Switching Power Supply
Type SPD 480W
DIN rail mounting

- **Universal AC single phase input full range**
- **Installation on DIN rail 7.5 or 15mm**
- **PFC as standard**
- **High efficiency up to 90%**
- **Power ready output**
- **Parallel connection feature**
- **Compact dimensions**
- **UL, cUL listed and TUV/CE approved**

Product Description

The Switching power supplies SPD series are specially designed to be used in all automation application where the installation is on a DIN rail and compact dimensions and performance are a must.

Ordering Key

SP D 24 480 1 B

- **Model**
- **Mounting (D = Din rail)**
- **Output voltage**
- **Output power**
- **Input Type**
- **Optional features**

Input type: 1= single phase

Approvals

Optional Features

Description	code
Plug-in connectors	B

Output performances

Model	Output Current (A)	Voltage Trim Range[1] Min. VDC	Voltage Trim Range[1] Max. VDC	DC OK @ Start up (VDC) Min.	DC OK @ Start up (VDC) Max.	Dc low after start up (VDC) Min.	Dc low after start up (VDC) Max.	Typical Efficiency
SPD24	**20**	**22.5**	**28.5**	**17.6**	**19.4**	**17.6**	**19.4**	**89%**
SPD48	**10**	**47.0**	**56.0**	**37.0**	**40.0**	**37.0**	**40.0**	**90%**

[1] When S/P switch is set to parallel, it is not possible to trim output voltage.

Output data

Line regulation	± 0.5%
Load regulation	
Non parallel mode	± 0.5%
Parallel mode	± 5%
Ouput Voltage accuracy	+1% (factory adjusted)
Ripple and Noise	100mV

Temperature Coefficient	+0,02% / °C
Hold up time Vi = 230Vac	30ms
Minimum load	0%
Parallel Operation (only with S/P switch on "P" position)	3 units max.

Input data

Rated input voltage	115/264VAC	**Frequency range**	47- 63 Hz
Voltage range		**Inrush current**	
AC in	90 - 264 Vac	Vi= 115Vac	25A
DC in	120 - 370 Vdc	Vi= 230Vac	50A
Rated input current (115/230)	7 / 3.5A	**P.F.C. Vi= 230Vac, Ionom.**	0.99

Controls and Protections

Input Fuse	T10A/250Vac internal*	**Power ready output** (only SPD 24)	
Overvoltage Protection SPD24	30 – 33VDC	Threshold voltages	17.6 - 19.4 VDC
SPD48	57 – 63VDC	Contact rating at 60Vdc	0.3A
Output Short Circuit	Current limit	insulation	500Vdc
Rated Overload Protection	120-140%		

* Not replaceable by user.

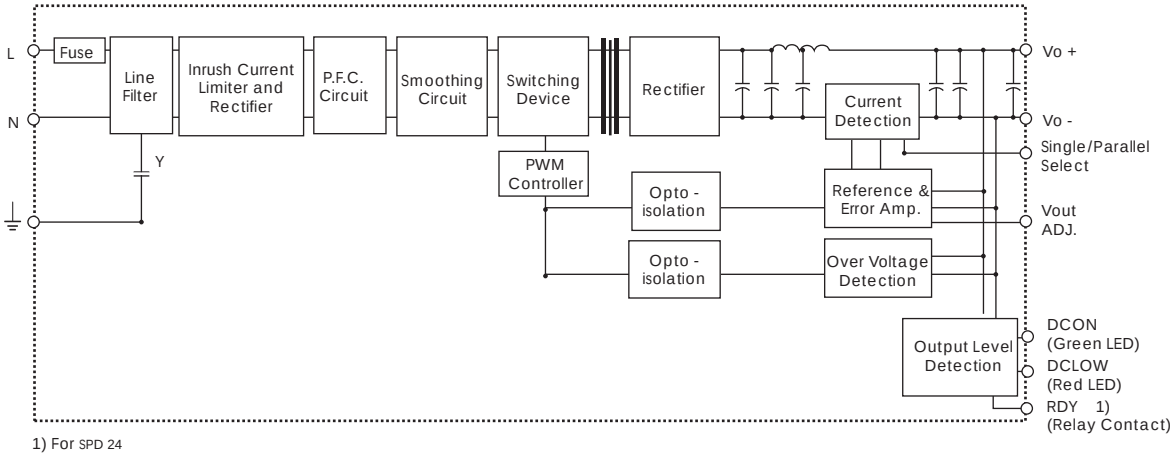
General data (@ nominal line, full load, 25°C)

Ambient temperature	-25°C to 71°C	**Cooling**	Free air convection
Derating (>56°C to +71°C)	2.5%/°C	**MTBF (MIL-HDBK-217F)**	n.a.
Ambient humidity	20 - 95%RH	**Case material**	Metal (powder painted aluminium)
Storage	-25°C to +85°C	**Weight**	1920g
Dimensions L x W x D		**Protection degree**	IP20
Screw terminal type	125 x 175 x 123		
Plug in connectors	142 x 175 x 123		

Approvals and EMC

Insulation voltage I/O	3.000Vac	**CE**	EN61000-6-3 EN55022 class B EN61000-3-2 EN61000-3-3 EN61000-6-2 EN55024
Insulation resistance I/O @ 500VDC	100Mohm		
UL / cUL	UL508 listed, UL60950-1, Recognised		
TUV	EN60950-1		

Block diagrams



1) For SPD 24

Pin assignement and front controls

Pin No.	Designation	Description
1	RDY (only SPD 24)	DC OK, relay normally open contact
2	RDY (only SPD 24)	DC OK, relay normally open contact
3	+	Positive output terminal
4	+	Positive output terminal
5	-	Negative output terminal
6	-	Negative output terminal
7	GND	Ground terminal to minimise High frequency emissions
8	L	Phase input (no polarity with DC input)
9	N	Neutral input (no polarity with DC input)
	DC ON	DC output ready LED
	DC LO	DC low indicator LED
	Vout ADJ.	Trimmer for fine output voltage adjustment
	S/P	Single parallel selection switch

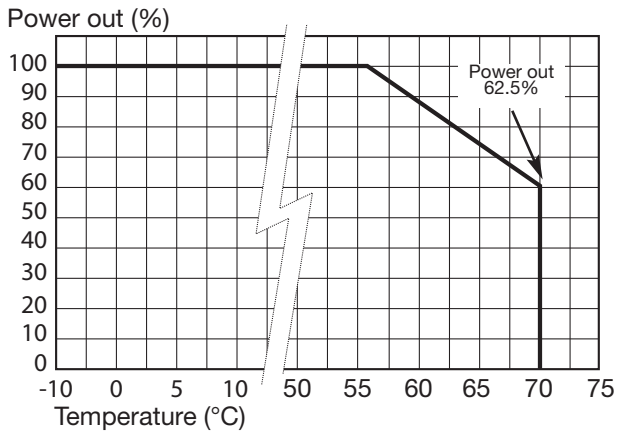
Installation

VENTILATION / COOLING:
- **Normal air convection**
- **25mm of free space along all sides to allow good cooling**

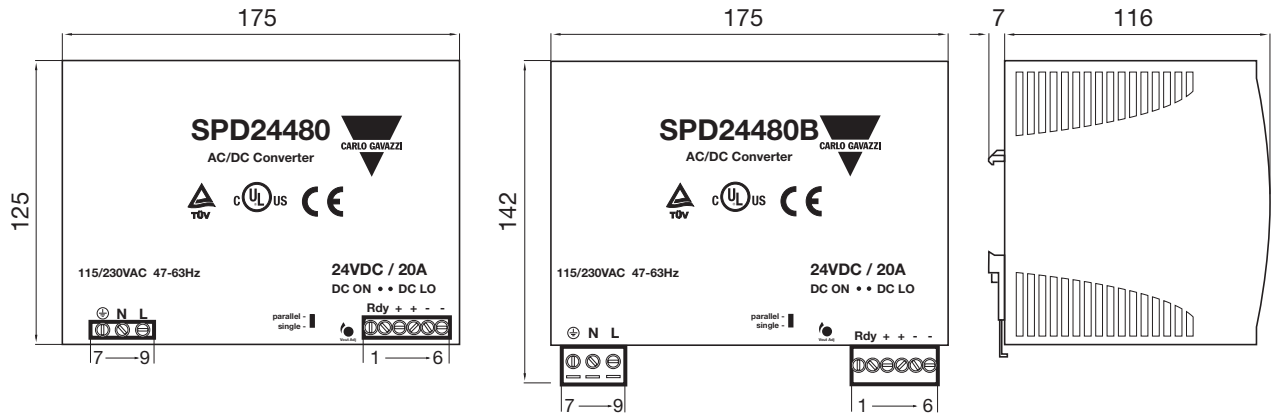
SCREW CONNECTIONS:
- **10-24AWG Flexible or solid cable. 8mm stripping recommended**

PLUG IN CONNECTORS:
- **10-24AWG Flexible or solid cable. 7mm stripping recommended**

Derating Diagram

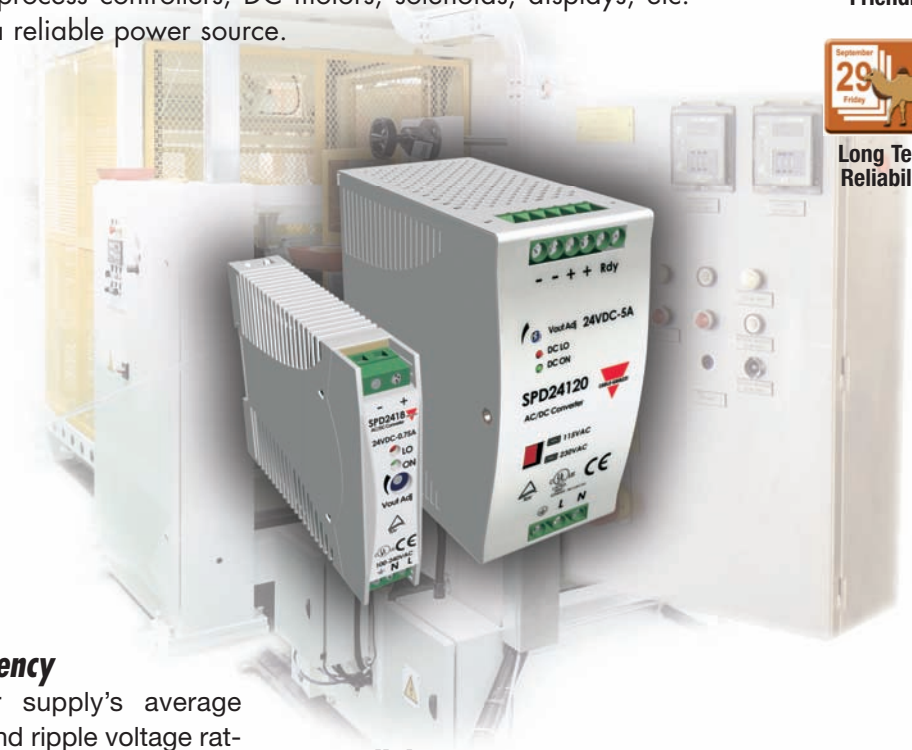


Mechanical Drawings



SPD Switching Power Supplies

CARLO GAVAZZI presents a new range of power supplies especially designed for the automation market. The wide range of supply voltages and DC output voltages/power provide a multitude of choices for all low power electrical or electronic devices commonly used in automatic machinery. Components such as sensors, electromechanical relays, contactors, solid state relays, timers, temperature controllers, PLCs, process controllers, DC motors, solenoids, displays, etc. now have a reliable power source.




Space Optimization


Diagnostic Warning


User Friendly


Minimizing Energy Cost

Long Term Reliability


Long Term Reliability

High Efficiency

The power supply's average efficiency and ripple voltage ratings are comparable or better than most power supplies on the market.

Product Range

	5V	12V	15V	24V	48V
SPD 5-10-18W	■	■	■	■	
SPD 30-60W	■	■		■	■
SPD 120W		■		■	■
SPD 240-480W				■	■

Adjustable Output

All models provide a front potentiometer in order to adjust the output voltage. This useful feature can provide a voltage surplus when line voltage losses cause low voltages to the load.

Parallel Connection

Parallel connection is a standard feature with the 240W and 480W versions, and optional on the 120W version.

Visual and Electrical Indications

Models up to 18W are equipped with two front LEDs, which provide a visual indication of the 'Power Out' enabled and 'Low Voltage' on the output. All other sizes are equipped with an LED indication and also with an output 'Power Ready' signal. This signal could be used by other electronic devices or to power an alarm (this feature is only available on 24VDC output versions).

Power Factor Correction (PFC)

The PFC function is a standard feature on the 240W and 480W models and available upon request on the 120W model.

Approvals and Warranty

All SPD Power Supplies are approved according to UL, cUL, TUV and CE safety standards: UL class 2 recognized and Class B for the emissions according to European standards. They are also RoHS compliant. All models feature a Two Year Warranty.

c UL us LISTED · 2 Year Warranty · RoHS COMPLIANT · TÜV · CE

Ventilation Grid

Model Number

Input Terminals
Also available with removable terminals PFC function: built in.

Safety Label
Approval data file numbers EAN cod and traceability data.

DIN Rail Clip
Easy installation on any kind of DIN Rail.

'ON' LED
Indicates power output is OK.

'LO' LED
Indicates output voltage too low.

Vout Adjustment
Allows voltage output voltage adjustment within a small range to the required value.

Output Terminals
Also available with removable terminals

Output Ready Terminals
Useful feature providing an electrical indication of good operation.

PARALLEL or SINGLE FUNCTION SWITCH
On the 240W and 480W versions the parallel/single function switch is a standard feature, on the 120W version it is available as an option. By setting this switch on the 'Parallel' position it is possible to connect up to three power supplies in parallel, in order to increase output power.
Also on the 'Parallel' position, voltage output is fixed and not adjustable in order to prevent unbalanced output voltages. Output '+' and '-' terminals are doubled, on models from 120W, in order to easily facilitate parallel connection.

SPD 480W
- 480W switching power supply
- Metal housing
- Screw terminals or detachable connectors
- Input voltage: 90-264VAC or 120-370VDC (115/230 autoselected)
- Output voltage adjustment
- PFC function standard
- Parallel function standard (selectable by front switch)
- Short circuit, overload and overvoltage protection
- Relay output for power 'Ready' signal (voltage free terminals)
- Operating temperature without derating: –10° to +60°C

Switching Power Supplies

CARLO GAVAZZI

Part Number	Description	Vin *VAC	Vout VDC	Iout A
SPD 05 05 1	Switching Power Supply 5W, DIN Rail	100 - 240	5	1
SPD 05 05 1B	Switching Power Supply 5W, DIN Rail Spring terminals	100 - 240	5	1
SPD 12 05 1	Switching Power Supply 5W, DIN Rail	100 - 240	12	0.42
SPD 12 05 1 B	Switching Power Supply 5W, DIN Rail, Spring terminals	100 - 240	12	0.42
SPD 15 05 1	Switching Power Supply 5W, DIN Rail	100 - 240	15	0.34
SPD 15 05 1 B	Switching Power Supply 5W, DIN Rail, Spring terminals	100 - 240	15	0.34
SPD 24 05 1	Switching Power Supply 5W, DIN Rail	100 - 240	24	0.21
SPD 24 05 1 B	Switching Power Supply 5W, DIN Rail, Spring terminals	100 - 240	24	0.21
SPD 05 10 1	Switching Power Supply 10W, DIN Rail	100 - 240	5	2
SPD 05 10 1 B	Switching Power Supply 10W, DIN Rail, Spring terminals	100 - 240	5	2
SPD 12 10 1	Switching Power Supply 10W, DIN Rail	100 - 240	12	0.84
SPD 12 10 1 B	Switching Power Supply 10W, DIN Rail, Spring terminals	100 - 240	12	0.84
SPD 15 10 1	Switching Power Supply 10W, DIN Rail	100 - 240	15	0.67
SPD 15 10 1 B	Switching Power Supply 10W, DIN Rail, Spring terminals	100 - 240	15	0.67
SPD 24 10 1	Switching Power Supply 10W, DIN Rail	100 - 240	24	0.42
SPD 24 10 1 B	Switching Power Supply 10W, DIN Rail, Spring terminals	100 - 240	24	0.42
SPD 05 18 1	Switching Power Supply 15W, DIN Rail	100 - 240	5	3
SPD 05 18 1 B	Switching Power Supply 15W, DIN Rail, Spring terminals	100 - 240	5	3
SPD 12 18 1	Switching Power Supply 18W, DIN Rail	100 - 240	12	1.5
SPD 12 18 1 B	Switching Power Supply 18W, DIN Rail, Spring terminals	100 - 240	12	1.5
SPD 15 18 1	Switching Power Supply 18W, DIN Rail	100 - 240	15	1.2
SPD 15 18 1 B	Switching Power Supply 18W, DIN Rail, Spring terminals	100 - 240	15	1.2
SPD 24 18 1	Switching Power Supply 18W, DIN Rail	100 - 240	24	0.75
SPD 24 18 1 B	Switching Power Supply 18W, DIN Rail, Spring terminals	100 - 240	24	0.75
SPD 05 30 1	Switching Power Supply 30W, DIN Rail	100 - 240	5	6
SPD 05 30 1 B	Switching Power Supply 30W, DIN Rail, Spring terminals	100 - 240	5	6
SPD 12 30 1	Switching Power Supply 30W, DIN Rail	100 - 240	12	2.5
SPD 12 30 1 B	Switching Power Supply 30W, DIN Rail, Spring terminals	100 - 240	12	2.5
SPD 24 30 1	Switching Power Supply 30W, DIN Rail,	100 - 240	24	1.25
SPD 24 30 1 B	Switching Power Supply 30W, DIN Rail, Spring terminals	100 - 240	24	1.25
SPD 48 30 1	Switching Power Supply 30W, DIN Rail,	100 - 240	48	0.625
SPD 48 30 1 B	Switching Power Supply 30W, DIN Rail, Spring terminals	100 - 240	48	0.625
SPD 05 60 1	Switching Power Supply 50W, DIN Rail	100 - 240	5	10
SPD 05 60 1 B	Switching Power Supply 50W, DIN Rail, Spring terminals	100 - 240	5	10
SPD 12 60 1	Switching Power Supply 60W, DIN Rail	100 - 240	12	5
SPD 12 60 1 B	Switching Power Supply 60W, DIN Rail, Spring terminals	100 - 240	12	5
SPD 24 60 1	Switching Power Supply 60W, DIN Rail	100 - 240	24	2.5
SPD 24 60 1 B	Switching Power Supply 60W, DIN Rail, Spring terminals	100 - 240	24	2.5
SPD 48 60 1	Switching Power Supply 60W, DIN Rail	100 - 240	48	1.25
SPD 48 60 1 B	Switching Power Supply 60W, DIN Rail, Spring terminals	100 - 240	48	1.25
SPD 12 120 1	Switching Power Supply 120W, DIN Rail	100 - 240	12	10
SP D 12 120 1 F	Switching Power Supply 120W, DIN Rail,	100 - 240 with PFC	12	10
SP D 12 120 1 P	Switching Power Supply 120W, DIN Rail, with Parallel function	100 - 240	12	10
SP D 12 120 1 FP	Switching Power Supply 120W, DIN Rail, with PFC and Parallel function	100 - 240	12	10

Part Number	Description	Vin *VAC	Vout VDC	Iout A
SP D 12 120 1 B	Switching Power Supply 120W, DIN Rail, Removable connectors	100 - 240	12	10
SPD 12 120 1 BF	Switching Power Supply 120W, DIN Rail, Removable connectors and PFC	100 - 240	12	10
SPD 12 120 1 BP	Switching Power Supply 120W, DIN Rail, Removable connectors and Parallel function	100 - 240	12	10
SPD 12 120 1 BFP	Switching Power Supply 120W, DIN Rail, Removable connectors, PFC and Parallel function	100 - 240	12	10
SPD 24 120 1	Switching Power Supply 120W, DIN Rail	100 - 240	24	5
SPD 24 120 1 F	Switching Power Supply 120W, DIN Rail,	100 - 240 with PFC	24	5
SPD 24 120 1 P	Switching Power Supply 120W, DIN Rail, with Parallel function	100 - 240	24	5
SPD 24 120 1 FP	Switching Power Supply 120W, DIN Rail, with PFC and Parallel function	100 - 240	24	5
SPD 24 120 1 B	Switching Power Supply 120W, DIN Rail, Removable connectors	100 - 240	24	5
SPD 24 120 1 BF	Switching Power Supply 120W, DIN Rail, Removable connectors and PFC	100 - 240	24	5
SPD 24 120 1 BP	Switching Power Supply 120W, DIN Rail, Removable connectors and Parallel function	100 - 240	24	5
SPD 24 120 1 BFP	Switching Power Supply 120W, DIN Rail, Removable connectors, PFC and Parallel function	100 - 240	24	5
SPD 48 120 1	Switching Power Supply 120W, DIN Rail	100 - 240	48	2.5
SPD 48 120 1 F	Switching Power Supply 120W, DIN Rail,	100 - 240 with PFC	48	2.5
SPD 48 120 1 P	Switching Power Supply 120W, DIN Rail, with Parallel function	100 - 240	48	2.5
SPD 48 120 1 FP	Switching Power Supply 120W, DIN Rail, with PFC and Parallel function	100 - 240	48	2.5
SPD 48 120 1 B	Switching Power Supply 120W, DIN Rail, Removable connectors	100 - 240	48	2.5
SPD 48 120 1 BF	Switching Power Supply 120W, DIN Rail, Removable connectors and PFC,	100 - 240	48	2.5
SPD 48 120 1 BP	Switching Power Supply 120W, DIN Rail, Removable connectors and Parallel function,	100 - 240	48	2.5
SPD 48 120 1 BFP	Switching Power Supply 120W, DIN Rail, Removable connectors, PFC and Parallel function	100 - 240	48	2.5
SPD 24 240 1	Switching Power Supply 240W, DIN Rail, PFC and Parallel function	100 - 240	24	10
SPD 24 240 1 B	Switching Power Supply 240W, DIN Rail, Removable connectors, PFC and Parallel function	100 - 240	24	10
SPD 48 240 1	Switching Power Supply 240W, DIN Rail, PFC and Parallel function	100 - 240	48	5
SPD 48 240 1 B	Switching Power Supply 240W, DIN Rail, Removable connectors, PFC and Parallel function	100 - 240	48	5
SPD 24 480 1	Switching Power Supply 480W, DIN Rail, PFC and Parallel function	100 - 240	24	20
SPD 24 480 1B	Switching Power Supply 480W, DIN Rail, Removable connector, PFC and Parallel function	100 - 240	24	20
SPD 48 480 1	Switching Power Supply 480W, DIN Rail, PFC and Parallel function	100 - 240	48	10
SPD 48 480 1B	Switching Power Supply 480W, DIN Rail, Removable connector, PFC and Parallel function	100 - 240	48	10

* Approximate AC supply voltage is 100-240VAC. However, they can also be powered by lower and higher AC voltages and also DC Voltages.
See datasheet for more accurate specifications.