

#### PSL Series



### PSL Series

#### Product Description

Eaton's single-phase Low Profile DIN Rail Power Supply series offers double isolated input with no earth connection required, resulting in low leakage current and a longer lifespan. The PSL series provides a universal input voltage range of 90–264 Vac, and a wide temperature range of –25 °C to +71 °C with greater than 80% efficiency. The low-profile series is certified to safety standard according to IEC/EN/UL 60950-1 Information Technology Equipment (ITE) and UL 508 Industrial Control Equipment (ICE). The series is also fully compliant with RoHS Directive 2011/65/EU for environmental protection. NEC Class 2 and Limited Power Source (LPS) approvals are available for this product.

#### Application Description

The Low Profile is part of the PSL DIN Rail Power Supply series, which is designed for use in compact cabinets for home automations and the food and beverage industry. Applications include communication networks, sensors, PLCs and many other electrical systems.

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#### Description

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#### Features, Benefits and Functions

- Universal input voltage: 90–264 Vac or 125–375 Vdc
- Under 100 W power output at 24 Vdc
- Wide operating temperature range: –25 °C to +71 °C
- MTBF greater than 500,000 hours ensures uptime and reliability
- Protection from overvoltage, short circuit, overcurrent and over-temperature conditions
- Plastic housings provide the durability required to withstand harsh environments
- Finger-safe terminals
- LED indicating light for DC OK simplifies troubleshooting
- Redundancy modules keep loads up and running in the event of a device failure
- NEC Class 2 rated model
- 150% power surge output
- IP20 protection degree
- Protection Class 2, double isolation
- No earth connection required

#### Standards and Certifications

- UL/cUL Listed 60950
- UL 60950-1
- IEC
- NEC Class 2
- CE marked



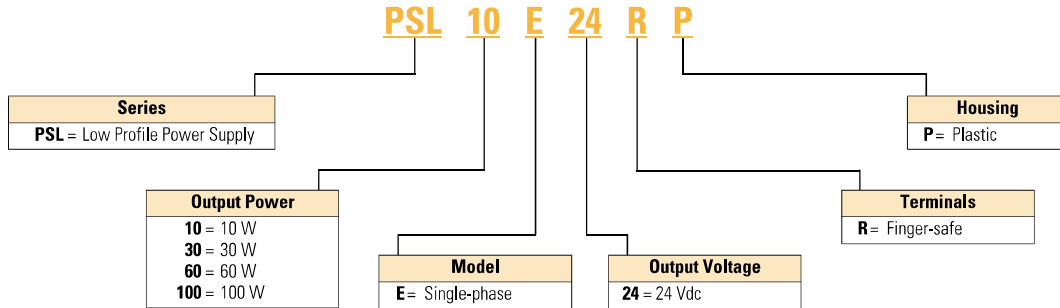
**Note:** The NEC Class 2 model is certified as an NEC Class 2 power source. This means that after a small startup window, the power supply cannot exceed a maximum of 100 W under any circumstances, including overload, short-circuit or internal failure.

It also reduces wiring, labor and additional system components acting as a short-circuit current limiter. The redundancy modules allow for two or more power supplies to be connected together to perform parallel or redundancy operation. Parallel operation or load sharing is when the load is split evenly between two or more power supplies. Redundancy operation is where *N* (number of power supplies) is required for the load and one additional power supply is connected in the event that one should fail.

**Catalog Number Selection**

**Note:** Catalog number selection breakdown shown below is for illustrative purposes only and not to be used to create new catalog number configurations.

**PSL Series**



**Product Selection**

PSL10E24RP



**PSL Series**

Power	Description	Catalog Number
24 Vdc output, single-phase power supplies (100–240 Vac nominal input)	10 W, 0.42 A output, plastic housing	PSL10E24RP
	30 W, 1.25 A output, plastic housing	PSL30E24RP
	60 W, 2.5 A output, plastic housing	PSL60E24RP
	100 W, 3.8 A output, plastic housing	PSL100E24RP

## Technical Data and Specifications

## PSL Series

	PSL10E24RP	PSL30E24RP	PSL60E24RP	PSL100E24RP
<b>Input</b>				
Nominal voltage	100–240 Vac	100–240 Vac	100–240 Vac	100–240 Vac / 125–250 Vdc
AC input range	90–264 Vac	90–264 Vac	90–264 Vac	90–264 Vac
DC input range	125–375 Vdc	125–375 Vdc	125–375 Vdc	125–375 Vdc
Input frequency range	47–63 Hz	47–63 Hz	47–63 Hz	47–63 Hz
Nominal current	<0.30 A at 115 Vac, <0.20 A at 230 Vac	<0.8 A at 115 Vac, <0.6 A at 230 Vac	<1.5 A at 115 Vac, <1.0 A at 230 Vac	<2.2 A at 115 Vac, <1.0 A at 230 Vac
Inrush current limitation	<15 A at 115 Vac, <30 A at 230 Vac	<25 A at 115 Vac, <50 A at 230 Vac	<30 A at 115 Vac, <60 A at 230 Vac	<30 A at 115 Vac, <60 A at 230 Vac
Mains buffering at nominal load	>10 ms at 115 Vac, >30 ms at 230 Vac	>25 ms at 115 Vac, >30 ms at 230 Vac	>16 ms at 115 Vac, >30 ms at 230 Vac	>10 ms at 115 Vac, >30 ms at 230 Vac
Turn-on time	<3 sec.	<3 sec.	<3 sec.	<1.5 sec. at 115 Vac, <1 sec. at 230 Vac
Internal fuse	T 1 A / 250 V	T 3.15 A / 250 V	T 3.15 A / 250 V	T 3.15 A / 250 V
Leakage current	<0.25 mA at 240 Vac	<0.25 mA at 240 Vac	<0.25 mA at 240 Vac	<0.25 mA at 240 Vac
<b>Output</b>				
Power	10 W	30 W	60 W	91.2W
Nominal output voltage	24 Vdc $\pm$ 2%	24 Vdc $\pm$ 2%	24 Vdc $\pm$ 2%	24 Vdc $\pm$ 2%
Adjustment range	24–28 Vdc	24–28 Vdc	24–28 Vdc	22–24 Vdc
Nominal current	0.42A	1.25 A	2.5 A	3.8 A
Derating	>55 °C (2.5% / °C) in vertical	>55 °C (2.5% / °C) in vertical	>55 °C (2.5% / °C) in vertical	>55 °C (2.5% / °C) in vertical
Power derating—horizontal mounting	N/A	N/A	N/A	N/A
Startup with capacitive loads	Max. 3,000 $\mu$ F	Max. 3,000 $\mu$ F	Max. 3,000 $\mu$ F	Max. 3,000 $\mu$ F
Max. power dissipation idling / nominal load approx.	2 W	3.8 W	8.5 W	12 W
Efficiency	>80.0% at 115 Vac and 230 Vac	>83.0% at 115 Vac and 230 Vac	>86.0% at 115 Vac and 230 Vac	>85.0% at 115 Vac, >87.0% at 230 Vac
Residual ripple / peak switching (20 M Hz)	<50mVpp / 150mVpp	<50 mVpp / <150 mVpp	<50 mVpp / <150 mVpp	<50 mVpp / <150 mVpp
Parallel operation	PSG480R24RM / PSG960R24RM / With o-ring diode	PSG480R24RM / PSG960R24RM / With o-ring diode	PSG480R24RM / PSG960R24RM / With o-ring diode	PSG480R24RM / PSG960R24RM / With o-ring diode
<b>Galvanic isolation</b>				
Input / output	3.0K Vac	3.0K Vac	3.0K Vac	3.0K Vac
Input / ground	N/A	N/A	N/A	N/A
Output / ground	N/A	N/A	N/A	N/A
<b>General / physical data</b>				
Housing material	Plastic (PC), enclosed	Plastic (PC), enclosed	Plastic (PC), enclosed	Plastic (PC), enclosed
Signals	Green LED DC OK	Green LED DC OK	Green LED DC OK	Green LED DC OK
MTBF	>500,000 hr	>500,000 hr	>500,000 hr	>500,000 hr
Dimensions (length)	91 mm	91 mm	91 mm	91 mm
Dimensions (width)	18 mm	53 mm	71 mm	89.9 mm
Dimensions (height)	55.6 mm	55.6 mm	55.6 mm	55.6 mm
Weight (kg)	0.065 kg	0.14 kg	0.24 kg	0.35 kg
Terminals	Finger-safe	Finger-safe	Finger-safe	Finger-safe
Wire size	AWG 26-12	AWG 24-12	AWG 22-12	AWG 22-12 (1 piece) AWG 24-12 (2 pieces)
Operating temperature	–25 °C to +71 °C	–25 °C to +71 °C	–25 °C to +71 °C	–25 °C to +71 °C
Storage temperature	–25 °C to +85 °C	–25 °C to +85 °C	–25 °C to +85 °C	–25 °C to +85 °C
Operating humidity	<95% RH	<95% RH	<95% RH	<95% RH

## PSL Series, continued

	PSL10E24RP	PSL30E24RP	PSL60E24RP	PSL100E24RP
<b>General / physical data, continued</b>				
Vibration	IEC60068–2–6, Sine wave: 10–500 Hz at 19.6 m/S <sup>2</sup> (2G peak); 10 min per cycle, 60 min for all X, Y, Z directions	IEC60068–2–6, Sine wave: 10–500 Hz at 19.6 m/S <sup>2</sup> (2G peak); 10 min per cycle, 60 min for all X, Y, Z directions	IEC60068–2–6, Sine wave: 10–500 Hz at 19.6 m/S <sup>2</sup> (2G peak); 10 min per cycle, 60 min for all X, Y, Z directions	IEC60068–2–6, Sine wave: 10–500 Hz at 19.6 m/S <sup>2</sup> (2G peak); 10 min per cycle, 60 min for all X, Y, Z directions
Shock (operating)	IEC60068–2–27, Half sine wave: 4 G for a duration of 22 ms, 3 shocks for each 3 directions, 9 times in total	IEC60068–2–27, Half sine wave: 4 G for a duration of 22 ms, 3 shocks for each 3 directions, 9 times in total	IEC60068–2–27, Half sine wave: 4 G for a duration of 22 ms, 3 shocks for each 3 directions, 9 times in total	IEC60068–2–27, Half sine wave: 4 G for a duration of 22 ms, 3 shocks for each 3 directions, 9 times in total
Pollution degree	2	2	2	2
Altitude	2000 m	2000 m	2000 m	2000 m
<b>Certification and protection</b>				
Safety entry low voltage	SELV (EN 60950)	SELV (EN 60950)	SELV (EN 60950)	SELV (EN 60950)
Electrical safety (of information technology equipment)	UL/C–UL recognized to UL 60950–1	UL/C–UL recognized to UL 60950–1	UL/C–UL recognized to UL 60950–1	UL/C–UL recognized to UL 60950–1
Industrial control equipment	UL/C–UL listed to UL 508	UL/C–UL listed to UL 508	UL/C–UL listed to UL 508	UL/C–UL listed to UL 508
Class 2 power supply	UL/C–UL recognized to UL 60950–1	UL/C–UL recognized to UL 60950–1	UL/C–UL recognized to UL 60950–1	UL/C–UL recognized to UL 60950–1
CE	In conformance with EMC directive 2014/30/EU and low-voltage directive 2014/35/EU	In conformance with EMC directive 2014/30/EU and low-voltage directive 2014/35/EU	In conformance with EMC directive 2014/30/EU and low-voltage directive 2014/35/EU	In conformance with EMC directive 2014/30/EU and low-voltage directive 2014/35/EU
Immunity	EN 55024 (EN 61000–4–2, 3, 4, 5, 6, 8, 11)	EN 55024 (EN 61000–4–2, 3, 4, 5, 6, 8, 11)	EN 55024 (EN 61000–4–2, 3, 4, 5, 6, 8, 11)	EN 55024 (EN 61000–4–2, 3, 4, 5, 6, 8, 11)
Emissions	EN 55032, EN 61000–3–2 Class A, EN 61000–3–3	EN 55032, EN 61000–3–2 Class A, EN 61000–3–3	EN 55032 Class A, EN 61000–3–2 Class A, EN 61000–3–3,	EN 55032, EN 61000–3–2 Class A, EN 61000–3–3,
RoHS compliant	Yes	Yes	Yes	Yes
<b>Safety and protection</b>				
Current limitation at short-circuits approx.	$I_{\text{surge}} = 150\%$ of $P_{\text{Omax}}$ typically	$I_{\text{surge}} = 150\%$ of $P_{\text{Omax}}$ typically	$I_{\text{surge}} = 150\%$ of $P_{\text{Omax}}$ typically	$I_{\text{surge}} = 150\%$ of $P_{\text{Omax}}$ typically
Surge voltage protection against internal surge voltages	Yes	Yes	Yes	Yes
Protection degree	IP20	IP20	IP20	IP20
Safety class	Class II (No primary earth connection is required)	Class II without PE connection	Class II without PE connection	Class II without PE connection

# 6.1

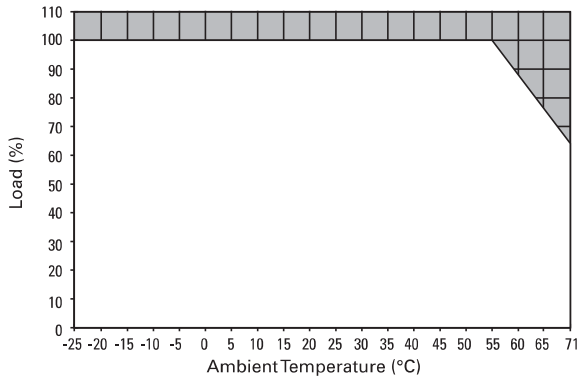
## Power Supplies

### General-Purpose and Sensor Power Supplies

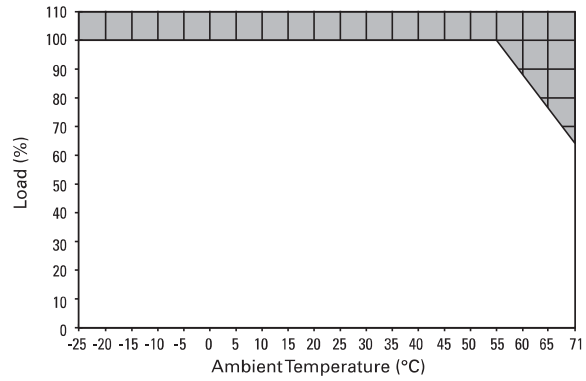
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#### Power Derating Curves

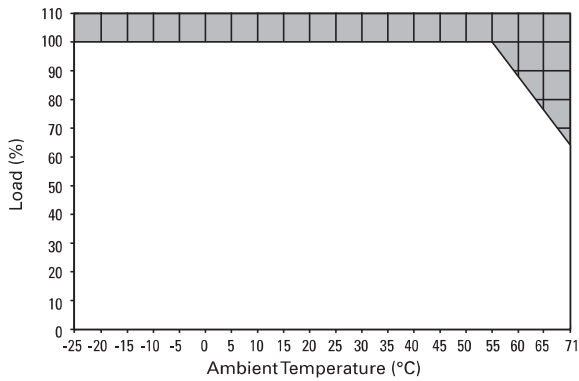
Vertical Mounting Position PSL10E24RP



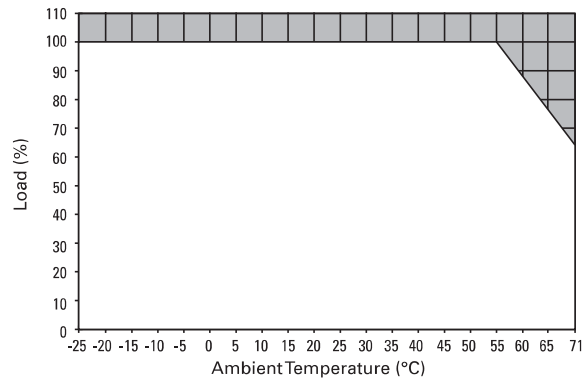
Vertical Mounting Position PSL60E24RP



Vertical Mounting Position PSL30E24RP



Vertical Mounting Position PSL100E24RP

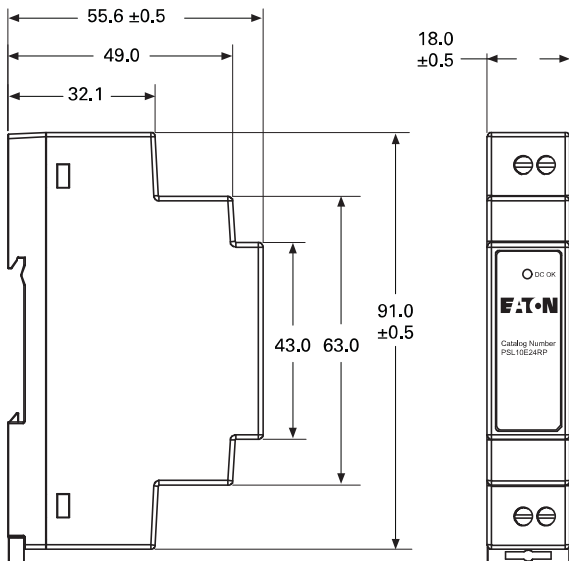


#### Dimensions

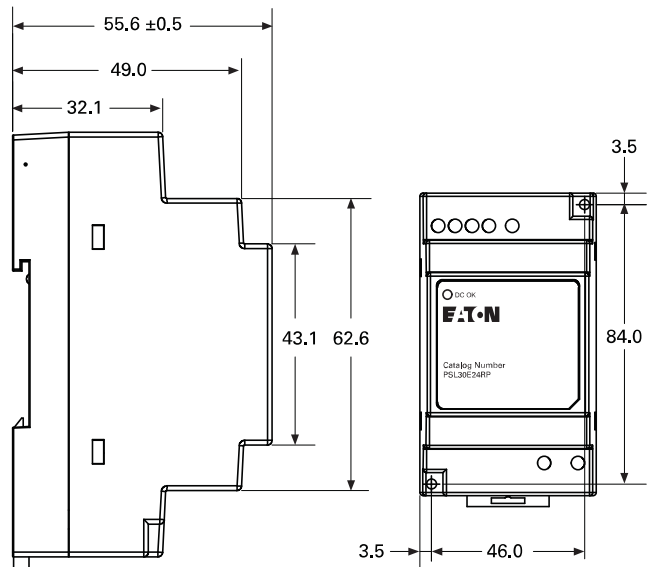
Approximate Dimensions in mm

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

PSL10E24RP



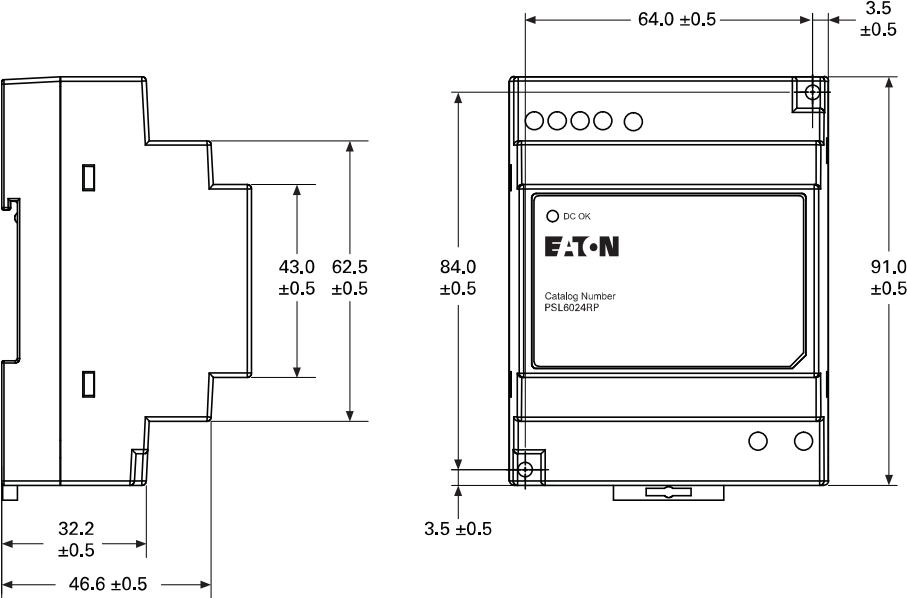
PSL30E24RP



Approximate Dimensions in mm

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

**PSL60E24RP**



**PSL100E24RP**

