

PSG Series



PSG Series

Product Description

Eaton’s PSG Series of power supplies is designed to be a high-performance, high-quality line of products covering a majority of 24 Vdc control applications. With global certifications, compact size and an impressive operating temperature range, the PSG Series fits a wide variety of applications at a competitive price.

Eight models are offered, from 2.5A up to 20A with both single- and three-phase input voltage models available.

Application Description

The PSG Series is a line of general-purpose power supplies for use in a wide variety of industrial control applications. Applications include communication networks, sensors, PLCs and many other electrical systems.

Each model is equipped with a rugged metal housing, heavy-duty screw terminals and a variety of protection features, making the PSG one of the most versatile industrial power supply lines on the market.

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Features, Benefits and Functions

- Universal input voltages: 85–264 Vac for single-phase units, 320–575 Vac for three-phase units
- Rugged aluminum housing stands up to harsh environments
- Current surge (power boost) of 1.5 times nominal current for 1 second allows branch protection and powering of high pickup loads
- Wide operating temperature range: –20°C to +75°C (derating above 50°C)
- Adjustable DC voltage output
- LED indicating light for DC OK simplifies troubleshooting
- Compact size, with common depth and height across all models, allows for common panel depths and family consistency
- MTBF up to 800,000 hours ensures uptime and reliability
- Heavy-duty screw terminals with finger-safe protective cover allow use of ring-lug terminals
- All-metal DIN rail mounting hardware
- Class 1, Division 2 hazardous location rated

Standards and Certifications

- UL/cUL listed—UL 508 (industrial control equipment)
- cURus—UL 60950-1
- IEC
- EN
- German safety
- CSA certified (contact Eaton for certification dates and status)
- CE marked
- RoHS compliant



## Product Selection

## PSG60E



## Power Supply—Single-Phase

|                                      | Catalog Number |
|--------------------------------------|----------------|
| 85–264 Vac input, 24 Vdc/2.5A output | <b>PSG60E</b>  |
| 85–264 Vac input, 24 Vdc/5A output   | <b>PSG120E</b> |
| 85–264 Vac input, 24 Vdc/10A output  | <b>PSG240E</b> |
| 85–264 Vac input, 24 Vdc/20A output  | <b>PSG480E</b> |

## Power Supply—Three-Phase

|                                       | Catalog Number |
|---------------------------------------|----------------|
| 320–575 Vac input, 24 Vdc/2.5A output | <b>PSG60F</b>  |
| 320–575 Vac input, 24 Vdc/5A output   | <b>PSG120F</b> |
| 320–575 Vac input, 24 Vdc/10A output  | <b>PSG240F</b> |
| 320–575 Vac input, 24 Vdc/20A output  | <b>PSG480F</b> |

## Technical Data and Specifications

## PSG Series

| Capacity  | PSG60E<br>60W                                | PSG120E<br>120W                              | PSG240E<br>240W                              | PSG480E<br>480W                              | PSG60F<br>60W                                | PSG120F<br>120W                              | PSG240F<br>240W                              | PSG480F<br>480W                              |
|---|--|--|--|--|--|--|--|--|
| <b>Input</b>  |  |  |  |  |  |  |  |  |
| Nominal voltage                                       | 100–240 Vac                                  | 100–240 Vac                                  | 100–240 Vac                                  | 100–240 Vac                                  | 3 x 400–500 Vac                              | 3 x 400–500 Vac                              | 3 x 400–500 Vac                              | 3 x 400–500 Vac                              |
| Voltage range   | ②  | ②  | ②  | ②  | ③  | ③  | ③  | ③  |
| Frequency   | 47–63 Hz (0 Hz at DC input)                  | 47–63 Hz (0 Hz at DC input)                  | 47–63 Hz (0 Hz at DC input)                  | 47–63 Hz (0 Hz at DC input)                  | 47–63 Hz (0 Hz at DC input)                  | 47–63 Hz (0 Hz at DC input)                  | 47–63 Hz (0 Hz at DC input)                  | 47–63 Hz (0 Hz at DC input)                  |
| Nominal current ①                                     | 1.1A   | 1.4A   | 2.9A   | 5.7A   | 0.3A   | 0.5A   | 0.8A   | 1.6A   |
| Inrush current limitation ①                           | 30A  | <80A   | N/A  | N/A  | <30A   | <30A   | <40A   | <50A   |
| Mains buffering at nominal load (typ.) ①              | >20 ms                                       | >35 ms                                       | >20 ms                                       | >20 ms                                       | >30 ms                                       | >35 ms                                       | >35 ms                                       | >20 ms                                       |
| Turn-on time  | <2.5 sec                                     | <1 sec                                       | <1 sec                                       | <1 sec                                       | <2 sec                                       | <1 sec                                       | <1 sec                                       | <1 sec                                       |
| Internal fuse   | T3.15 AH/250V                                | T3.15 AH/250V                                | T6.3AH/250V                                  | F10H/250V                                    | 3.15AH/500V                                  | 3.15AH/500V                                  | 3.15AH/500V                                  | 3.15AH/500V                                  |
| External fusing                                       | 6A, 10A or 16A                               | 6A, 10A or 16A                               | 10A or 16A                                   | 10A or 16A                                   | 3 x circuit breakers<br>6A, 10A or 16A       | 3 x circuit breakers<br>6A, 10A or 16A       | 3 x circuit breakers<br>6A, 10A or 16A       | 3 x circuit breakers<br>6A, 10A or 16A       |
| Leakage current                                       | <1 mA  | <1 mA  | <3.5 mA                                      | <1 mA  | <3.5 mA                                      | <3.5 mA                                      | <3.5 mA                                      | <3.5 mA                                      |
| <b>Output</b>   |  |  |  |  |  |  |  |  |
| Nominal output voltage                                | 24 Vdc ± 2%                                  | 24 Vdc ± 2%                                  | 24 Vdc ± 2%                                  | 24 Vdc ± 2%                                  | 24 Vdc ± 2%                                  | 24 Vdc ± 2%                                  | 24 Vdc ± 2%                                  | 24 Vdc ± 2%                                  |
| Adjustment range                                      | 22–28 Vdc                                    | 22–28 Vdc                                    | 22–28 Vdc                                    | 22–28 Vdc                                    | 22–28 Vdc                                    | 22–28 Vdc                                    | 22–28 Vdc                                    | 22–28 Vdc                                    |
| Nominal current                                       | 2.5A   | 5A   | 10A  | 20A  | 2.5A   | 5A   | 10A  | 20A  |
| Startup with capacitive loads                         | Max. 8,000 µF                                | Max. 10,000 µF                               | Max. 10,000 µF                               | Max. 10,000 µF                               | Max. 10,000 µF                               | Max. 10,000 µF                               | Max. 10,000 µF                               | Max. 10,000 µF                               |
| Max. power dissipation<br>idling nominal load approx. | 10W  | 22.5W  | 42.5W  | 72W  | 9W   | 18W  | 36W  | 72W  |
| Efficiency (at 400 Vac and nominal values)            | >85% typ                                     | >84% typ                                     | >84% typ                                     | >86% typ                                     | >86% at 3 x 400 Vac;<br>>85% at 3 x 500 Vac  | >86% at 3 x 400 Vac;<br>>85% at 3 x 500 Vac  | >86% at 3 x 400 Vac;<br>>85% at 3 x 500 Vac  | >86% at 3 x 400 Vac;<br>>85% at 3 x 500 Vac  |
| Current surge (at 24 Vdc)                             | 3.75A  | 7.5A   | 15A  | 30A  | 3.75A  | 7.5A   | 15A  | 30A  |
| Current surge time/cycle                              | 1 sec. (at 10-sec. intervals)                | 1 sec. (at 10-sec. intervals)                | 1 sec. (at 10-sec. intervals)                | 1 sec. (at 10-sec. intervals)                | 1 sec. (at 10-sec. intervals)                | 1 sec. (at 10-sec. intervals)                | 1 sec. (at 10-sec. intervals)                | 1 sec. (at 10-sec. intervals)                |
| Residual ripple/peak switching (20 MHz)               | <50 mV/<br><240 mVpp                         | <50 mV/<br><240 mVpp                         | <50 mV/<br><240 mVpp                         | <50 mV/<br><240 mVpp                         | <50 mV/<br><240 mVpp                         | <50 mV/<br><240 mVpp                         | <50 mV/<br><240 mVpp                         | <50 mV/<br><240 mVpp                         |
| Parallel operation                                    | With O-ring Diode                            | With O-ring Diode                            | With O-ring Diode                            | With O-ring Diode                            | With O-ring Diode                            | With O-ring Diode                            | With O-ring Diode                            | With O-ring Diode                            |
| <b>Galvanic Isolation</b>                             |  |  |  |  |  |  |  |  |
| Input/output  | 4 kVAC (type test)/3 kVAC (routine test)     | 4 kVAC (type test)/3 kVAC (routine test)     | 4 kVAC (type test)/3 kVAC (routine test)     | 4 kVAC (type test)/3 kVAC (routine test)     | 4 kVAC (type test)/3 kVAC (routine test)     | 4 kVAC (type test)/3 kVAC (routine test)     | 4 kVAC (type test)/3 kVAC (routine test)     | 4 kVAC (type test)/3 kVAC (routine test)     |
| Input/ground  | 1.5 kVAC (type test)/1.5 kVAC (routine test) | 1.5 kVAC (type test)/1.5 kVAC (routine test) | 1.5 kVAC (type test)/1.5 kVAC (routine test) | 1.5 kVAC (type test)/1.5 kVAC (routine test) | 1.5 kVAC (type test)/1.5 kVAC (routine test) | 1.5 kVAC (type test)/1.5 kVAC (routine test) | 1.5 kVAC (type test)/1.5 kVAC (routine test) | 1.5 kVAC (type test)/1.5 kVAC (routine test) |
| Output/ground   | 1.5 kVAC (type test)/500 Vac (routine test)  | 1.5 kVAC (type test)/500 Vac (routine test)  | 1.5 kVAC (type test)/500 Vac (routine test)  | 1.5 kVAC (type test)/500 Vac (routine test)  | 1.5 kVAC (type test)/500 Vac (routine test)  | 1.5 kVAC (type test)/500 Vac (routine test)  | 1.5 kVAC (type test)/500 Vac (routine test)  | 1.5 kVAC (type test)/500 Vac (routine test)  |

## Notes

① Ratings for single-phase models are at 115 Vac; three-phase models are at 400 Vac.

② 85–264 Vac (DC input range 120–375 Vdc)

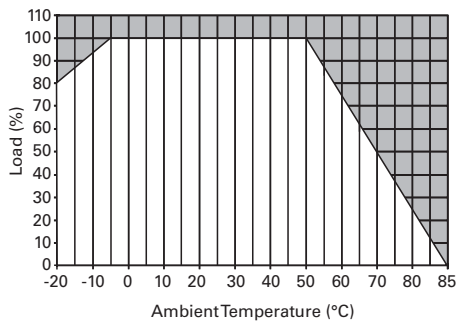
③ 320–575 Vac (DC input range 450–800 Vdc)

PSG Series, continued

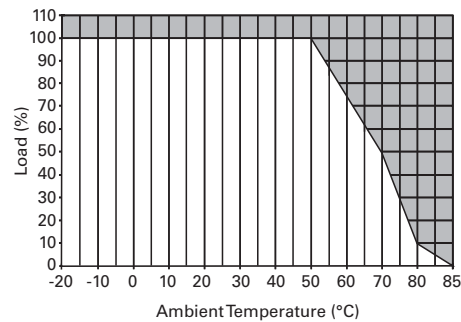
| Capacity  | PSG60E<br>60W                      | PSG120E<br>120W                    | PSG240E<br>240W                    | PSG480E<br>480W                    | PSG60F<br>60W                      | PSG120F<br>120W                    | PSG240F<br>240W                    | PSG480F<br>480W                    |
|---|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| <b>General/Physical Data</b>                    |                                    |                                    |                                    |                                    |                                    |                                    |                                    |                                    |
| Housing material                                | Aluminum (Al5052)                  | Aluminum (Al5052)                  | Aluminum (Al5052)                  | Aluminum (Al5052)                  | Aluminum (Al5052)                  | Aluminum (Al5052)                  | Aluminum (Al5052)                  | Aluminum (Al5052)                  |
| Signals   | Green LED for DC OK                | Green LED for DC OK                | Green LED for DC OK                | Green LED for DC OK                | Green LED for DC OK                | Green LED for DC OK                | Green LED for DC OK                | Green LED for DC OK                |
| MTBF  | >800,000 hrs                       | >800,000 hrs                       | >300,000 hrs                       | >300,000 hrs                       | >500,000 hrs                       | >500,000 hrs                       | >300,000 hrs                       | >300,000 hrs                       |
| Dimensions (L)                                  | 121 mm                             | 121 mm                             | 121 mm                             | 121 mm                             | 121 mm                             | 121 mm                             | 121 mm                             | 121 mm                             |
| Dimensions (W)                                  | 32 mm                              | 50 mm                              | 85 mm                              | 160 mm                             | 70 mm                              | 70 mm                              | 85 mm                              | 160 mm                             |
| Dimensions (H)                                  | 120 mm                             | 115 mm                             | 118.5 mm                           | 115 mm                             | 118.5 mm                           | 118.5 mm                           | 120.5 mm                           | 115 mm                             |
| Weight (kg)                                     | 0.37                               | 0.54                               | 1.04                               | 1.8                                | 0.56                               | 0.72                               | 0.77                               | 1.71                               |
| Operating temperature                           | -20°C to +75°C<br>(>50°C derating) | -20°C to +75°C<br>(>50°C derating) | -20°C to +75°C<br>(>50°C derating) | -20°C to +75°C<br>(>50°C derating) | -20°C to +75°C<br>(>50°C derating) | -20°C to +75°C<br>(>50°C derating) | -20°C to +75°C<br>(>50°C derating) | -20°C to +75°C<br>(>50°C derating) |
| Storage temperature                             | -25°C to +85°C                     | -25°C to +85°C                     | -25°C to +85°C                     | -25°C to +85°C                     | -25°C to +85°C                     | -25°C to +85°C                     | -25°C to +85°C                     | -25°C to +85°C                     |
| Operating humidity                              | <95% RH, noncondensing             | <95% RH, noncondensing             | <95% RH, noncondensing             | <95% RH, noncondensing             | <95% RH, noncondensing             | <95% RH, noncondensing             | <95% RH, noncondensing             | <95% RH, noncondensing             |
| Vibration (operating)                           | ①                                  | ①                                  | ①                                  | ①                                  | ①                                  | ①                                  | ①                                  | ①                                  |
| Pollution degree                                | 2                                  | 2                                  | 2                                  | 2                                  | 2                                  | 2                                  | 2                                  | 2                                  |
| Climatic class                                  | 3K3 according to EN 60721          | 3K3 according to EN 60721          | 3K3 according to EN 60721          | 3K3 according to EN 60721          | 3K3 according to EN 60721          | 3K3 according to EN 60721          | 3K3 according to EN 60721          | 3K3 according to EN 60721          |
| <b>Safety and Protection</b>                    |                                    |                                    |                                    |                                    |                                    |                                    |                                    |                                    |
| Transient surge voltage                         | Varistor                           | Varistor                           | Varistor                           | Varistor                           | Varistor                           | Varistor                           | Varistor                           | Varistor                           |
| Surge voltage protection against internal surge | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                |
| Safety class                                    | Class I with ground connection     | Class I with ground connection     | Class I with ground connection     | Class I with ground connection     | Class I with ground connection     | Class I with ground connection     | Class I with ground connection     | Class I with ground connection     |
| Shock   | ②                                  | ②                                  | ②                                  | ②                                  | ②                                  | ②                                  | ②                                  | ②                                  |

Power Derating Curves

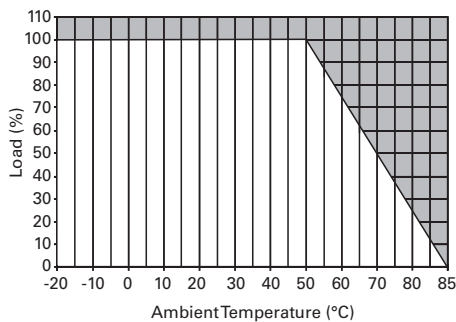
Vertical Mounting Position PSG60E



Vertical Mounting Position PSG240E, PSG240F



Vertical Mounting Position PSG60F, PSG120E, PSG120F, PSG480E, PSG480F



Notes

- ① 10 to 150 Hz, 0.35 mm acc. 50 m/s/s, single amplitude (5G max.) for 90 min. in each X, Y, Z direction, in acc. with IEC 68-2-6.
- ② 30G (300 m/s/s) in all directions according to IEC 68-2-27.

# 6.1

## Power Supplies

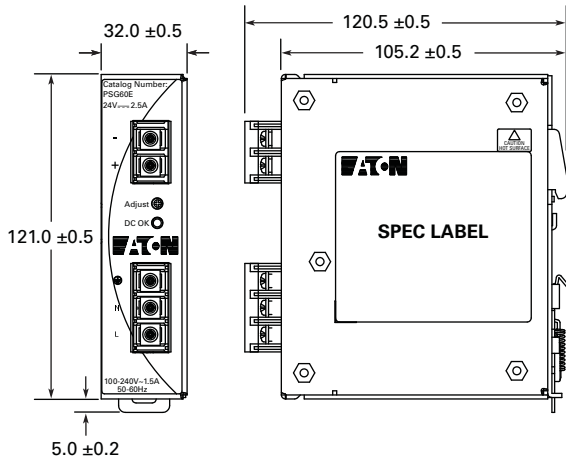
### General Purpose and Sensor Power Supplies

#### Dimensions

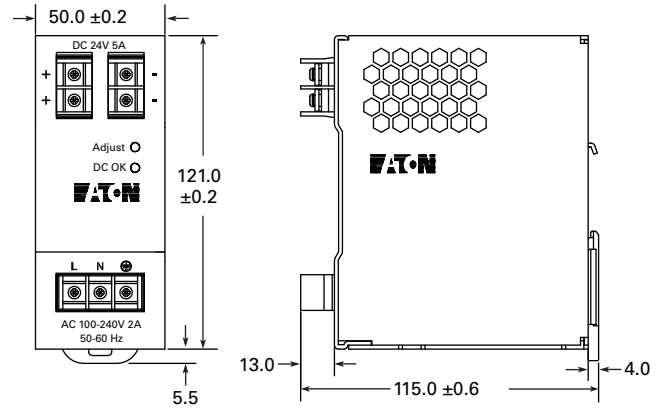
Approximate Dimensions in mm

**Note:** Dimensions are for reference only.

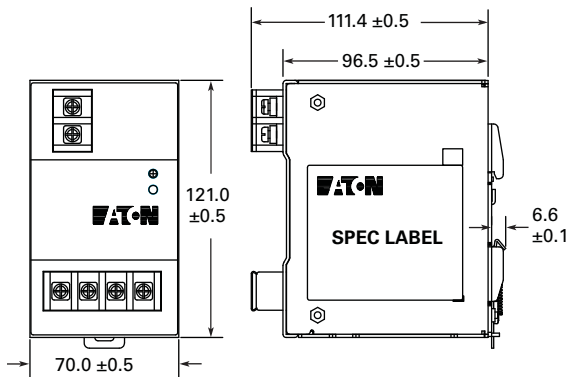
#### PSG60E



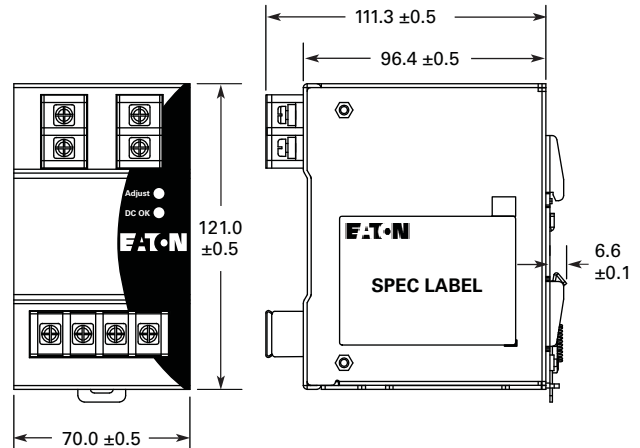
#### PSG120E



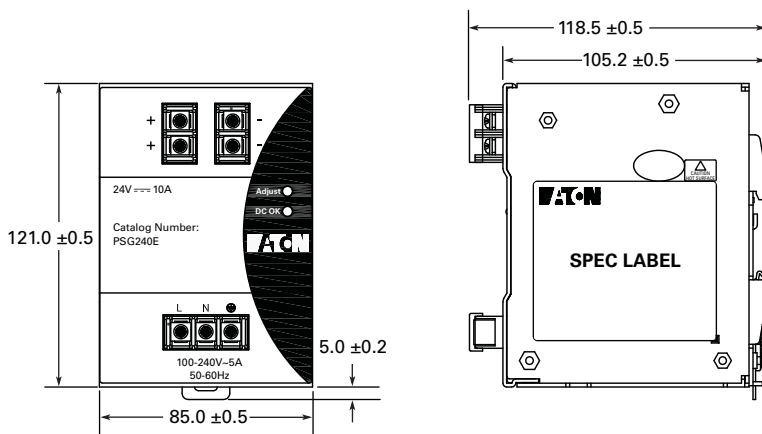
#### PSG60F



#### PSG120F



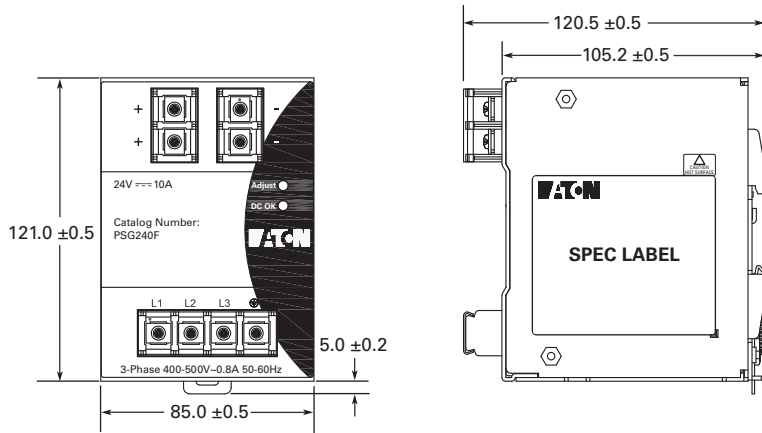
#### PSG240E



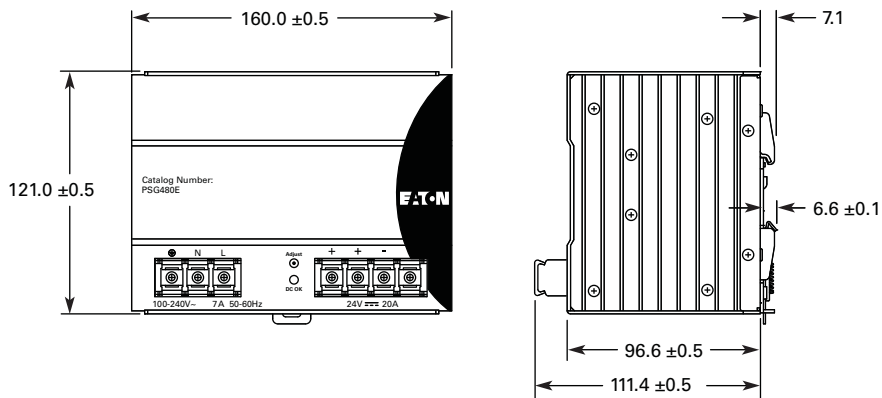
Approximate Dimensions in mm

**Note:** Dimensions are for reference only.

**PSG240F**



**PSG480E**



**PSG480F**

