

Power-Sure 800

Instruction manual—single-phase power conditioners



EAT•N

Powering Business Worldwide

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Safety and preparations

Important safety instructions

Save these instructions—This manual contains important instructions for the Power-Sure™ T800R/T800P/T800F that must be followed during operation of the equipment.

WARNING

Opening enclosures exposes hazardous voltages. Always refer service to qualified personnel only.

WARNING

As standards, specifications, and designs are subject to change, please ask for confirmation of the information given in this publication.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

Note: This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at the users own expense.

Certification standards

- ANSI/IEEE® C57.12.91 transformer test code
- ANSI C62.41 Category B-3
- NFPA® 70—National Electric Code®
- FCC Class A limits, 47 C.F.R. Part 15, Subparts A, B
- UL® listed to Standard 1012, power supplies—general purpose
- cUL® listed to CSA® Standard C22.2, No. 107.1-01
- NEMA® PE 1 (National Electric Manufacturers Association)
- NEMA 250 (National Electric Manufacturers Association)
- Enclosures for electrical equipment (1000V maximum)
- ISO® 9001:2008
- Occupational Safety & Health Administration (OSHA)

WARNING

To reduce the risk of fire or electric shock, install in a temperature- and humidity-controlled indoor area free of conductive contaminants.

This equipment is intended only for installations in a restricted-access location.

WARNING

High leakage current. Earth connection is essential before connecting supply.

Symbol usage

This manual uses three icon symbols with text to convey important information and tips.

WARNING

A potentially hazardous situation which, if not avoided, could result in death or injury.

CAUTION

A potentially hazardous situation which, if not avoided, may result in minor or moderate injury or in property damage incidents.

IMPORTANT

Indicates information provided as an operating instruction or as an operating tip.

This manual also uses a specific type treatment to point out a specific note.

Note: Indicates information provided as an operating tip or an equipment feature.

Disclaimer

The product discussed in this literature is subject to terms and conditions outlined in Eaton selling policies. The sole source governing the rights and remedies of any purchaser of this equipment is the relevant Eaton selling policy.

No warranties, express or implied, including warranties of fitness for a particular purpose or merchantability, or warranties arising from course of dealing or usage of trade, are made regarding the information, recommendations, and descriptions contained herein.

In no event will Eaton be responsible to the purchaser or user in contract, in tort (including negligence), strict liability, or otherwise for any special, indirect, incidental, or consequential damage or loss whatsoever, including but not limited to damage or loss of use of equipment, plant or power system, cost of capital, loss of power, additional expenses in the use of existing power facilities, or claims against the purchaser or user by its customers resulting from the use of the information, recommendations, and descriptions contained herein.

The information contained in this manual is subject to change without notice.

Serial numbers

Record all serial numbers for the Power-Sure T800R/T800P/T800F and components.

These serial numbers will be required if your system needs service.

Keep this manual in a place where you can reference the serial numbers if service is required.

Power-Sure T800R serial number: _____

Power-Sure T800P serial number: _____

Power-Sure T800F serial number: _____

Additional serial numbers:

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
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Introduction

1.0: Scope

This section is a general description of the Power-Sure T800R/T800P/T800F power conditioners. It includes receiving, electrical, environmental, mechanical specifications, and cabinet standard dimensions.

1.1: Section descriptions

This manual is divided into three sections:

Section 1: Introduction

This section is a general description of the Power-Sure T800R/T800P/T800F power conditioners. It includes receiving, electrical, and mechanical specifications and cabinet measurements.

Section 2: Installation

This section guides the user through installation requirements, wire and circuit diagrams, hardware connections, and factory configuration ratings for the Power-Sure T800R/T800P/T800F.

Section 3: Maintenance

This section contains preventive maintenance for the Power-Sure T800R/T800P/T800F and a troubleshooting guide to assist the user with any communication and configuration connections.

1.2: Receiving

Before accepting shipment from the freight carrier, inspect the exterior surfaces of all shipping containers or packaging used and the equipment for damage that may have occurred during transit. If the shipping containers or equipment shows evidence of damage, note the damage on the receiving document (bill of lading) prior to signing for receipt of equipment.

All claims for shipping damage must be filed directly with the carrier. Replacements for damaged components should be ordered through Eaton.

Check by thorough inspection if any electrical connections have become loose because of vibration during shipment. Check the nameplate to be sure that the voltage and frequency match the available power supply. Under no circumstance should the unit be connected to a power source that does not conform to the nameplate rating.

1.3: Location and storage

The unit has been completely inspected and extensively tested under various load conditions prior to shipment. Installing it at a proper location will ensure long trouble-free operation. T800R models are forced-air cooled with the air intake on the sides of the enclosure. Air exhausts are at the rear of the enclosure. Therefore, it should be installed in a clean, dry place with enough clearance to allow a free flow of air. Allow at least four inches of space between the unit and the wall or other equipment for portable units. Allow enough space for maintenance on all four sides on larger units, and unrestricted air exhaust from the fan. Never mount T800P models one unit over the other or near a heat source. Heat rising into or blowing into the unit may cause premature failure.

If the equipment is to be stored prior to installation, it should be stored in a cool, dry, well-ventilated location that is protected from rain, splashing water, chemical agents, etc. The equipment should be covered with a tarpaulin or plastic wrapper to protect it against dust, dirt, paint, or other foreign materials.

1.4: Prerequisites to installation

An efficient installation depends on careful planning and site preparation. Installation of the equipment must be handled by skilled technicians and electricians familiar with the special requirements of high-voltage electrical equipment. The installation must comply with the requirements of the National Electrical Code (ANSI/NFPA 70, latest issue) and local codes as applicable.

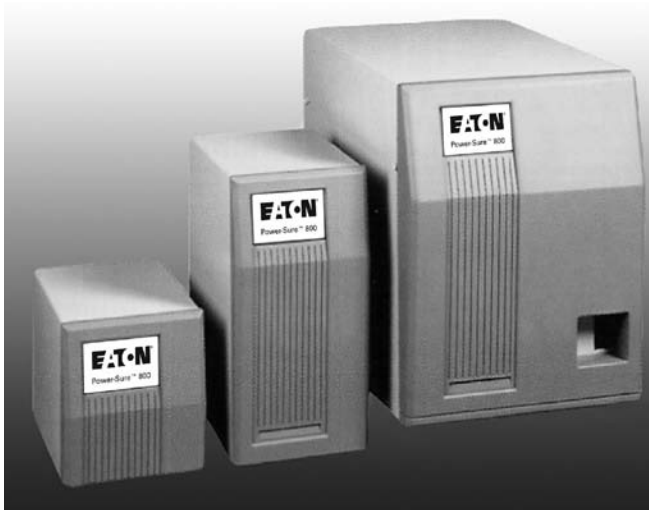
Startup service is offered by Eaton. Do not allow unqualified personnel to handle, install, or operate Power-Sure 800 power conditioners.

1.5: General description

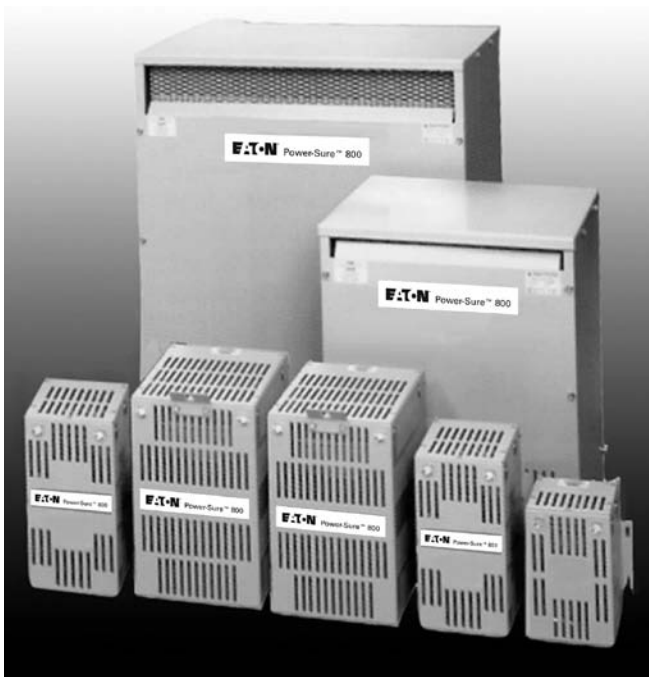
The Power-Sure 800 is a state-of-the-art ferroresonant isolation transformer. Its all-passive electronic design provides unsurpassed reliability and power conditioning performance. The overall function of the Power-Sure 800 is to receive raw, extremely polluted electrical power and purify it for use by sensitive electronic equipment. This highly reliable product is ideal for heavy industrial applications where high power equipment constantly interferes with a building's electrical system. Use the Power-Sure 800 where isolated, regulated, transient, and noise-free sinusoidal power is required.

- Ferroresonant, copper coils, dry type, convection cooled, 600V class, 200°C system.
- Core uses M-6 grade, grain-oriented, stress-relieved transformer steel.
- Transformers are vacuum impregnated with epoxy resin.
- NEMA Type 1, general purpose, indoor enclosure.
- Heavy gauge steel. Base substructure adequate for fork lifting.

Introduction



Power-Sure T800R models— section 1.7



Power-Sure T800P/T800F models— section 1.7

1.6: Electrical specifications

Specifications are for Power-Sure T800R/T800P/T800F models. Variable Range Regulation (VRR): Input voltage can fluctuate -45–200%^① (for a short time) with the output regulating at usable tolerances. The following are typical regulation specifications with continuous input voltage variations:

- **Power output**
Single-phase, 100% duty kVA/kw, for linear and non-linear loads.

- **Line voltage regulation**
@ 100% load: $\pm 2\%$ V-out for +10% to -20% V-in.
@ 75% load: $\pm 3\%$ V-out for +10% to -35% V-in.
@ 50% load: $\pm 3\%$ V-out for +10% to -40% V-in.
@ 25% load: $\pm 3\%$ V-out for +10% to -45% V-in.
- **Immunity to distortion**
Input distortion as high as 40% laden with transient noise will produce a maximum harmonic content of 5% on the sinusoidal transient-free output.
- **Load regulation**
Output voltage remains $\pm 3\%$ with a load change of 0–100%.
- **K-factor**
K-factor rating is 30; handles high harmonic content loads without overheating.
- **Power factor correction**
Remains within 0.95 approaching unity with load power factor as poor as 0.6. Meets FAA-G-201e power factor specifications.
- **Harmonic attenuation**
-23dB for load-reflected harmonics.
- **Galvanic isolation**
NEC 250-5d, .001pf.
- **Surge protection**
Complies with UL 1449 rating 330V, ANSI/IEEE C62.41 Cat. B3.
- **Short-circuit protection**
The Power-Sure T800R/T800P/T800F can not be damaged by electrical short in the load.
- **Voltage recovery**
Output voltage returns to 95% of nominal voltage within two cycles and 100% within three cycles.
- **Frequency**
Either 50 or 60 Hz specifically. A 60 Hz unit will not operate at 50 Hz and vice versa.
- **Transverse Mode Noise (TMN) attenuation**
120 dB.
- **Common mode noise attenuation: 140 dB.**
- **Ride-through capability**
The output of the Power-Sure T800R/T800P/T800F will maintain a usable level with an input loss of up to one cycle (16.7ms) depending on the load.
- **Reliability**
200,000 hours Mean Time Between Failures (MTBF).
- **Audible noise**
Power-Sure T800R: 45–60 dB @ one meter (depending on size), Power-Sure T800P and T800F: 52–56 dB @ one meter.
- **Efficiency**
Typical full load efficiency is 90–92% for standard input and output voltage levels.
- **Operating temperature**
Ambient range -20 to +40°C.

^① +200% applies to T800P/T800F models only.

1.7: Power-Sure T800R/T800P/T800F cabinet dimensions

Table 1-1: Cabinet standard dimensions and weights for Power-Sure T800R models

Part number	Rating (VA/watts)	Input voltage	Output voltage	Input interface	Output interface	Dimensions, W x D x H, in. (mm)	Weight, lbs (kg)
T800R-00500	500/400	120	120	5-15P	(4) 5-20R	8.50 x 12.75 x 9.50 (215.9 x 323.9 x 241.3)	32 (15)
T800R-00700	700/500	120	120	5-15P	(4) 5-20R	8.50 x 12.75 x 9.50 (215.9 x 323.9 x 241.3)	35 (16)
T800R-00850	850/600	120	120	5-15P	(4) 5-20R	8.50 x 12.75 x 9.50 (215.9 x 323.9 x 241.3)	37 (17)
T800R-01000	1000/700	120	120	5-15P	(4) 5-20R	8.50 x 12.75 x 17.50 (215.9 x 323.9 x 444.5)	46 (21)
T800R-01600	1600/1200	120	120	5-15P	(4) 5-20R	8.50 x 12.75 x 17.50 (215.9 x 323.9 x 444.5)	62 (28)
T800R-02100	2100/1500	120	120	5-20P	(4) 5-20R	8.50 x 12.75 x 17.50 (215.9 x 323.9 x 444.5)	65 (29)
T800R-02500	2500/1750	120	120	5-30P	(4) 5-20R	8.50 x 12.75 x 17.50 (215.9 x 323.9 x 444.5)	68 (31)
T800R-03500	3500/2450	120	120/240	5-50P	(4) 5-20R	8.50 x 12.75 x 17.50 (215.9 x 323.9 x 444.5)	72 (33)
T800R-03501	3500/2450	208/240	120/240	6-20P	(4) 5-20R	8.50 x 12.75 x 17.50 (215.9 x 323.9 x 444.5)	73 (33)
T800R-05000	5000/3500	208/240	120/240	Hardwired	Custom ^①	15.00 x 23.75 x 22.50 (381.0 x 603.3 x 571.5)	176 (80)
T800R-07500	7500/5250	208/240	120/240	Hardwired	Custom ^①	15.00 x 23.75 x 22.50 (381.0 x 603.3 x 571.5)	210 (95)
T800R-10000	10,000/7000	208/240	120/240	Hardwired	Custom ^①	15.00 x 23.75 x 22.50 (381.0 x 603.3 x 571.5)	256 (116)
T800R-15000	15,000/10,500	208/240	120/240	Hardwired	Custom ^①	15.00 x 23.75 x 22.50 (381.0 x 603.3 x 571.5)	314 (142)

① See custom output receptacles *Figure 1-1—page 4*; 5 panels available for distribution; HW output utilizes 1 panel, other 4 panels can be used for receptacle interface or cabling.

Table 1-2: Cabinet standard dimensions and weights for Power-Sure T800P models

Part number	Rating (VA/watts)	Input voltage	Output voltage	Input interface	Output interface	Dimensions, W x D x H, in. (mm)	Weight, lbs (kg)
T800P-00500	500/500	Range 1 ^{①③}	Range 3 ^④	Hardwired	Hardwired	9.00 x 14.00 x 10.00 (228.6 x 355.6 x 254.0)	52 (24)
T800P-00750	750/750	Range 1 ^{①③}	Range 3 ^④	Hardwired	Hardwired	9.00 x 14.00 x 10.00 (228.6 x 355.6 x 254.0)	60 (27)
T800P-01000	1000/1000	Range 1 ^{①③}	Range 3 ^④	Hardwired	Hardwired	9.00 x 14.00 x 10.00 (228.6 x 355.6 x 254.0)	82 (37)
T800P-01500	1500/1500	Range 1 ^{①③}	Range 3 ^④	Hardwired	Hardwired	13.00 x 16.50 x 14.75 (330.2 x 419.1 x 374.7)	106 (48)
T800P-02000	2000/2000	Range 1 ^{①③}	Range 3 ^④	Hardwired	Hardwired	13.00 x 16.50 x 14.75 (330.2 x 419.1 x 374.7)	125 (57)
T800P-03000	3000/3000	Range 1 ^{①③}	Range 3 ^④	Hardwired	Hardwired	13.00 x 16.50 x 14.75 (330.2 x 419.1 x 374.7)	157 (71)
T800P-05000	5000/5000	Range 1 ^{①③}	Range 3 ^④	Hardwired	Hardwired	27.00 x 22.50 x 28.50 (685.8 x 571.5 x 723.9)	437 (198)
T800P-08000	8000/8000	Range 2 ^{②③}	Range 3 ^④	Hardwired	Hardwired	27.00 x 22.50 x 28.50 (685.8 x 571.5 x 723.9)	495 (225)
T800P-10000	10,000/10,000	Range 2 ^{②③}	Range 3 ^④	Hardwired	Hardwired	27.00 x 22.50 x 28.50 (685.8 x 571.5 x 723.9)	537 (244)

① Range 1: 120/208/240/480.

② Range 2: 208/240/480.

③ Input and output voltage is field configurable; units will ship from the factory configured as follows: Range 1—120V (input/output); Range 2—240V (input/output).

④ Range 3: 120/208/240.

Table 1-3: Cabinet standard dimensions and weights for Power-Sure T800F models

Part number	Rating (VA/watts)	Input voltage	Output voltage	Input interface	Output interface	Dimensions, W x D x H, in. (mm)	Weight, lbs (kg)
T800F-05000	5000/5000	Range 1 ^{①③}	Range 3 ^④	Hardwired	Hardwired	23.00 x 20.00 x 28.50 (584.2 x 508.0 x 723.9)	407 (185)
T800F-08000	8000/8000	Range 2 ^{②③}	Range 3 ^④	Hardwired	Hardwired	23.00 x 20.00 x 28.50 (584.2 x 508.0 x 723.9)	465 (211)
T800F-10000	10,000/10,000	Range 2 ^{②③}	Range 3 ^④	Hardwired	Hardwired	23.00 x 20.00 x 28.50 (584.2 x 508.0 x 723.9)	507 (230)
T800F-15000	15,000/15,000	Range 2 ^{②③}	Range 3 ^④	Hardwired	Hardwired	35.00 x 25.00 x 39.50 (889.0 x 635.0 x 1003.3)	830 (376)
T800F-20000	20,000/20,000	Range 2 ^{②③}	Range 3 ^④	Hardwired	Hardwired	35.00 x 25.00 x 39.50 (889.0 x 635.0 x 1003.3)	950 (431)
T800F-25000	25,000/25,000	Range 2 ^{②③}	Range 3 ^④	Hardwired	Hardwired	35.00 x 25.00 x 39.50 (889.0 x 635.0 x 1003.3)	1070 (485)

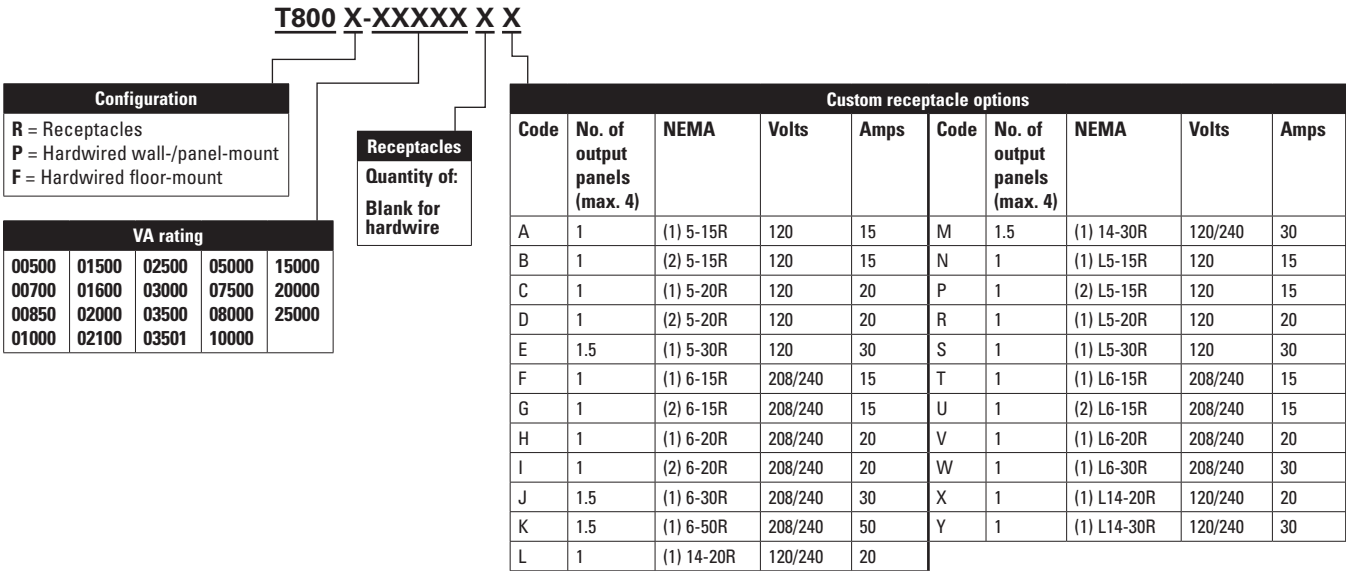
① Range 1: 120/208/240/480.

② Range 2: 208/240/480.

③ Input and output voltage is field configurable; units will ship from the factory configured as follows: Range 1—120V (input/output); Range 2—240V (input/output).

④ Range 3: 120/208/240.

Figure 1-1: T800 product configuration



Example: T800R-100002B2Y consists of 2 (2) 5-15R receptacles and 2 (1) L14-30R receptacles.

Figure 1-2: Cabinet standard dimensions for 500–850 VA, Power-Sure T800R models

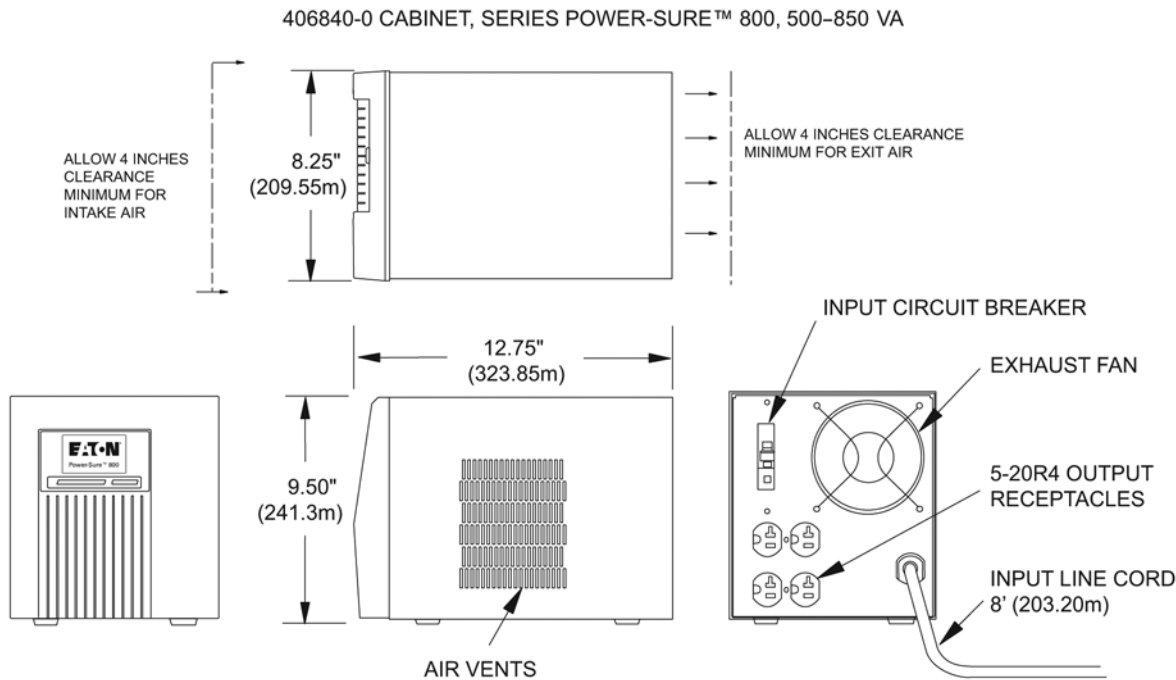


Figure 1-3 Cabinet standard dimensions for 1–3.5 kVA, Power-Sure T800R models

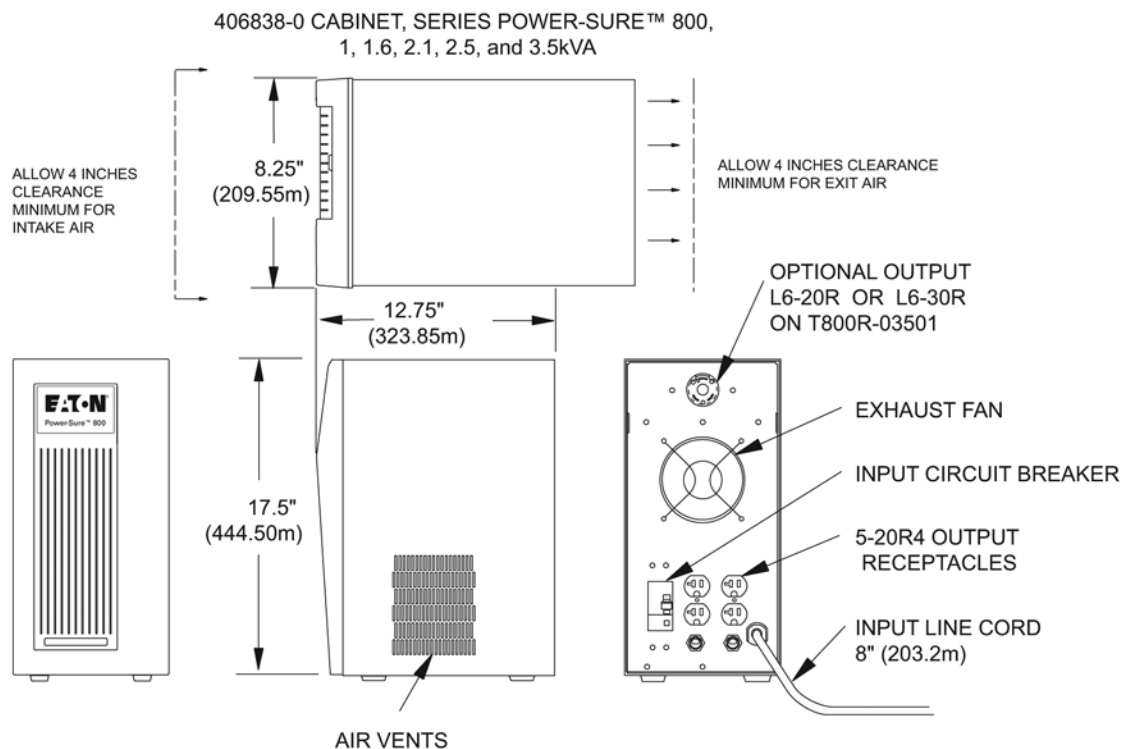


Figure 1-4: Cabinet standard dimensions for 5–15 kVA, Power-Sure T800R models

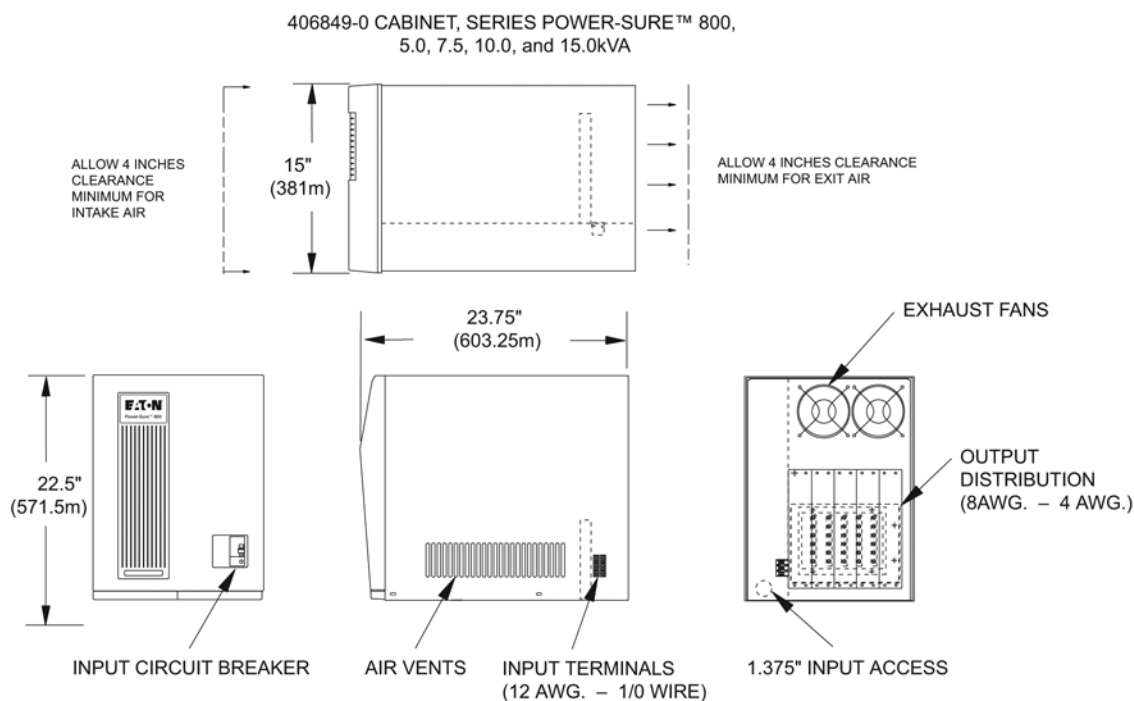


Figure 1-5: Cabinet dimensions T800P wall-/panel-mounted unit, 500–1000 VA

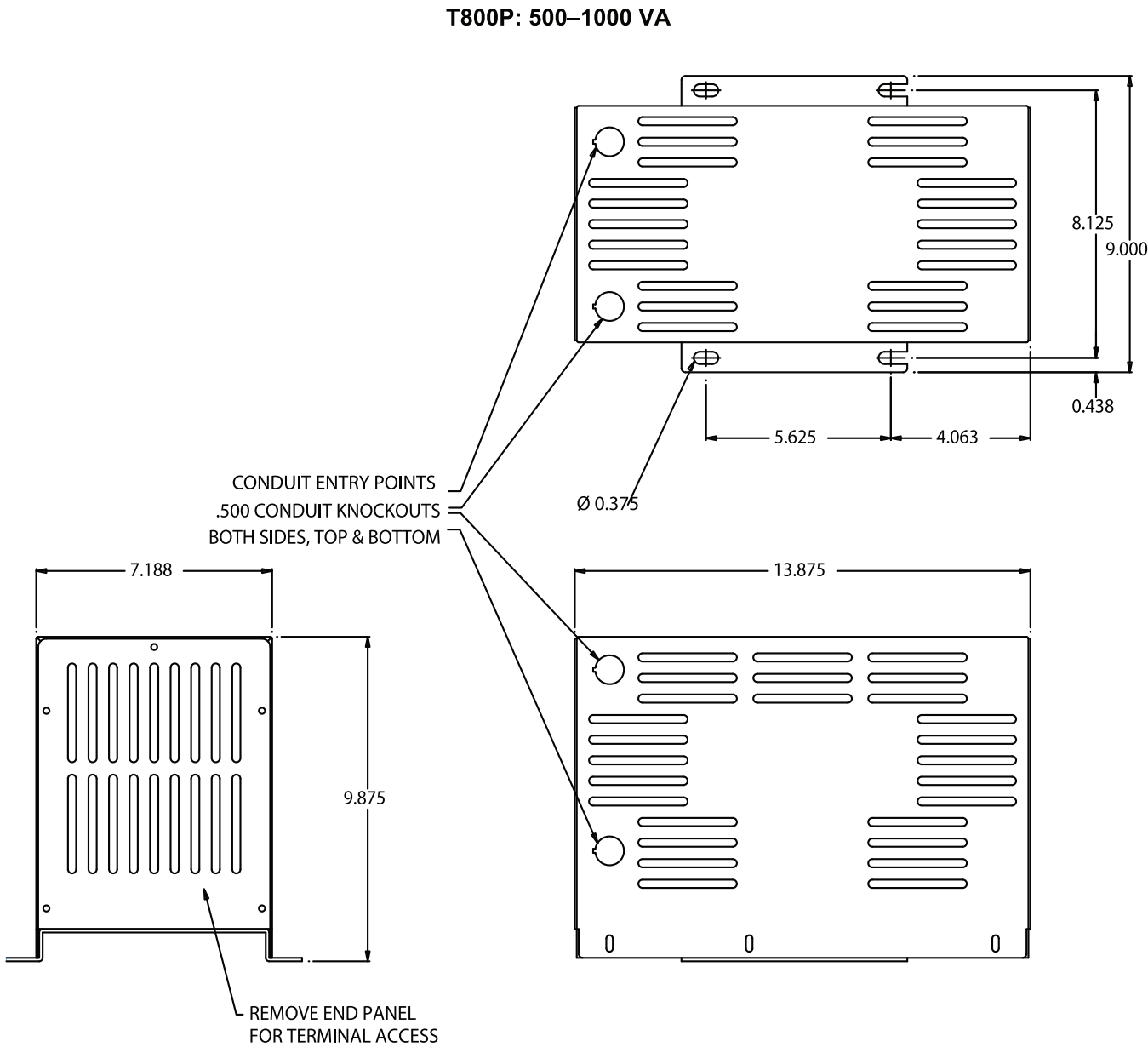


Figure 1-6: Cabinet dimensions T800P wall-/panel-mounted unit, 1500–3000 VA

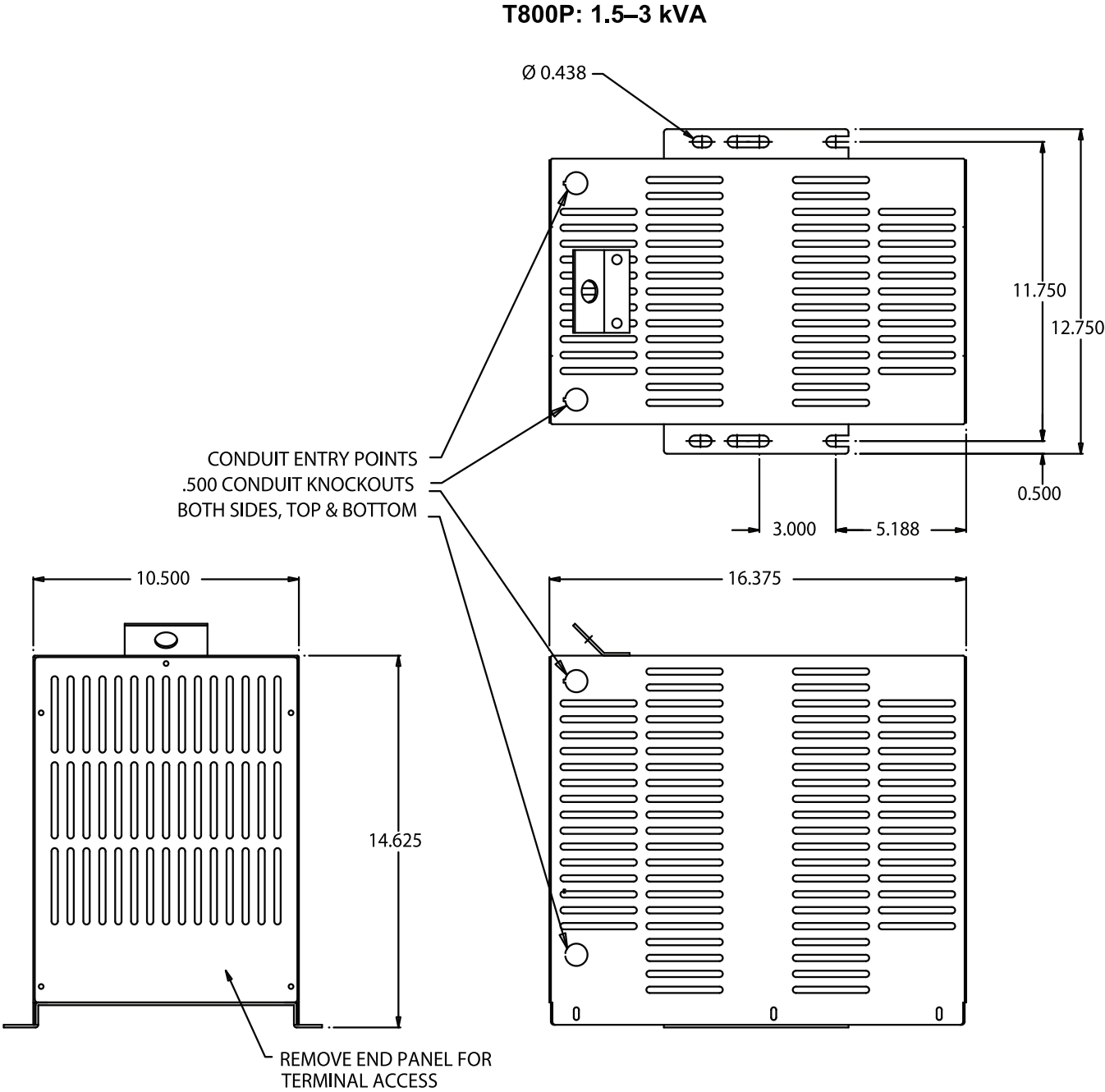


Figure 1-7: Cabinet dimensions T800P wall-/panel-mounted unit, 5000–10,000 VA

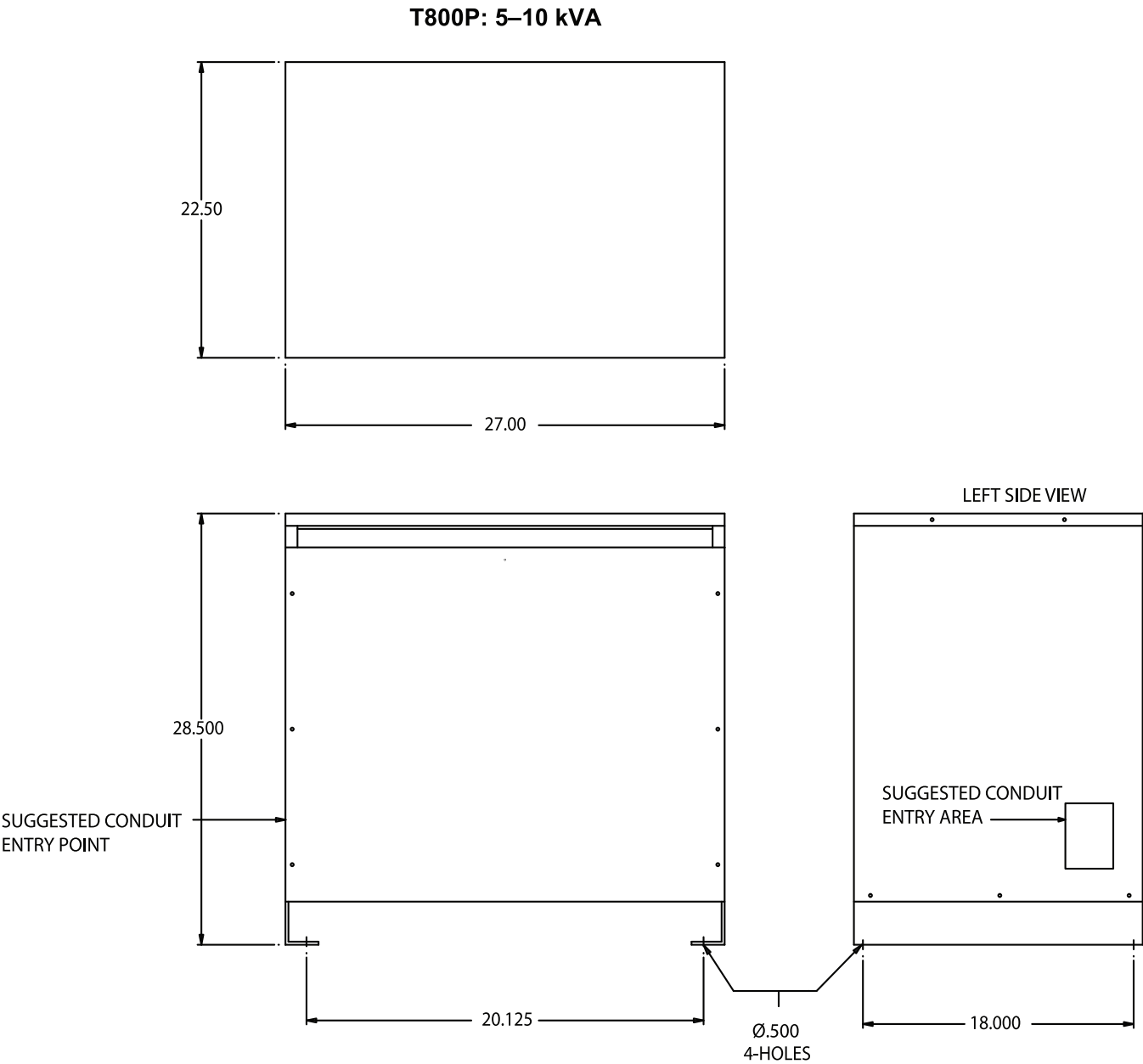


Figure 1-8: Cabinet dimensions T800F floor-mounted unit, 5000–10,000 VA

T800F: 5–10 kVA

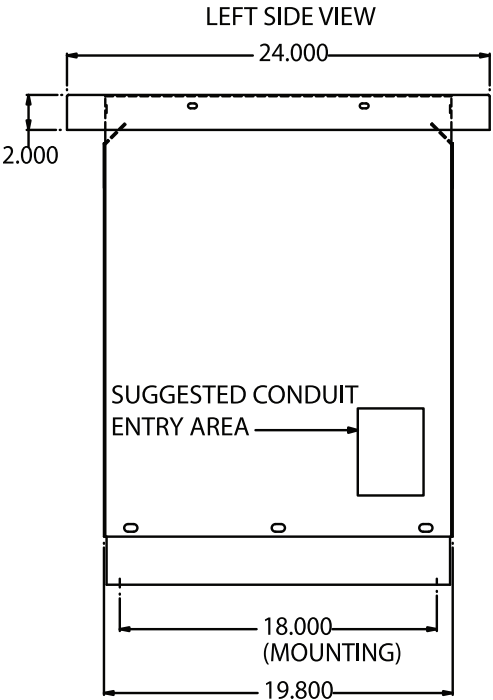
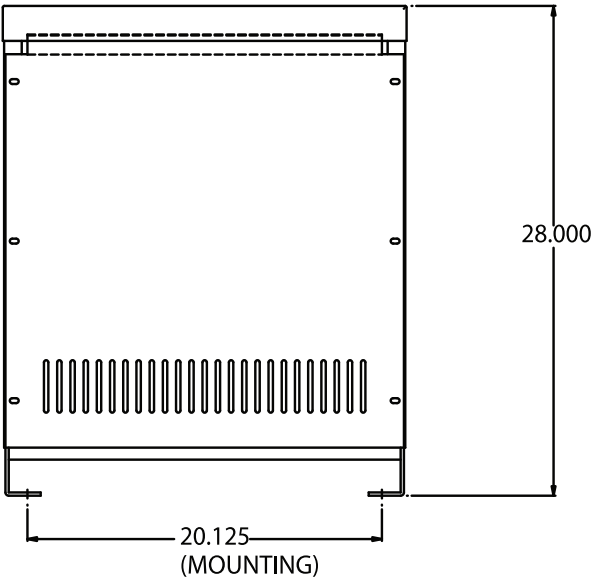
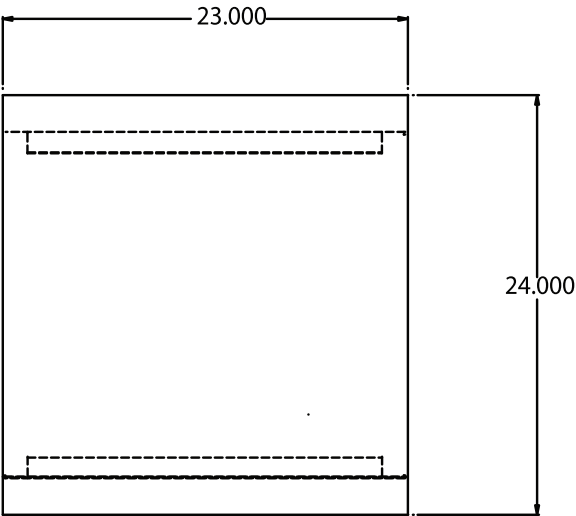
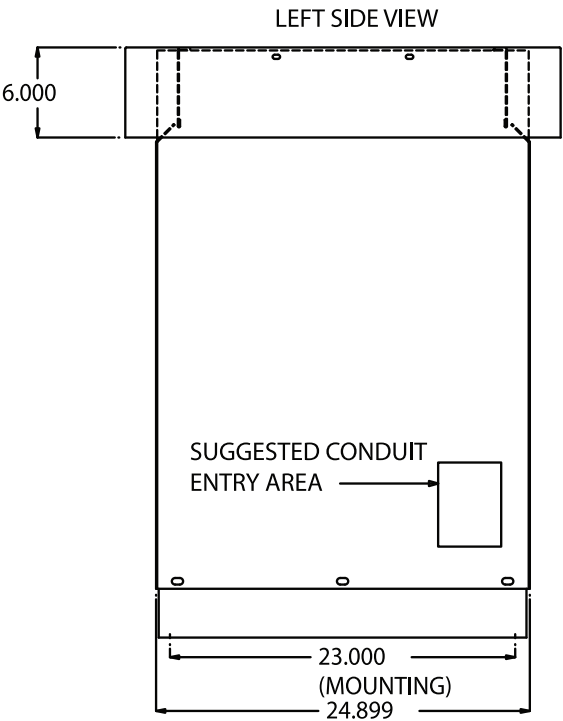
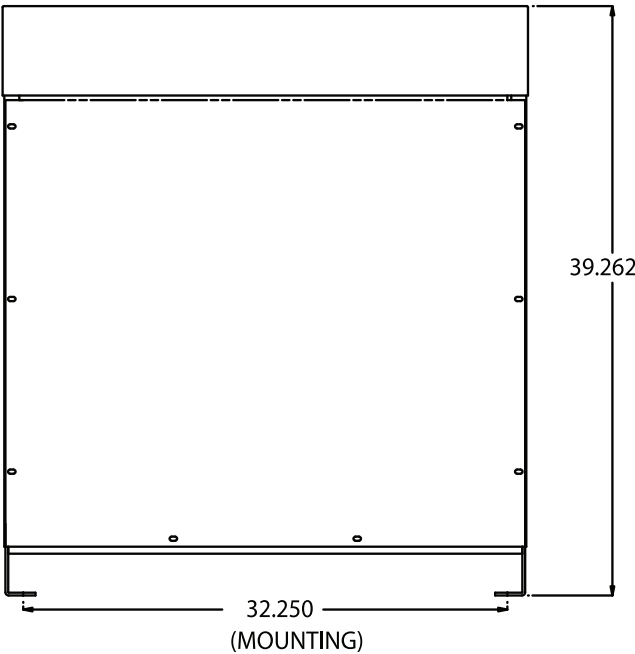
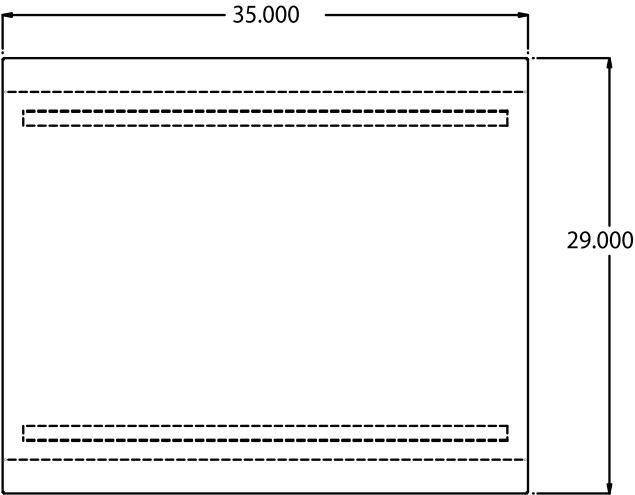


Figure 1-9: Cabinet dimensions T800F floor-mounted unit, 15,000–25,000 VA

T800F: 15–25 kVA



Installation

2.0: Scope

This section guides the user through installation requirements, circuit wiring diagrams, hardwire connections, and factory input/output configurations for the Power-Sure T800R/T800P/T800F models.

WARNING

High voltage. Only qualified electricians should install or perform maintenance.

2.1: Installation notes

- The Power-Sure T800R/T800P/T800F requires ventilation and should not be mounted in a non-ventilated control cabinet.
- After installation is complete, verify that the output voltage is within its rated specifications.
- Certain loads connected to the Power-Sure T800R/T800P/T800F with high inrush currents will cause the output voltage to fall below usable levels if they exceed 150% of the unit's current rating. If high inrush currents are expected, the Power-Sure T800R/T800P/T800F must be oversized.

- If the Power-Sure T800R/T800P/T800F power conditioner is overloaded, the output voltage will drop below its rated specifications and the input fusing will open due to higher input currents.
- For installation of conduit, reference NEC Article 248 and 350 and any applicable local electrical codes.

Refer to the following typical wiring diagrams for electrical hookup.

2.2: Installation of hardwired models

The Power-Sure T800R/T800P/T800F hardwired models are shipped from the factory with all available input and output voltage selections accessible via terminal blocks for ease of installation. It is critical to verify the source voltage prior to making input power connections to the Power-Sure T800R/T800P/T800F. Verify that the desired input and output field wiring connections are made to the correct terminal blocks, as shown for the specific model being installed. *(See Figures 2-5—page 14, 2-6—page 15, 2-7—page 16, or 2-8—page 17, depending on the model being installed).*

2.3: Wiring diagrams

Figure 2-1: Wiring diagram for 500–850 VA T800R (120 Vac input and output, 60 Hz)

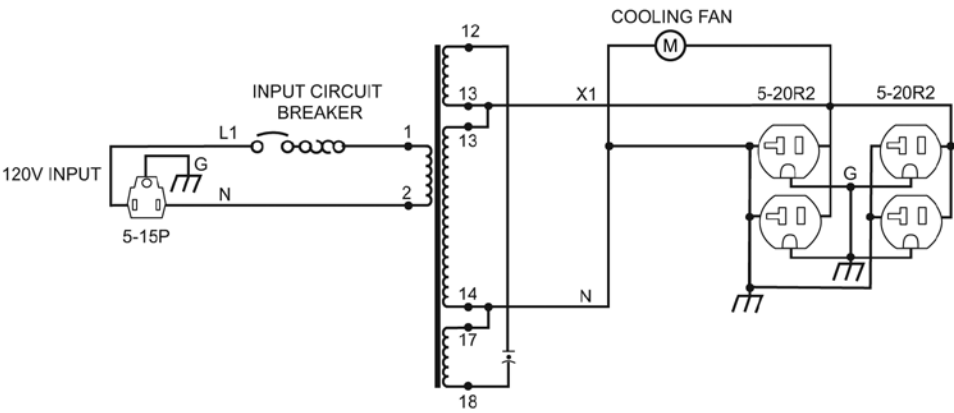


Figure 2-2: Wiring diagram for 1–2.5 kVA T800R (120 Vac input and output, 60 Hz)

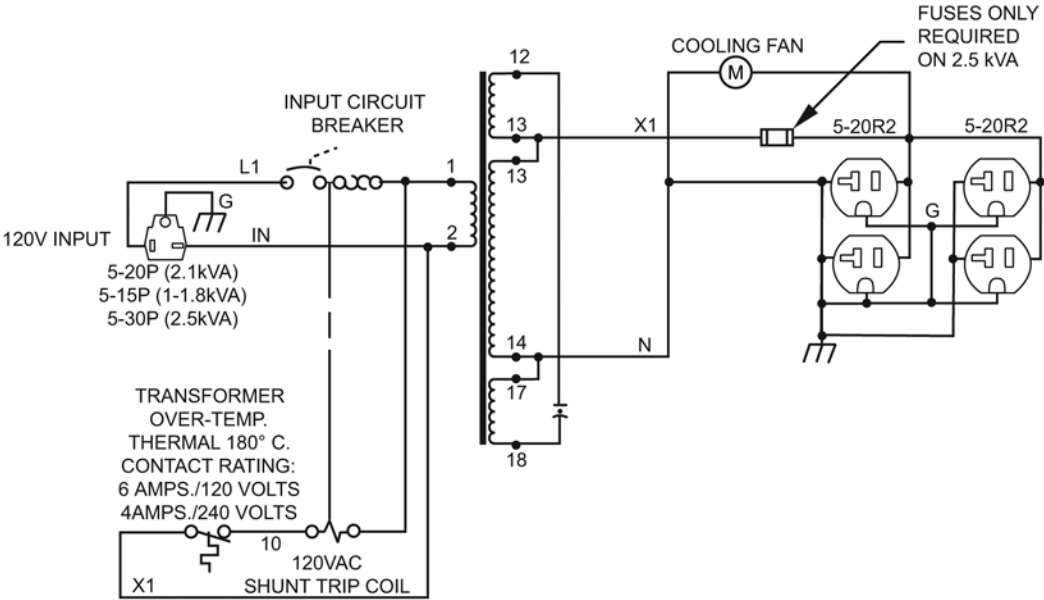
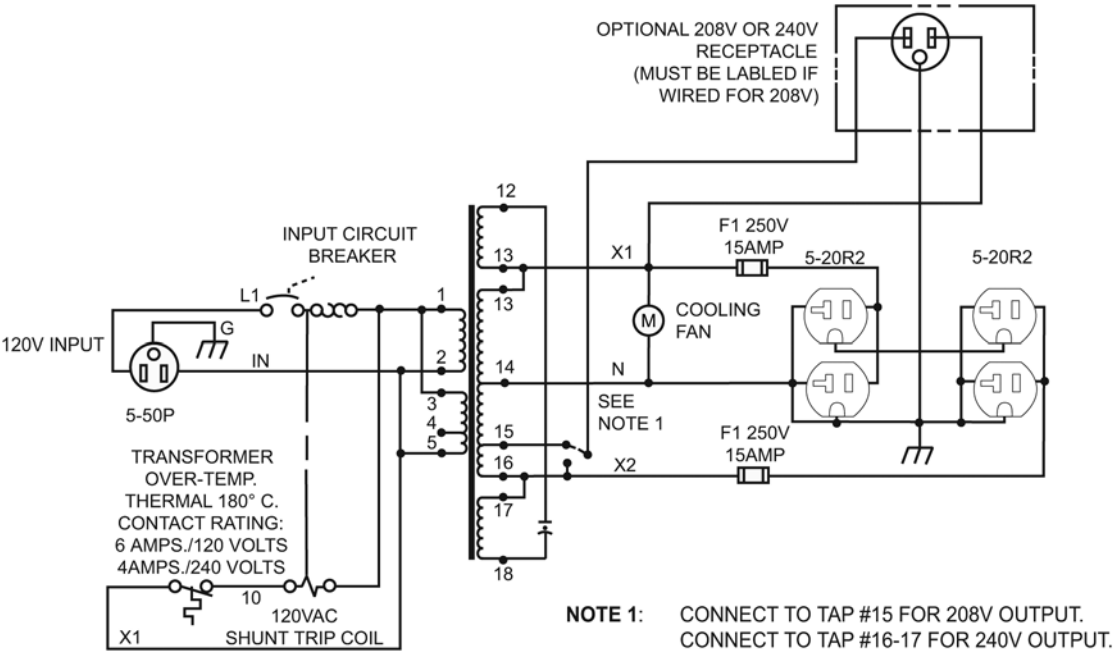
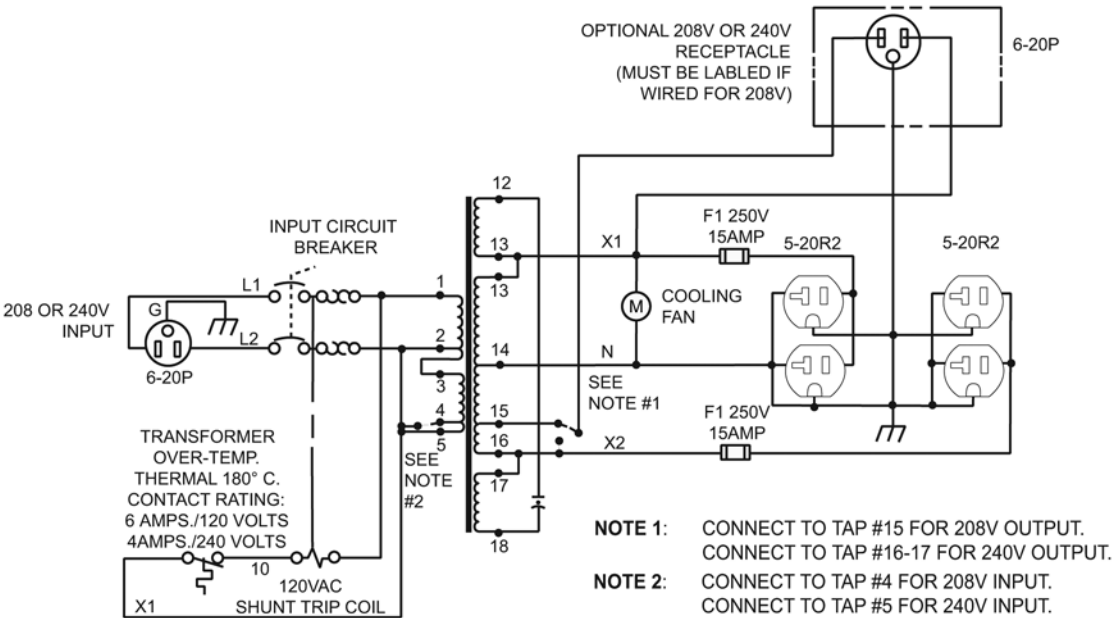


Figure 2-3: Wiring diagram for 3.5 kVA T800R (120 Vac input and output, 60 Hz)



Note: 3.5 kVA 120 Vac load currents (X1–N or X2–N) should not exceed 50% of the unit’s rated power @ 120 Vac. Neither duplex receptacle should be loaded more than 14.5A.

Figure 2-4: Wiring diagram for 3.5 kVA T800R (208/240 Vac input and 120 Vac output, 60 Hz)



Note: 3.5 kVA 120 Vac load currents (X1–N or X2–N) should not exceed 50% of the unit’s rated power @ 120 Vac. Neither duplex receptacle should be loaded more than 14.5A.

Figure 2-5: Wiring diagram for 5–7.5 kVA T800R (208/240 Vac input and 120/208/240 Vac output, 60 Hz)

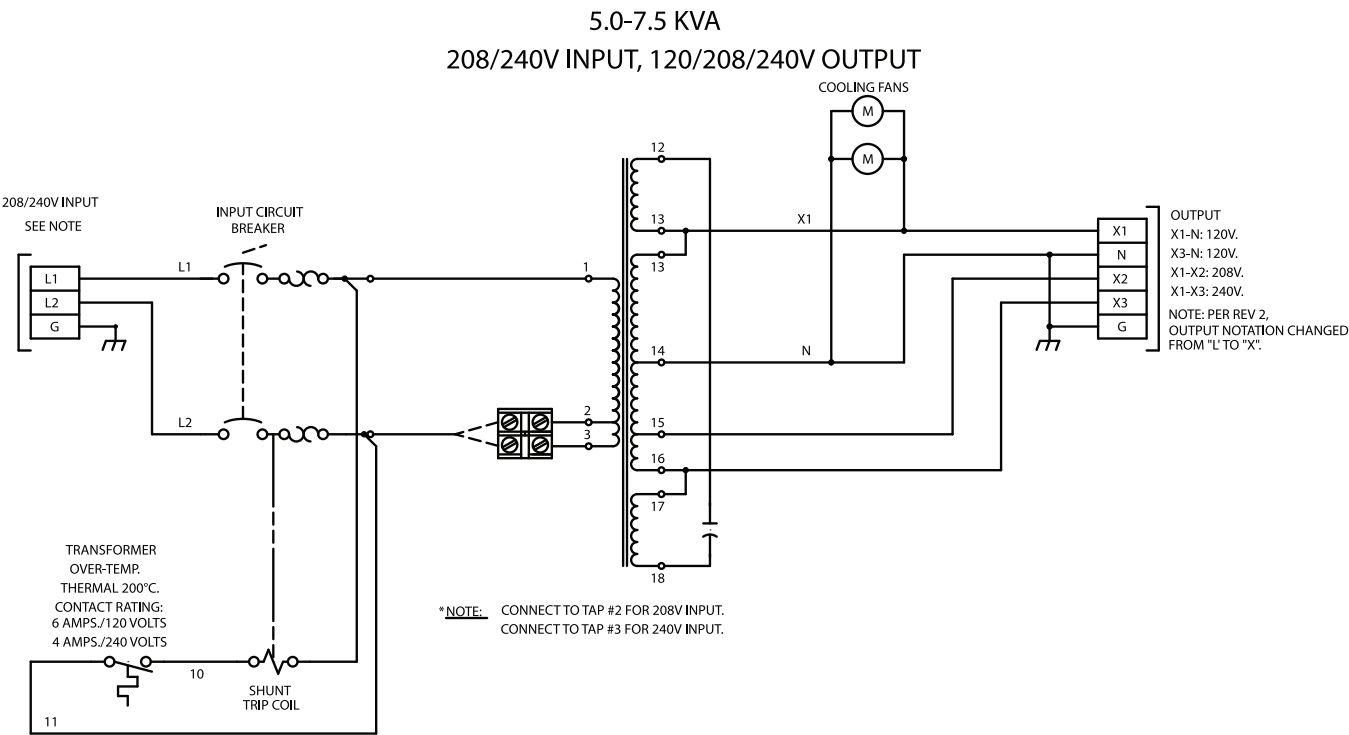
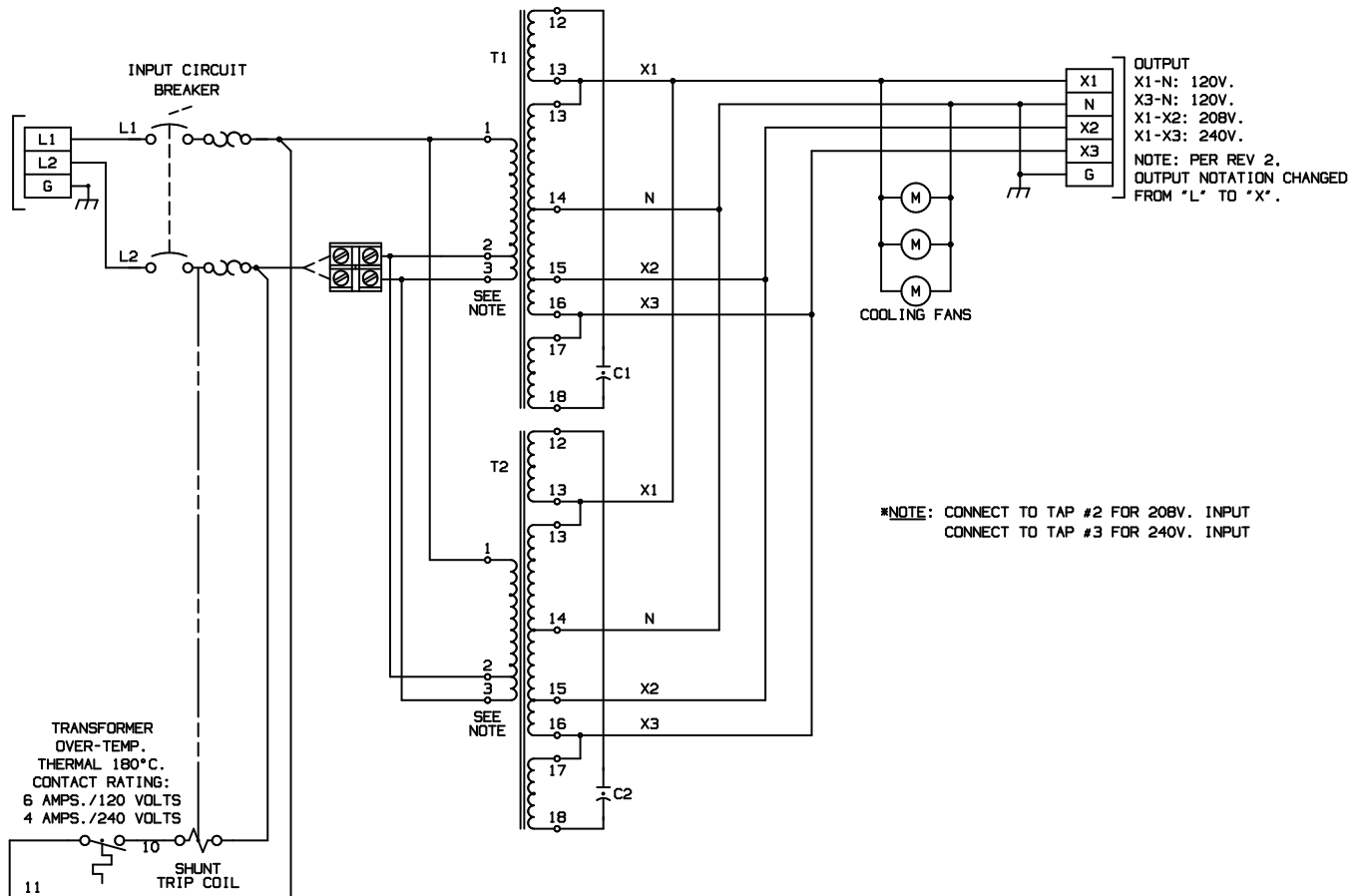


Figure 2-6: Wiring diagram 10–15 kVA T800R models

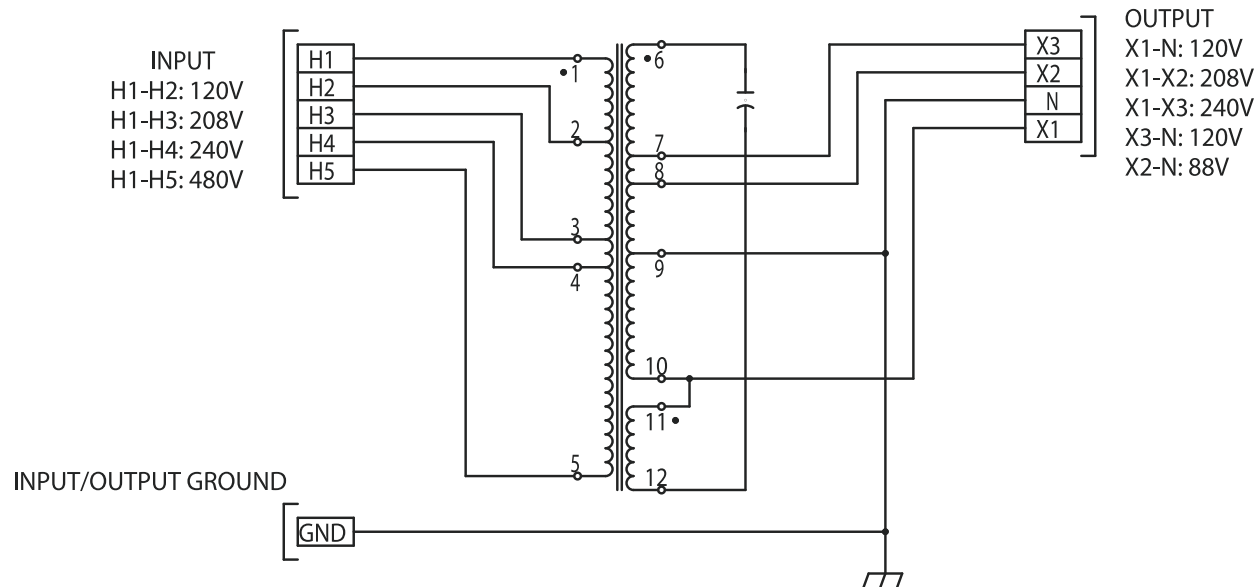
10-15KVA WIRING DIAGRAMS



Installation

Figure 2-7: Wiring diagram 500 VA–5 kVA T800P/T800F models

500VA - 5KVA



Terminals

500–2500 VA

- #8 stud
- Maximum wire size: 10 AWG
- Recommended torque: 15 lb in

3000 VA

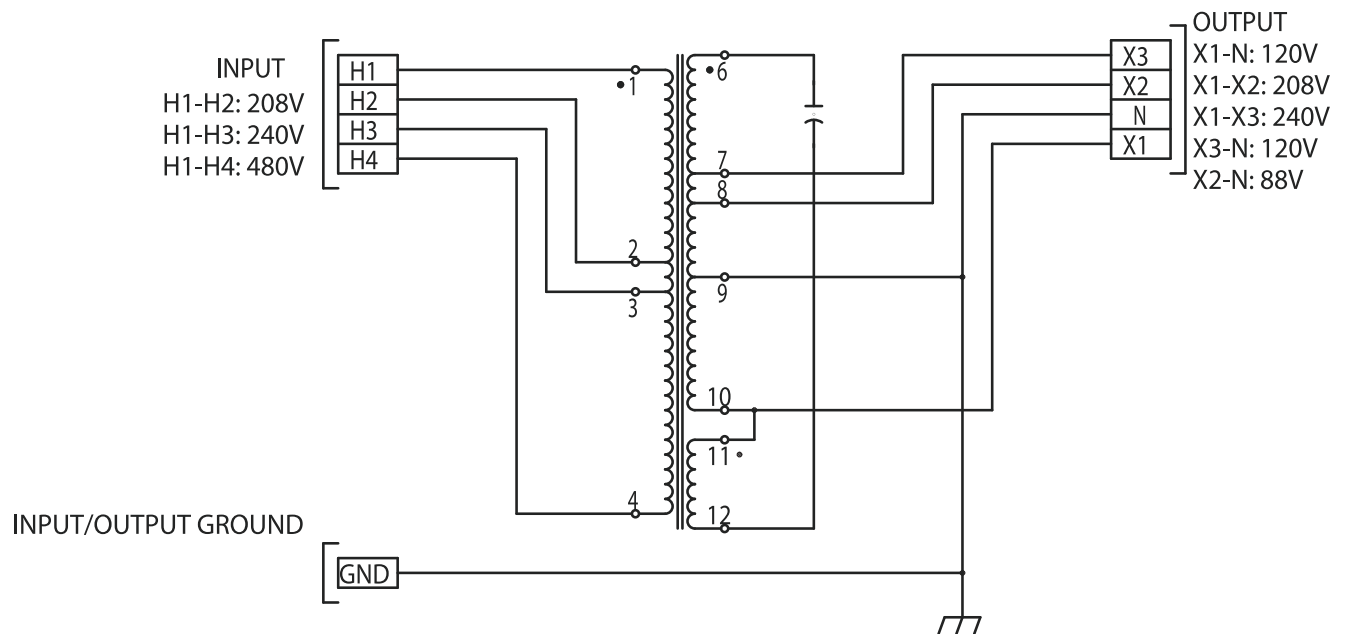
- #10 stud
- Maximum wire size: 6 AWG
- Recommended torque: 20 lb in

5000 VA

- Wire size range: #12–1/0 AWG
- Recommended torque: 45–50 lb in

Figure 2-8: Wiring diagram 8–25 kVA T800P/T800F models

8KVA - 25KVA



Terminals

- Wire size range: #12–1/0 AWG
- Recommended torque: 45–50 lb in

Note: Full kVA ratings may be used at 120 Vac on secondary windings with exception of 20 kVA and 25 kVA units.

2.4: Input volts and amps specifications 500 VA–5 kVA

Full kVA ratings may be used at 120 Vac on secondary windings (X1–N or X3–N).

Table 2-1: Input volts and amps specifications 500 VA–5 kVA

Power rating	Model	120V	208V	240V	480V
500 VA	T800P-00500	4.6A	2.6A	2.3A	1.1A
750 VA	T800P-00750	6.9A	3.9A	3.4A	1.7A
1 kVA	T800P-01000	9.2A	5.3A	4.6A	2.3A
1.5 kVA	T800P-01500	13.7A	7.9A	6.8A	3.4A
2 kVA	T800P-02000	18.3A	10.5A	9.2A	4.6A
3 kVA	T800P-03000	27.5A	15.8A	13.7A	6.9A
5 kVA	T800Ⓟ-05000	45.8A	26.4A	22.9A	11.4A

Ⓟ P = wall-mounted; F = floor-mounted.

Note: Recommended input circuit breaker should be sized 125% of stated input amperage.

Input

- 120V H1–H2
- 208V H1–H3
- 240V H1–H4
- 480V H1–H5

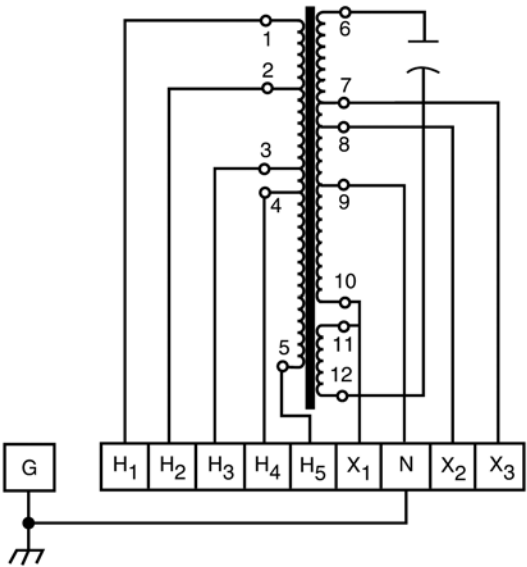
Output

- 120V X1–N
- 208V X1–X2
- 240V X1–X3
- 120V X3–N

Terminals

- | | |
|---|---|
| <ul style="list-style-type: none">• #8 stud<ul style="list-style-type: none">• Maximum wire size: 10 AWG• Recommended torque: 15 lb in | <ul style="list-style-type: none">• #10 stud<ul style="list-style-type: none">• Maximum wire size: 6 AWG• Recommended torque: 20 lb in |
|---|---|

Figure 2-9: Hardwiring for 500 VA–5 kVA units



2.5: Input volts and amps specifications 8–25 kVA

Full kVA ratings may be used at 120 Vac on secondary windings (X1–N or X3–N) with exception of 20 kVA and 25 kVA units, in which case 120 Vac loads (X1–N or X3–N) should not exceed 50% of the unit’s rated power.

Table 2-2: Input volts and amps specifications 8–25 kVA

Power rating	Model	208V	240V	480V
8 kVA	T800Ⓢ-08000	42A	37A	18A
10 kVA	T800Ⓢ-10000	53A	46A	23A
15 kVA	T800F-15000	80A	70A	34A
20 kVA	T800F-20000	106A	92A	46A
25 kVA	T800F-25000	132A	115A	57A

Ⓢ P = wall-mounted; F = floor-mounted.

Note: Recommended input circuit breaker should be sized 125% of stated input amperage.

Input

- 208V H1–H2
- 240V H1–H3
- 480V H1–H4

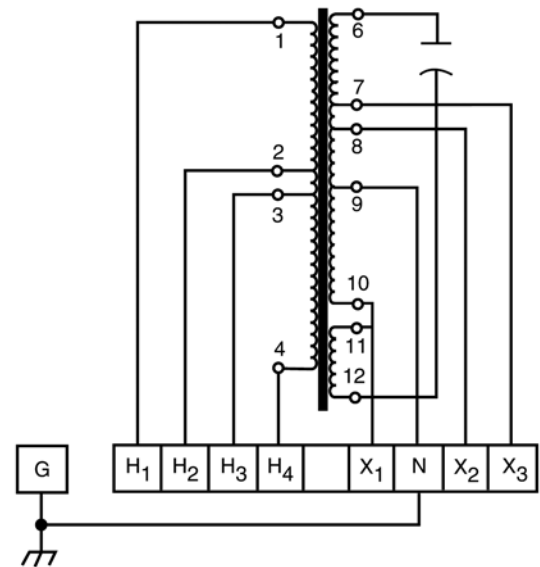
Output

- 120V X1–N
- 208V X1–X2
- 240V X1–X3
- 120V X3–N

Terminals

- Wire range: 10–1/0 AWG
- Recommended torque: 45–50 lb in

Figure 2-10: Hardwiring for 8–25 kVA units



Maintenance

3.0: Scope

This section contains preventative maintenance and troubleshooting for the Power-Sure T800R/T800P/T800F power conditioner, transformer, capacitors, and cooling fans.

WARNING

High voltage: all power must be “off” prior to any maintenance. Only qualified electricians should perform maintenance or troubleshooting.

3.1: Preventive maintenance

To ensure longer component life and trouble-free operation, minor preventive maintenance procedures should be performed at regular intervals, for example, once every year. More frequent inspection intervals would be needed for more severe operation conditions.

At each service inspection, remove any dust, dirt, or foreign particles. A slight tug should be used to test if there are any loose electrical connections.

3.2: Troubleshooting

Corrective maintenance might have to be performed on any of the three main component types in the Power-Sure T800R/T800P/T800F power conditioners—transformer, capacitors, and cooling fans.

1. **Transformers:** The transformer is designed with a considerable safety margin. Normally, the only malfunction that can take place is a short to the core. It can be checked easily with an ohmmeter.
2. **Capacitors:** Capacitors can be defective in the open or shorted mode and checked easily with an ohmmeter. Visually, when a capacitor is defective, the enclosure will swell or leak liquid. In either case, the capacitor should be replaced. Another indication of a bad capacitor is output voltage that is not within its rated specifications. Measure the output voltage while the unit is energized. If it is not within specifications, turn the unit **“off”** and check the capacitors visually and with an ohmmeter.
3. **Cooling fans:** 1–15 kVA T800R units utilize a transformer overtemp device to shut **“off”** the AC breaker if a cooling fan fails. Replace the cooling fan if this situation exists. 500–850 VA uses fans to keep the cabinet cool to the touch. If a fan fails, the unit will still operate but the cabinet will feel hot. Replace the fan in this situation.

Notes

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