

Switching Power Supply Type SPD 240W 3 phases DIN rail mounting

CARLO GAVAZZI



- Universal AC 3 phases 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

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 24 240 3

Model _____
 Mounting (D = Din rail) _____
 Output voltage _____
 Output power _____
 Input Type _____

Input type: 3 = three phase
 (or single phase 400/500VAC³⁾)

Approvals



Output performances

Model	Rated output Voltage (VDC)	Output Power (W)	Output Current (A) ¹⁾	Voltage Trim Range ²⁾		DC OK Threshold at startup (VDC)		DC low LED Threshold after startup (VDC)		Typical Efficiency
				Min. VDC	Max. VDC	Min.	Max.	Min.	Max.	
SPD24	24	240	10 (7.5)	22.5	28.5	17.6	19.4	17.6	19.4	89%
SPD48	48	240	5 (3.75)	47.0	56.0	37.0	43.0	37.0	43.0	90%

¹⁾ When powered with three phases input; with biphasic input value is in the brackets.

²⁾ When S/P switch is set to parallel, it is not possible to trim output voltage.

Output data

Line regulation	± 1%	Temperature Coefficient	+0.02% / °C
Load regulation		Hold up time $V_i = 230VAC$	20ms
Parallel mode	± 5%	Minimum load	0%
Non parallel mode	± 1%	Parallel Operation	2 units max.
Output Voltage accuracy	from 0 to +1% (factory adjusted)	(only with S/P switch on "P" position)	
Ripple and Noise	100mV		

Input data

Rated input voltage	400/500VAC	Frequency range	47- 63 Hz
Voltage range		Inrush current	10A
AC in	340 - 575VAC ³⁾	P.F.C. ($V_i = 500VAC$, I_o nom.)	0.6
DC in	480 - 820VDC		
Rated input current (380/500)	0.85A / 0.7A		

³⁾ Biphasic or triphasic input (biphase can be: L1 L2, L2 L3 or L1 L3).
 Note: when used as biphasic, the maximum output power is 75% of rated power.

Controls and Protections

Input Fuse	2.0A/600VAC internal/phase ⁴⁾	Power ready output (only SPD 24)	
Overvoltage Protection SPD24 SPD48	30 – 33VDC 60 – 68VDC	Threshold voltages Contact rating at 60VDC insulation	17.6 - 19.4VDC 0.3A 500VDC
Output Short Circuit Continous	Current limit	Overtemperature	100 - 110°C (shutdown with auto-restart when temperature is back to normal)
Rated Overload Protection	115 - 135%		

⁴⁾ Not replaceable by user.

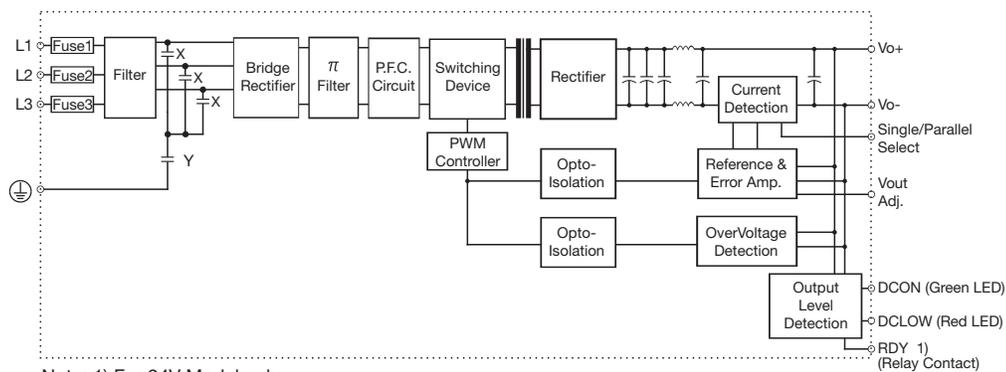
General data (@ nominal line, full load, 25°C)

Ambient temperature	-25°C to 71°C	Cooling	Free air convection
Derating (>61°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 temperature	-25°C to +85°C	Weight	1.1Kg / 38,80oz
Dimensions L x W x D Screw terminal type	123.6 x 89.0 x 110.7 mm 4.87 x 3.50 x 4.36 inches	Protection degree	IP20

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	100MΩ		
UL / cUL	UL508 listed, UL60950-1, Recognized		
TUV	EN60950-1		

Block diagrams



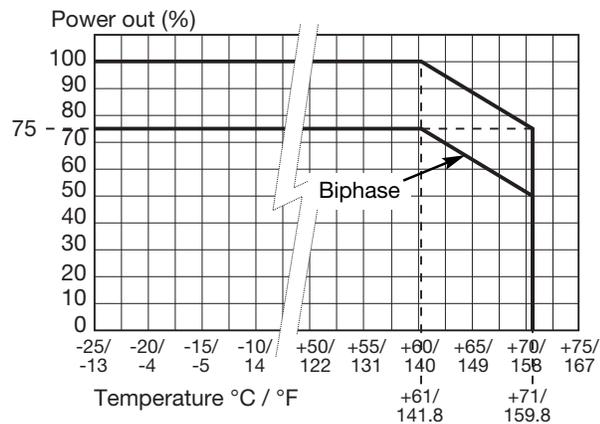
Pin assignment and front controls

Pin No.	Designation	Description
1	V+	Positive output terminal
2	V+	Positive output terminal
3	V-	Negative output terminal
4	V-	Negative output terminal
5	GND	Ground terminal to minimise High frequency emissions
6	L1	Input terminals
7	L2	Input terminals
8	L3	Input terminals
9	RDY	A normal open relay contact for DC ON level control
10	RDY	A normal open relay contact for DC ON level control
	DC ON	DC output ready LED
	DC LO	DC low indicator LED
	Vout ADJ.	Trimmer for fine output voltage adjustment
	S/P	Single / Parallel select switch

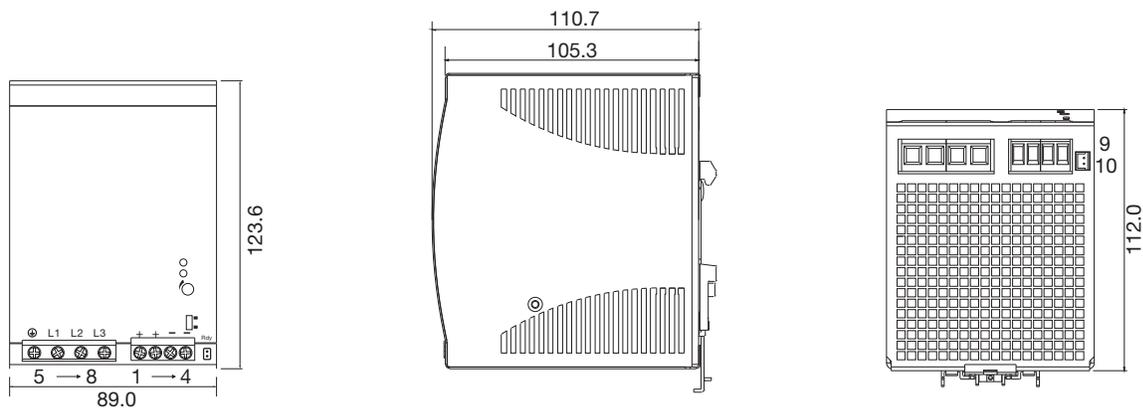
Installation

Ventilation and cooling	Normal convection All sides 25mm free space for cooling is recommended
Screw connections	10-24AWG flexible or solid cable 8mm stripping recommend
Max. torque for screws terminals	
Input terminals	1.008Nm (9.0lb-in)
Output terminals	0.616Nm (5.5lb-in)

Derating Diagram



Mechanical Drawings mm/inches



Sense

Switch

Control

Safety

Fieldbus

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**



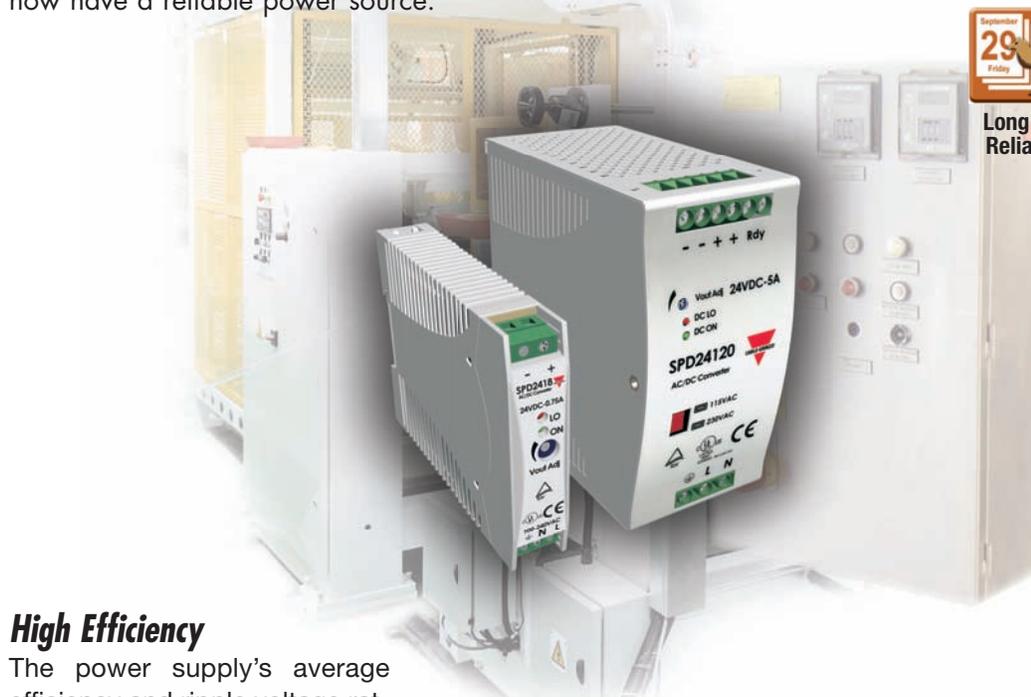
**Minimizing
Energy Cost**



**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.



Specifications are subject to change without notice.

Ventilation Grid

Output Ready Terminals

Useful feature providing an electrical indication of good operation.

Output Terminals

Double terminals for each pole for easy parallel connection or to use smaller conductors.

Single/Parallel Switch

Selection of operation as a single power supply or in parallel with another one.

Vout Adjustment

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

'LO' LED

Indicates output voltage too low.

'ON' LED

Indicates power output is OK.

Model Number

Input Terminals

Also available with removable terminals and/or built in PFC function.



SPD 120W

- 120W Switching Power Supply
- Metal housing
- DIN rail mounting
- Screw terminals or detachable connectors
- Input voltage: 93-264VAC or 210-370VDC (115/230 selectable by switch)
- Available output voltages: 12, 24 and 48VDC
- Output voltage adjustment
- PFC function available on request
- Parallel function available on request (up to three power supplies)
- Short circuit protection and overload protection
- Front indication of Power 'OK' and 'Output Voltage Low'
- Relay output for power 'Ready' signal (voltage free terminals)
- Operating temperature without derating: -10° to +60°C

SPD 240W

- 240W Switching Power Supply
- Metal housing
- DIN rail mounting
- Screw terminals or detachable connectors
- Input voltage 93-264VAC or 210-370VDC (115/230 autoselect)
- Available output voltages 24 and 48VDC
- Output voltage adjustment
- PFC function standard
- Parallel function standard (up to three power supplies) selectable from front panel
- Short circuit protection, overvoltage and overload protection
- Front indication of Power 'OK' and 'Output Voltage Low'
- Relay Output for power 'Ready' signal (voltage free terminals)
- Operating temperature without derating: -10° to +60°C

Switching Power Supplies



Part Number	Description	Vin *VAC	Vout VDC	Iout A
SPD 05 05 I	Switching Power Supply 5W, DIN Rail	100 - 240	5	1
SPD 05 05 IB	Switching Power Supply 5W, DIN Rail Spring terminals	100 - 240	5	1
SPD 12 05 I	Switching Power Supply 5W, DIN Rail	100 - 240	12	0.42
SPD 12 05 I B	Switching Power Supply 5W, DIN Rail, Spring terminals	100 - 240	12	0.42
SPD 15 05 I	Switching Power Supply 5W, DIN Rail	100 - 240	15	0.34
SPD 15 05 I B	Switching Power Supply 5W, DIN Rail, Spring terminals	100 - 240	15	0.34
SPD 24 05 I	Switching Power Supply 5W, DIN Rail	100 - 240	24	0.21
SPD 24 05 I B	Switching Power Supply 5W, DIN Rail, Spring terminals	100 - 240	24	0.21
SPD 05 10 I	Switching Power Supply 10W, DIN Rail	100 - 240	5	2
SPD 05 10 I B	Switching Power Supply 10W, DIN Rail, Spring terminals	100 - 240	5	2
SPD 12 10 I	Switching Power Supply 10W, DIN Rail	100 - 240	12	0.84
SPD 12 10 I B	Switching Power Supply 10W, DIN Rail, Spring terminals	100 - 240	12	0.84
SPD 15 10 I	Switching Power Supply 10W, DIN Rail	100 - 240	15	0.67
SPD 15 10 I B	Switching Power Supply 10W, DIN Rail, Spring terminals	100 - 240	15	0.67
SPD 24 10 I	Switching Power Supply 10W, DIN Rail	100 - 240	24	0.42
SPD 24 10 I B	Switching Power Supply 10W, DIN Rail, Spring terminals	100 - 240	24	0.42
SPD 05 18 I	Switching Power Supply 15W, DIN Rail	100 - 240	5	3
SPD 05 18 I B	Switching Power Supply 15W, DIN Rail, Spring terminals	100 - 240	5	3
SPD 12 18 I	Switching Power Supply 18W, DIN Rail	100 - 240	12	1.5
SPD 12 18 I B	Switching Power Supply 18W, DIN Rail, Spring terminals	100 - 240	12	1.5
SPD 15 18 I	Switching Power Supply 18W, DIN Rail	100 - 240	15	1.2
SPD 15 18 I B	Switching Power Supply 18W, DIN Rail, Spring terminals	100 - 240	15	1.2
SPD 24 18 I	Switching Power Supply 18W, DIN Rail	100 - 240	24	0.75
SPD 24 18 I B	Switching Power Supply 18W, DIN Rail, Spring terminals	100 - 240	24	0.75
SPD 05 30 I	Switching Power Supply 30W, DIN Rail	100 - 240	5	6
SPD 05 30 I B	Switching Power Supply 30W, DIN Rail, Spring terminals	100 - 240	5	6
SPD 12 30 I	Switching Power Supply 30W, DIN Rail	100 - 240	12	2.5
SPD 12 30 I B	Switching Power Supply 30W, DIN Rail, Spring terminals	100 - 240	12	2.5
SPD 24 30 I	Switching Power Supply 30W, DIN Rail,	100 - 240	24	1.25
SPD 24 30 I B	Switching Power Supply 30W, DIN Rail, Spring terminals	100 - 240	24	1.25
SPD 48 30 I	Switching Power Supply 30W, DIN Rail,	100 - 240	48	0.625
SPD 48 30 I B	Switching Power Supply 30W, DIN Rail, Spring terminals	100 - 240	48	0.625
SPD 05 60 I	Switching Power Supply 50W, DIN Rail	100 - 240	5	10
SPD 05 60 I B	Switching Power Supply 50W, DIN Rail, Spring terminals	100 - 240	5	10
SPD 12 60 I	Switching Power Supply 60W, DIN Rail	100 - 240	12	5
SPD 12 60 I B	Switching Power Supply 60W, DIN Rail, Spring terminals	100 - 240	12	5
SPD 24 60 I	Switching Power Supply 60W, DIN Rail	100 - 240	24	2.5
SPD 24 60 I B	Switching Power Supply 60W, DIN Rail, Spring terminals	100 - 240	24	2.5
SPD 48 60 I	Switching Power Supply 60W, DIN Rail	100 - 240	48	1.25
SPD 48 60 I B	Switching Power Supply 60W, DIN Rail, Spring terminals	100 - 240	48	1.25
SPD 12 120 I	Switching Power Supply 120W, DIN Rail	100 - 240	12	10
SPD 12 120 I F	Switching Power Supply 120W, DIN Rail, with PFC	100 - 240	12	10
SPD 12 120 I P	Switching Power Supply 120W, DIN Rail, with Parallel function	100 - 240	12	10
SPD 12 120 I 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
SPD 12 120 I B	Switching Power Supply 120W, DIN Rail, Removable connectors	100 - 240	12	10
SPD 12 120 I BF	Switching Power Supply 120W, DIN Rail, Removable connectors and PFC	100 - 240	12	10
SPD 12 120 I BP	Switching Power Supply 120W, DIN Rail, Removable connectors and Parallel function	100 - 240	12	10
SPD 12 120 I BFP	Switching Power Supply 120W, DIN Rail, Removable connectors, PFC and Parallel function	100 - 240	12	10
SPD 24 120 I	Switching Power Supply 120W, DIN Rail	100 - 240	24	5
SPD 24 120 I F	Switching Power Supply 120W, DIN Rail, with PFC	100 - 240	24	5
SPD 24 120 I P	Switching Power Supply 120W, DIN Rail, with Parallel function	100 - 240	24	5
SPD 24 120 I FP	Switching Power Supply 120W, DIN Rail, with PFC and Parallel function	100 - 240	24	5
SPD 24 120 I B	Switching Power Supply 120W, DIN Rail, Removable connectors	100 - 240	24	5
SPD 24 120 I BF	Switching Power Supply 120W, DIN Rail, Removable connectors and PFC	100 - 240	24	5
SPD 24 120 I BP	Switching Power Supply 120W, DIN Rail, Removable connectors and Parallel function	100 - 240	24	5
SPD 24 120 I BFP	Switching Power Supply 120W, DIN Rail, Removable connectors, PFC and Parallel function	100 - 240	24	5
SPD 48 120 I	Switching Power Supply 120W, DIN Rail	100 - 240	48	2.5
SPD 48 120 I F	Switching Power Supply 120W, DIN Rail, with PFC	100 - 240	48	2.5
SPD 48 120 I P	Switching Power Supply 120W, DIN Rail, with Parallel function	100 - 240	48	2.5
SPD 48 120 I FP	Switching Power Supply 120W, DIN Rail, with PFC and Parallel function	100 - 240	48	2.5
SPD 48 120 I B	Switching Power Supply 120W, DIN Rail, Removable connectors	100 - 240	48	2.5
SPD 48 120 I BF	Switching Power Supply 120W, DIN Rail, Removable connectors and PFC,	100 - 240	48	2.5
SPD 48 120 I BP	Switching Power Supply 120W, DIN Rail, Removable connectors and Parallel function,	100 - 240	48	2.5
SPD 48 120 I BFP	Switching Power Supply 120W, DIN Rail, Removable connectors, PFC and Parallel function	100 - 240	48	2.5
SPD 24 240 I	Switching Power Supply 240W, DIN Rail, PFC and Parallel function	100 - 240	24	10
SPD 24 240 I B	Switching Power Supply 240W, DIN Rail, Removable connectors, PFC and Parallel function	100 - 240	24	10
SPD 48 240 I	Switching Power Supply 240W, DIN Rail, PFC and Parallel function	100 - 240	48	5
SPD 48 240 I B	Switching Power Supply 240W, DIN Rail, Removable connectors, PFC and Parallel function	100 - 240	48	5
SPD 24 480 I	Switching Power Supply 480W, DIN Rail, PFC and Parallel function	100 - 240	24	20
SPD 24 480 IB	Switching Power Supply 480W, DIN Rail, Removable connector, PFC and Parallel function	100 - 240	24	20
SPD 48 480 I	Switching Power Supply 480W, DIN Rail, PFC and Parallel function	100 - 240	48	10
SPD 48 480 IB	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.