusion, ultraviolet radiation, and impact resistance. They are available in off-white, green, or brown to suit most residential and commercial environments.

2.4 Pad Mounting

The XTE PTS Series PEIL/PESB Power Transfer Switches may be mounted directly to a concrete pad. A metal mounting template is available that can be used to orient the mounting bolts and incoming and outgoing power conduit in the pad.

2.5 Wiring

The XTE PTS Series PEIL/PESB Power Transfer Switches are fully wired and are UL Listed. See **Figure 3**.

2.6 Power

A load center in the XTE PTS Series PEIL/PESB Power Transfer Switches distributes electrical power and has twelve available breaker positions. A standard 15 Amp 120V GFI (Ground Fault Circuit Interrupter) or convenience outlet (or a 20 Amp GFI on 22,000 AIC cabinets) allows craft personnel to plug into the PEIL/PESB power transfer cabinet when AC power is required for field service and maintenance. The GFI uses one load center position.

2.7 Power Indicator Lights

Dual indicator lights show both polarities of power which indicates the presence of active commercial power inside the power transfer enclosure, or shows loss of power to one or both phases.

2.8 Door and Lock

The XTE PTS Series PEIL/PESB Power Transfer Switches have a three-point locking mechanism that is secured with a padlock hasp. Additional door handle locking options include a hex-head lock or a pin hex-head lock. Wind latches on the cabinet secure the door in an open position.

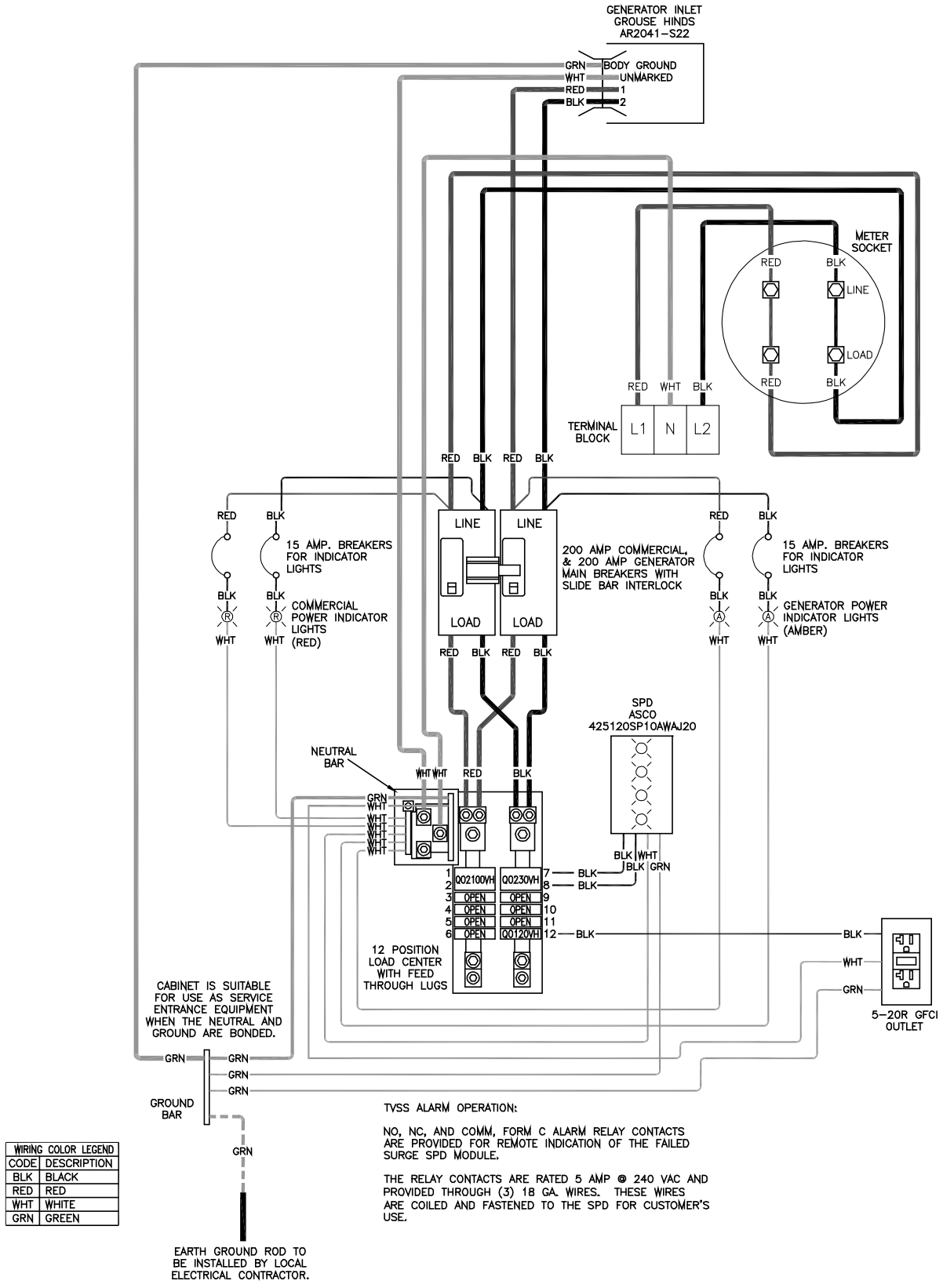
2.9 Opening the Door

To open the door, lift up on the handle, and turn it 90° clockwise.

2.10 Normal/Generator Power Relays

The Utility/Generator relay indication assembly is designed to alarm the user when Normal power is interrupted. The setup is designed so that when a generator is placed on-site, the Network Operations Center (NOC) will get an indication that the generator is running. When Normal power is returned, the alarm will also indicate the change of states and the technician can return to the site and remove the generator.

Figure 3: Example of Internal Wiring of a Power Transfer Cabinet



3 Site Selection and Preparation

3.1 Site Selection Considerations

Consider the following when choosing a location for a XTE PTS Series PEIL/PESB Power Transfer Switch.

3.2 Equipment Life Span

A permanent location is desirable. Your planning and the hardware used should accommodate at least a thirty-year life.

3.3 Easements and Rights-of-Way

In advance of construction, the installing company should acquire the rights-of-way from landowners and permits or other approvals from public authorities. It is recommended that the cabinet be placed in servitudes, on dedicated (recorded) easements, or on property owned by the company. If possible, avoid unrecorded easements.

3.4 Safety

Use public safety road and street rights-of-way only when there is adequate space to place the enclosure and to provide safe working conditions. The enclosure should be easily accessible with adequate space for craft personnel parking.

3.5 Obstruction

Place the enclosure where it will not create a visual or physical obstruction to either vehicles or pedestrians.

3.6 Likelihood of Damage

Choose a location that minimizes the vulnerability of the enclosure to vandalism and other damage. Use protective posts when the enclosure is placed near parking areas where vehicles could hit it.

3.7 Distance from Other Objects

Place the enclosure so that it is at least 42 inches (107 cm) away from any obstruction, fence, hedge, etc.

4 Transportation and Storage

4.1 Field-Installed Units

All enclosures can be purchased for field installation, which are shipped on a special pallet for easy movement and storage.

4.2 Inspecting the Packaging

When the cabinet arrives, visually inspect the packaging for damage. If the packaging appears damaged, do not accept the power cabinet from the shipper, as interior damage may have occurred.

4.3 Correct Shipping and Storage

To avoid possible damage to the unit, always ship and store the cabinet in an upright position.

5 Grounding

DANGER! ELECTRICAL HAZARD

The grounding rod must be installed *before* the cabinet is installed:

5.1 Grounding Standards

The customer is responsible for providing and installing a ground rod. When installing the ground rod, keep the following in mind:

Minimum standard grounding configuration is one point. For other grounding configurations, consult local building codes.

All materials must be UL approved and meet NEC codes. The ground rod should be copper. It should be 8 feet (2.4 m) long and 5/8 inch (1.6 cm) in diameter.

The rod should be placed according to local building codes and should be located near the XTE PTS Series PEIL/PESB Power Transfer Switch. (Refer to **Figure 5** for location).

6 Mounting the Cabinet on a Pad

DANGER! ELECTRICAL HAZARD
Electrical hazard. Do not install the cabinet during a thunder storm. All power must be turned off before removing inner barrier panels.

6.1 Before You Begin

Local Practices

A XTE PTS Series PEIL/PESB Power Transfer Switch may be installed on a separate concrete or preformed fiberglass pad or on a remote terminal pad. This practice provides instructions for constructing a typical concrete pad. However, you may vary your construction methods to comply with local conditions, practices, or building codes.

Accessory Kit

An accessory kit is shipped in a cardboard box with the XTE PTS Series PEIL/PESB Power Transfer Switch. This kit includes washers, a meter hub, and a hard rubber gasket. During installation, the rubber gasket is sandwiched between the pad and the cabinet base to eliminate corrosion.

Additional Materials Needed

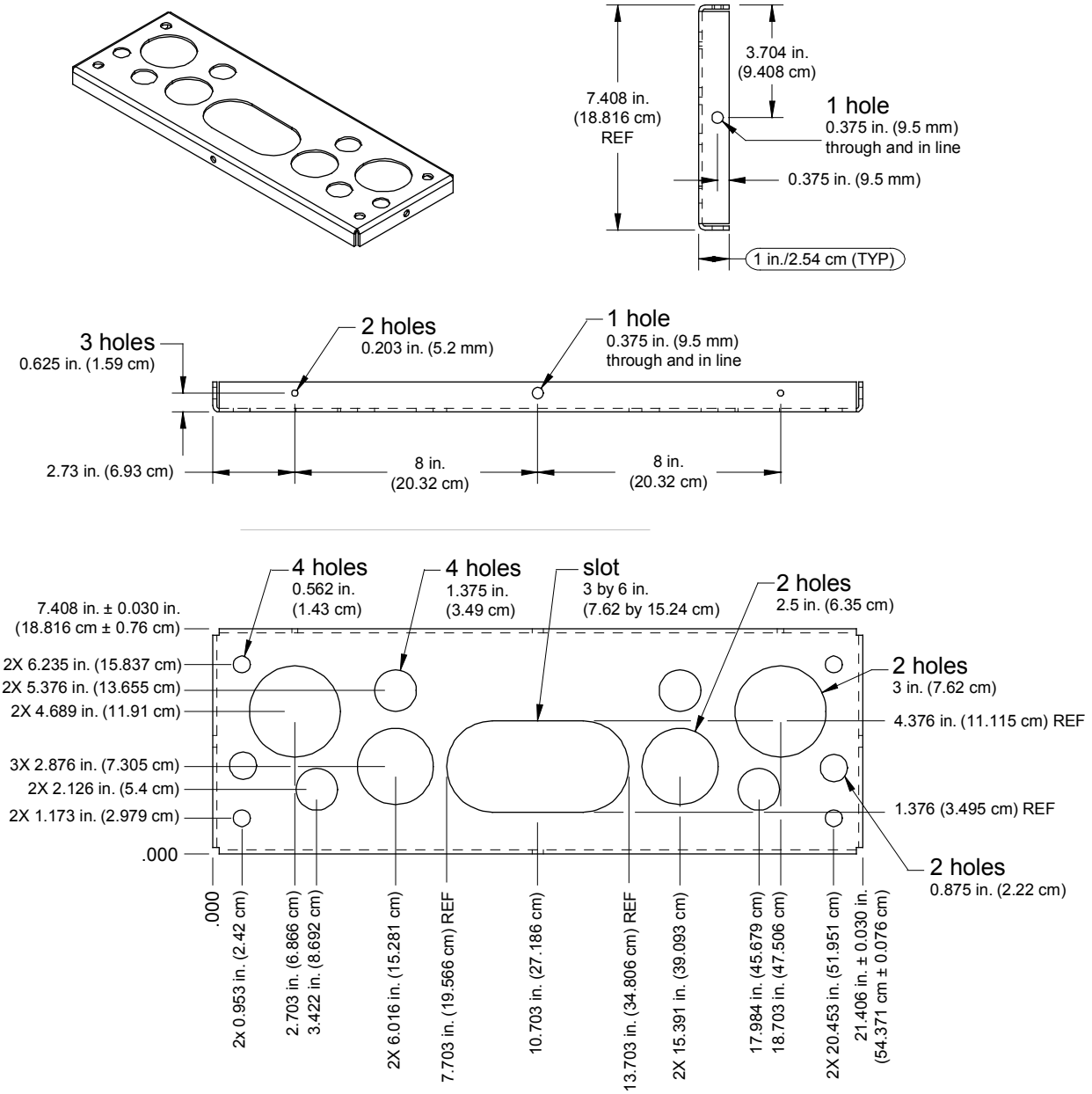
You will need to supply the following materials to construct a concrete pad for a XTE PTS Series PEIL/PESB Power Transfer Switch:

- electrical conduit (consult your local building department for size),
- ground wire (No. 6 AWG is recommended),
- framing materials with which to form the pad,
- No. 66-44 wire mesh sized to fit the pad, and
- concrete that conforms to A.S.T.M. 94 specifications for ready-mixed concrete.

Mounting Template

An aluminum mounting template (shown in **Figure 4**) with anchor J-bolts may be used to provide the cabinet mounting position and conduit access holes. The template kit (Part No. PEIL/RPEIL-TEMP) must be ordered separately.

Figure 4: Metal Mounting Template



6.2 Constructing the Pad

Stages of Construction

- The construction of the pad is performed in the following stages:
- Preparing the Site
- Preparing to Pour the Concrete,
- Installing the Mounting Template,
- Pouring the Concrete.

Preparing the Site

Perform the following steps to prepare the site for construction of the concrete pad:

1. Make sure that the pad location is firm and level. If the ground around the location is not firm, compact the soil and construct a level base for the pad using a minimum of 6 inches (15 cm) of gravel.
2. Dig trenches to accommodate the conduit for AC power cable and the ground wire according to local practices. See **Figure 5**, **Figure 6**, and **Figure 7** for the conduit entrance location.
3. Place the conduits for AC power cable. Conform to local electrical construction standards for conduit materials and sizing.
4. If required by local practices, treat the area below the pad and for 2 feet (60 cm) around the perimeter against insect infestation.
5. Fill in the trenches around the pad with soil and tamp.

Preparing to Pour the Concrete

Perform the following steps to form the pad and to prepare for the pouring of the concrete:

1. Construct the pad forms, using the dimensions shown in **Figure 5**, **Figure 6**, and **Figure 7**.
2. Place wire mesh in the forms so that the mesh is vertically centered in the finished pad. (See **Figure 5**, **Figure 6**). Make sure that the wire mesh or reinforcing bars are set approximately 2 inches (5 cm) off the bottom of the form.

NOTE! *In place of wire mesh, you may use No. 3 (3/8-inch - 9.5 mm) or larger reinforcing rods placed on 15-inch (38.1 cm) centers.*

Figure 5: Conduits

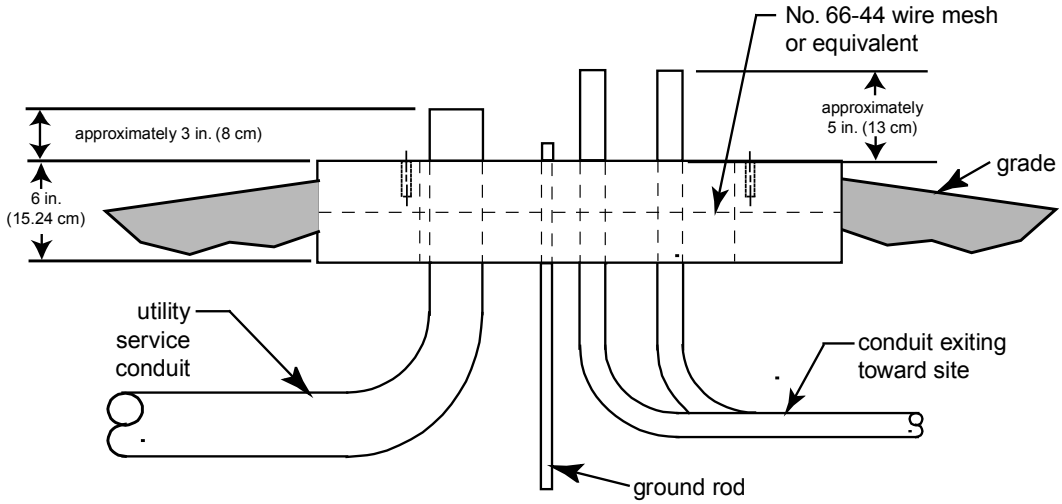


Figure 6: Pad Construction and Preparation

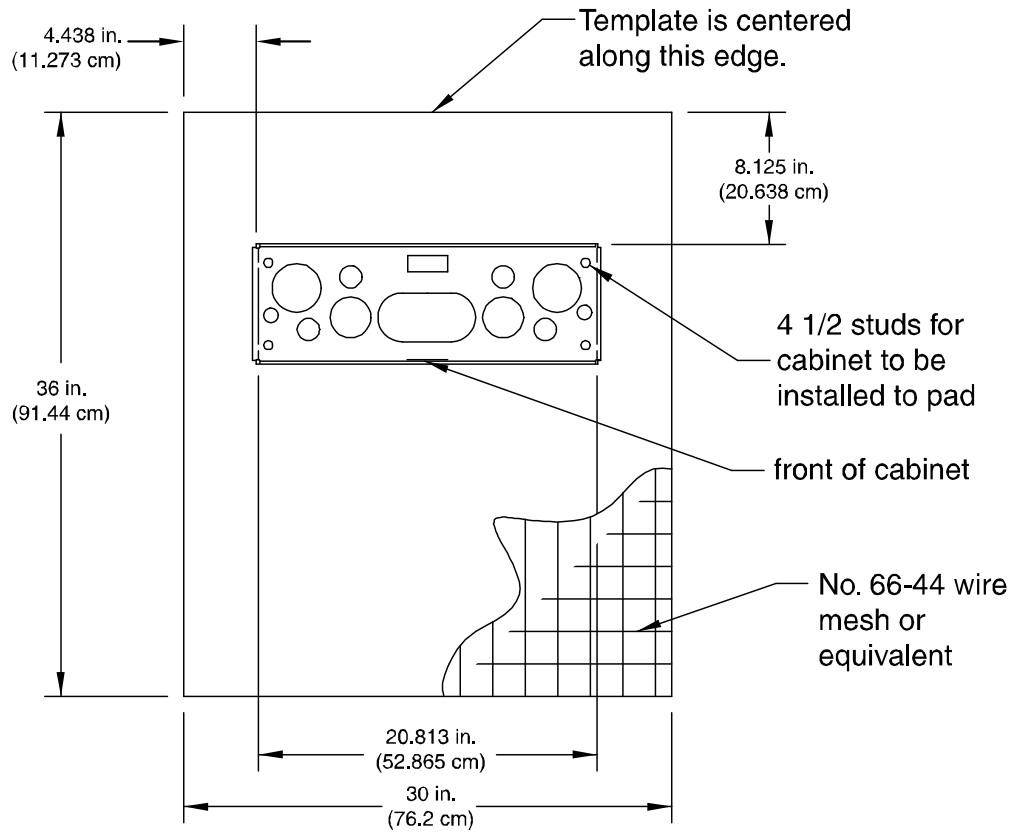
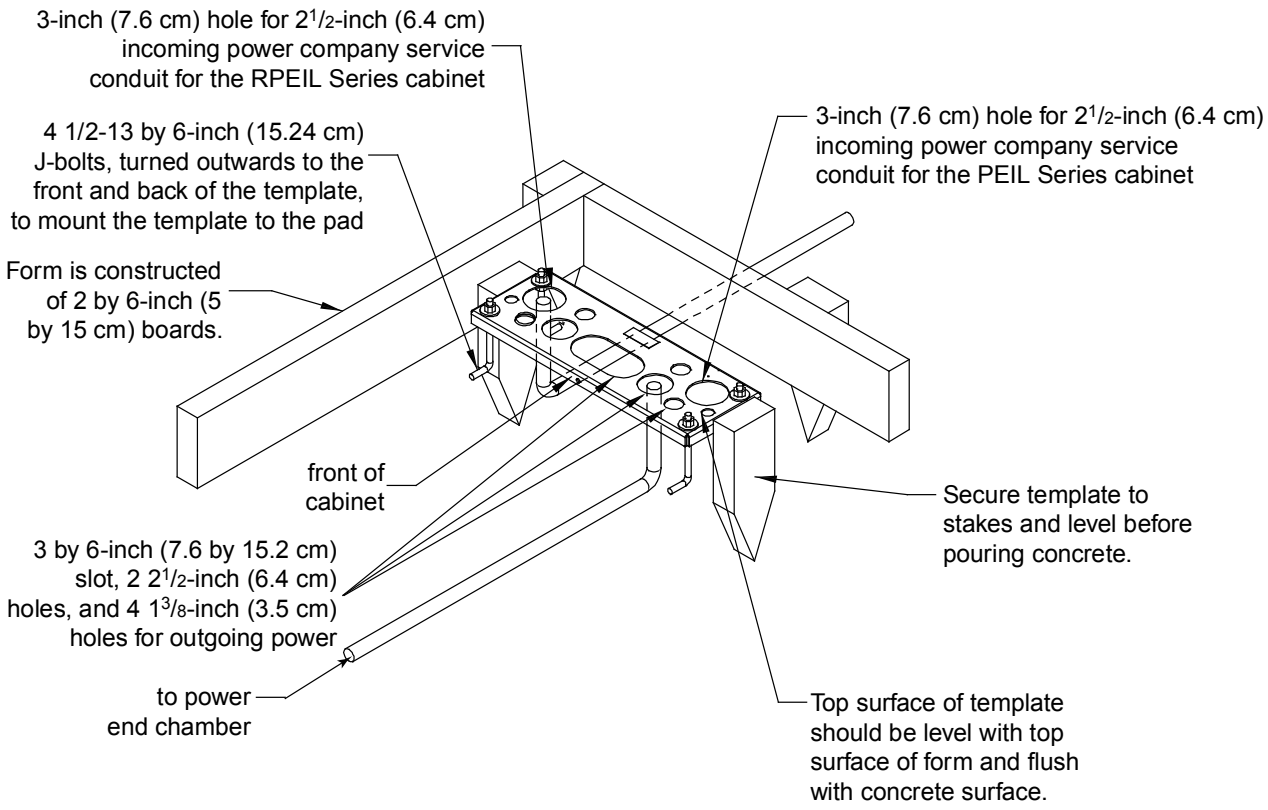


Figure 7: Mounting Template Installation



Installing the Mounting Template

If you are using the mounting template kit (part number PEIL/RPEIL-TEMP), then perform the following steps to install it:

1. Verify that all components (listed in **Table 1**) are included in the kit:

Table 1: Contents of Mounting Template Kit

Quantity	Description
1	Template
4	1/2-13x6-inch (15.24 cm) J-bolts
8	1/2-13 nuts
8	1/2-inch flat washers

2. Install one of the 1/2-13 nuts on each J-bolt. Thread the nut down, leaving approximately five threads below the nut.
3. Slide one flat washer on each J-bolt.
4. Slide each J-bolt through the 9/16-inch (1.43 cm) hole on the template.
5. Install a flat washer onto each J-bolt on the top side of the template., then install a nut.
6. Turn the J-bolts outwards, toward the front and back sides of the template, then tighten the nuts.

NOTE! *The 3-inch (7.6 cm) hole at the back-left side of the template is used for incoming power conduit for RPEIL-series cabinets. The 3-inch (7.6 cm) hole at the back-right side of the template is used for incoming power conduit for the PEIL-series cabinets.*

7. Place the mounting template into position in the pad form as shown in **Figure 7**.
8. Fasten the mounting template to the wooden stakes.
9. Level the mounting template on the stakes so that the top of the plate is flush with or slightly above the top of the pad.
10. Allow the conduits to extend above the template approximately 3 inches (8 cm). Make sure that each conduit extends vertically through the template, perpendicular to the hole.

Pouring the Concrete

Perform the following steps to pour the concrete:

1. Cover the conduit openings to keep wet concrete from entering them.
2. Pour concrete into the forms until level or slightly above the forms.
3. Puddle the concrete along the edges of the forms, then use a straight piece of lumber or equivalent to level the concrete.
4. If not using the mounting template, then before the concrete hardens, install locally provided screw anchors with 1/2-13 threads. Place them in the pad using the dimensions shown in **Figure 4** and **Figure 6**.
5. For additional finishing, wait until the pad no longer looks as if water is standing on top of it, and trowel the concrete smooth.
6. In a moist environment, allow the concrete to cure for a minimum of seven days. You may remove the forms after the second day.
7. If you are installing screw anchors after the concrete has hardened, then perform the following steps to install them:
    - Obtain expansion-type anchors with 1/2-13 threads.
    - Determine the proper hole size based on the size and type of your expansion-type anchors.
    - Drill holes in the pad. See **Figure 4** and **Figure 6** for the proper placement of the holes.
    - Insert the expansion-type anchors into the holes.

6.3 Mounting the Cabinet on the Pad

Perform the following steps to mount the cabinet on the pad:

1. Before placing the cabinet, verify that the pad has been prepared and the conduit for electrical feed and distribution cabling has been installed according to local electrical codes and practices.
2. Open the door, and secure the wind latch located in the bottom left corner.
3. Place the rubber gasket on the pad over the conduit and the template. If you are not using the template, then place the rubber gasket over the conduit in the pad so that the cabinet will be properly positioned on it. (See **Figure 6**.)
4. Using proper lifting procedures, place the cabinet in the mounting position on the pad.
5. Secure the cabinet to the pad using the rubber gasket, the hardware from the template, or customer-supplied 1/2-inch (1.3 cm) bolts or nuts that mate with the hardware used in the concrete pad.

6. Torque between 500 and 550 inch-pounds (56.54 and 62.2 Kilogram-Meters).
7. Have a licensed electrician complete the electrical hookup to the power meter and to the load center according to electrical codes and procedures. Refer to the wiring diagram in **Figure 3**, which is also located on the inside of the cabinet door, for interior wiring connections.
8. After the wiring is complete, fill the pad opening with pea gravel until flush with the top of the pad.
9. Close the door and secure it.

7 Mounting the Cabinet on a Pole

DANGER! ELECTRICAL HAZARD
Do not install the cabinet during a thunder storm. All power must be turned off before removing inner barrier panels.

To avoid possible injury or damage to equipment, follow all local safety practices and wear appropriate safety gear when installing the cabinet on a pole.

7.1 Pole-Mount Kits

Standard pole-mount kits must be ordered separately. These kits are designed for use on wooden poles. The part numbers for the pole-mount kits are as follows:

- Brown: PEIL-PB-Kit
- Off-White: PEIL-PI-Kit
- Green: PEIL-PG-Kit

NOTE! *Mounting hardware is not provided. You must supply two 1/2-inch (1.27 cm) bolts suitable for the pole size.*

7.2 Height on Pole

The cabinet can be installed at any height on the pole. For ease of access, install the cabinet at working level or in accordance with local practices.

NOTE! *Make sure that there is enough clearance to maintain the minimum bend radius of the cable to be installed.*

7.3 Pole Installation

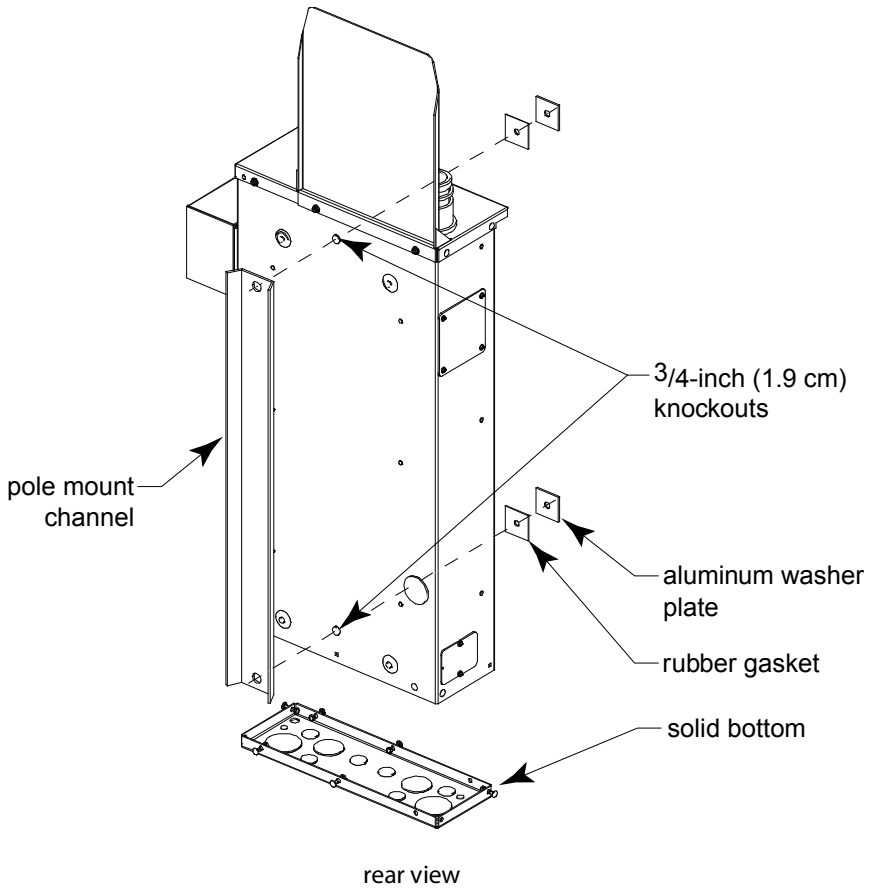
Perform the following steps to install a XTE PTS Series PEIL/PESB Power Transfer Switch on a pole using a standard pole-mount kit:

1. Unpack the pole-mount kit and the cabinet.
2. Verify that the Pole-Mount kit contains the following components (as shown in Fig. 8):
   - a two-point pole-mount channel,
   - two aluminum washer plates,
   - two rubber gaskets to be installed between the cabinet and the aluminum washer plates, and
   - a solid bottom.

NOTE! *Mounting hardware is not provided. You must supply two 1/2-inch (1.27 cm) bolts suitable for the pole size.*

3. Dispose of the packaging according to local practices.
4. Place the pole-mount channel in the mounting position on the pole.
5. Use the pole-mount channel as a template to drill two mounting holes that will accommodate the two 1/2-inch (1.3 cm) mounting bolts.
6. Open the cabinet door.
7. Remove the two 3/4-inch (1.9 cm) knockouts from the back of the cabinet. (See **Figure 8**).

Figure 8: Pole-Mount Kit



8. For each of the two bolts, slide one of the washer plates over one of the 1/2-inch (1.3 cm) mounting bolts and then slide one of the rubber gaskets over the bolt.
9. Install each bolt with its washer plate and gasket into the 3/4-inch (1.9 cm) knockout holes in the cabinet. (See Figure 8).
10. Install the pole mount channel to the cabinet over the mounting bolts. (See **Figure 8**).

CAUTION! Make sure that the cabinet is supported by the lifting equipment during the installation.

11. Using appropriate lifting equipment and following all local safety procedures, lift the cabinet and bracket into mounting position on the pole.
12. Level the cabinet before tightening the bolts, then tighten the bolts to secure the bracket and cabinet to the pole.
13. Remove the open bottom from the cabinet, and set the hardware aside.
14. Install the solid bottom from the pole-mount kit using the hardware saved in the step above.

8 Mounting the Cabinet on a Wall

DANGER! ELECTRICAL HAZARD
Do not install the cabinet during a thunder storm. All power must be turned off before removing inner barrier panels.

8.1 Solid Bottom

A wall-mounted cabinet should have a solid bottom, rather than the open bottom supplied with pad-mounted cabinets. If the cabinet does not have the solid bottom, order the solid bottom, and replace the standard open bottom with the solid bottom using the hardware provided.

8.2 Wall Installation

Perform the following steps to install a XTE PTS Series PEIL/PESB Power Transfer Switch on a wall:

1. Unpack the cabinet.
2. Verify that the loose parts kit contains the following components:
   - two 1/2-inch (1.3 cm) sealing washers, and
   - two flat washers.

NOTE! *Mounting hardware is not provided. You must supply two 1/2-inch (1.27 cm).*

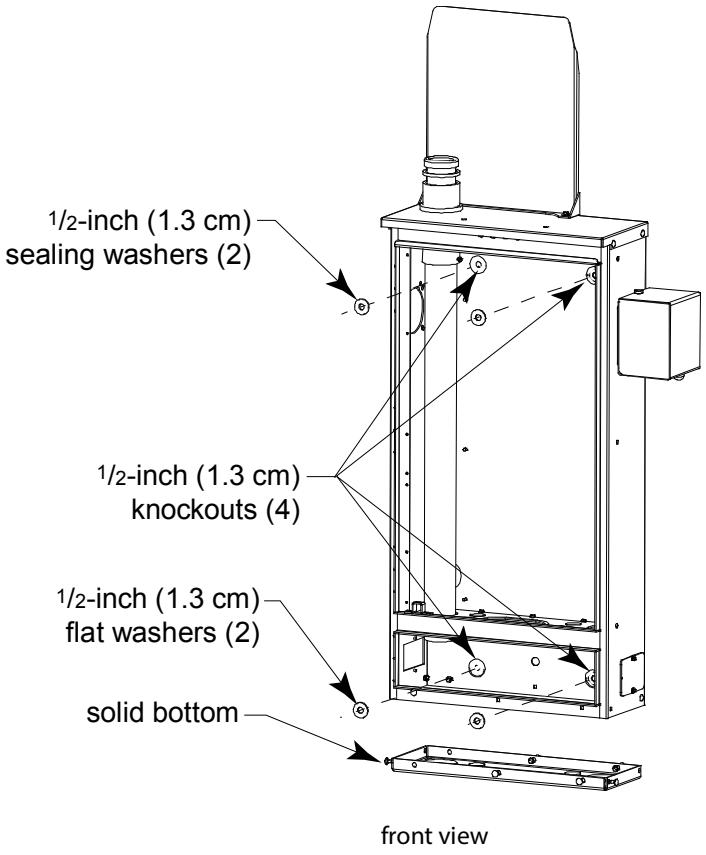
3. Remove the four 1/2-inch (1.3 cm) knockouts from the back of the cabinet. (See **Figure 9**.)

CAUTION! Make sure that the cabinet is supported by the lifting equipment during the installation.

4. Use appropriate lifting equipment to raise the cabinet into the mounting position on the wall, and keep it supported.
5. Use the cabinet as a template to drill four mounting holes. (See **Figure 9**).
6. If anchors are being used, remove the cabinet, and install the anchors.
7. Slide the two sealing washers onto the two top bolts, with the metal facing toward the head of the 1/2-inch (1.3 cm) bolt. (See **Figure 9**).
8. Install the two flat washers onto the two bottom bolts.
9. Install a bolt with its washer into each of the four 1/2-inch (1.3 cm) knockout holes in the cabinet, then into the wall or other mounting structure. (See **Figure 9**).

10. Tighten the bolts.

Figure 9: Wall-Mount Kit



9 Meter Options

9.1 Factory-Installed Meters

Various meter options are available and can be factory-installed.

9.2 Supplying Your Own Meter

If you are supplying your own meter, install it according to local electrical codes and practices, using approved conduit for the main electrical feed. After you have installed the meter, connect the electrical feed to the meter according to locally approved electrical practices.

10 DC Power, Outdoor Enclosure & Service Contacts

CUSTOMER SERVICE (PRE-SHIPMENT)		
Email	CustomerService.ESNA@Vertiv.com	Call Customer Service for purchase order status, expediting requests and order tracking.
Phone	1.800.800.1280 option 1	
CUSTOMER SUPPORT CENTER (POST-SHIPMENT)		
Email	ESNACustomerSupportCenter@Vertiv.com	After an order has shipped, contact our Customer Support Center with post-shipment related questions, concerns or claims.
Phone	1.800.800.1280 option 9	
PRODUCTS		
Email	AccountManagement.ESNA@Vertiv.com	For product pricing[1] and bid responses for custom configured DC power systems and outdoor enclosures for customers and channel partners (Reps, VARs & Distributors), contact Account Management.
Phone	1.800.800.1280 option 2	
SPARE PARTS		
Email	DCpower.Spares@Vertiv.com OSP.Spares@Vertiv.com	Pricing and purchase orders for spare parts, including but not limited to breakers, cables, fuses, rectifier fans, misc. breaker and fuse panels, enclosure fans, doors and switches, etc.
Phone	1.800.800.1280 option 5	
DC POWER DEPOT REPAIR		
Email	DCpower.Repair@Vertiv.com	Creates and processes RMAs for depot repair and refurbishment.
Phone	1.800.800.1280 option 5	Determines repair and refurbishment lead times and pricing based on warranties/contractual agreements.
Website	Vertiv.com/DCpowerRMA	Provides repair shipping information and status.
INSTALLATION & AFTER MARKET SERVICES		
Email	ESNA.FieldService@Vertiv.com	Provides quotes for engineering, furnishing and installation of DC power systems, telecom & IT equipment, cabling infrastructure, and field services of existing DC equipment.
Phone	1.800.800.1280 option 5	
TECHNICAL SUPPORT		
Email	DCpower.TAC@Vertiv.com	Answers technical product questions about DC power systems and outdoor enclosures; determines status of warranties and contractual agreements for repair.
Phone	1.800.800.5260	

[1] Contact Spare Parts for parts and accessories.

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