

Power-Sure 800

Single-phase power conditioners



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Certification standards

- ANSI/IEEE® C57.12.91 transformer test code
- ANSI C62.41 Category B-3
- NFPA® 70—National Electrical 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 (1000 V maximum)
- ISO® 9001:2008
- Occupational Safety & Health Administration (OSHA)

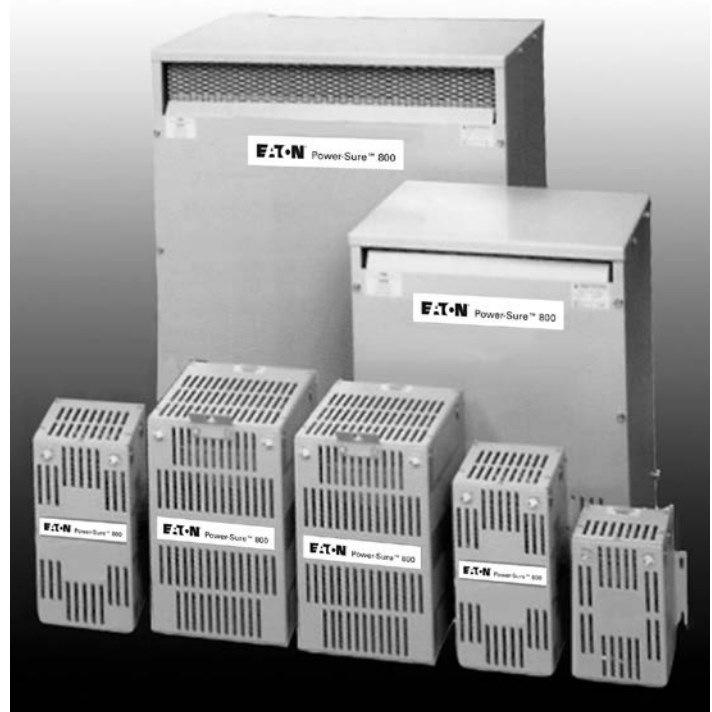
General description

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, 600 V 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



Power-Sure T800R models—*Power-Sure T800R/T800P/T800F cabinet dimensions section*



Power-Sure T800P/T800F models—*Power-Sure T800R/T800P/T800F cabinet dimensions section*

Electrical specifications

Specifications are for Power-Sure T800R/T800P/T800F models. Variable Range Regulation (VRR): Input voltage can fluctuate –45 to 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% VTHD laden with transient noise will produce a maximum harmonic content of 5% VTHD nominal on the sinusoidal transient-free output at 50% load or higher
- **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**
–23 dB for load-reflected harmonics
- **Galvanic isolation**
NEC 250.5d, .001pf
- **Surge protection**
Complies with UL 1449 rating 330 V, 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 (16.7 ms) 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, A scale
- **Efficiency**
Typical full load efficiency is 90–92% for standard input and output voltage levels
- **Operating temperature**
Ambient range –20 to +40 °C

① Consult factory before using with a capacitive load.

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

Power-Sure T800R/T800P/T800F cabinet dimensions

Table 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, lb (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 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, lb (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—120 V (input/output); Range 2—240 V (input/output).

④ Range 3: 120/208/240.

Table 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, lb (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—120 V (input/output); Range 2—240 V (input/output).

④ Range 3: 120/208/240.

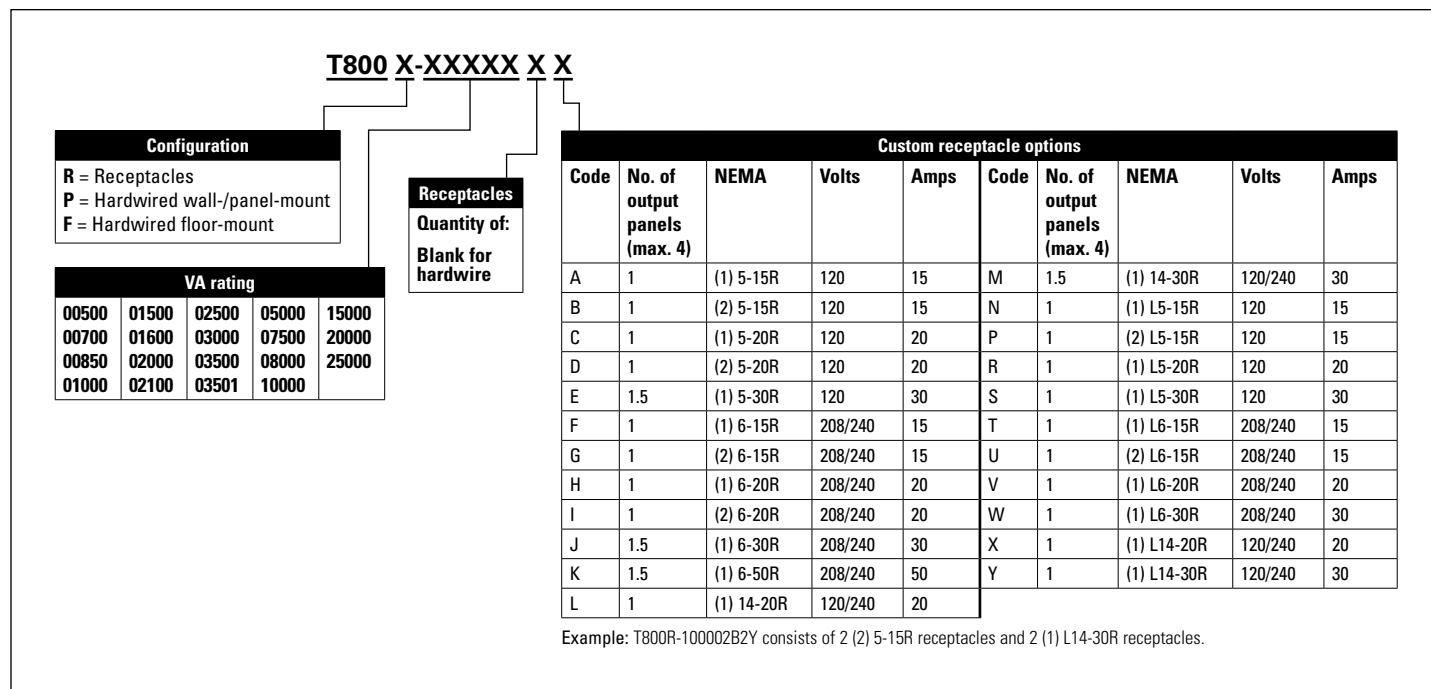


Figure 1. T800 product configuration

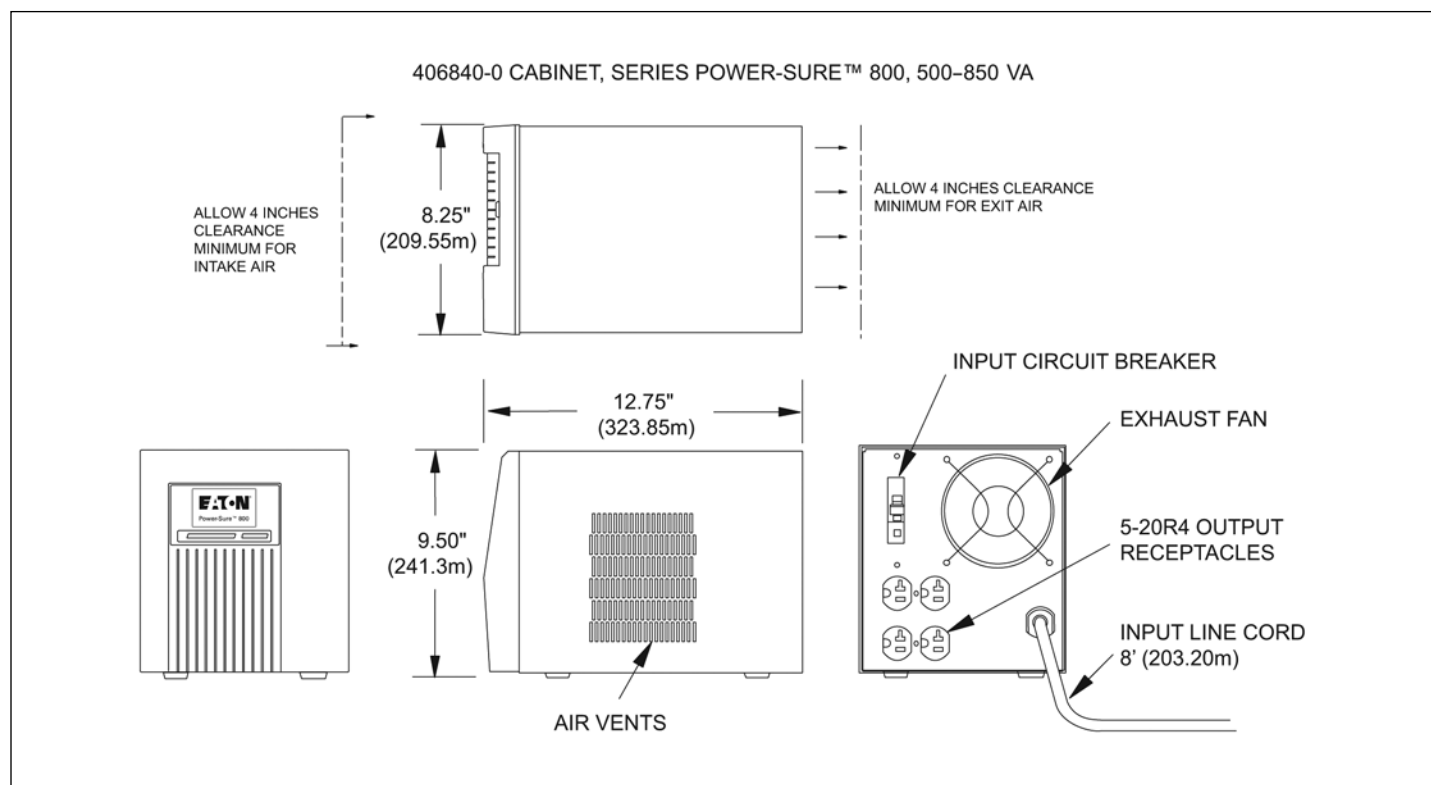


Figure 2. Cabinet standard dimensions for 500–850 VA, Power-Sure T800R models

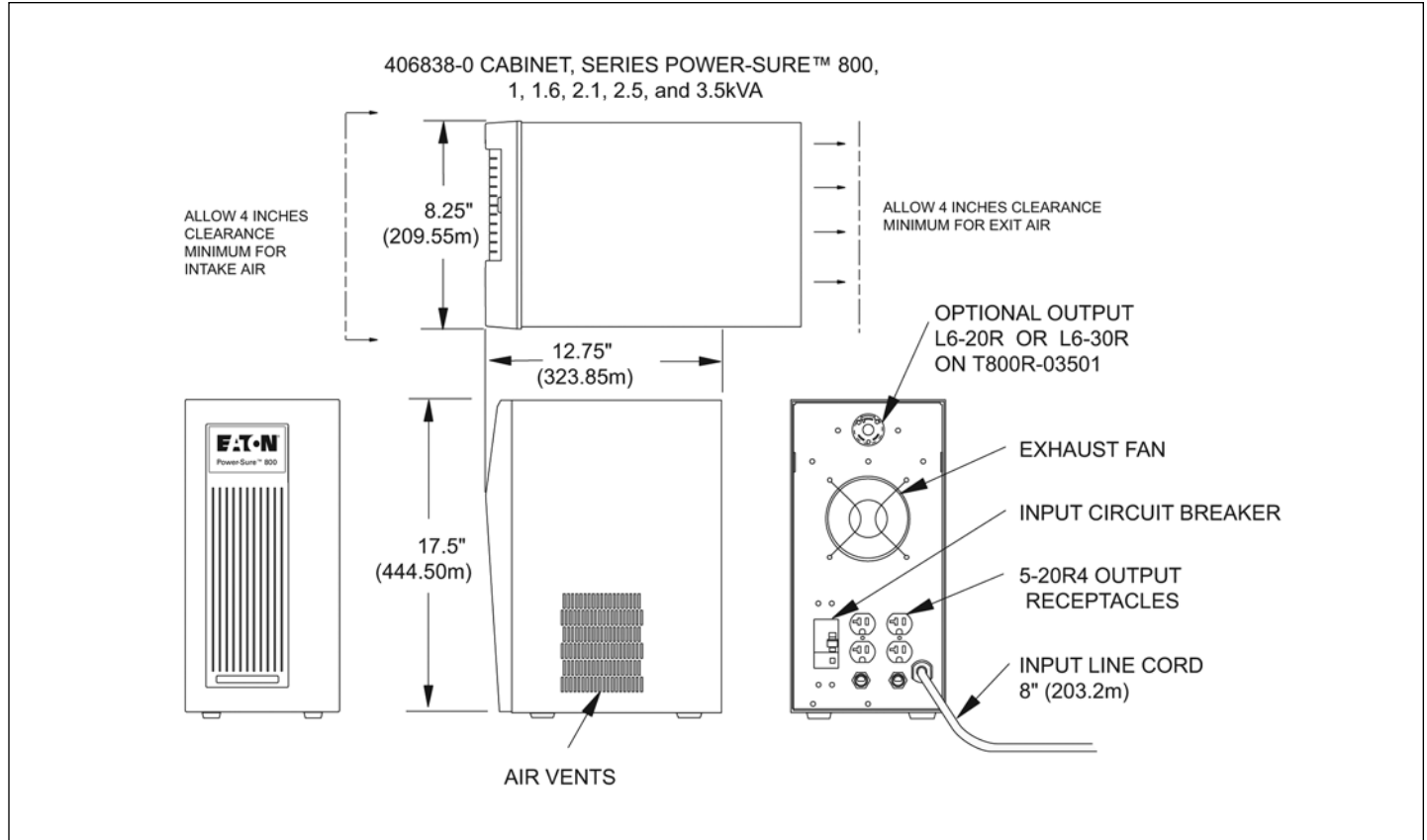


Figure 3. Cabinet standard dimensions for 1–3.5 kVA, Power-Sure T800R models

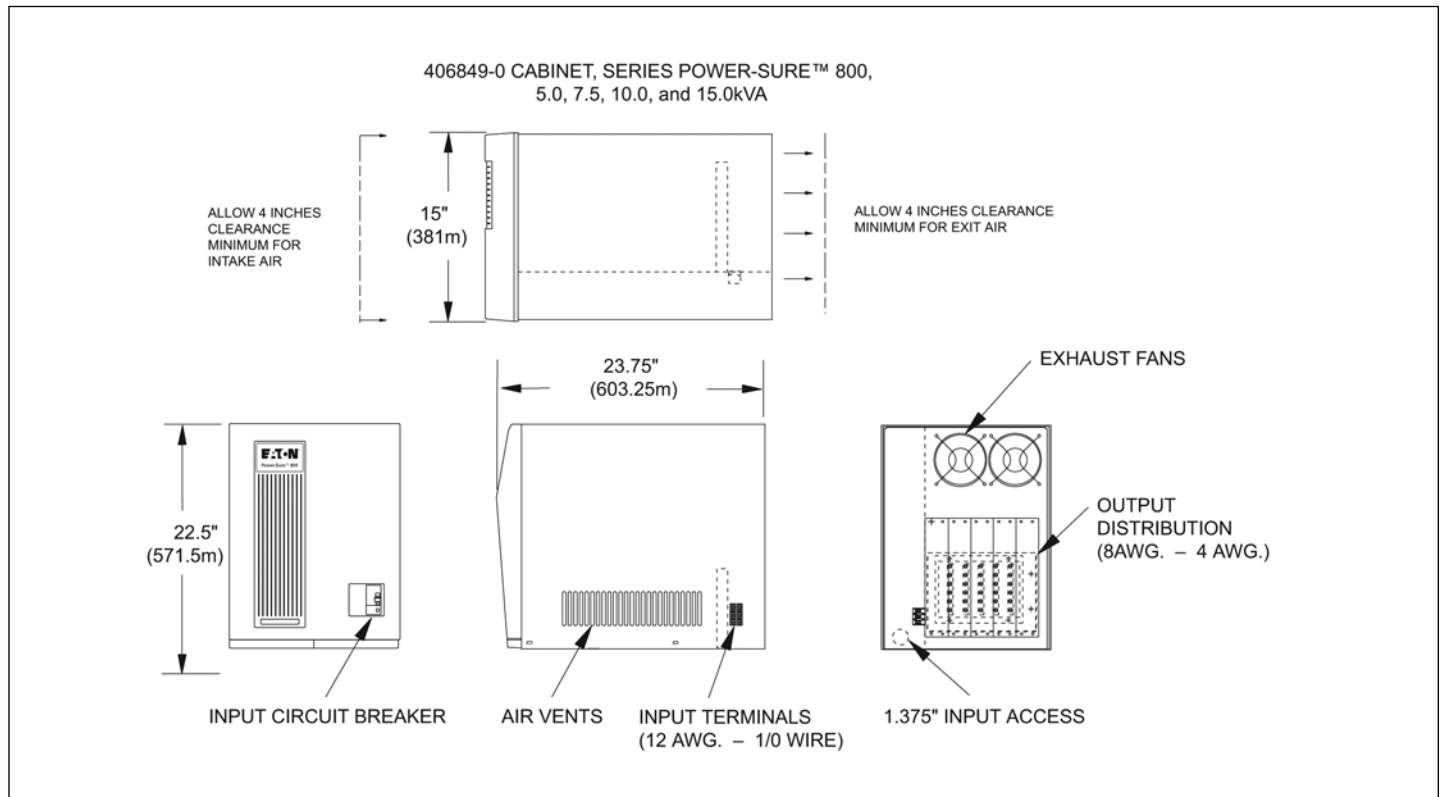


Figure 4. Cabinet standard dimensions for 5–15 kVA, Power-Sure T800R models

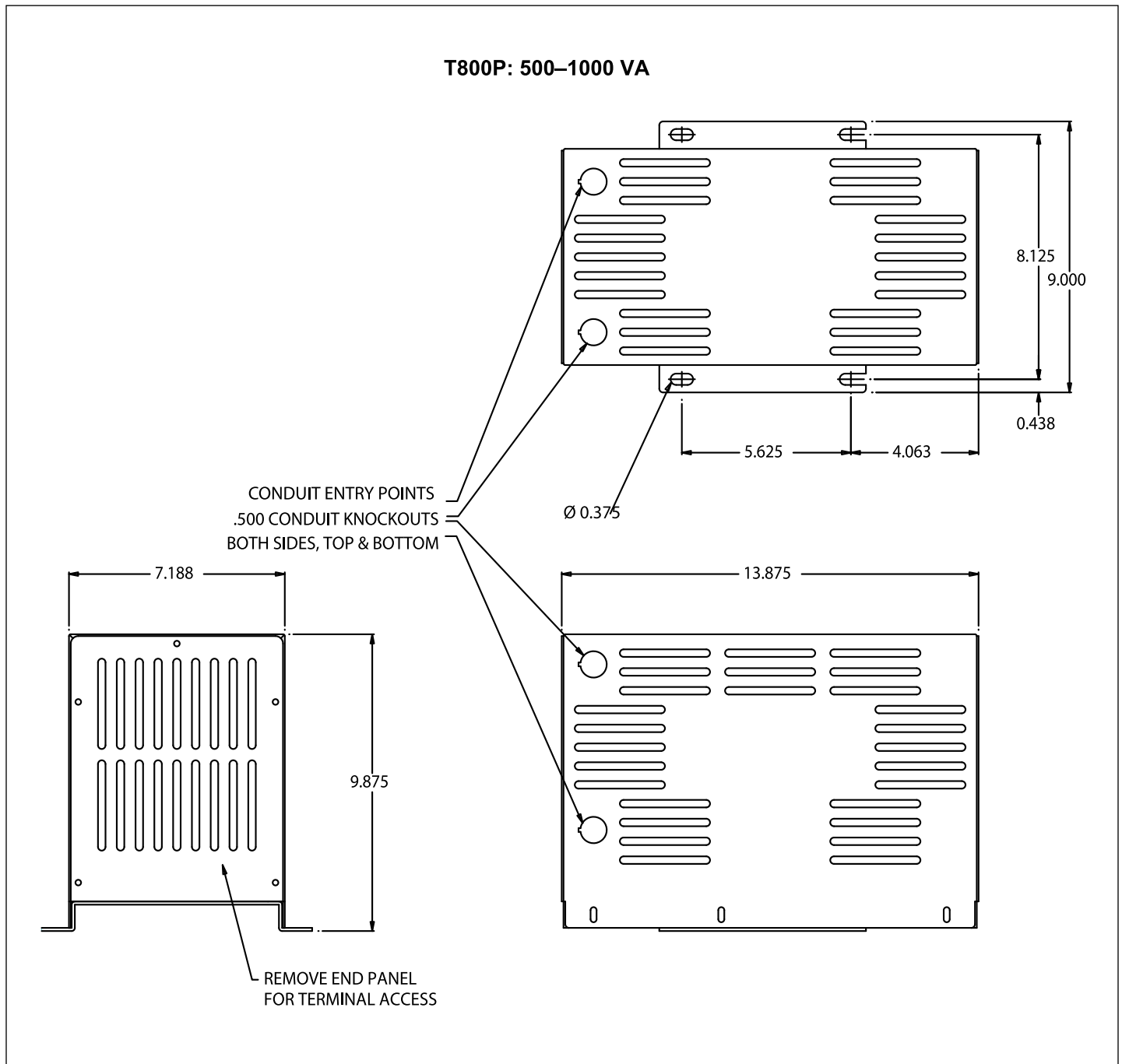


Figure 5. Cabinet dimensions T800P wall-/panel-mounted unit, 500–1000 VA

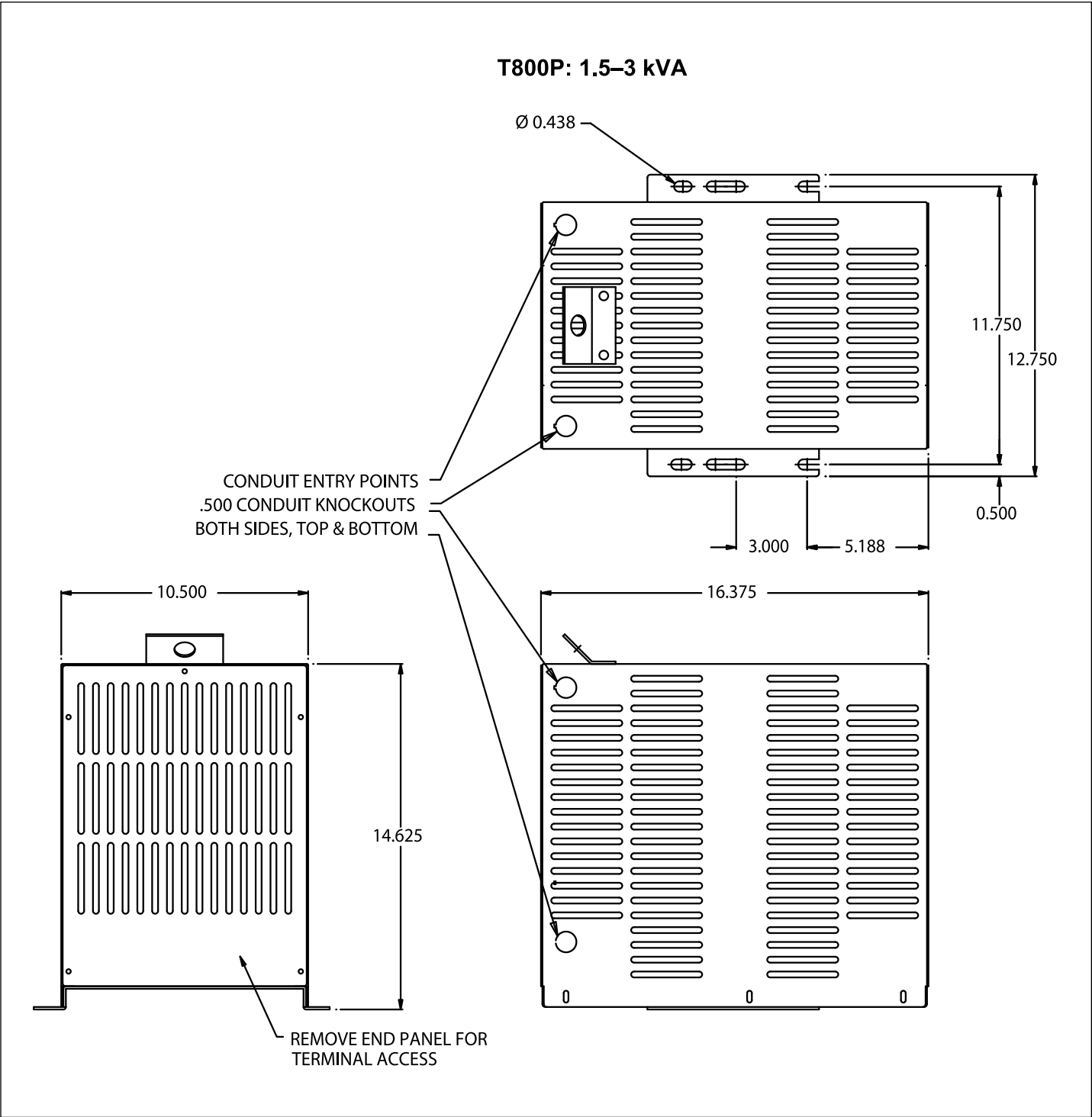


Figure 6. Cabinet dimensions T800P wall-/panel-mounted unit, 1500–3000 VA

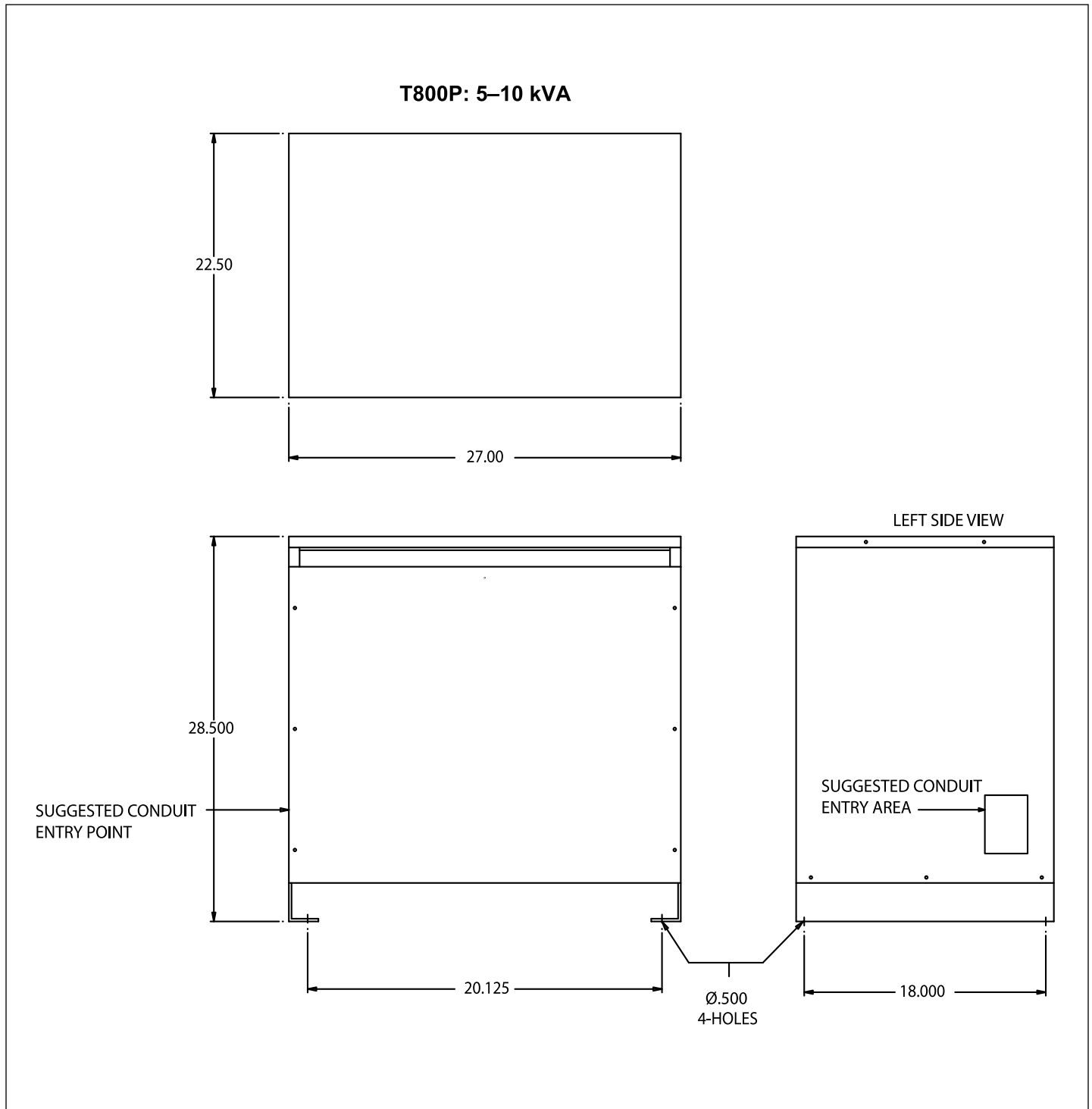


Figure 7. Cabinet dimensions T800P wall-/panel-mounted unit, 5000–10,000 VA

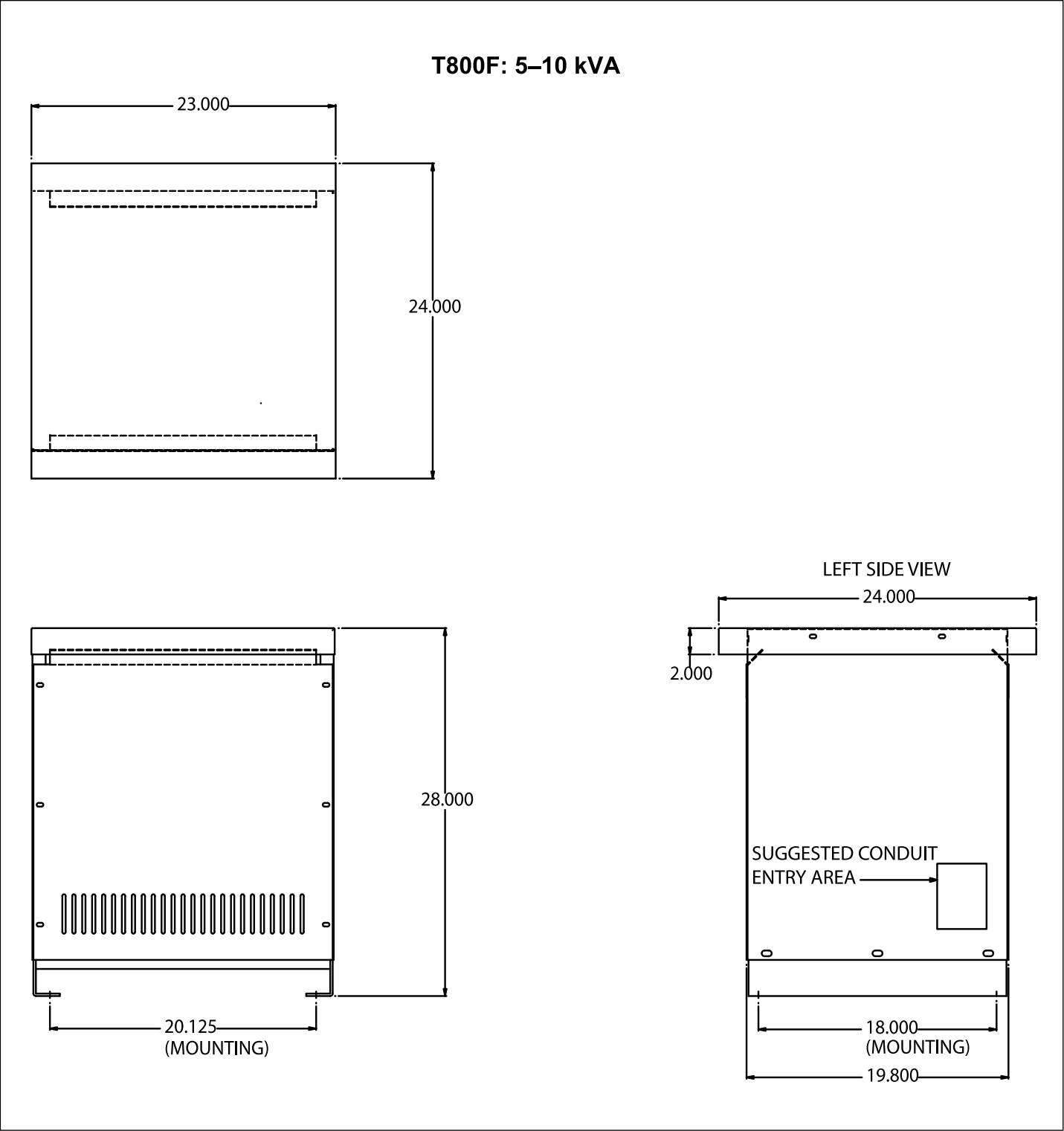


Figure 8. Cabinet dimensions T800F floor-mounted unit, 5000–10,000 VA

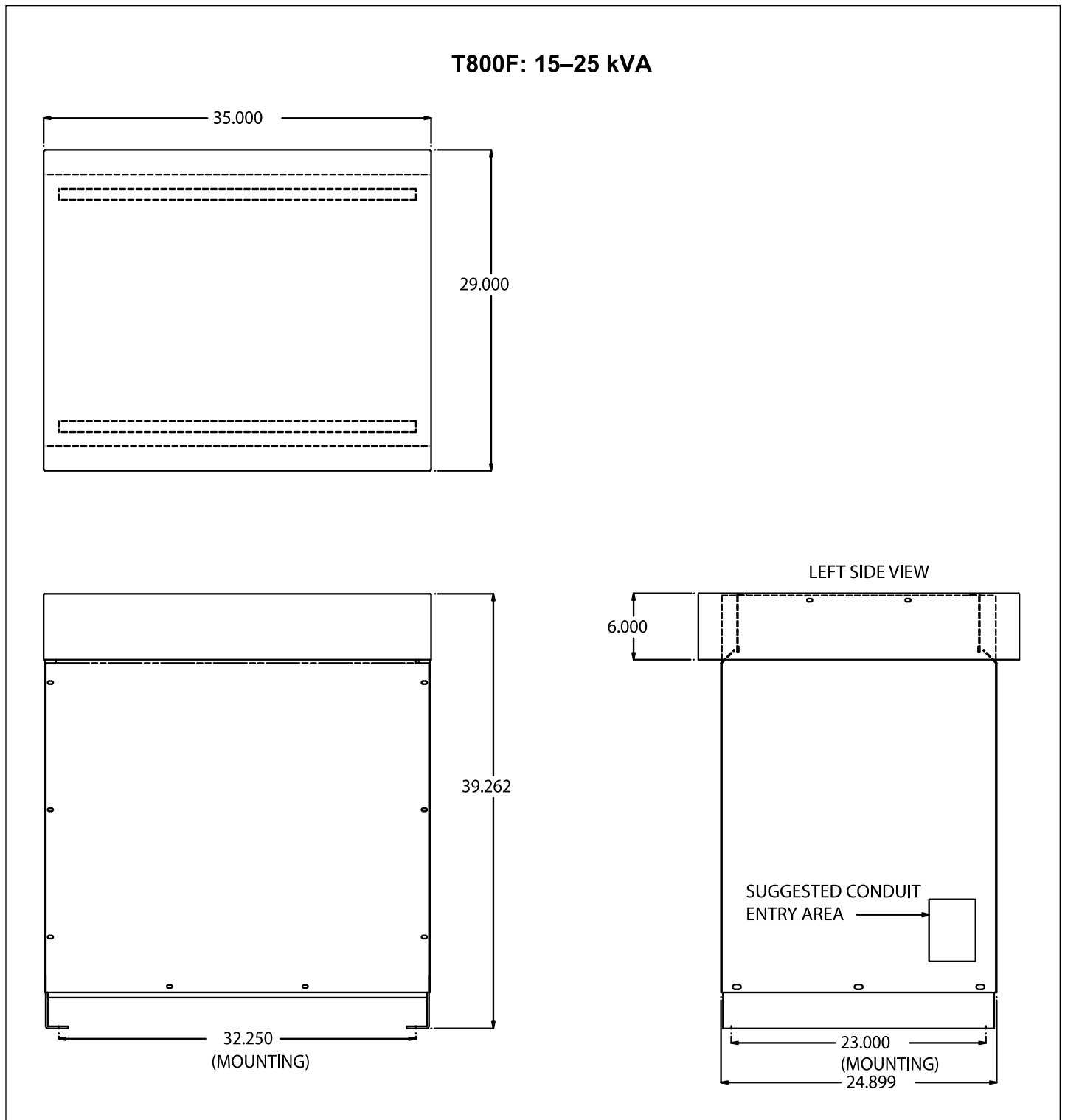


Figure 9. Cabinet dimensions T800F floor-mounted unit, 15,000–25,000 VA

Wiring diagrams

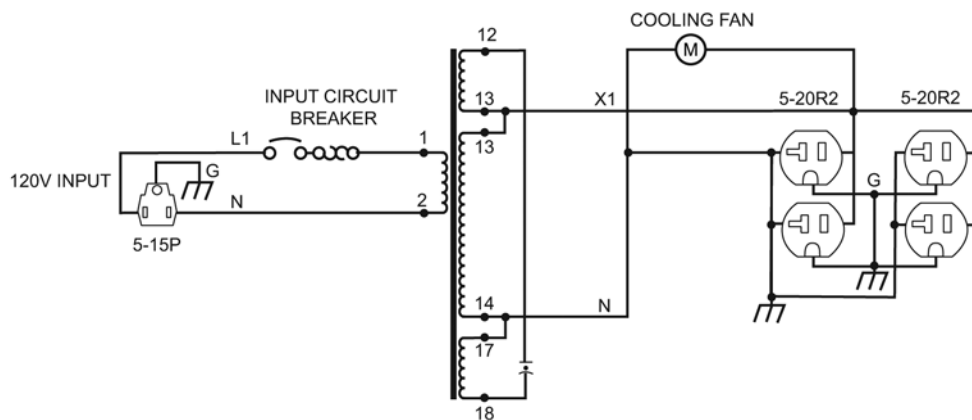


Figure 10. Wiring diagram for 500–850 VA T800R (120 Vac input and output, 60 Hz)

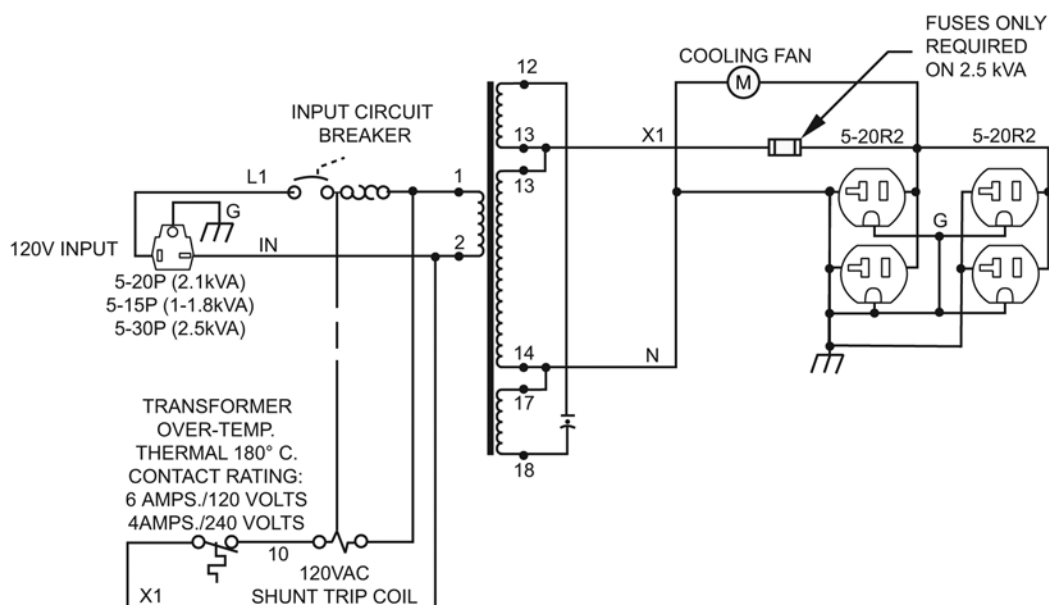


Figure 11. Wiring diagram for 1–2.5 kVA T800R (120 Vac input and output, 60 Hz)

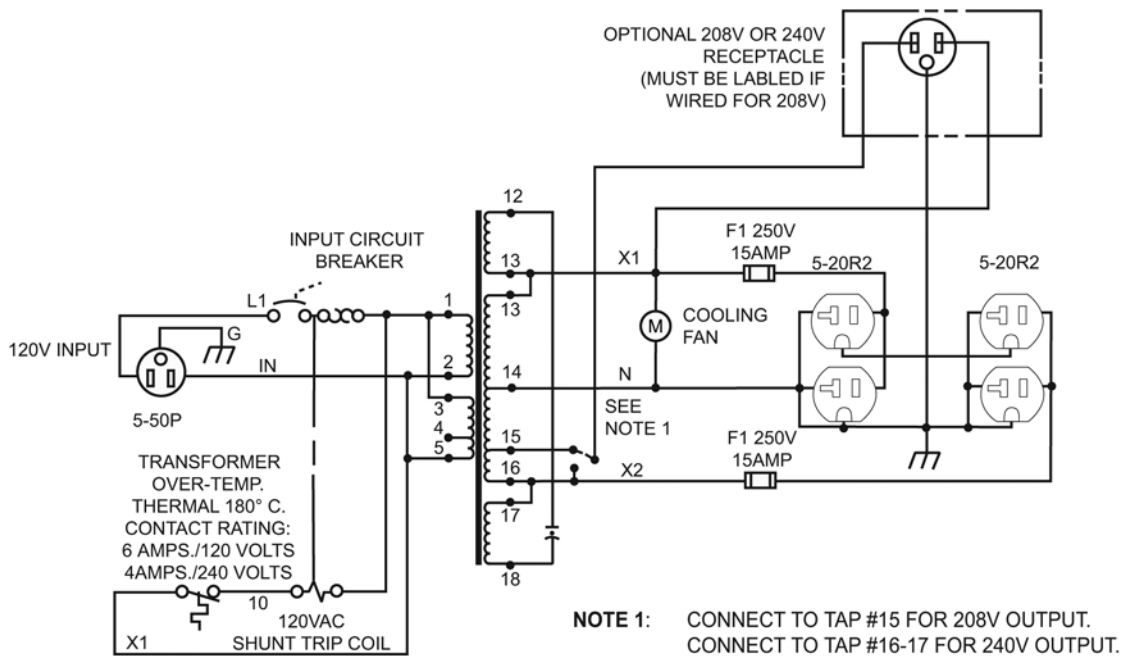


Figure 12. Wiring diagram for 3.5 kVA T800R (120 Vac input and output, 60 Hz)

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 14.5 A.

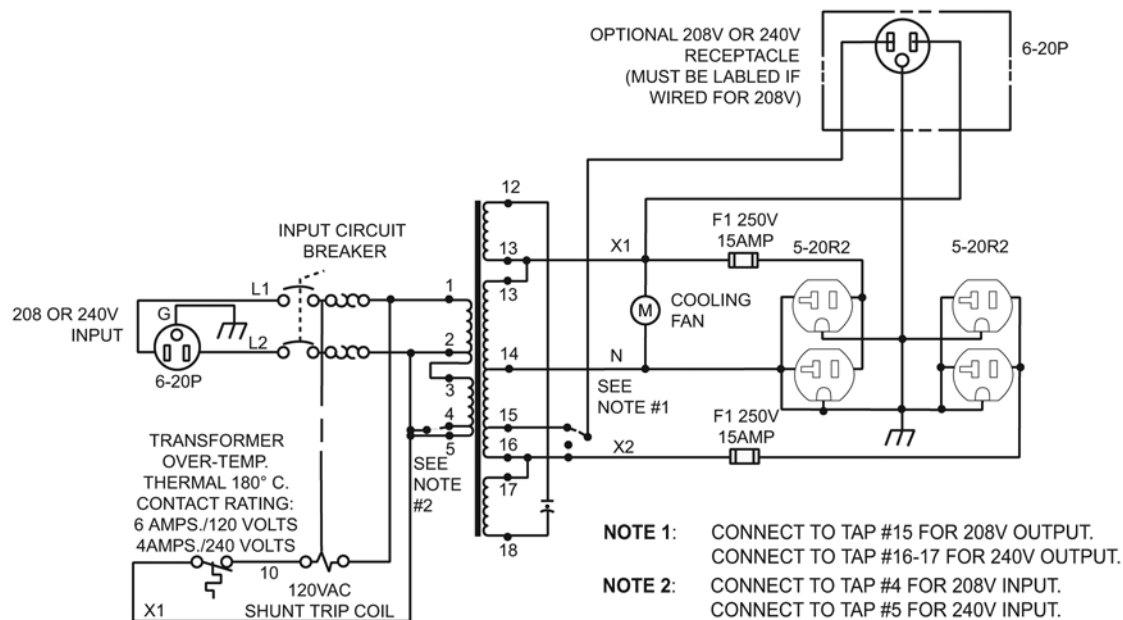


Figure 13. Wiring diagram for 3.5 kVA T800R (208/240 Vac input and 120 Vac output, 60 Hz)

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 14.5 A.

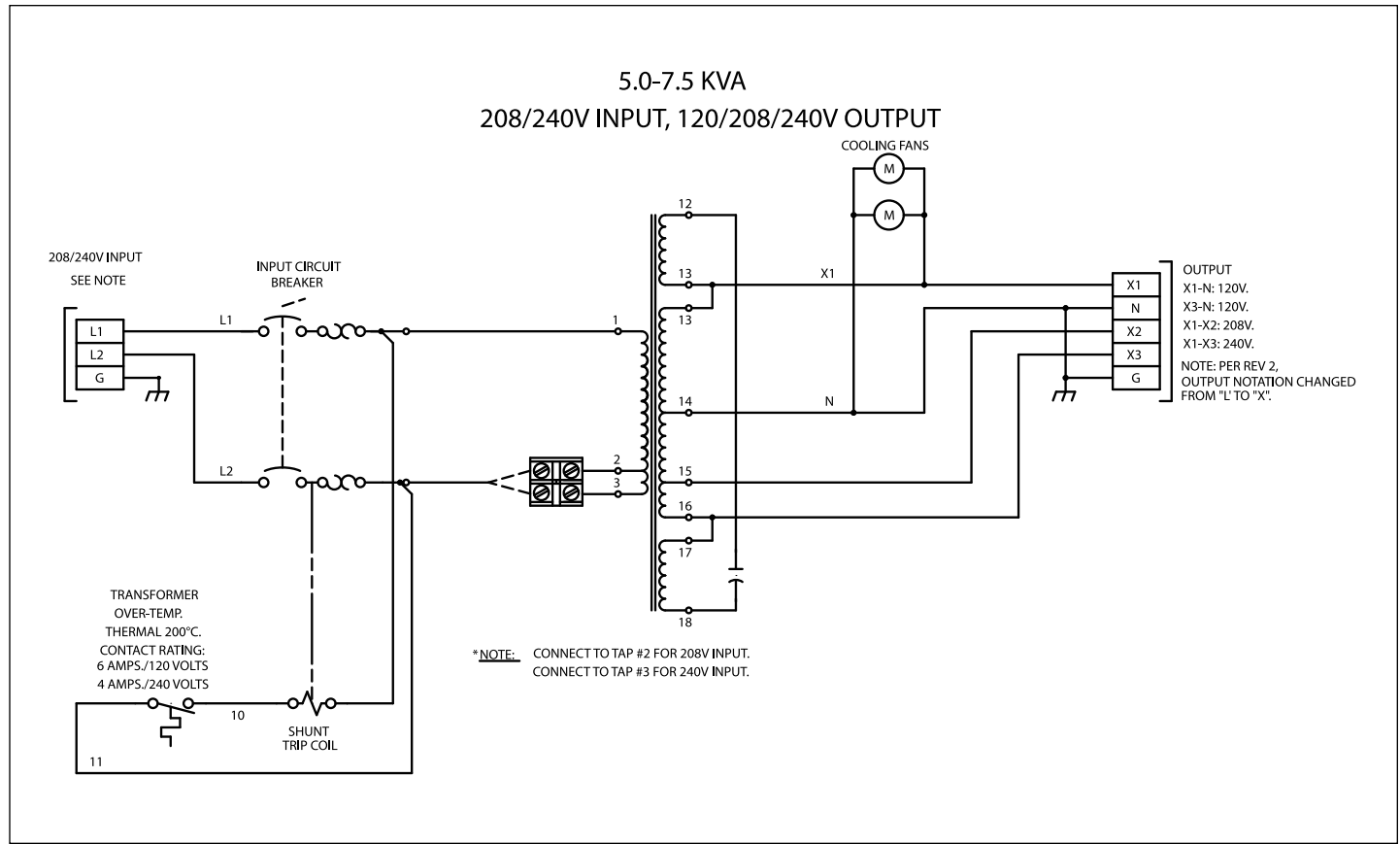


Figure 14. Wiring diagram for 5–7.5 kVA T800R (208/240 Vac input and 120/208/240 Vac output, 60 Hz)

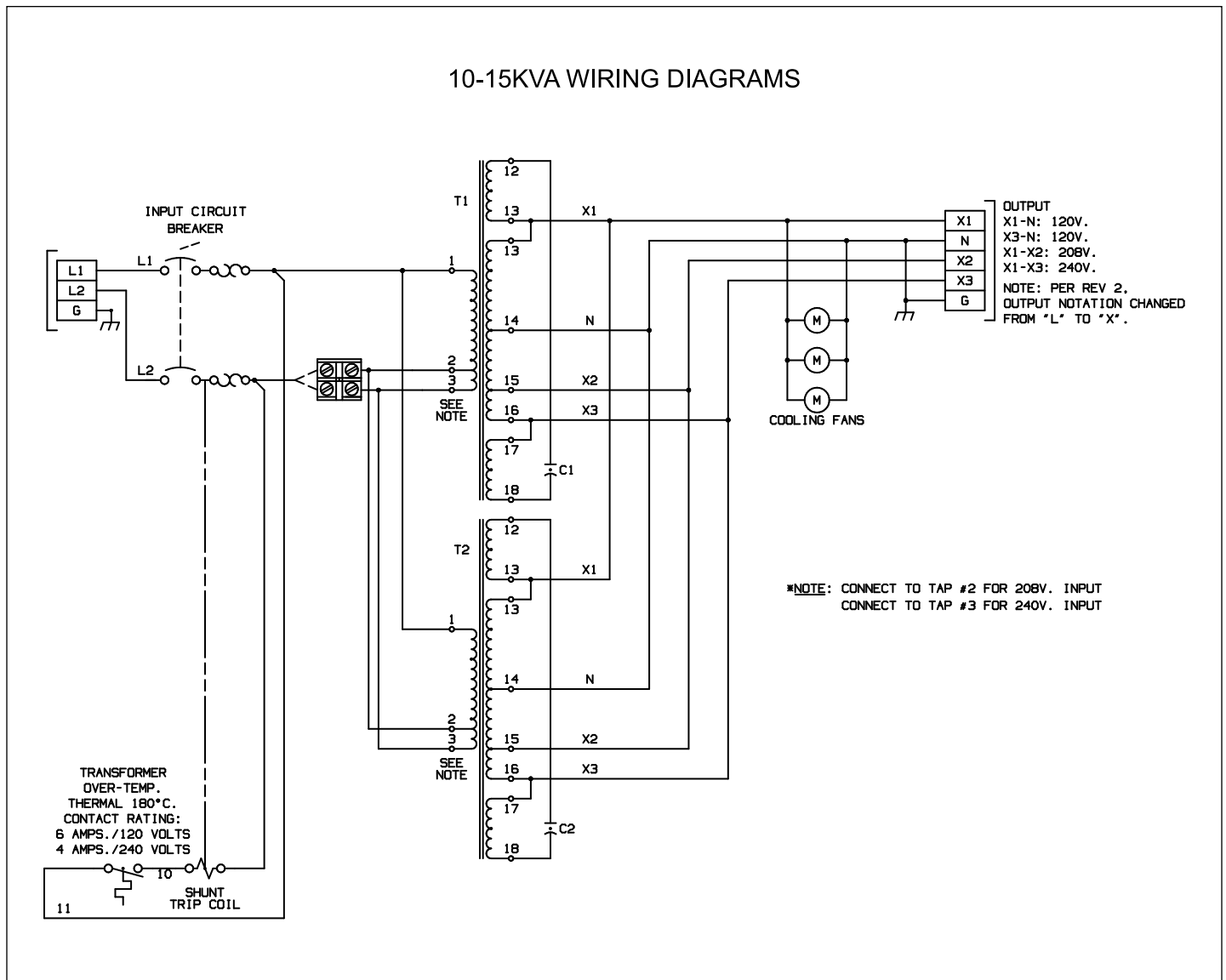


Figure 15. Wiring diagram 10–15 kVA T800R models

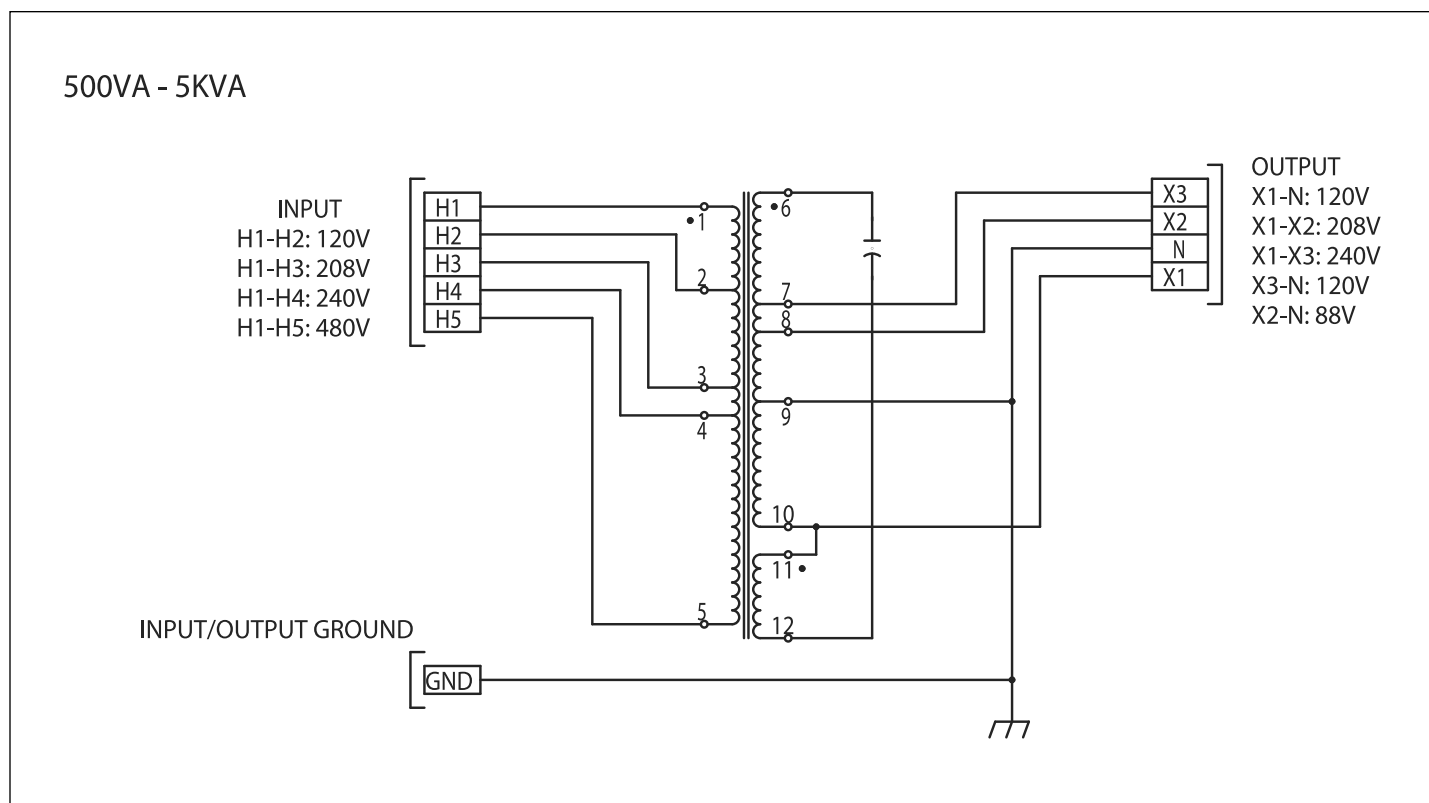


Figure 16. Wiring diagram 500 VA–5 kVA T800P/T800F models

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

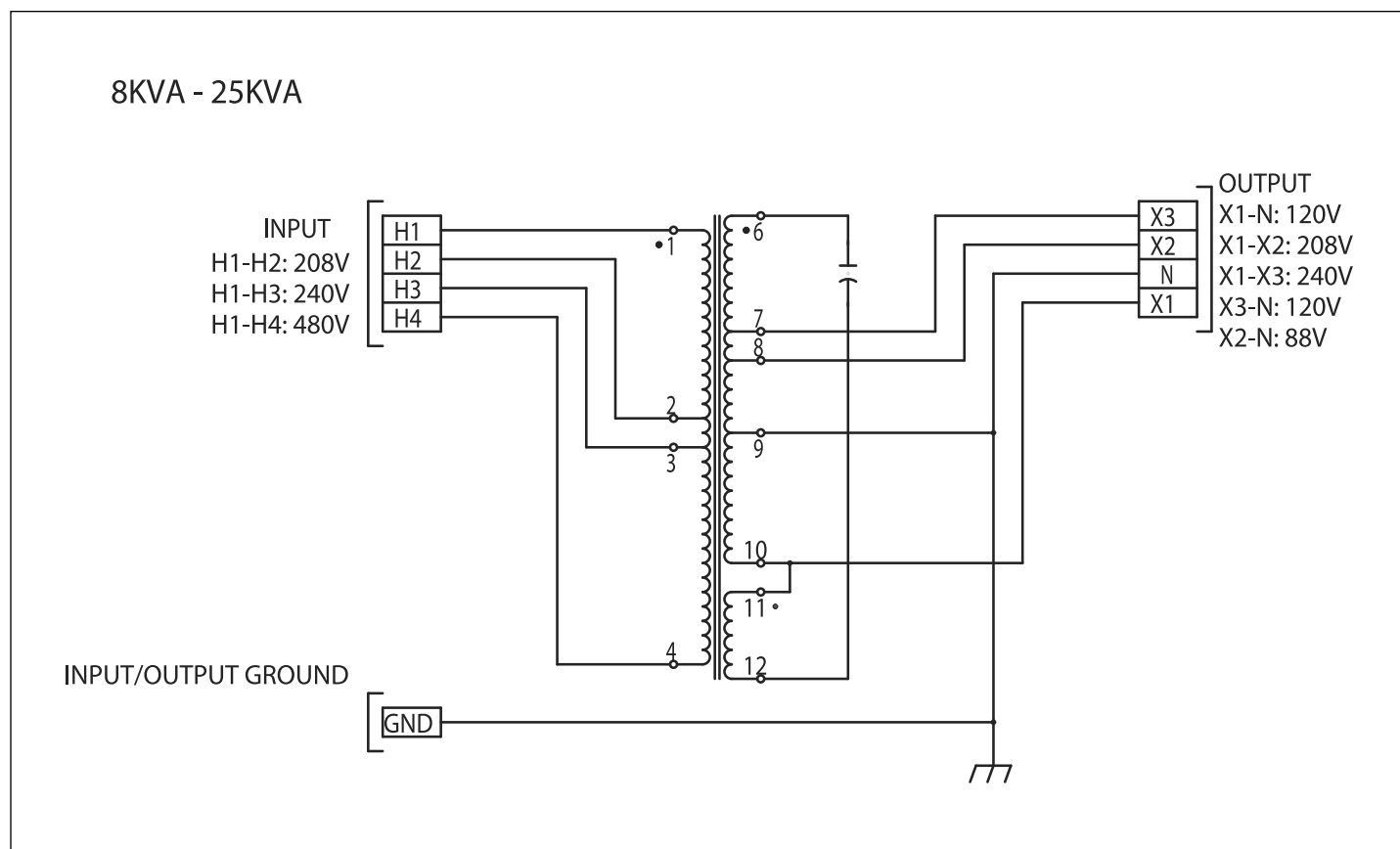


Figure 17. Wiring diagram 8–25 kVA T800P/T800F models

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.

T800R voltage, current, BTU, and weights

Table 4. T800R specifications

VA size	Nominal input current at various input voltages			Nominal output current at various output voltages		BTU/hr	Weight, lb (kg)
	Input voltage			Output voltage			
	120 V	208 V	240 V	120 V	240 V		
500	4.6 A	—	—	4.2 A	—	171	32 (15)
700	6.4 A	—	—	5.8 A	—	239	35 (16)
850	7.8 A	—	—	7.1 A	—	290	37 (17)
1000	9.2 A	—	—	8.3 A	—	341	46 (21)
1600	14.7 A	—	—	13.3 A	—	546	62 (28)
2100	19.3 A	—	—	17.5 A	—	716	65 (29)
2500	22.9 A	—	—	20.8 A	—	853	68 (31)
3500	32.0 A	19.0 A	16.0 A	29.2 A	14.6 A	1194	73 (33)
5000	—	26.0 A	23.0 A	41.7 A	20.8 A	1705	176 (80)
7500	—	40.0 A	34.0 A	62.5 A	31.3 A	2558	210 (95)
10,000	—	53.0 A	46.0 A	83.3 A	41.7 A	3410	256 (116)
15,000	—	79.0 A	69.0 A	125.0 A	62.5 A	5115	314 (142)

T800P/T800F voltage, current, and BTU

Table 5. T800P/T800F specifications

VA size	Nominal input current at various input voltages				Nominal output current at various output voltages			
	Input voltage				Output voltage			
	120 V	208 V	240 V	480 V	120 V	208 V	240 V	BTU/hr
500	4.6 A	2.6 A	2.3 A	1.1 A	4.2 A	2.4 A	2.1 A	171
750	6.9 A	4.0 A	3.4 A	1.7 A	6.3 A	3.6 A	3.1 A	256
1000	9.2 A	5.3 A	4.6 A	2.3 A	8.3 A	4.8 A	4.2 A	341
1500	13.8 A	7.9 A	6.9 A	3.4 A	12.5 A	7.2 A	6.3 A	512
2000	18.3 A	10.6 A	9.2 A	4.6 A	16.7 A	9.6 A	8.3 A	682
3000	28.0 A	16.0 A	14.0 A	7.0 A	25.0 A	14.4 A	12.5 A	1023
5000	46.0 A	26.0 A	23.0 A	11.0 A	41.7 A	24.0 A	20.8 A	1705
8000	73.0 A	42.0 A	37.0 A	18.0 A	66.7 A	38.5 A	33.3 A	2728
10,000	92.0 A	53.0 A	46.0 A	23.0 A	83.3 A	48.1 A	41.7 A	3410
15,000	138.0 A	79.0 A	69.0 A	34.0 A	125.0 A	72.1 A	62.5 A	5115
20,000	183.0 A	106.0 A	92.0 A	46.0 A	166.7 A	96.2 A	83.3 A	6820
25,000	229.0 A	132.0 A	115.0 A	57.0 A	208.3 A	120.2 A	104.2 A	8525

Note: Input protection should be 125% of input, use time delay (slow blow) fuses or thermal magnetic breaker only.

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At Eaton, we're energized by the challenge of powering a world that demands more. With over 100 years experience in electrical power management, we have the expertise to see beyond today. From ground-breaking products to turnkey design and engineering services, critical industries around the globe count on Eaton.

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Printed in USA
Publication No. TD157002EN / Z17171
September 2015