PS5R Slim Line Series
Switching Power Supplies

Key features of the PS5R Slim Line series include:

- Lightweight and compact in size
- Wide power range: 10W-240W
- Universal input:
  10W to 90W: 85-264V AC/100-370V DC
  120W and 240W: 85-264V AC/100-350V DC
- Power Factor Correction for 60W to 240W (EN61000-3-2)
- Meets SEMI F47 Sag Immunity (120W & 240W only)
- Approved for Class 1, Div. 2 Hazardous Locations
- Overcurrent protection, auto-reset
- Overvoltage protection, shut down
- Spring-up screw terminal type, IP20
- DIN rail or panel surface mount
- Approvals:
  CE Marked
  TÜV
  c-UL, UL508
  UL1310 (PS5R-SB, -SC, -SD)
  UL1604 (Hazardous locations)
  EN50178:1997
  LVD: EN60950:2000
  EMC: Directive EN61204-3:2000 (EMI: Class B, EMS: Industrial)

File #E234997

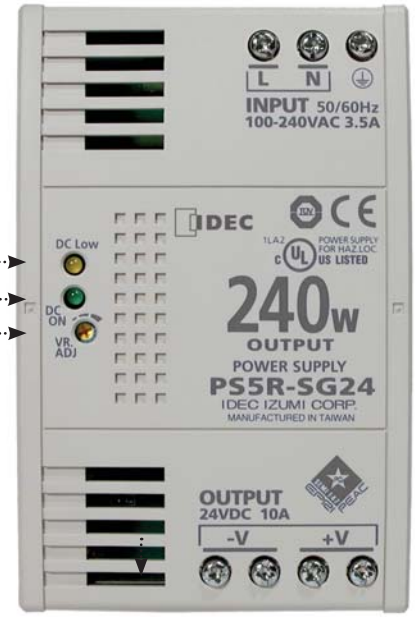
(SEMI F47 120W & 240W only)

Designed with Accessibility & Convenience in Mind!

DC Low Indicator (15W, 120W & 240W Slim Line Only)
The indicator turns on when the output voltage drops below 80% of the rated value. This assists in troubleshooting power supply problems.

DC ON Indicator
The indicator turns on when the unit is powered up. This is a convenient way to know when the power supply is receiving power.

Output Voltage Adjustment
The output voltage can be easily adjusted within ± 10% of the rated voltage.



Universal Input Power
The applied input power has a range of 85-264V AC (100-350V DC) without the use of jumpers or slide switches. This makes IDEC power supplies suitable for use anywhere in the world.

Long Life Expectancy
IDEC power supplies are very reliable, with a life expectancy of 70,000 hrs. (minimum) or longer, depending on usage. Power factor correction has also been included to minimize harmonic distortion, resulting in a longer operating life and increased reliability.

Output Channel
With very low output ripples of less than 1% peak to peak, the 120W and 240W power supplies are some of the best in the industry. The output comes with overload protection that avoids damaging the power supply and the spring-up, fingersafe, screw terminals add a level of safety and ease for the user. The 240W power supply also has the convenience of two output terminals.

Fingersafe, Spring-up Screw Terminals
Don't worry about losing screws or getting an inadvertent shock from a terminal. The terminals are captive spring-up screws, which makes using them as easy as pushing a screw down and tightening it. They are shock and vibration resistant, and work with ring lugs, fork connectors or stripped wire connections. The terminals are rated IP20 (when tightened) meaning they are recessed to keep fingers and objects from touching the input contacts.

Top View

Ventilation Grill
Provides cooling for the power supply and prevents small objects from falling into the power supply circuitry.

Part Numbers

Item	Watts	Rated Voltage	Rated Current	Part Number
	10	5V DC	2.0A	PS5R-SB05
	15	12V DC	1.2A	PS5R-SB12
		24V DC	0.65A	PS5R-SB24
	30	12V DC	2.5A	PS5R-SC12
		24V DC	1.3A	PS5R-SC24
	60	24V DC	2.5A	PS5R-SD24

Item	Watts	Rated Voltage	Rated Current	Part Number
	90	24V DC	3.75A	PS5R-SE24
	120	24V DC	5A	PS5R-SF24
	240	24V DC	10A	PS5R-SG24

Accessories

Appearance	Description	Part Number
	Panel Mounting Bracket for PS5R-SB	PS9Z-5R1B
	Panel Mounting Bracket for PS5R-SB (flat side mounting)	PS9Z-5R2B
	Panel Mounting Bracket for PS5R-SC and PS5R-SD	PS9Z-5R1C
	Panel Mounting Bracket for PS5R-SE	PS9Z-5R1E
	Panel Mounting Bracket for PS5R-SF & PS5R-SG	PS9Z-5R1G
	DIN rail (1000mm)	BNDN1000
	DIN rail end clip	BNL5

Specifications

Part Numbers		**5V DC output**	**PS5R-SB05**	–	–	–	–	–
		12V DC output	**PS5R-SB12**	**PS5R-SC12**	–	–	–	–
		24V DC output	**PS5R-SB24**	**PS5R-SC24**	**PS5R-SD24**	**PS5R-SE24**	**PS5R-SF24**	**PS5R-SG24**
Output Capacity			15W (5V Model is 10W)	30W	60W	90W	120W	240W
Input	**Input Voltage (single-phase, 2-wire)**		85 to 264V AC, 100 to 370V DC				85 to 264V AC, 100 to 350V DC	
	Input Current (maximum)	100VAC	0.45A	0.9A	1.7A	2.3A	1.8A	3.5A
		200VAC	0.3A	0.6A	1.0A	1.4A	1.0A	1.7A
	Internal Fuse Rating		2A	3.15A		4A		6.3A
	Inrush Current (cold start)		50A maximum (at 200V AC)					
	Leakage Current (at no load)		132V AC: 0.38 mA maximum 264V AC: 0.75 mA maximum	0.75mA maximum			1mA maximum	
	Typical Efficiency	5V DC	69%	–	–	–	–	–
		12V DC	75%	78%	–	–	–	–
		24V DC	79%	80%	83%	82%	84%	
Output	**Output Current Ratings**	5V DC	2.0A	–	–	–	–	–
		12V DC	1.2A	2.5A	–	–	–	–
		24V DC	0.65A	1.3A	2.5A	3.75A	5A	10A
	Voltage Adjustment		±10% (V. ADJ control on front)					
	Output Holding Time		20ms minimum (at rated input and output)					
	Starting Time		200ms maximum	–	–	–	650ms maximum	500ms maximum
	Rise Time		100ms maximum (at rated input and output)				200ms maximum	
	Line Regulation		0.4% maximum					
	Load Regulation		1.5% maximum					0.8% max
	Temperature Regulation		0.05% degree C maximum					
	Ripple Voltage		2% peak to peak maximum (including noise)				1% peak to peak maximum (including noise)	
	Overcurrent Protection		105% or more, auto reset			105 to 130%, auto reset	103 to 110%, auto reset	
	Overvoltage Protection		120% min. SHUTDOWN					
	Operation Indicator		LED (green)					
	Voltage Low Indication		LED (amber)	–	–	–	LED (amber)	
Dielectric Strength			Between Input and Ground: 2000 V AC, 1 minute Between input and output: 3000V AC, 1 minute; Between output and ground: 500V AC, 1 minute.					
Insulation Resistance			Between Input & Output Terminals: 100 MΩ Min					
Operating Temperature			–10 to +65°C (14 to 149°F)	-10 to 60°C (14 to 140°F)				
Storage Temperature			-25 to 75°C (-13 to +167°F)					
Operating Humidity			20 to 90% relative humidity (no condensation)					
Vibration Resistance			Frequency 10 to 55Hz, Amplitude 0.375mm					
Shock Resistance			300m/s^2 (30G) 3 times each in 6 axes					
Approvals			EMC: EN61204-3 (EMI: Class B, EMS: Industrial), c-UL (CSA 22.2 No. 14), UL1604, UL508, LVD: EN60950, EN50178					
			UL1310 Class 2, c-UL (CSA 22.2 No. 213 and 223)			–	SEMI F47	
Harmonic Directive			N/A			EN61000-3-2 A14 class A		
Weight (approx.)			160g	250g	285g	440g	630g	1000g
Terminal Screw			M3.5 slotted-Phillips head screw (screw terminal type)					
IP protection			IP20 fingersafe					
Dimensions H x W x D (mm)			90 x 22.5 x 95	95 x 36 x 108		115 x 46 x 121	115 x 50 x 129	125 x 80 x 149.5
Dimensions H x W x D (inches)			3.54 x 0.89 x 3.74	3.74 x 1.42 x 4.25		4.53 x 1.81 x 4.76	4.53 x 1.97 x 5.08	4.92 x 3.15 x 5.89

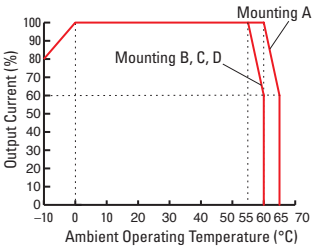
1. For dimensions, see page 111.

Temperature Derating Curves

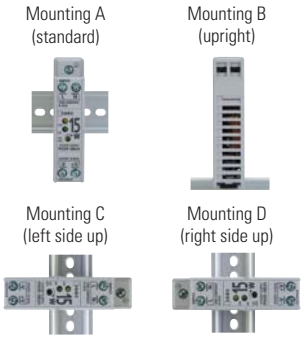
All IDEC Slim Line power supplies are listed to UL508, which allows operation at 100% capacity inside a panel. This eliminates the need to use oversize power supplies or utilize two power supplies derated at 50% of their rated output.

The charts below show that the PS5R Slim 10W (at 60°C) and 15W (at 60°C), 30W/60W/90W (at 55°C), 120W (at 40°C), and 240W (at 45°C) meet the elevated, ambient operating temperature required by UL508 and EN60950 standards to operate at an output current of 100%. The output current starts to derate beyond the required temperature.

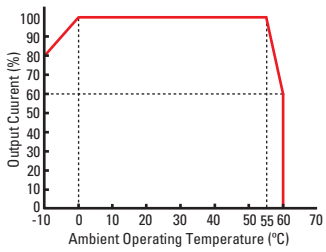
PS5R-SB



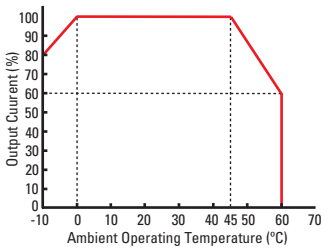
Dearting curve for PS5R-SB varies depending on mounting method (see right).



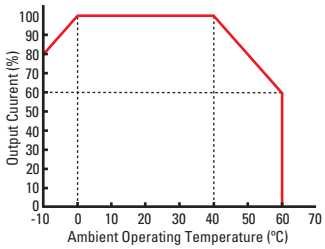
PS5R-SC



PS5R-SG

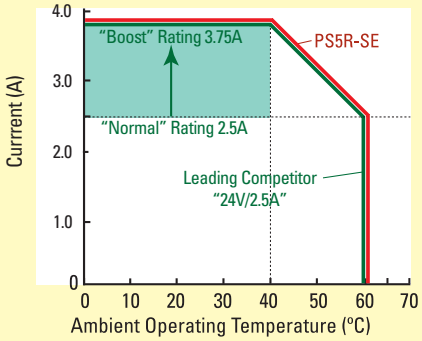


PS5R-SD, -SE, -SF



PS5R-SE 90W/3.75A/24V DC versus a Leading Competitor

Standard derating curve (operating temperature vs. output current)

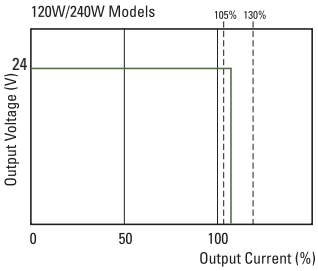


Don't Believe the Hype

Other companies use slick marketing to sell you 60W power supplies with a "BOOST," but what they don't tell you is that these are merely 90W power supplies that have been renamed to fool you into thinking they have a unique feature. IDEC 90W power supplies are just what they claim, 90W power supplies. The truth is IDEC led the market by incorporating UL508 DIN rail mount power supplies as a standard product. Don't let the other guys pull a fast one on you by claiming to provide features that just aren't true, or even possible. See what IDEC has to offer, no strings attached.

Overload Protection

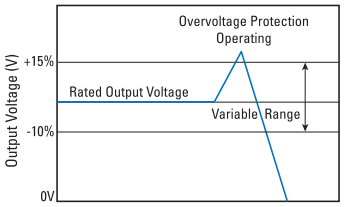
Overload protection prevents the power supply from being damaged when an overload occurs. There are two kinds of protection.



Overcurrent Protection
PS5R-SF, -SG

Overcurrent Protection

When the output current exceeds 105% of the rated current, overload protection is triggered, and the output voltage starts decreasing. When the output current returns within the rated range, the overload protection function is automatically cleared.

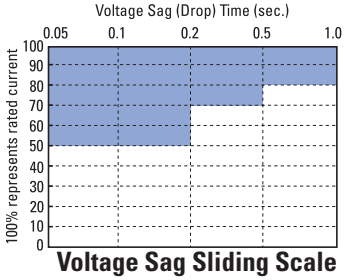


Overvoltage Protection

Overvoltage Protection

When the output voltage of the power supply rises to 120% or more of the rated value, the output will shut off. To restore power, only manual reset is available which is an advantage in troubleshooting.

SEMI-F47 Approved



Voltage Sag Sliding Scale
PS5R-SF, -SG

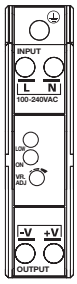
The SEMI F47 (Semiconductor Processing Equipment Voltage Sag Immunity) defines the minimum voltage sag ride-through requirements for semiconductor processing, automated test equipment, and other equipment. It requires that the equipment be able to tolerate voltage sags on an AC power line without interrupting operations. This avoids the loss of production and money.

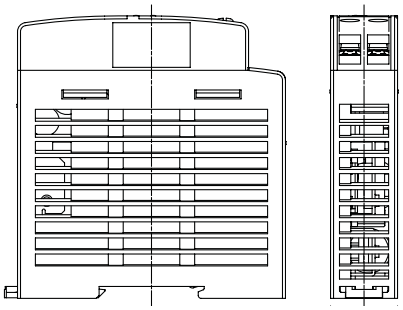
The graph shows how the equipment must tolerate sags to 50% for 200ms, sags to 70% for up to 0.5 seconds, and sags to 80% for up to 1 second.

Dimensions and Terminal Markings

PS5R-SB

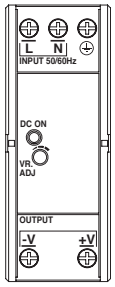
Height 90mm
Width 22.5mm
Depth 95mm

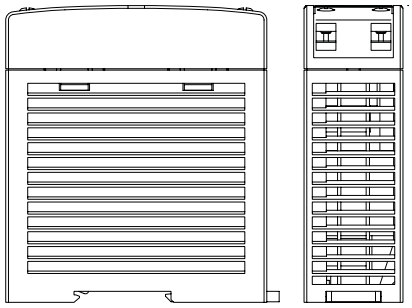




PS5R-SC
PS5R-SD

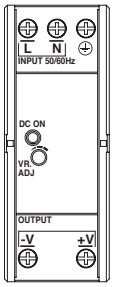
Height 95.0mm
Width 36.0mm
Depth 108.0mm

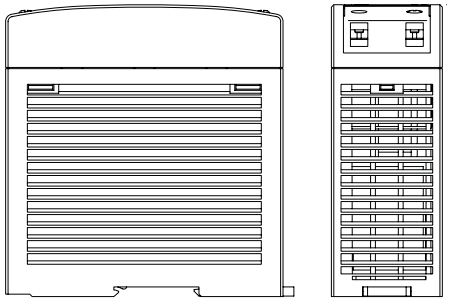




PS5R-SE

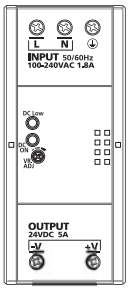
Height 115.0mm
Width 46.0mm
Depth 121.0mm

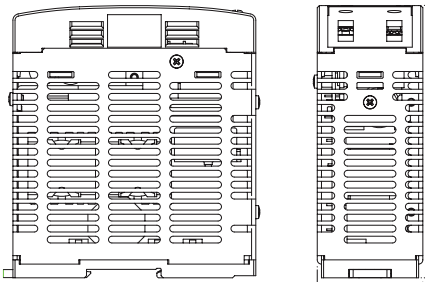




PS5R-SF

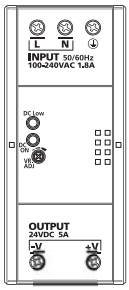
Height 115.0mm
Width 50.0mm
Depth 129.0mm

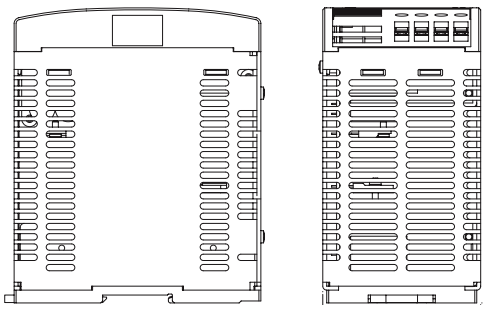




PS5R-SG

Height 125.0 mm
Width 80.0 mm
Depth 149.5 mm



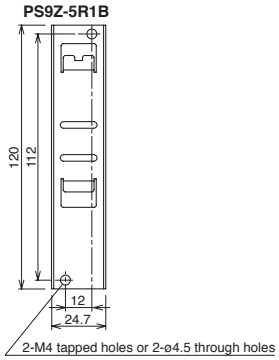


Front Panel (terminals)

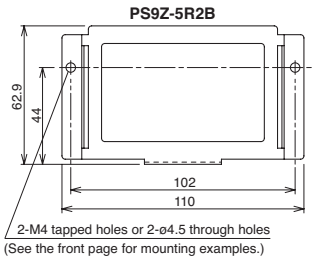
Markings	Name	Description
V. ADJ	Voltage adjustment	Adjusts within ±10%; turn clockwise to increase output voltage.
DC ON	Operation indicator	Green LED is lit when output voltage is on.
DC Low	Output indicator	Amber LED is lit when output voltage drops below 80% of rated voltage.
+V, –V	DC output terminals	+V: Positive output Terminal –V: Negative output terminal
⏚	Frame ground	Ground this terminal to reduce high-frequency noise caused by switching power supply.
L, N	Input terminals	Accept a wide range of voltages and frequencies (no polarity at DC input).

Mounting Bracket Dimensions (mm)

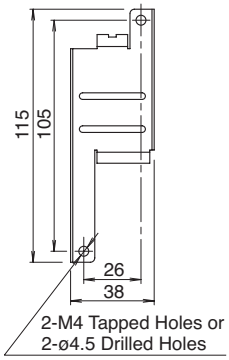
PS9Z-5R1B (for PS5R-SB)



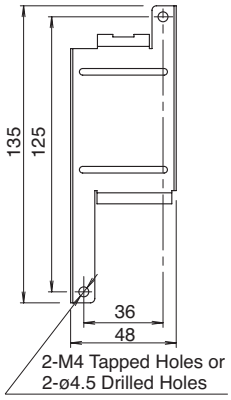
PS9Z-5R2B (for PS5R-SB)



PS9Z-5R1C (for PS5R-SC & PS5R-SD)



PS9Z-5R1E (for PS5R-SE)



PS9Z-5R1G (for PS5R-SF & PS5R-SG)