

SPDL



Single Phase Compact Power Supply



Description

The SPDL series of DIN-rail mount power supplies encompasses high performance within an extremely compact footprint. Power ratings are available in 15, 30, 60, 75, 120 and 240 W, with 12 VDC or 24 VDC output. The SPDL achieves high operating efficiency of up to 95% @ 230 VAC. Features such as DC ok output relay (for SPDL 240 W model) and built-in protection functions ensure a high degree of reliability during operation.

All specifications are at nominal values, full load, 25°C unless otherwise stated.

Benefits

- **Compact dimensions:** SPDL can save up to 50% panel-width space thanks to its ultra-slim design. All models are just 32 mm wide.
- **High efficiency:** The built-in PFC (in SPDL 240 W models) results in high operating efficiency up to 95%.
- **Flexible installation:** Universal AC/DC input range with AC voltage (90 VAC to 264 VAC) or with DC voltage (120 VDC to 370 VDC).
- **Integrated protection:** Output short circuit, over-current, over-voltage, over-temperature protection.
- **Wide operating temperature:** SPDL models can work in extreme temperatures up to -40°C to 80°C (-40°F to 176°F).
- **High altitude.** SPDL series assures the operating altitude up to 5000m.

Applications

Installations with limited panel space, industrial equipment, machinery.

Main functions

- Output short circuit, over-current, over-voltage and over-temperature protection
- DC OK relay indication (only in SPDL 240 W models)
- Built-in active PFC (only in SPDL 240 W models)

References

Order code

 **SPDL** ☐ ☐ 1 ☐

Enter the code entering the corresponding option instead of ☐.

Code	Option	Description	Notes
S	-	Switching	Device typology
P	-	Power	
D	-	DIN rail	
L	-	Light	
☐	12	12 VDC	Rated output voltage
	24	24 VDC	
☐	15	15 W	Rated output power
	30	30 W	
	60	60 W	
	75	75 W	
	120	120 W	
	240	240 W	
1	-	Single phase input	Input type
☐	-	-	
	R	Relay output	

Selection guide

Output Voltage	Output power					
	15 W	30 W	60 W	75 W	120 W	240 W
12 VDC	SPDL12151	SPDL12301	SPDL12601	SPDL12751	-	-
24 VDC	SPDL24151	SPDL24301	SPDL24601	SPDL24751	SPDL241201	SPDL242401R

Further reading

Information	Where to find it	QR code
SPDL datasheet	https://gavazziautomation.com/images/PIM/DATASHEET/ENG/SPDL_DS_EN.pdf	
SPDL installation sheet	https://gavazziautomation.com/images/PIM/MANUALS/ENG/SPDL_IM.pdf	

Structure

SPDL 15 W



Element	Component	Function
A	- V terminals	Negative DC Output terminals
B	+ V terminals	Positive DC Output terminals
C	DC OK LED	Green when output voltage is active
D	VADJ trimmer	Output voltage adjustment
E	Input terminals	L, N supply terminals and Protective Earth (PE)

SPDL 30 W



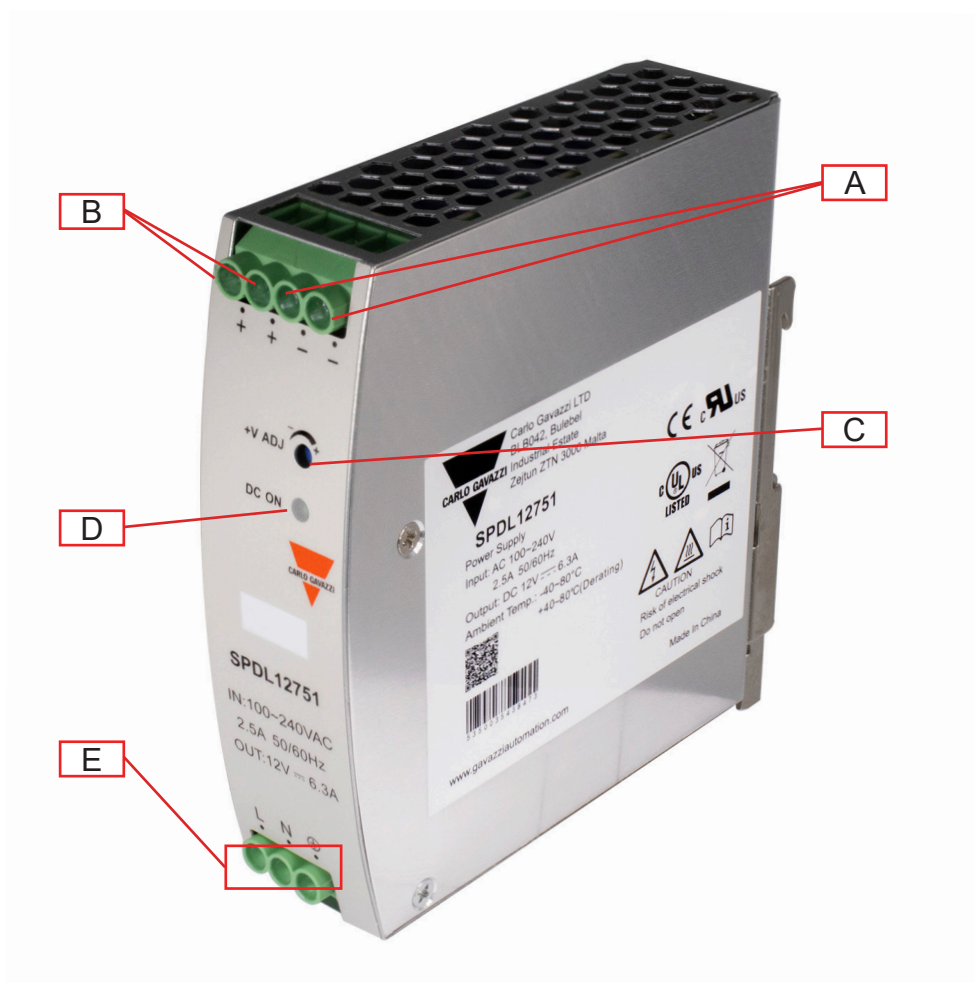
Element	Component	Function
A	- V terminals	Negative DC Output terminals
B	+ V terminals	Positive DC Output terminals
C	DC OK LED	Green when output voltage is active
D	VADJ trimmer	Output voltage adjustment
E	Input terminals	L, N supply terminals and Protective Earth (PE)

SPDL 60 W



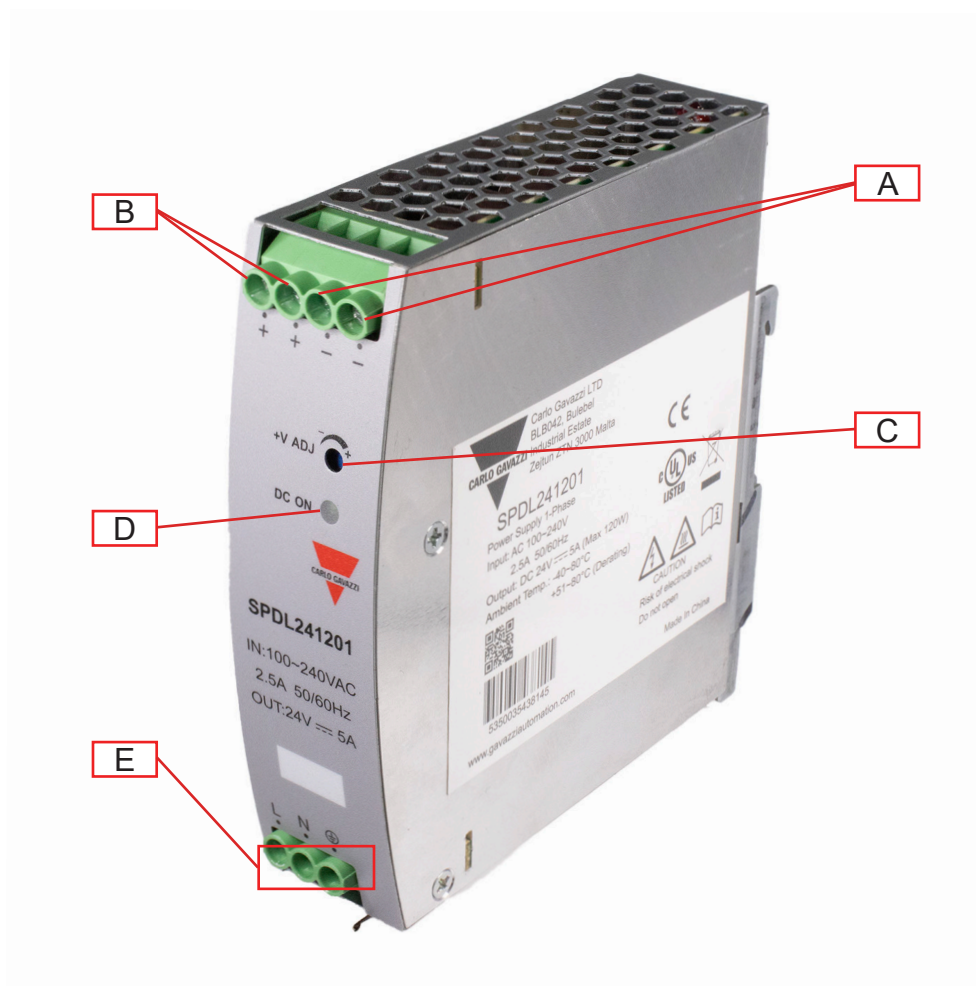
Element	Component	Function
A	- V terminals	Negative DC Output terminals
B	+ V terminals	Positive DC Output terminals
C	DC OK LED	Green when output voltage is active
D	VADJ trimmer	Output voltage adjustment
E	Input terminals	L, N supply terminals and Protective Earth (PE)

SPDL 75 W



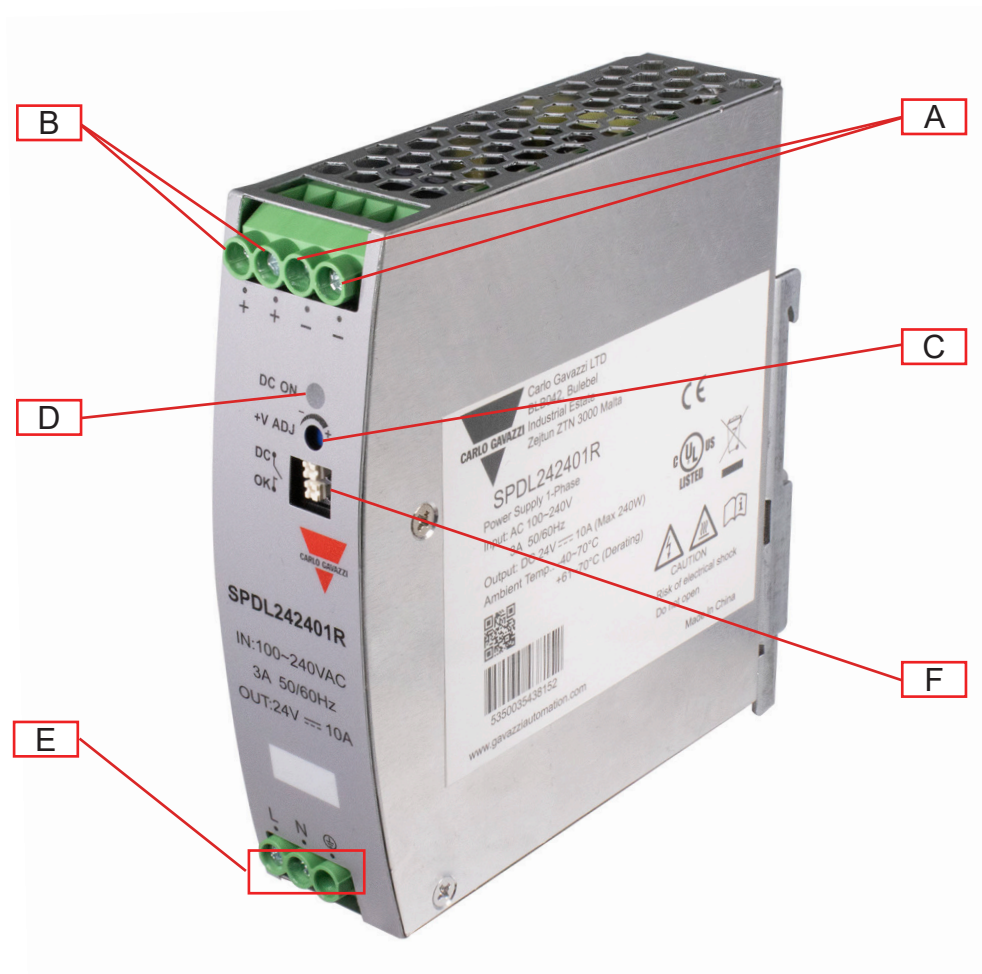
Element	Component	Function
A	- V terminals	Negative DC Output terminals
B	+ V terminals	Positive DC Output terminals
C	DC OK LED	Green when output voltage is active
D	VADJ trimmer	Output voltage adjustment
E	Input terminals	L, N supply terminals and Protective Earth (PE)

SPDL 120 W



Element	Component	Function
A	- V terminals	Negative DC Output terminals
B	+ V terminals	Positive DC Output terminals
C	DC OK LED	Green when output voltage is active
D	VADJ trimmer	Output voltage adjustment
E	Input terminals	L, N supply terminals and Protective Earth (PE)

SPDL 240 W



Element	Component	Function
A	- V terminals	Negative DC Output terminals
B	+ V terminals	Positive DC Output terminals
C	DC OK LED	Green when output voltage is active
D	VADJ trimmer	Output voltage adjustment
E	Input terminals	L, N supply terminals and Protective Earth (PE)
F	DC OK relay	Relay rating: 30 VDC / 1 A max. or 60 VDC / 0.3 A max. or 30 VAC / 0.3 A max. (resistive load) Relay contacts closed when output voltage $\geq$ 90% of rated output voltage.

Features

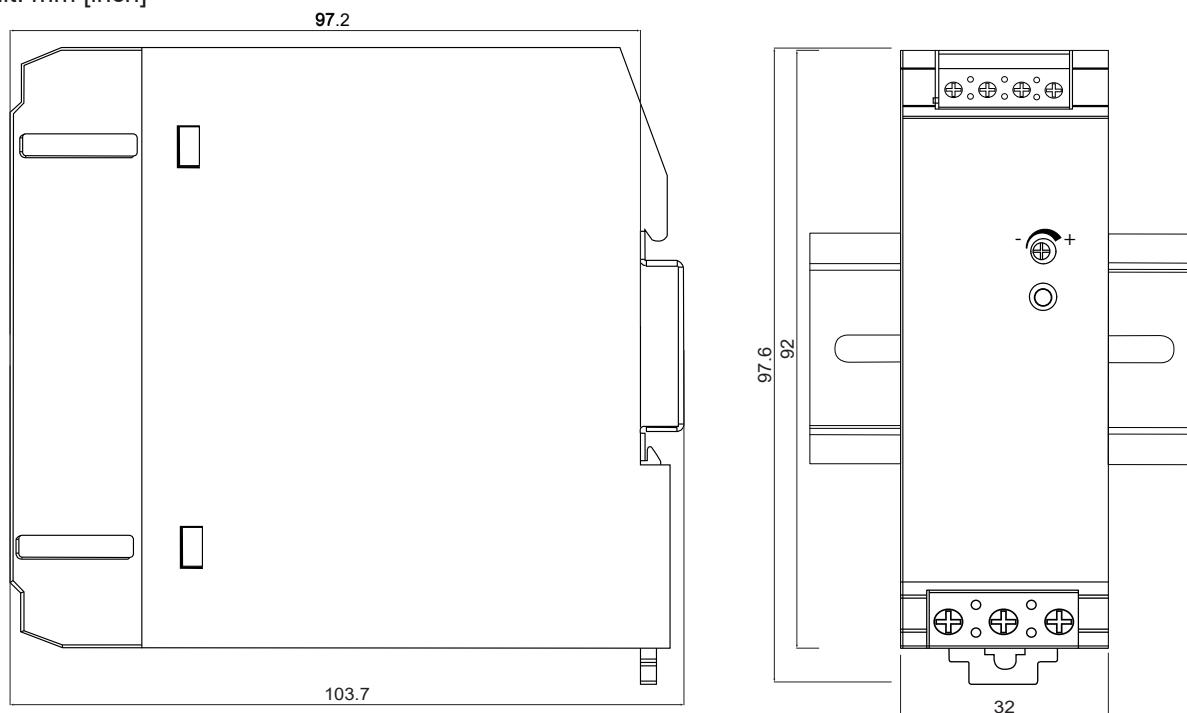
General data

		15 W	30 W	60 W	75 W	120 W	240 W
Leakage current		I/O: < 0.25 mA I/PE: < 3.5 mA (264 VAC / 63 Hz)			< 1.0 mA (240 VAC, 63 Hz)	< 1.0 mA (240 VAC, 63 Hz)	I/O: < 0.25 mA I/PE: < 3.5 mA (264 VAC / 63 Hz)
Efficiency @ 230 VAC 12 VDC 24 VDC		83 % 84.5 %	82 % 85 %	86 % 88 %	85.5 % 88 %	- 88.5 %	- 95 %
Power loss @ nominal load	115 VAC					-	>0.98
	230 VAC						>0.95
Ingress protection		IP20					
MTBF (MIL-HDBK-217F)		590,000 h			200,000 h	>200,000 h	≥300,000 h
Case material		Plastic			Metal		
Weight		159 g	170 g	220 g	380 g		540 g
Mounting		DIN rail					

Dimensions

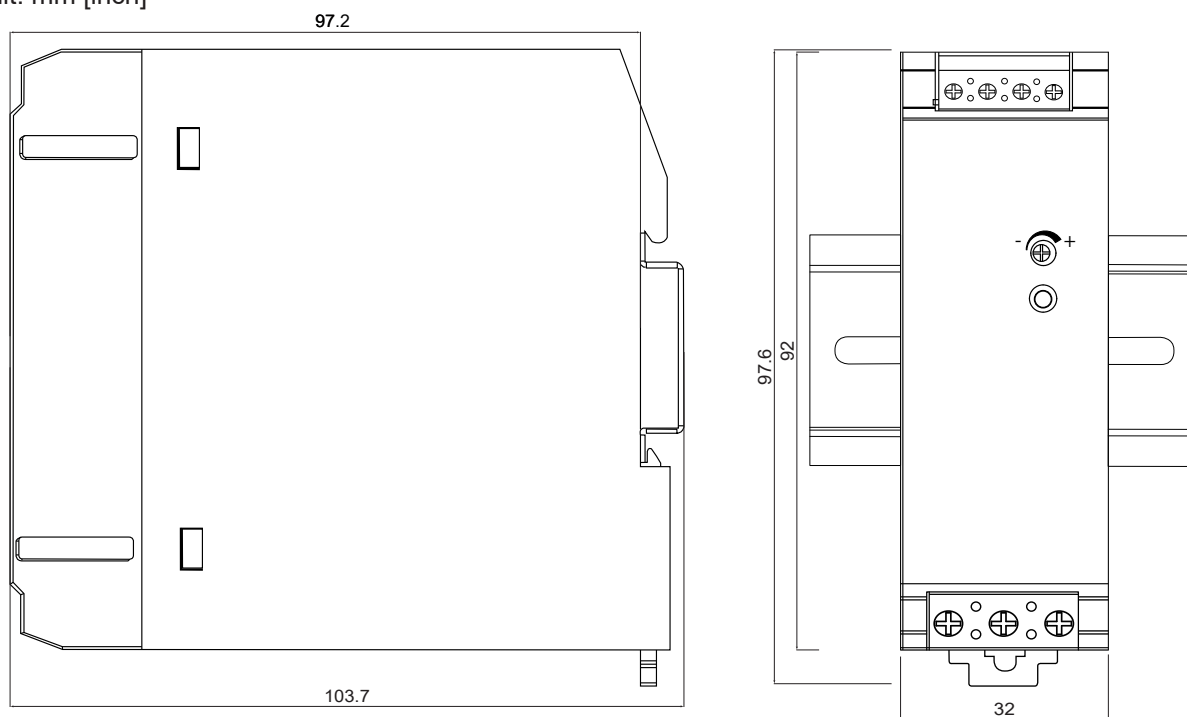
SPDL 15 W

Unit: mm [inch]



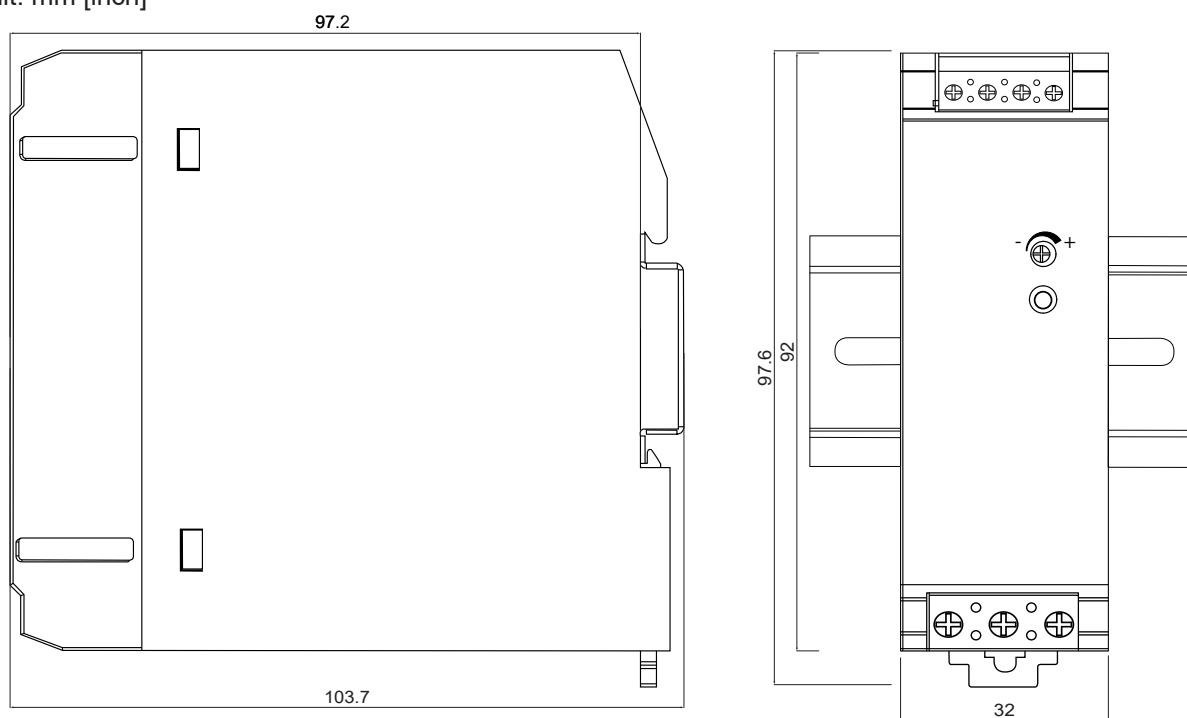
SPDL 30 W

Unit: mm [inch]



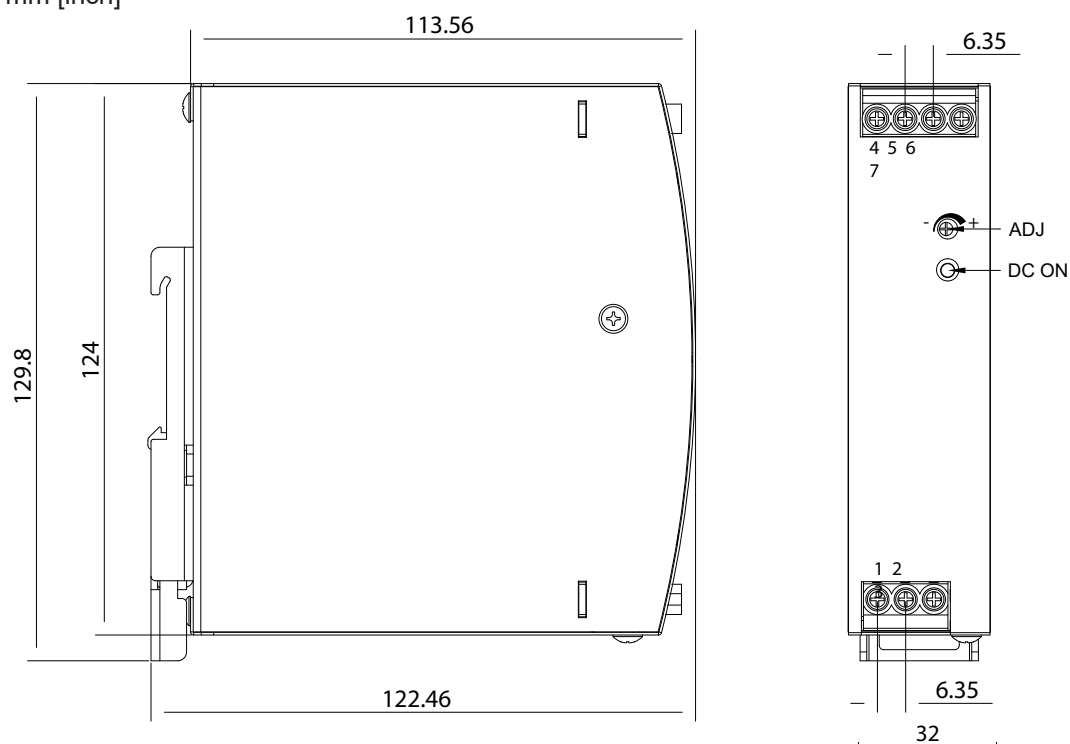
SPDL 60 W

Unit: mm [inch]



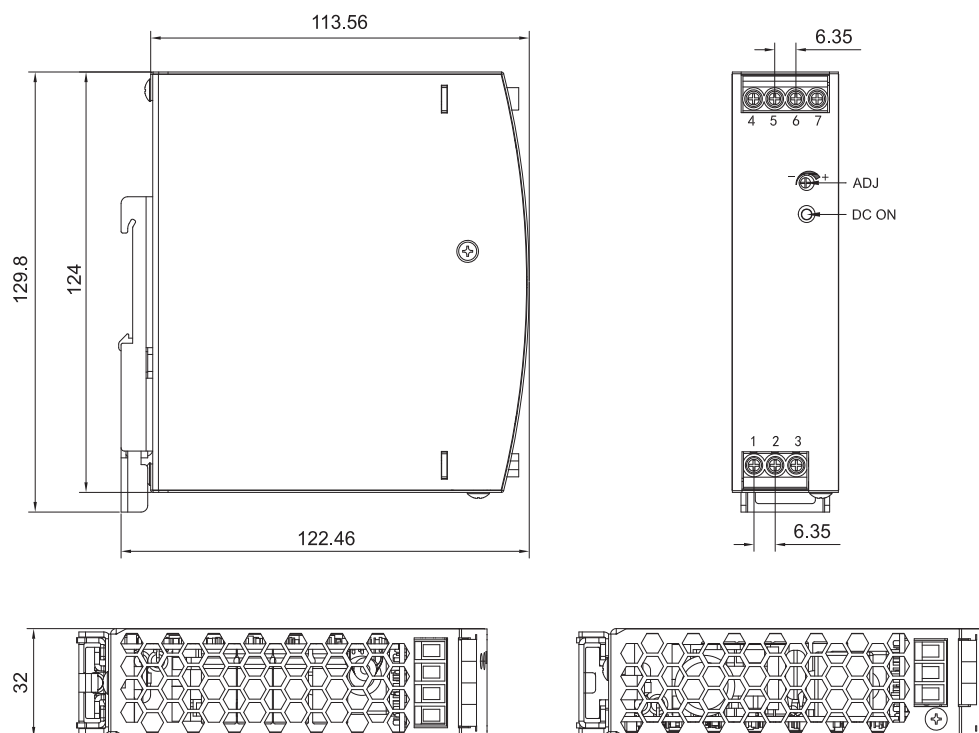
SPDL 75 W

Unit: mm [inch]



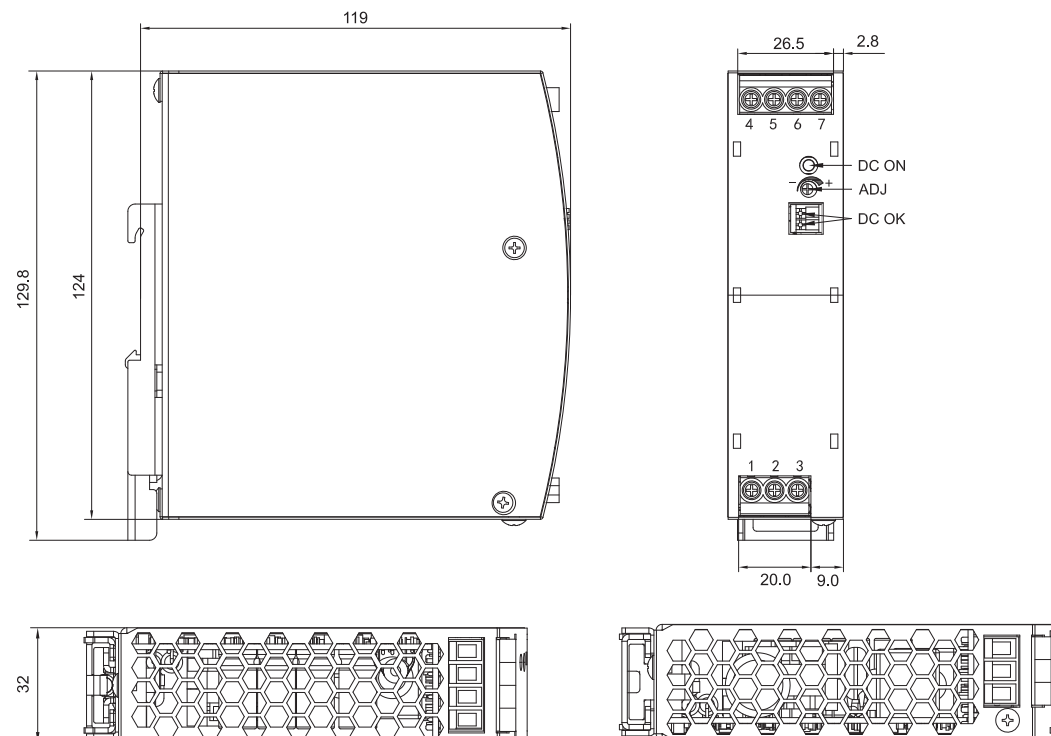
SPDL 120 W

Unit: mm [inch]



SPDL 240 W

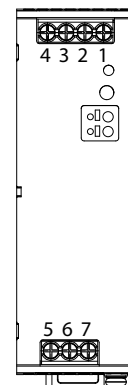
Unit: mm [inch]



Connection diagram

Terminal markings

Terminal	Designation	Description
1	-V _o	Negative output terminal
2	-V _o	Negative output terminal
3	+V _o	Positive output terminal
4	+V _o	Positive output terminal
5	AC(L)	Input terminals (phase conductor, no polarity with DC input)
6	AC(N)	Input terminals (neutral conductor, no polarity with DC input)
7	PE	Ground this terminal to minimize high frequency emissions



Environmental

	15 W	30 W	60 W	75 W	120 W	240 W
Operating temperature	-25°C to 70°C (-13°F to 158°F)			-40°C to 80°C (-40°F to 176°F)		-40°C to 70°C -40°F to 158°F
Storage temperature	-40°C to 85°C (-40°F to 185°F)					
Operating humidity	20 - 90 % RH non-condensing					
Storage humidity	5 - 95 % RH non-condensing					
Operating altitude	5000 m					
Temperature derating	Refer to derating diagram					
Temperature regulation	± 0.03 % / °C					
Ventilation and cooling	Cooling by free air convection					

Compatibility and conformity

	15 W	30 W	60 W	75 W	120 W	240 W
Safety standards	UL62368-1			EN62368-1, UL61010		
Approvals						
Conducted (CS) IEC/EN 61000-4-6	3 Vrms (PC A)					
Voltage dips and interruptions IEC/EN61000-4-11	0% (PC B) 70% (PC B)					
EMC emission EN55022 EN55024 CE: CISPR32/EN55032 RE: CISPR32/EN55032	CLASS B CLASS B			CLASS B CLASS B		
Harmonic current	IEC/EN61000-3-2 CLASS A					
EMC immunity	EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11					

Insulation

	15 W	30 W	60 W	75 W	120 W	240 W
Insulation / withstand voltage (input / GND)	1.5 kVAC / < 10 mA			2.0 kVAC / < 10 mA		
Insulation / withstand voltage (input / output)	3.0 kVAC / < 10 mA					
Insulation / withstand voltage (output / GND)	0.5 kVAC / < 10 mA					
Output / DC OK*	30 VDC / 1 A max. or 60 VDC / 0.3 A max. or 30 VAC / 0.3 A max. (resistive load)					
Insulation resistance	> 10 MΩ			>100MΩ		
Overvoltage category	II					
Pollution degree	2					

*Applies only to SPDL 240W

Inputs

	15 W	30 W	60 W	75 W	120 W	240 W
Rated input voltage	100 VDC to 240 VDC					
Input voltage range	90 VAC - 264 VAC (264 VAC max.)					85 VAC - 264 VAC (264 VAC max.)
	127 VDC - 370 VDC (370 VDC max.)			120 VDC - 370 VDC (370 VDC max.)		
AC current (max.) 115 VAC 230 VAC	< 0.5 A	< 0.8 A	< 1.6 A	< 1.45 A < 0.9 A	< 2.25 A < 1.3 A	< 3.0 A < 1.5 A
Frequency range	47 Hz to 63 Hz					
Inrush current 115 VAC 230 VAC	Cold start - 50 A	Cold start - 65 A (12 V) 50 A (24 V)	Cold start 28 A 55 A			Cold start 15 A 30

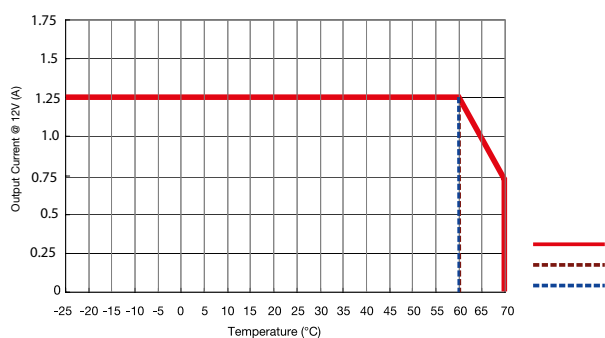
Outputs

	15 W	30 W	60 W	75 W	120 W	240 W
Output power	15 W	30 W	60 W	75 W	120 W	240 W
Peal power						360 W (3 S)
Voltage accuracy	±1.0 %					
Line regulation	±0.5 %			±0.3 %		±0.5 %
Load regulation	±1.0 %			±0.5 %		±1.0 %
Voltage regulation span 12 VDC 24 VDC	12 V to 14 V 24 V to 28 V		12 V to 14 V 24 V to 28 V		24 V to 28 V	
Rated output current 12 VDC 24 VDC	1.25 A 0.65 A	2.5 A 1.25 A	5 A 2.5 A	6.3 A 3.2 A	5 A	10 A
Ripple and noise 12 VDC 24 VDC	≤ 120 mV ≤ 120 mV	≤ 100 mV ≤ 70 mV	≤ 60 mV ≤ 50 mV	≤ 100 mV ≤ 100 mV	≤ 120 mV	≤ 100 mV
Hold up time 115 Vac 230 Vac	- ≤ 20 ms			10 ms 25 ms	≤ 10 ms ≤ 25 ms	≤ 20 ms
Set-up time 115 Vac 230 Vac	- ≤ 1.5 s			2.5 s 1.2 s	≤ 2.5 s ≤ 1.2 s	≤ 3.0 s ≤ 1.5 s
Turn-on overshoot	< 5.0 %					
Mounting space	No requirement for the installation distance					

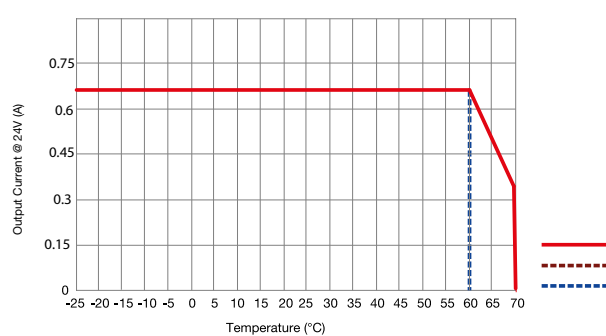
Performance

Current derating

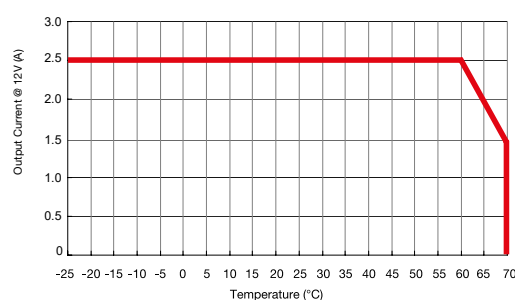
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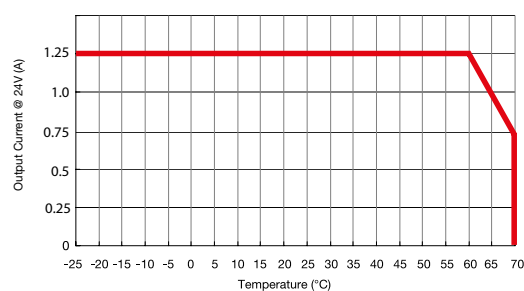
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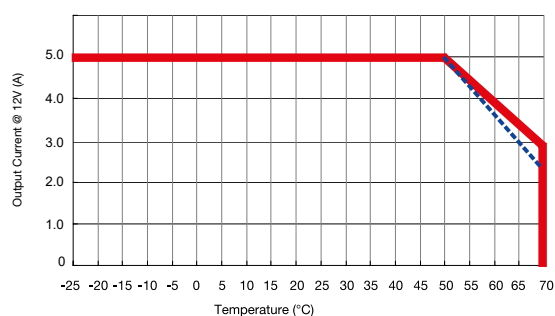
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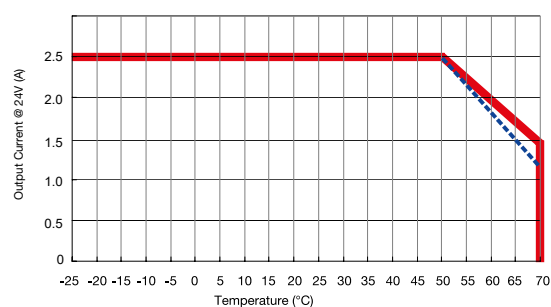
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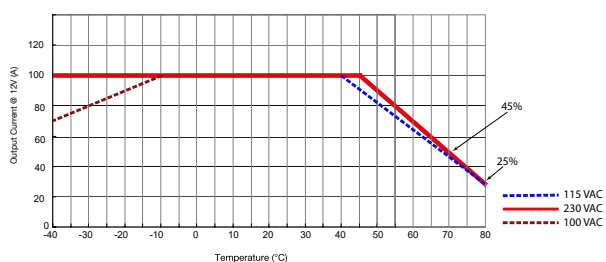
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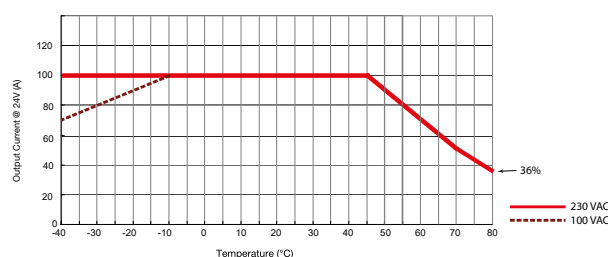
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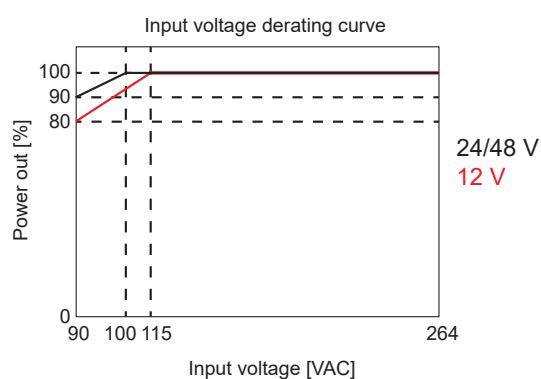
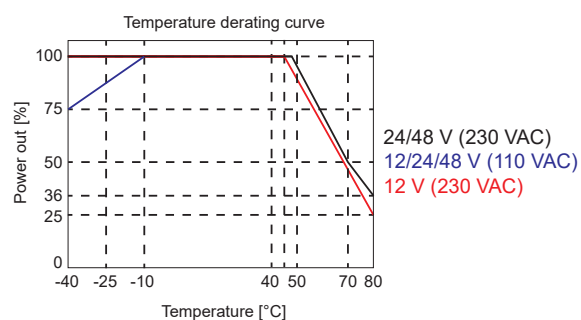
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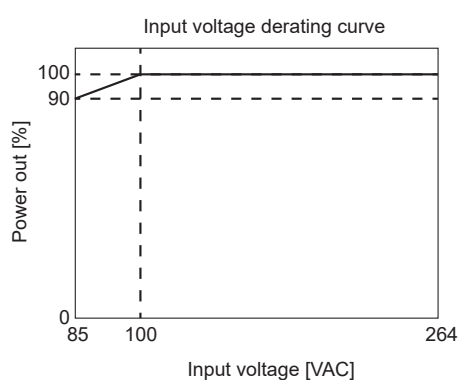
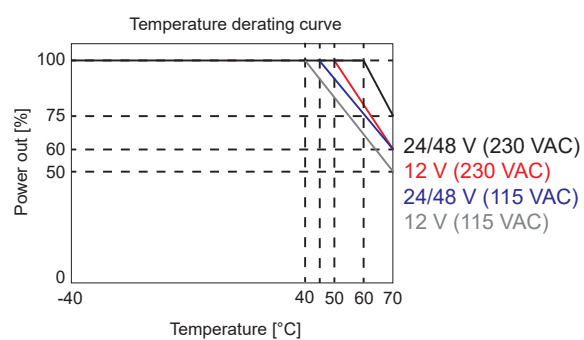
SPDL24751



SPDL241201



SPDL242401R



Installation

Ventilation and Cooling

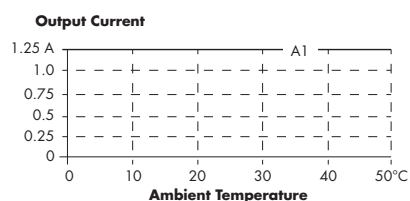
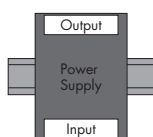
Normal air convection; 25 mm of free space on each side is recommended

Mounting method instruction

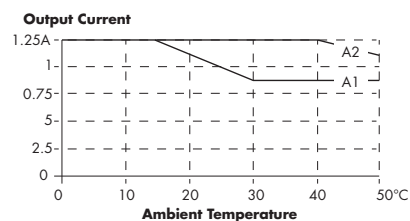
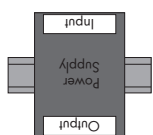
A1 is recommended output current, A2 is the allowed max output current (PSU lifetime is around half of A1)

SPDL12151

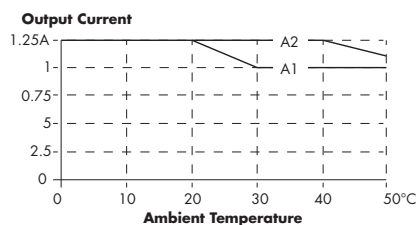
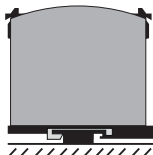
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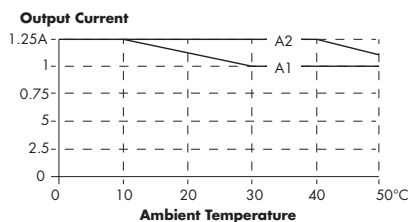
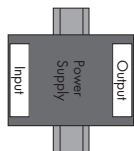
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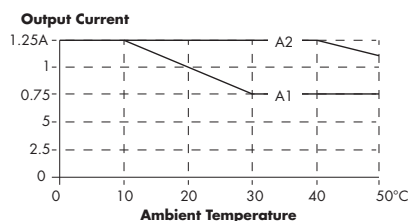
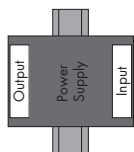
Mounting C



Mounting D

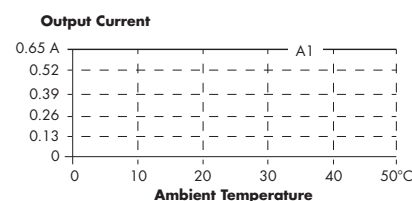
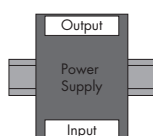


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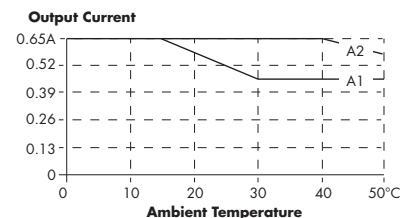
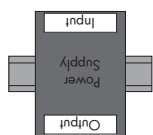


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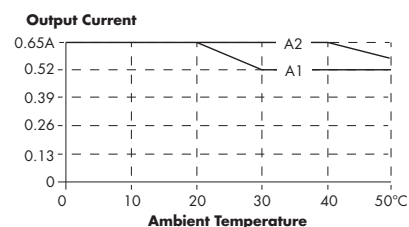
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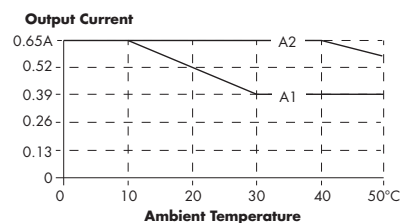
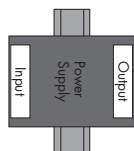
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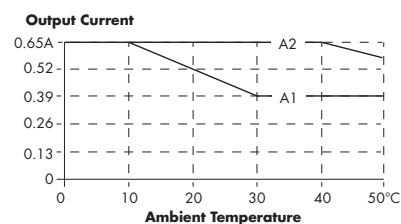
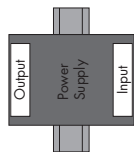
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Mounting D

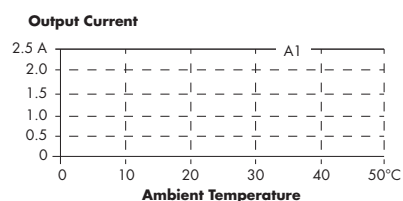
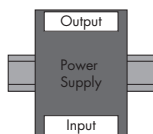


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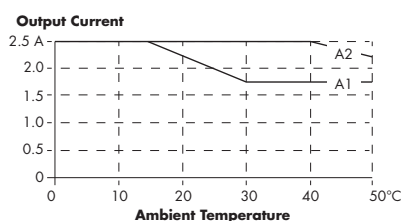
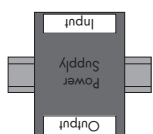


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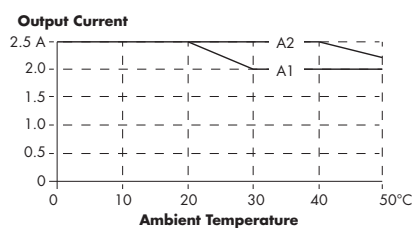
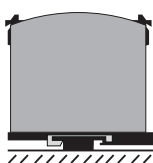
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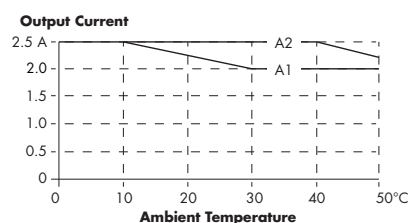
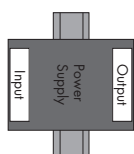
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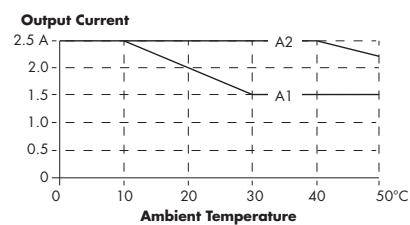
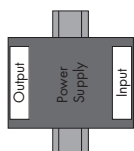
Mounting C



Mounting D

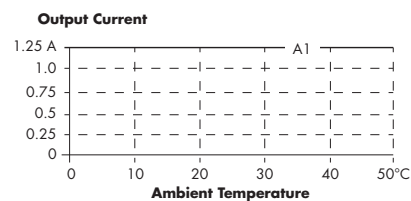
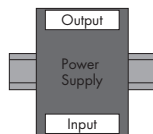


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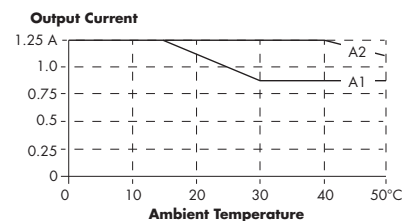
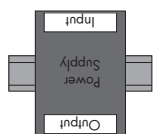


SPDL24301

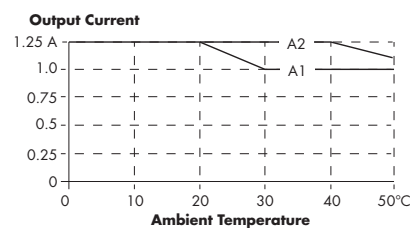
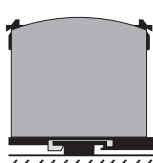
Mounting A



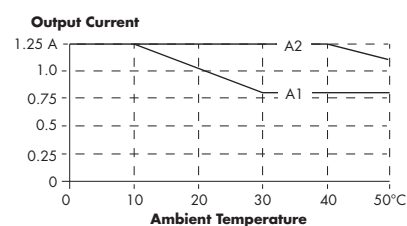
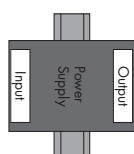
Mounting B



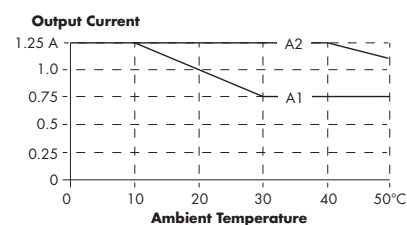
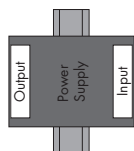
Mounting C



Mounting D

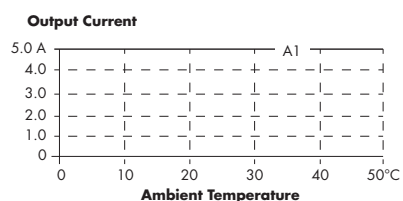
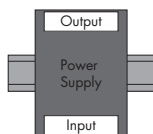


Mounting E

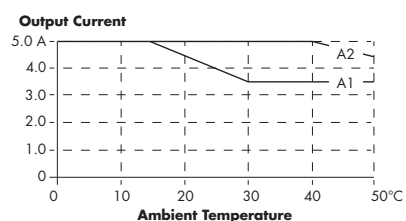
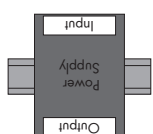


SPDL12601

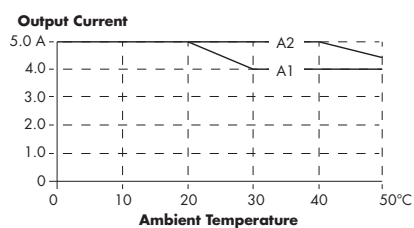
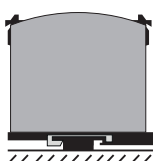
Mounting A



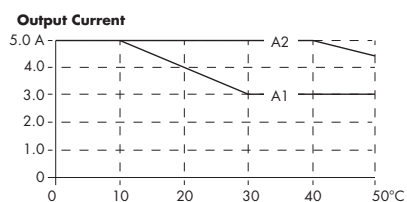
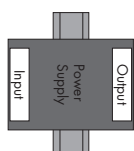
Mounting B



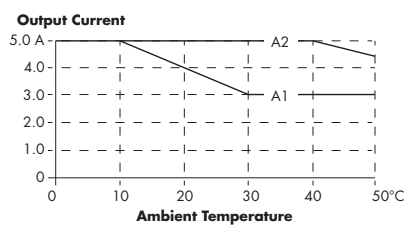
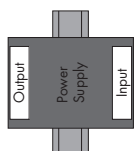
Mounting C



Mounting D

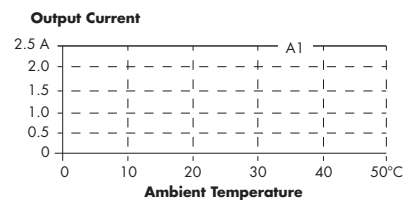
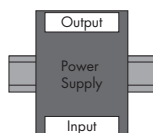


Mounting E

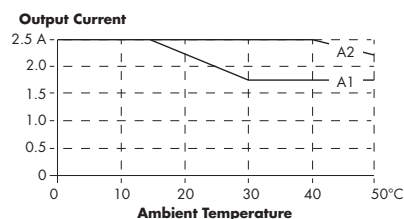
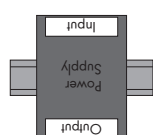


SPDL24601

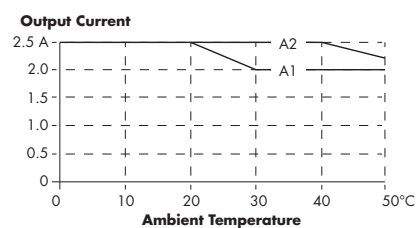
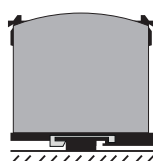
Mounting A



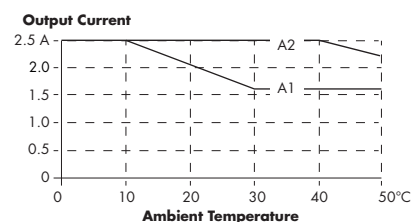
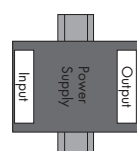
Mounting B



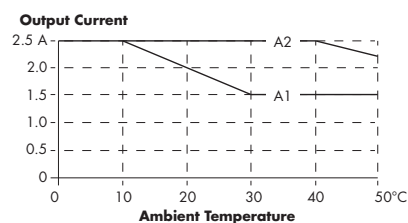
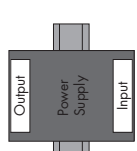
Mounting C



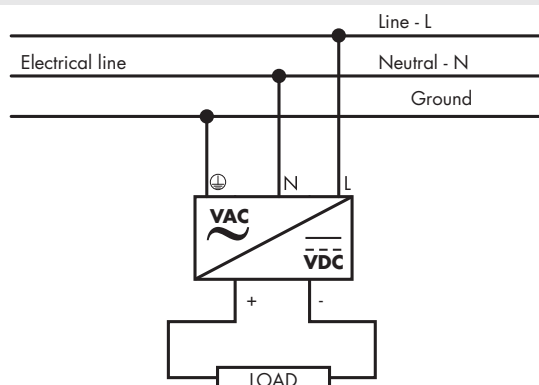
Mounting D



Mounting E



Wiring diagram

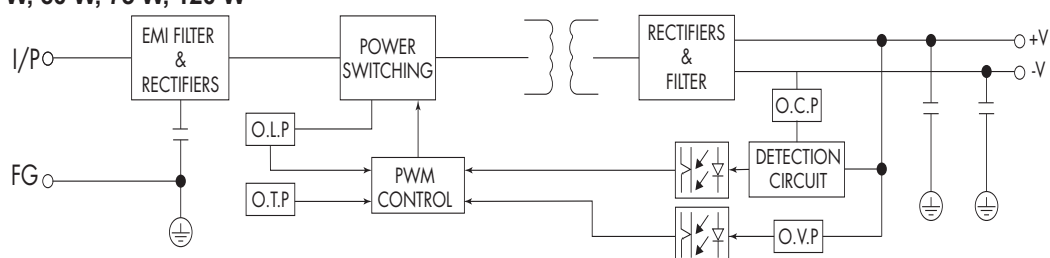


Connection specification

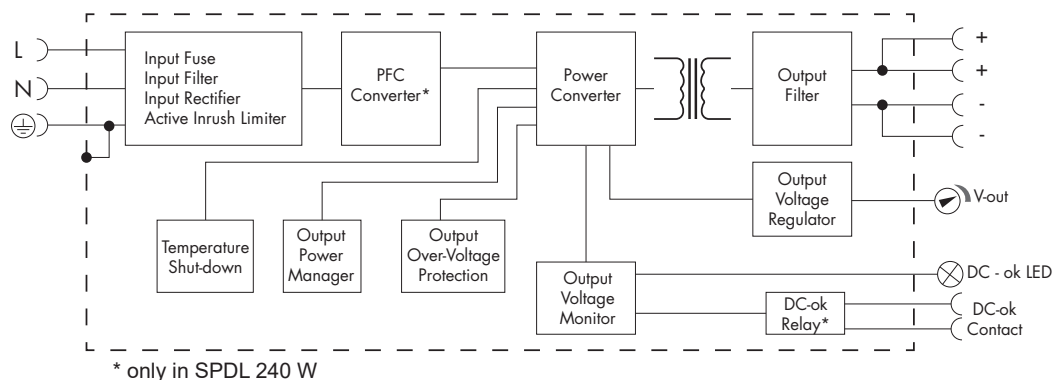
	15 W	30 W	60 W	75 W	120 W	240 W
Terminal type	Screw terminals blocks				Screw terminals with Phillips screw head	
Screw driver blade	3.5 mm Straight screwdriver				3.5 mm slotted or Phillips	
Tightening torque	0.5 Nm					
Conductor cross section (input terminals)	0.32 - 2.5 mm² (26 - 12 AWG)				0.14 - 6 mm² (26 - 10 AWG)	0.14 - 6 mm² (26 - 10 AWG)
Conductor cross section (PE connection)						4 - 6 mm² (12 - 10 AWG)
Conductor cross section (output terminals)					1.5 - 6 mm² (16 - 10 AWG)	4 - 6 mm² (12 - 10 AWG)
DC OK relay output					-	0.25 - 1.5 mm² (24 - 16 AWG)

Block diagram

15 W, 30 W, 60 W, 75 W, 120 W



240 W



Operating description

Control and protection						
	15 W	30 W	60 W	75 W	120 W	240 W
Overvoltage 12 VDC 24 VDC	15 VDC - 16.8 VDC 28.8 VDC - 31.2 VDC		15.4 VDC - 18 VDC 28.8 VDC - 31.2 VDC	14.5 VDC - 17 VDC 29 VDC - 33 VDC	- 29 VDC - 33 VDC	
	Constant voltage, auto recovery			Shut down Re-power ON	Shut down o/p voltage, re-power on to recover	Shut down o/p voltage, auto recovery
Overload 12 VDC 24 VDC	1.5 - 2.0 A 0.7 - 1.0 A	3.0 - 4.0 A 1.5 - 2.5 A	6.0 - 7.5 A 3.0 - 4.0 A	105 - 150% of rated output power	105 - 150% Io, self-recovery	110% - 200% Io, hiccup, self-recovery
	Hiccup mode, auto recovery					
Short circuit	Long-term mode, auto recovery					
Overtem-perature	No protection			Shut down o/p voltage, re-power on to recover		Self-recovery



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