

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 both 120 W and 240 W, with 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 from -40°C to +70°C (-40°F to +158°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

 **SPDL24** 1



Enter the code entering the corresponding option instead of .

Code	Option	Description	Notes
S	-	Switching	Device typology
P	-	Power	
D	-	DIN rail	Mounting
L	-	Light	
24	-	24 VDC	Rated output voltage
<input type="checkbox"/>	120	120 W	Rated output power
	240	240 W	
1	-	Single phase input	Input type
<input type="checkbox"/>	-	-	
	R	Relay output	

Selection guide

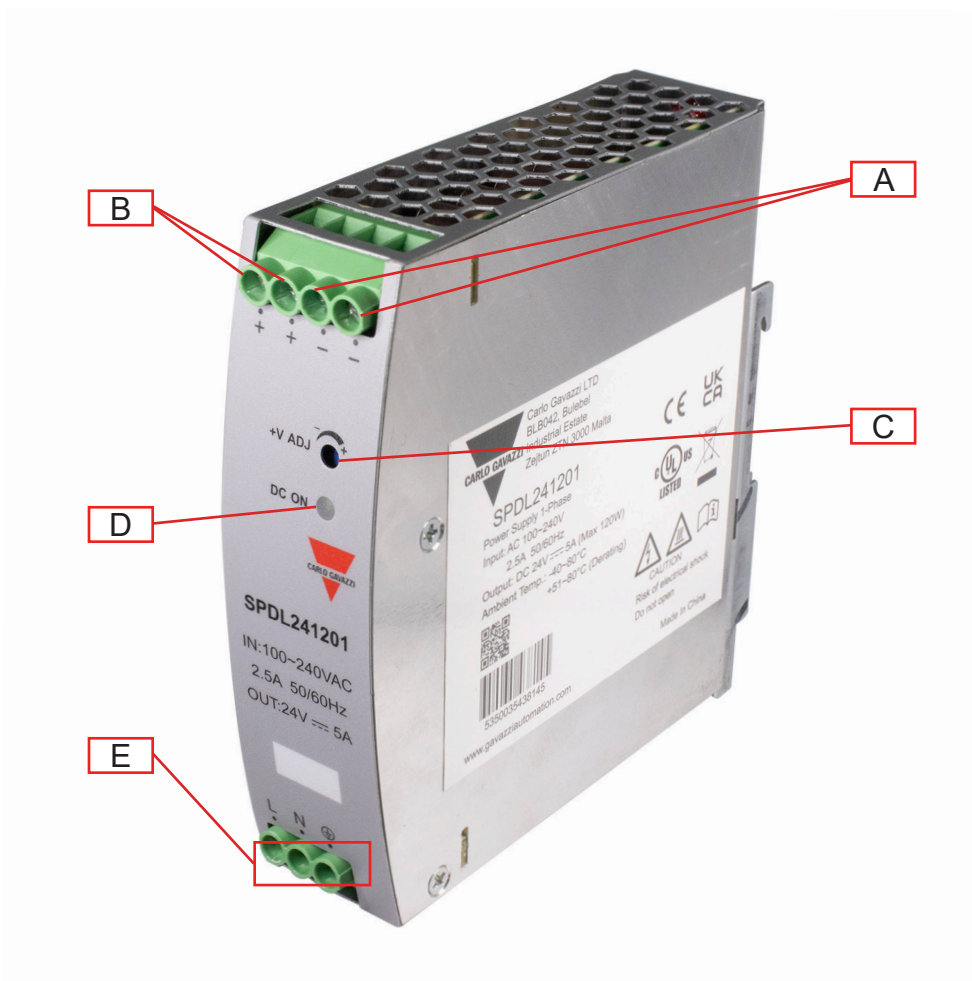
Output Voltage	Output power	
	120 W	240 W
24 VDC	SPDL241201	SPDL242401R

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	

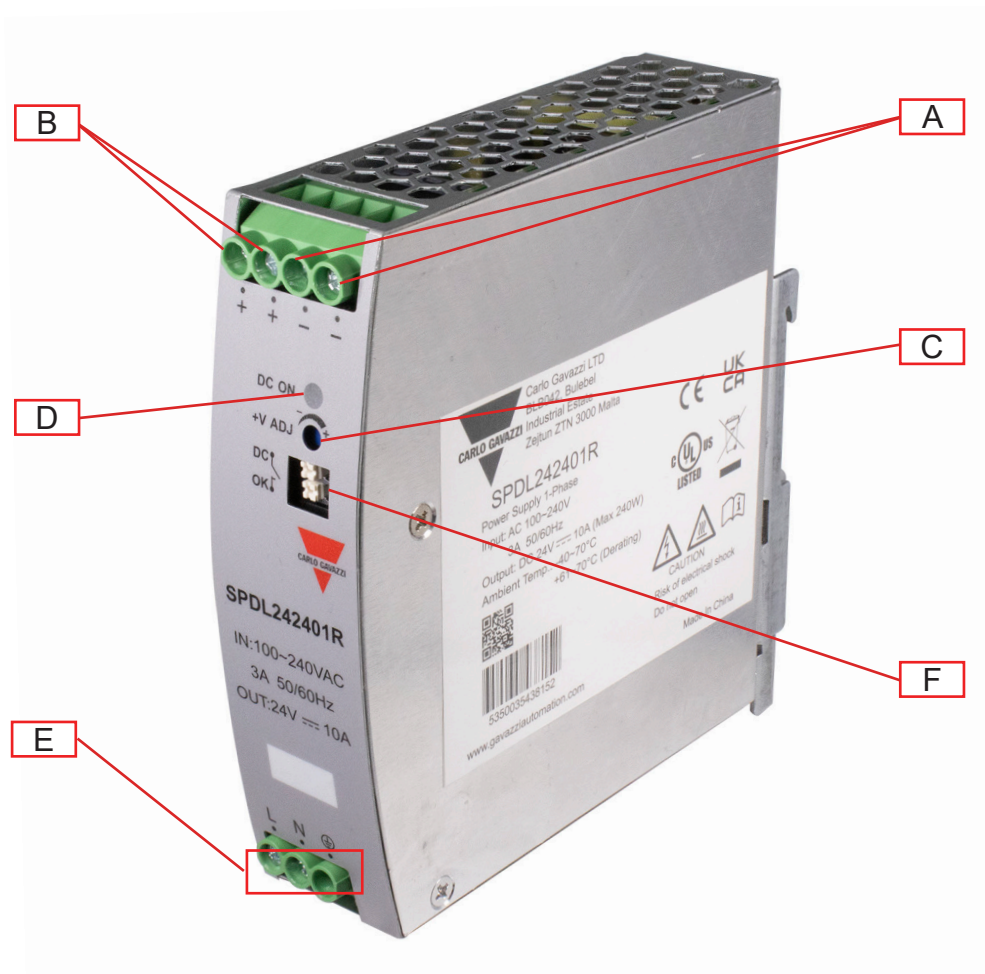
Structure

SPDL 120 W



Element	Component	Function
A	- V terminals	Negative DC Output terminals
B	+ V terminals	Positive DC Output terminals
C	VADJ trimmer	Green when output voltage is active
D	DC OK LED	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	VADJ trimmer	Green when output voltage is active
D	DC OK LED	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.

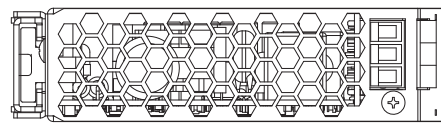
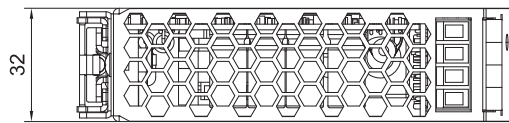
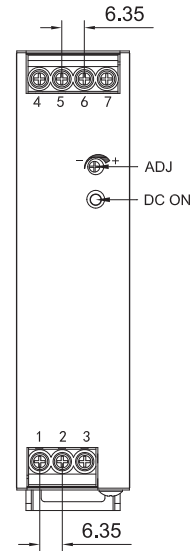
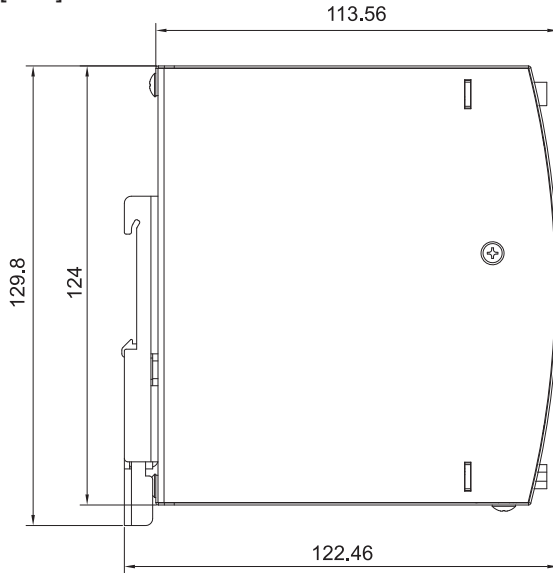
Features

▶ General data

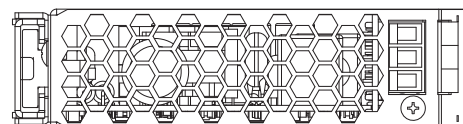
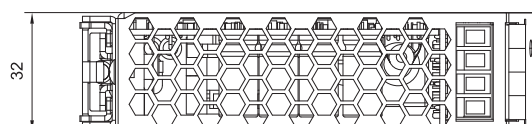
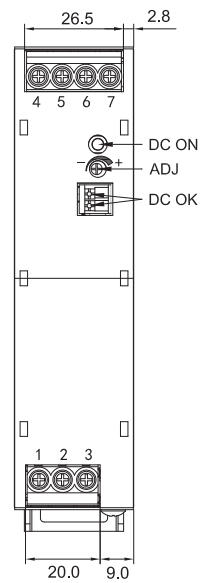
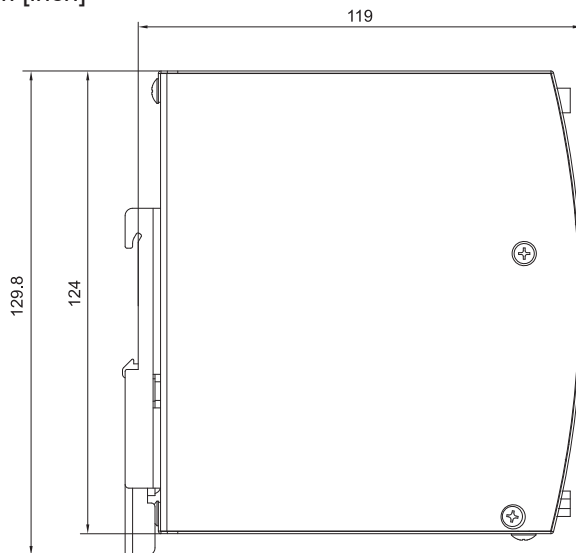
		120 W	240 W
Leakage current		< 1.0 mA (240 VAC, 63 Hz)	I/O: < 0.25 mA I/PE: < 3.5 mA (264 VAC / 63 Hz)
Efficiency @ 230 VAC		88.5 %	95 %
Power loss @ nominal load	115 VAC	-	>0.98
	230 VAC		>0.95
Ingress protection		IP20	
MTBF (MIL-HDBK-217F)		>200,000 h	≥300,000 h
Case material		Metal	
Weight		380 g	540 g
Mounting		DIN rail	

Dimensions

SPDL 120 W
Unit: mm [inch]



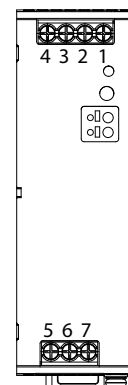
SPDL 240 W
Unit: mm [inch]



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

	120 W	240 W
Operating temperature	-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	10 - 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

	120 W	240 W
Safety standards	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 CE: CISPR32/EN55032 RE: CISPR32/EN55032	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

	120 W	240 W
Insulation / withstand voltage (input / GND)	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	0.5 kVAC / < 20 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	≥ 100 MΩ	
Overvoltage category	II	
Pollution degree	2	

* applies to SPDL 240 W only



Inputs

	120 W	240 W
Rated input voltage	100 VAC to 240 VAC	
Input voltage range	90 VAC to 264 VAC (264 VAC max.)	85 VAC to 264 VAC (264 VAC max.)
	120 VDC to 370 VDC (370 VDC max.)	
AC current (max.)		
115 VAC 230 VAC	< 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 28 A 55 A	Cold start 15 A 30 A

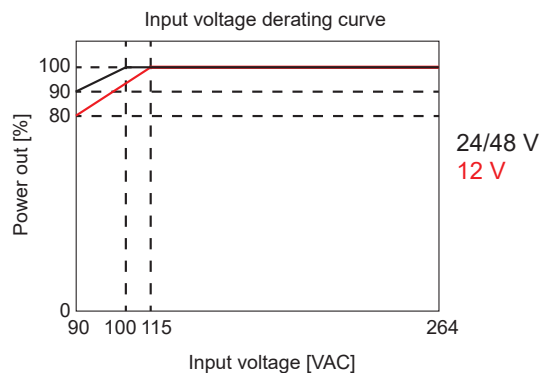
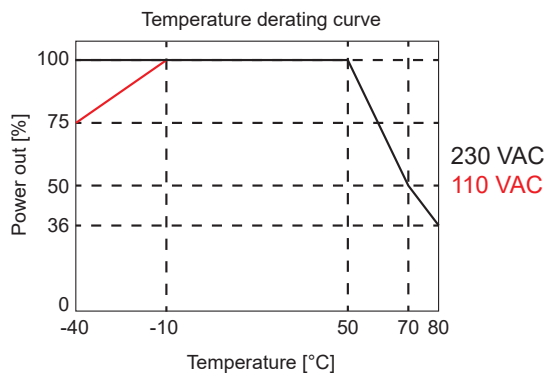
Outputs

	120 W	240 W
Output power	120 W	240 W
Peak power	-	360 W (3 s)
Voltage accuracy	±1.0 %	
Line regulation	±0.3 %	±0.5 %
Load regulation	±0.5 %	±1.0 %
Voltage regulation span	24 V to 28 V	
Rated output current	5 A	10 A
Ripple and noise 20 MHz bandwidth	≤120 mV	≤100 mV
Hold up time	≤ 10 ms (115 VAC) ≤ 25 ms (230 VAC)	≤ 20 ms
Set-up time	≤ 2.5 s (115 VAC) ≤ 1.2 s (230 VAC)	≤ 3.0 s (115 VAC) ≤ 1.5 s (230 VAC)
Turn-on overshoot	< 5 %	
Mounting space	No requirement for the installation distance	

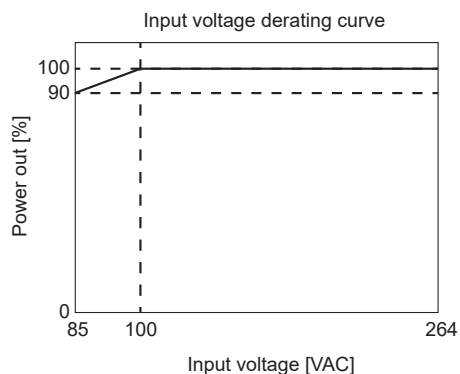
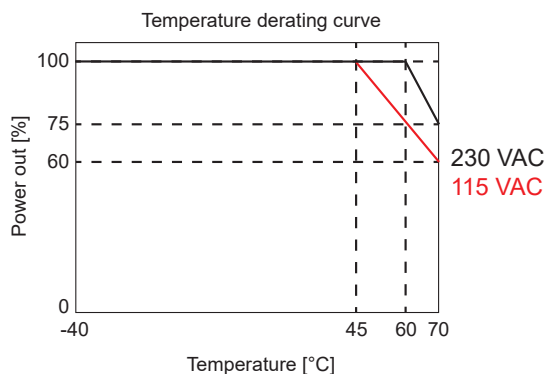
Performance

▶ Current derating

SPDL 120 W



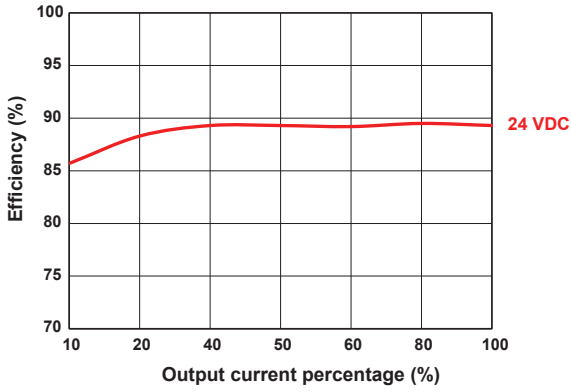
SPDL 240 W



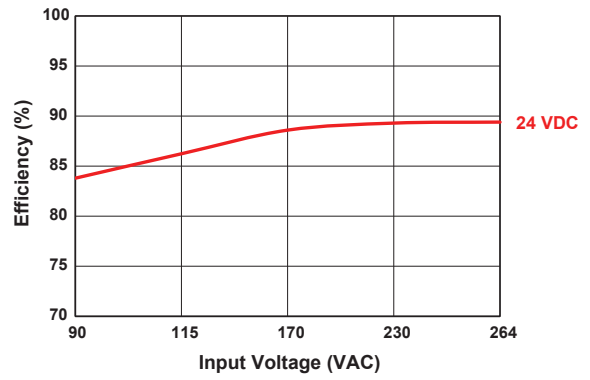
Efficiency

SPDL 120 W

Efficiency vs. Output Load (230 VAC)

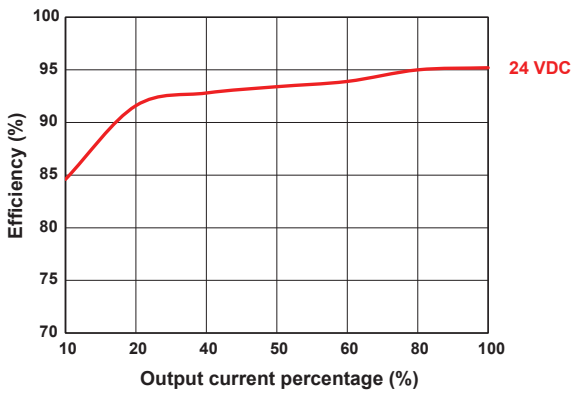


Efficiency vs. Input Voltage (Full load)

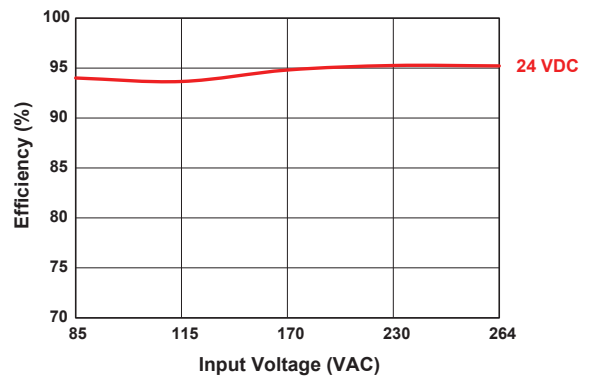


SPDL 240 W

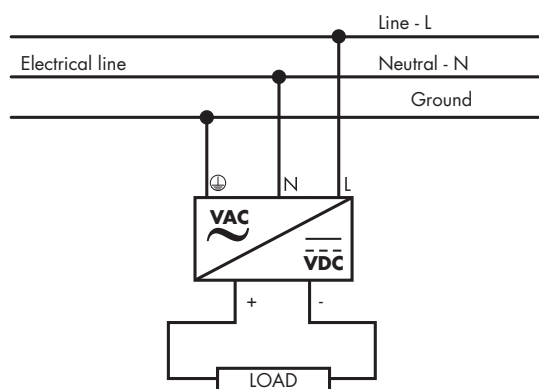
Efficiency vs. Output Load (230 VAC)



Efficiency vs. Input Voltage (Full load)



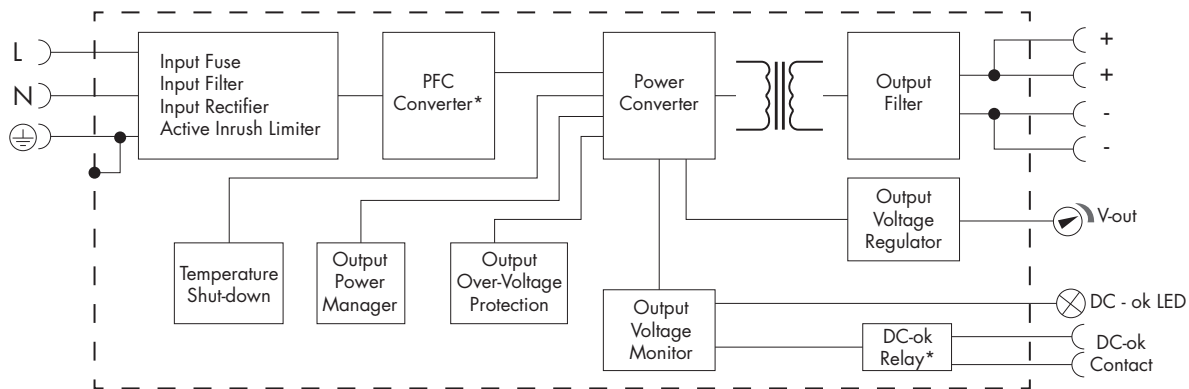
Wiring diagram



Connection specification

	120 W	240 W
Terminal type	Screw terminals with Phillips screw head	
Screw driver blade	3.5 mm slotted or Phillips	
Tightening torque (recommended)	0.5 Nm	
Conductor cross section (input terminals)	0.14 - 6 mm ² (26 - 10 AWG)	0.14 - 6 mm ² (26 - 10 AWG)
Conductor cross section (PE connection)		4 - 6 mm ² (12 - 10 AWG)
Conductor cross section (output terminals)	1.5 - 6 mm ² (16 - 10 AWG)	4 - 6 mm ² (12 - 10 AWG)
DC OK relay output	-	0.25 - 1.5 mm ² (24 - 16 AWG)

Block diagram



* only in SPDL 240 W

Operating description

Control and protection

	120 W	240 W
Overvoltage protection	29 VDC - 33 VDC (24 VDC)	29 VDC - 33 VDC (24 VDC)
	Output voltage turn off, self-recovery after fault elimination	
Overcurrent protection	110-300% I _o , self-recovery	110% - 200% I _o , hiccup, self-recovery
Short circuit protection	Hiccup, continuous, self-recovery	
	Recovery time < 5 s, after the short circuit disappear	Recovery time < 3 s, after the short circuit disappear
Overtemperature protection	Shut down o/p voltage, re-power on to recover	