

# Switching Power Supply

## Type SPD 480W 3 phases

### DIN rail mounting

CARLO GAVAZZI



- Universal AC 3 phases input full range
- Can also be used as single phase 480VAC
- Installation on DIN rail 7.5 or 15mm
- PFC as standard
- High efficiency up to 91%
- 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.

## Approvals



## Output performances

Model	Rated output Voltage (VDC)	Output Power (W)	Output Current (A) <sup>1)</sup>	Voltage Trim Range <sup>1)</sup>		DC OK Threshold at startup (VDC)		DC low LED Threshold after startup (VDC)		Typical Efficiency
				Min. VDC	Max. VDC	Min.	Max.	Min.	Max.	
SPD24			20 (15)	22.5	28.5	17.6	19.4	17.6	19.4	90%
SPD48			10 (7.5)	47.0	56.0	37.0	43.0	37.0	43.0	91%

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

<sup>2)</sup> 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 Vi = 230Vac	20ms
Non parallel mode	± 1%	Minimum load	0%
Parallel mode	± 5%	Parallel Operation	2 units max.
Output Voltage accuracy	from 0 to +1% (factory adjusted)		
Ripple and Noise	100mV		

## Input data

Rated input voltage	400/500VAC	Frequency range	47- 63 Hz
Voltage range		Inrush current	15A
AC in	340 - 575VAC <sup>3)</sup>	P.F.C. Vi= 500VAC, Io nom.	0.7
DC in	480 - 820VDC		
Rated input current (380/500)	1.4A / 1.0A		

<sup>3)</sup> Biphasic or triphase input (biphasic 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

<b>Input Fuse</b>	3.15A/250VAC internal/phase <sup>a)</sup>	<b>Power ready output (only SPD 24)</b>	
<b>Overvoltage Protection</b>	SPD24	30 – 33VDC	17.6 – 19.4VDC
	SPD48	60 – 68VDC	0.3A
<b>Output Short Circuit</b>		insulation	500VDC
Continous			100 – 110°C
Discontinous			(shutdown with auto-restart when temperature is back to normal)
<b>Rated Overload Protection</b>	115 - 135%		

<sup>a)</sup> Not replaceable by user.

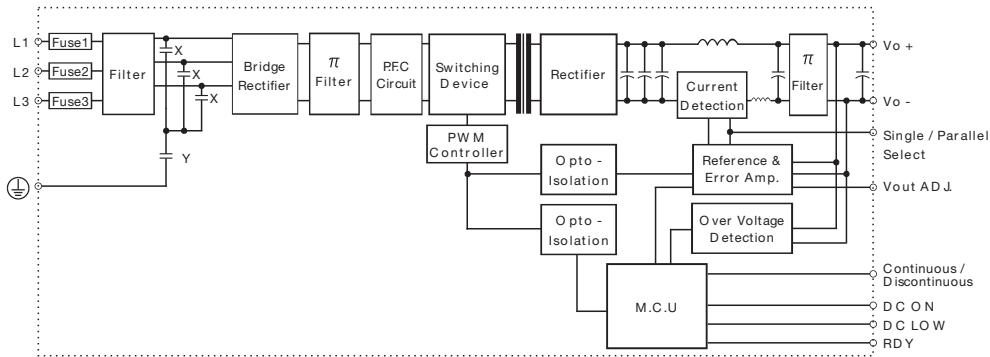
## General data (@ nominal line, full load, 25°C )

<b>Ambient temperature</b>	-25°C to 71°C	<b>Cooling</b>	Free air convection
<b>Derating (&gt;61°C to +71°C)</b>	2.5%/°C	<b>MTBF (MIL-HDBK-217F)</b>	n.a.
<b>Ambient humidity</b>	20 - 95%RH	<b>Case material</b>	Metal (powder painted aluminium)
<b>Storage</b>	-25°C to +95°C	<b>Weight</b>	1750g / 61.73oz
<b>Dimensions L x W x D</b> Screw terminal type	124 x 150 x 118 mm 1.88 x 5.91 x 4.65 inches	<b>Protection degree</b>	IP20

## Approvals and EMC

<b>Insulation voltage I/O</b>	3.000VAC	<b>CE</b>	EN61000-6-3 EN55022 class B EN61000-3-2 EN61000-3-3 EN61000-6-2 EN55024
<b>Insulation resistance I/O @ 500VDC</b>	100MΩ		
<b>UL / cUL</b>	UL508 listed, UL60950-1, Recognized		
<b>TUV</b>	EN60950-1		

## Block diagrams



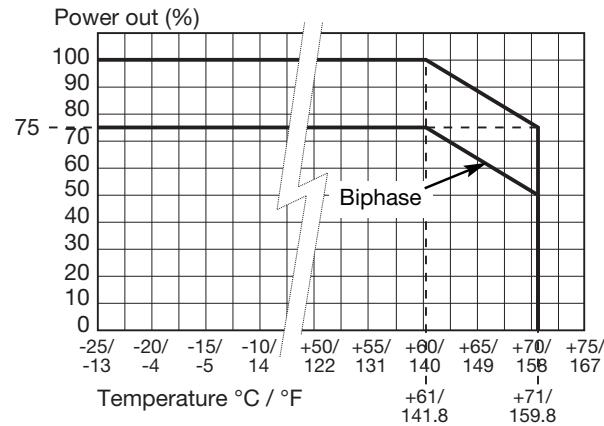
## Pin assignment and front controls

Pin No.	Designation	Description
1	+	Positive output terminal
2	+	Positive output terminal
3	-	Negative output terminal
4	-	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 selection switch
C/D		Continous / Discontinous

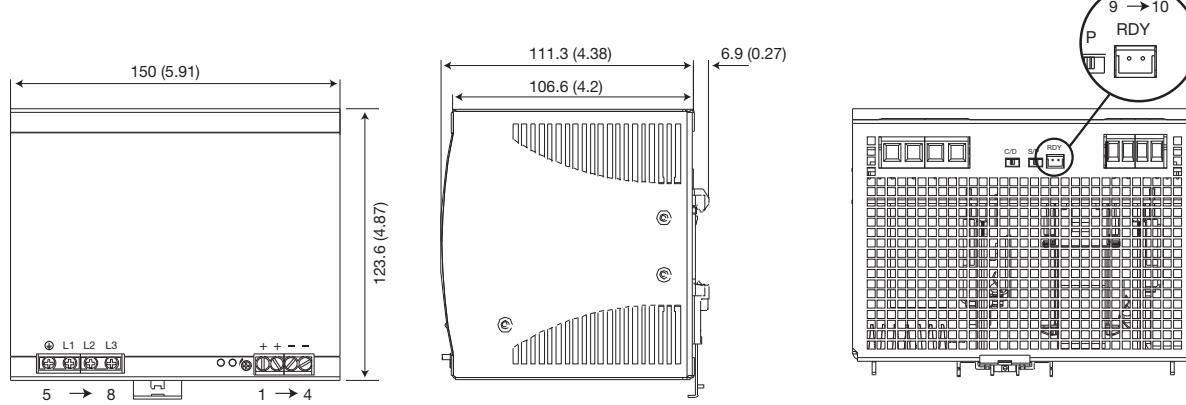
## Installation

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



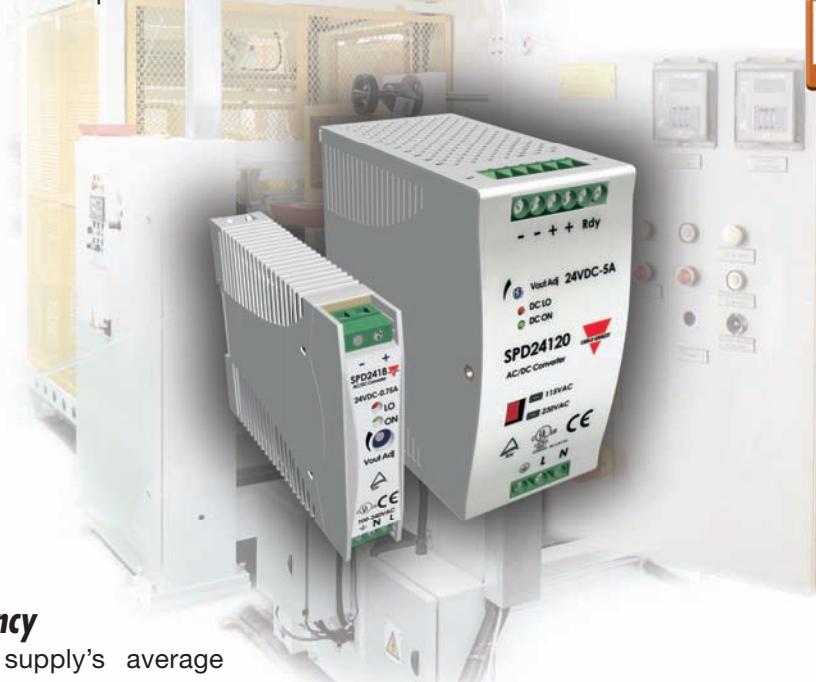
## Mechanical Drawings mm/inches





## 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.



### 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.



### 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.



## 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