

# Eaton Power-Sure 700 (10–500 kVA, three-phase voltage regulator)



The Eaton Power-Sure™ 700 reduces equipment downtime through constant voltage regulation. It is the ideal solution for equipment or facilities experiencing brownouts and voltage regulation problems. The unique design of the Power-Sure 700 offers a high in-rush current, rapid response and operating advantages over other manufacturers.

## Overview

The appropriate transformer tap is automatically activated through a silicon-controlled rectifier (SCR), maintaining a tightly regulated output voltage. Tap changes are initiated within one electrical cycle—switching at zero current crossing to ensure a minimum amount of noise during tap transitions.

Seven taps per phase are used for optimal voltage regulation. Also, the Power-Sure 700 is a low output impedance, shielded isolation transformer. As a result of the low impedance, load changes do not affect other equipment connecting the system.

The Power-Sure 700's unique design ensures high efficiency at 97% and 1000% in-rush capability. It is equipped with a thermal-magnetic breaker that allows for proper system coordination to prevent nuisance trips.

The Power-Sure 700 provides the triple function of isolation, noise attenuation and voltage regulation. The power transformer supplies the first two functions. The third function, voltage regulation, is supplied by the SCRs connected to taps on the power transformer. This sequential tap-changing design eliminates voltage “overshoot” from typical electronic voltage regulators, providing a seamless transition between the required power transformer taps.

## Power-Sure 700 features

- $\pm 3\%$  voltage output for a  $+10/-23\%$  voltage input
- Power factor—the Power-Sure 700 is not affected by load power factor
- Total harmonic distortion (THD)—the Power-Sure 700 adds less than 1% added to the output waveform under any dynamic linear loading conditions presented to the line regulator
- High efficiency—97%
- Wide input frequency range—the Power-Sure 700 operates within a broad input frequency range of 57–63 Hz
- Integral manual rotary maintenance bypass switch standard on 50–500 kVA units and optional on smaller units
- Seven taps per phase used to provide optimal voltage regulation
- Fail-safe bypass circuit, triple-shielded isolation transformer and overtemperature protection
- One-year parts warranty with no startup required
- Front-only access required (50–150 kVA units only) allows unit to be installed in tight spaces



Typical 10–45 kVA unit



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| Power-Sure 700 specifications |  |
|-------------------------------|--|
| Technology                    | Electronic tap changer   |
| Input voltages                | 208–600 V, three-phase (three-wire)  |
| Input voltage range           | +10 to –23% of nominal rated input   |
| Output voltage                | ±3% of nominal   |
| Response time                 | 1/2 cycle  |
| Frequency                     | 60 Hz, ±3%   |
| Efficiency                    | 97% typical  |
| Line regulation               | Output is ±3% of nominal for input variations of +10 to –23% of nominal  |
| Load regulation               | Output is maintained within 3% of nominal from no load to full load  |
| Correction time               | Output will be corrected to within ±3% of nominal in 1.5 cycles or less  |
| Harmonic distortion           | Less than 1.0% added to the output waveform under any dynamic linear loading conditions presented to the line regulator  |
| Noise attenuation             |  |
| Common mode                   | 146 dB   |
| Normal mode                   | 3 dB down at 1000 Hz, 40 dB/decade to below 50 dB with resistive load  |
| Turn-on characteristics       | When energized, voltage overshoot will be less than 5% of nominal for 1 cycle or less  |
| Overload rating               | 1000% for 1 cycle and 200% for 10 seconds  |
| Ambient rating                | –10 to +40 °C  |
| Monitoring                    | Three green LEDs (phase power on indication), one red LED (alert indication)   |
| Surge protection (optional)   | CVX 50 kA SPD device 50 kVA and below, CVX 100 kA SPD device 75 kVA and above  |
| Input breaker                 | MCCB rated 125% of full rated current  |
| Bypass switch                 | Normal and bypass selector   |
| Metering (optional)           | Standard metering (IQ 130)—voltage and current with minimum and maximum<br>Premium metering (IQ 150)—voltage, current, frequency, power, energy, PF, with minimum and maximum, RS-485, Modbus® RTU, Modbus ASCII, KYZ output |
| Warranty                      | 1-year parts   |

## Power-Sure 700 ordering guidelines

**Nominal input voltage**  
Delta input: L, L, L, G

B = 208  
C = 240  
H = 400  
D = 480  
E = 600

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| kVA ratings and dimensions |             |         |          |          |  |
|----------------------------|-------------|---------|----------|----------|--|
| kVA                        | Weight (lb) | BTUs/hr | Bypass   | Metering | Cabinet size dimensions H x W x D in inches (mm) |
| 010                        | 440         | 1,025   | Optional | No       | 30.20 x 22.20 x 29.00 (767.1 x 563.9 x 736.6)    |
| 010                        | 520         | 1,205   | Optional | Yes      | 44.20 x 22.20 x 29.00 (1122.7 x 563.9 x 736.6)   |
| 015                        | 465         | 1,540   | Optional | No       | 30.20 x 22.20 x 29.00 (767.1 x 563.9 x 736.6)    |
| 015                        | 700         | 1,540   | Optional | Yes      | 44.20 x 22.20 x 29.00 (1122.7 x 563.9 x 736.6)   |
| 025                        | 700         | 2,560   | Optional | Yes      | 44.20 x 22.20 x 29.00 (1122.7 x 563.9 x 736.6)   |
| 030                        | 720         | 3,090   | Optional | Yes      | 44.20 x 22.20 x 29.00 (1122.7 x 563.9 x 736.6)   |
| 045                        | 950         | 4,600   | Optional | Yes      | 44.30 x 45.90 x 29.00 (1125.2 x 1165.9 x 736.6)  |
| 050                        | 1,176       | 7,332   | Yes      | Yes      | 66.00 x 29.00 x 35.50 (1676.4 x 736.6 x 901.7)   |
| 075                        | 1,575       | 9,514   | Yes      | Yes      | 76.00 x 34.40 x 35.50 (1930.4 x 873.8 x 901.7)   |
| 100                        | 2,014       | 11,833  | Yes      | Yes      | 76.00 x 34.40 x 35.50 (1930.4 x 873.8 x 901.7)   |
| 125                        | 2,137       | 14,748  | Yes      | Yes      | 76.00 x 34.40 x 35.50 (1930.4 x 873.8 x 901.7)   |
| 150                        | 2,240       | 17,698  | Yes      | Yes      | 76.00 x 34.40 x 35.50 (1930.4 x 873.8 x 901.7)   |
| 225                        | 3,300       | 23,000  | Yes      | Yes      | 77.40 x 56.00 x 41.50 (1966.0 x 1422.4 x 1054.1) |
| 300                        | 4,000       | 30,750  | Yes      | Yes      | 77.40 x 56.00 x 41.50 (1966.0 x 1422.4 x 1054.1) |
| 500                        | 5,500       | 51,250  | Yes      | Yes      | 77.00 x 72.40 x 48.40 (1955.8 x 1839.0 x 1229.4) |

**Nominal output voltage**  
Wye output: L, L, L, N, G

L = 120/208  
M = 230/400  
N = 277/480  
P = 347/600

**Options ①**

Blank = No options  
B = Bypass switch ②  
M1 = Standard metering (IQ 130)  
M2 = Premium metering (IQ 150)  
S = Surge

**Frequency**

6 = 60 Hz  
5 = 50 Hz

- ① Units with no surge protection option, bypass option or metering will have blanks in the last three spaces in the catalog number.  
② Bypass is standard on 50 kVA and larger units and an option on 45 kVA and smaller units.

**Notes:**  
Listings—UL® Listed, CSA® Certified, except for 600 V; no UL, CSA on 600 V units. For output distribution, call factory.  
K factor—rated units available on request.

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choose option #4, then option #2.

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