

## Single Phase Power Supply



### Benefits

- **Universal AC, DC input range.** SPPC Series can be powered with AC Voltage (85-90 VAC to 264 VAC) or with DC Voltage (120-127 VDC to 370 VDC).
- **Reliable power in very compact dimensions.** High compactness, miniature size, long life and high power density, efficiency and reliability.
- **Reliable critical protection.** The operation safety is guaranteed by the various output protections: Over Voltage (OVP), Over Load (OLP), Short Circuit (SCP), Over Power (OVP) and Over Temperature (OTP) depending on the model.
- **Built-in active PFC function.** PF >0.95 (for 150 W to 800 W models).
- **Built-in features.** Built-in Fan Speed Control, remote sense function, DC OK signal depending on the model.
- **Wide operating ambient temperature.** The operating temperature range is from -20 / -30°C to +65 / 70°C depending on the model, and a Storage temperature range from -40°C / +85°C.

### Description

Enclosed Switching Power Supply for AC/DC and DC/DC power requirement. The new SPPC family provides flexible OEM power solutions for industrial control and automation applications. This series is available with range from 25 W to 800 W, and from 5 V to 48 V. All the range carries full certification offering a wide range of universal input and screw terminal connections.

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

### Applications

This product is suitable for all applications which require single-phase power supply with universal AC or DC voltage input range, high efficiency, and high compactness for panel mounting solution.

### Main functions

- High efficiency up to 90%
- Universal AC, DC input voltage range
- 25 W, 35 W, 50 W, 75 W, 150 W, 200 W, 240 W, 320 W, 480 W, 600 W, 800 W

## References

### Order code

 SPPC   1

Enter the code entering the corresponding option instead of .

Code	Option	Description	Notes
S	-	Switching	Device typology
P	-	Power supply	
PC	-	Panel mounted	
<input type="checkbox"/>	5	5 VDC	Rated output voltage
	12	12 VDC	
	15	15 VDC	
	24	24 VDC	
	36	36 VDC	
	48	48 VDC	
<input type="checkbox"/>	25	25 W	Rated output power @ 24 VDC output
	35	35 W	
	50	50 W	
	75	75 W	
	150	150 W	
	200	200 W	
	240	240 W	
	320	320 W	
	480	480 W	
	600	600 W	
800	800 W		
1	-	Single phase input	Input type
<input type="checkbox"/>	-	Basic model	Optional features
	F	Power factor correction	
<input type="checkbox"/>	-	Standard model	
	C	Compact size	

### Selection guide

Output Voltage	Output power										
	25 W	30 W	35 W	40 W	45 W	50 W	55 W	60 W	65 W	70 W	75 W
5 VDC	SPPC5251	SPPC5351	SPPC5501		SPPC5751			SPPC52001FC			
12 VDC	SPPC12251	SPPC12351		SPPC12501			SPPC12751				
15 VDC	SPPC15501						-				
24 VDC	SPPC24251	SPPC24351		SPPC24501			SPPC24751				
36 VDC	SPPC364801FC										
48 VDC	SPPC48501						SPPC48751				



Output Voltage	Output power						
	80 W	90 W	100 W	150 W	200 W	240 W	300 W
5 VDC	SPPC52001FC					-	
12 VDC	SPPC121501FC			SPPC122001FC	SPPC122401FC	SPPC123201FC	
15 VDC	-						
24 VDC	SPPC241501FC			SPPC242001FC	SPPC242401FC	SPPC243201FC	
36 VDC	SPPC364801FC						
48 VDC	SPPC482001FC				SPPC483201FC		

Output Voltage	Output power				
	400 W	500 W	600 W	700 W	800 W
5 VDC	-				
12 VDC	SPPC124801FC		SPPC126001FC	-	
15 VDC	-				
24 VDC	SPPC244801FC		SPPC246001FC	SPPC248001FC	
36 VDC	SPPC364801FC		SPPC366001FC	-	
48 VDC	SPPC484801FC		SPPC486001FC	SPPC488001FC	

### Carlo Gavazzi compatible components

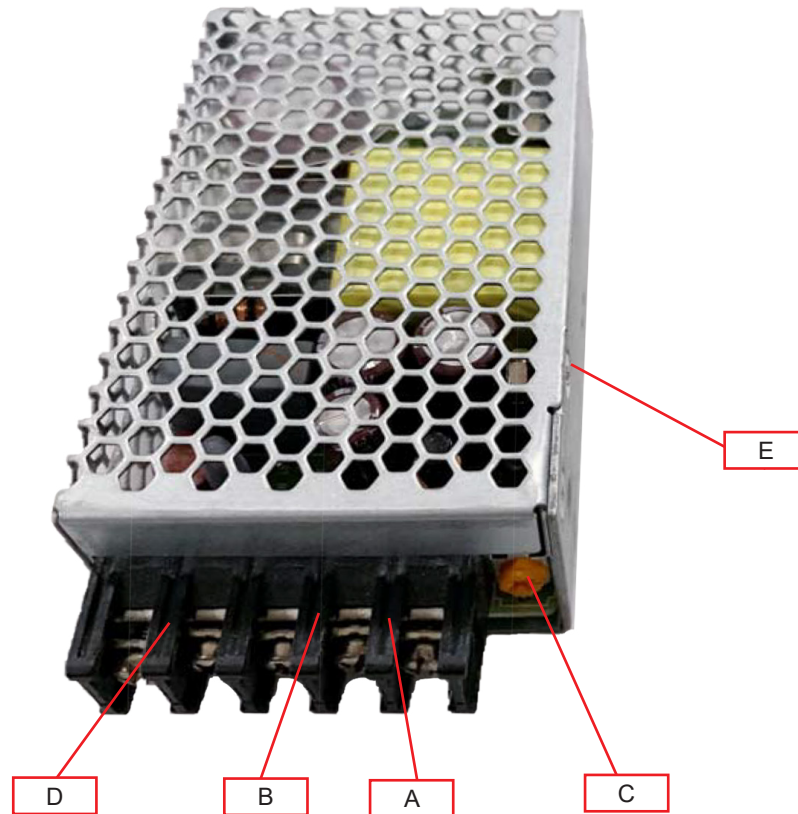
Purpose	Component name/code	Notes
Bracket for side mounting	SPPX-DINCLIPA	
Bracket for bottom mounting	SPPX-DINCLIPB	
Small square bracket	SPPX-BKTLA	
Medium square bracket	SPPX-BKTLB	
Large square bracket	SPPX-BKTLD	

### Further reading

Information	Where to find it	QR
SPPC Datasheet	<a href="https://www.gavazziautomation.com/fileadmin/images/PIM/DATASHEET/ENG/SPPC_DS_ENG.pdf">https://www.gavazziautomation.com/fileadmin/images/PIM/DATASHEET/ENG/SPPC_DS_ENG.pdf</a>	
SPPC Installation sheet	<a href="https://www.gavazziautomation.com/fileadmin/images/PIM/MANUALS/ENG/SPPC_IM.pdf">https://www.gavazziautomation.com/fileadmin/images/PIM/MANUALS/ENG/SPPC_IM.pdf</a>	

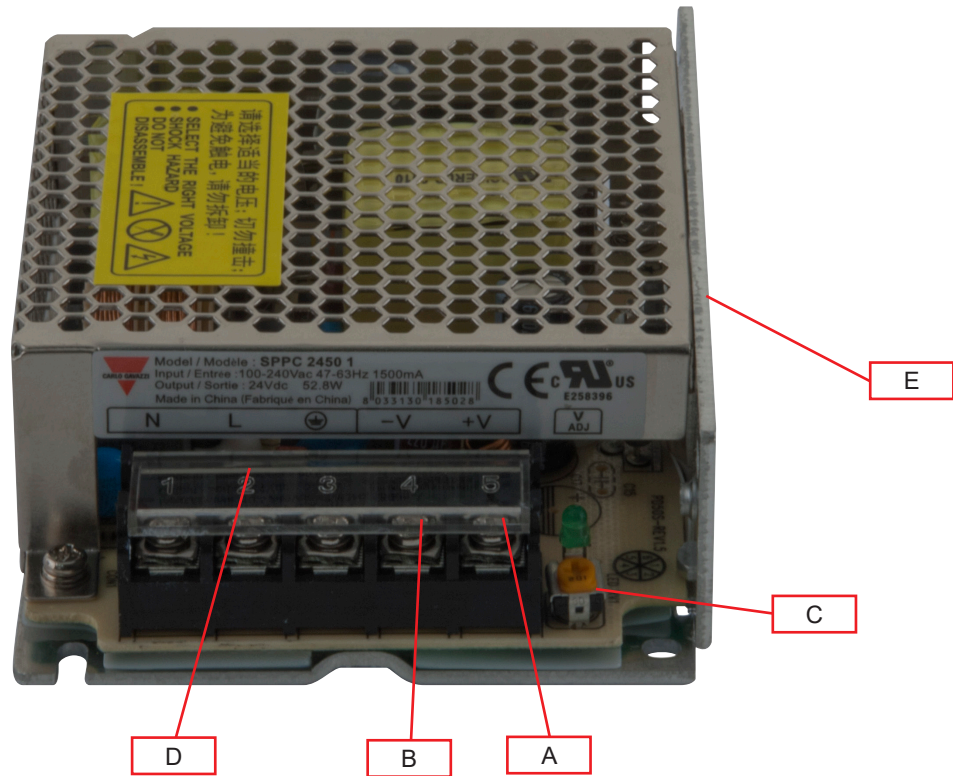
# Structure

SPPC 251



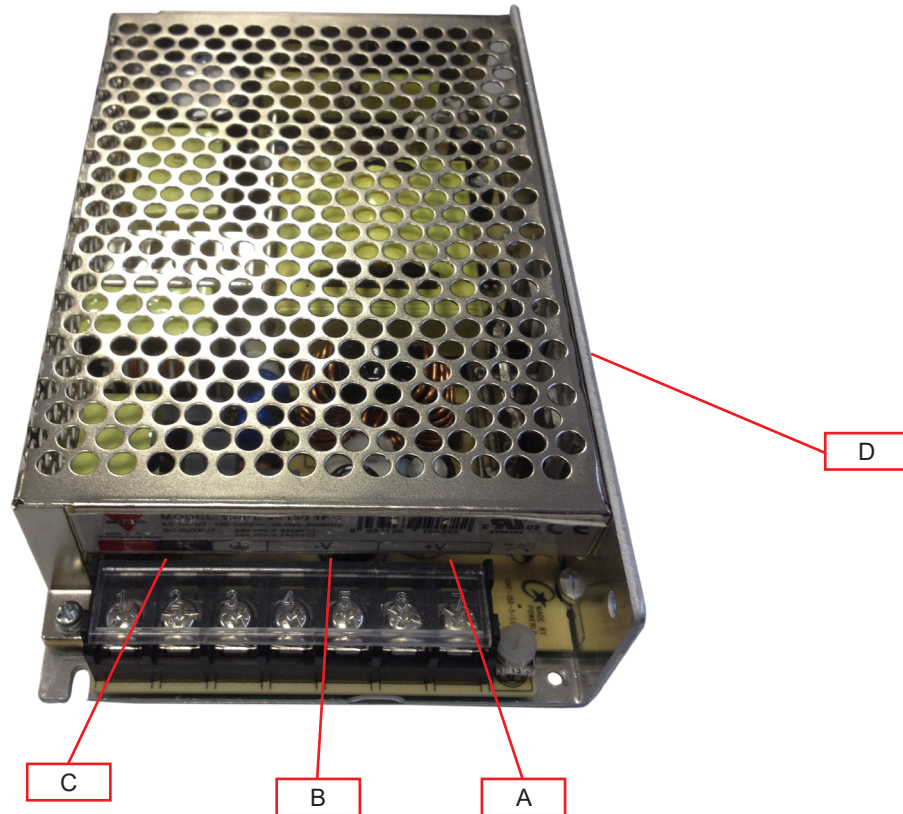
SPPC 25 W		
Element	Component	Function
A	+ V terminals	Positive DC output terminals
B	- V terminals	Negative DC output terminals
C	VADJ Trimmer	Output voltage adjustment
D	Power supply terminals	L, N supply terminals + GND
E	Wall Mounting Predisposition	Predispositions present on two sides

SPPC 351 / 501 / 751



SPPC 35 W / 50 W / 75 W		
Element	Component	Function
A	+ V terminals	Positive DC output terminals
B	- V terminals	Negative DC output terminals
C	VADJ Trimmer	Output voltage adjustment
D	Power supply terminals	L, N supply terminals + GND
E	Wall Mounting Predisposition	Predispositions present on two sides

**SPPC 1501**



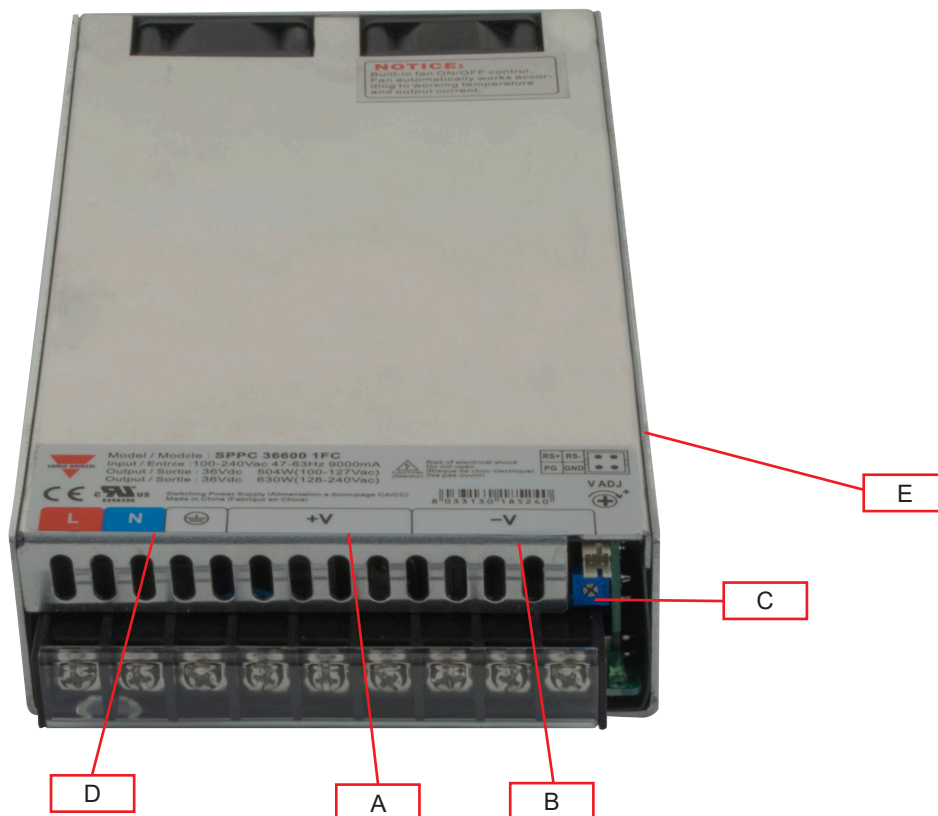
SPPC 150 W		
Element	Component	Function
A	+ V terminals	Positive DC output terminals
B	- V terminals	Negative DC output terminals
C	Power supply terminals	L, N supply terminals + GND
D	Wall Mounting Predisposition	Predispositions present on two sides

SPPC 2001, 2401, 3201



SPPC 200 W / 240 W / 320 W		
Element	Component	Function
A	+ V terminals	Positive DC output terminals
B	- V terminals	Negative DC output terminals
C	VADJ Trimmer	Output voltage adjustment
D	Power supply terminals	L, N supply terminals + GND
E	Wall Mounting Predisposition	Predispositions present on two sides

SPPC.. 4801 / 6001 / 8001



SPPC 4801 / 6001 / 8001		
Element	Component	Function
A	+ V terminals	Positive DC output terminals
B	- V terminals	Negative DC output terminals
C	VADJ Trimmer	Output voltage adjustment
D	Power supply terminals	L, N supply terminals + GND
E	Wall Mounting Predisposition	Predispositions present on two sides



## Features

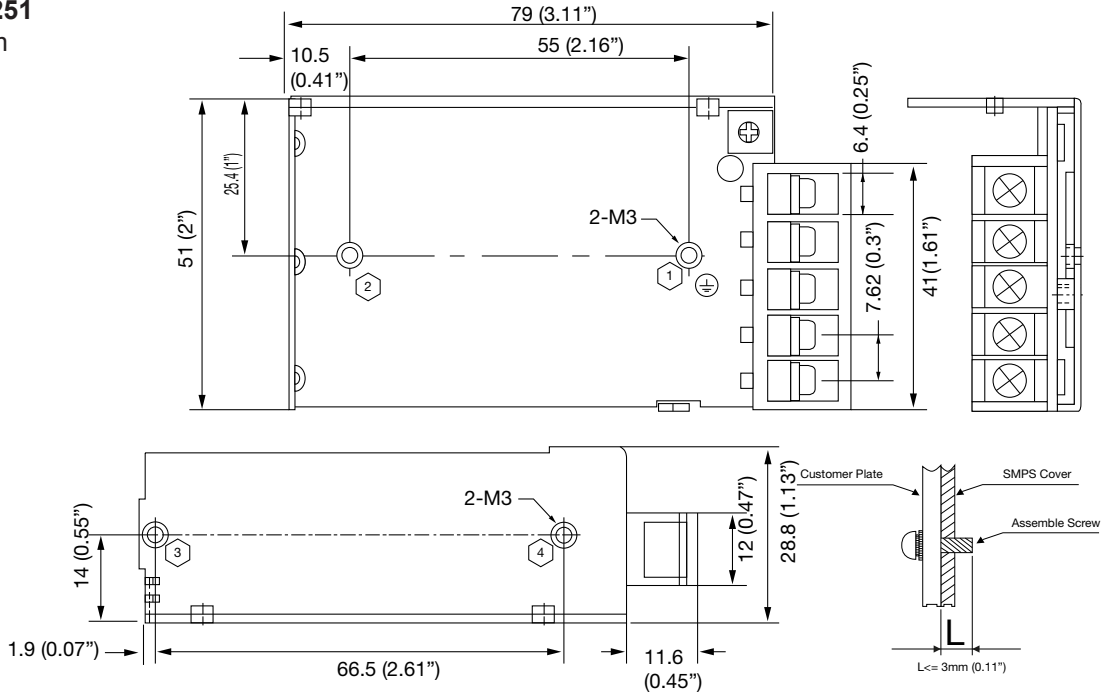
### General data

	SPPC..251	SPPC..351	SPPC..501	SPPC..751	SPPC..1501	
<b>Leakage current (input - output)</b>	< 0.25mA					
<b>Earth leakage current (input - PG)</b>	≤ 3.5mA					
<b>Efficiency @115 VAC</b>	<b>5 VDC</b>	76 %	79 %			
	<b>12 VDC</b>	80 %	83 %	84 %	82.5 %	
	<b>15 VDC</b>	83 %	-	85 %	-	
	<b>24 VDC</b>	84 %	86 %		87 %	
	<b>36 VDC</b>	-				
	<b>48 VDC</b>	-	88 %		-	
<b>Efficiency @230 VAC</b>	<b>5 VDC</b>	78 %	80 %		-	
	<b>12 VDC</b>	82 %	84 %	85 %	86 %	
	<b>15 VDC</b>	-	-	86 %	-	
	<b>24 VDC</b>	85 %	87 %	87 %	88 %	
	<b>36 VDC</b>	-				
	<b>48 VDC</b>	-	89 %		-	
<b>Power factor (full load) 110 VAC 230 VAC</b>	-				> 0.98 >0.95	
<b>Ingress protection</b>	IP 20					
<b>MTBF (MIL-HDBK-217F)</b>	> 200,000 hours					
<b>Case material</b>	Metal					
<b>Weights</b>	0.15 kg (0.33 lb)	0.19 kg (0.42 lb)	0.25 kg (0.55 lb)	0.366 kg (0.8 lb)	0.61 kg (1.34 lb)	
<b>Switching frequency</b>	65 kHz		-			
<b>Fan speed control</b>	No					
<b>Remote sense function</b>	No					
<b>Mounting</b>	Panel					

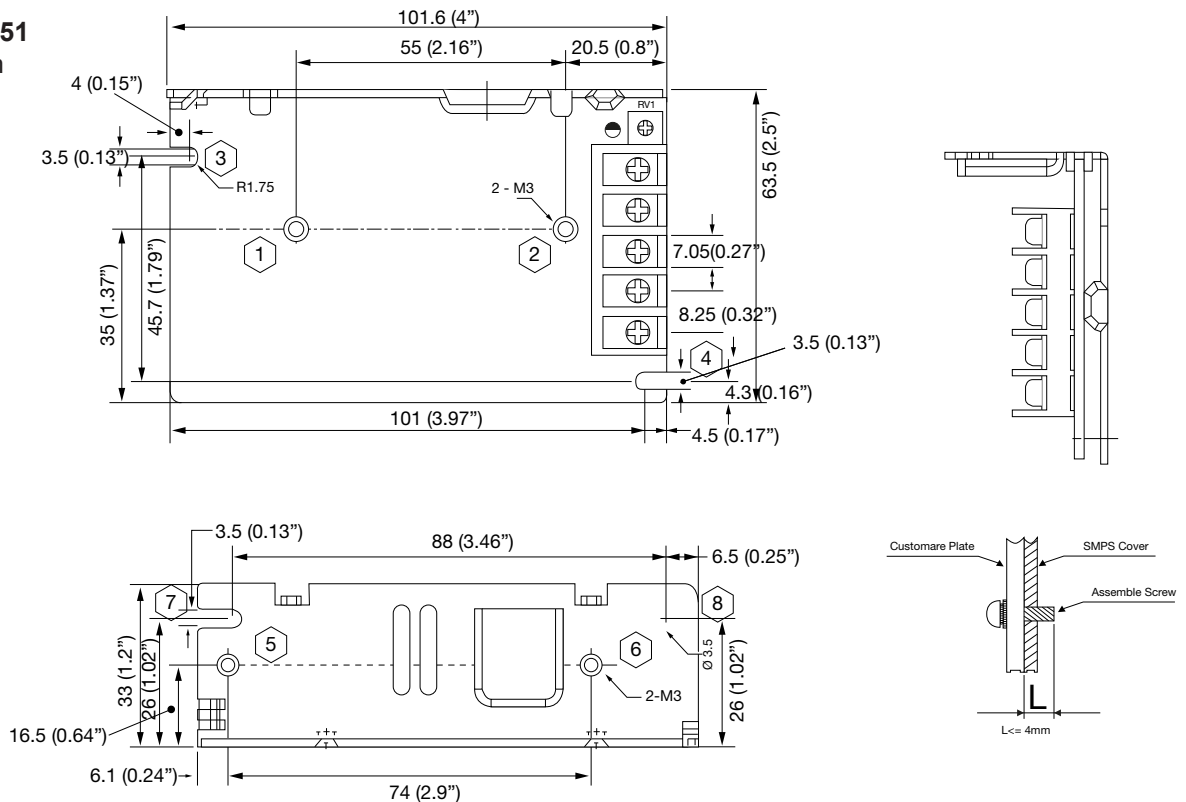
	SPPC..2001	SPPC..2401	SPPC..3201	SPPC..4801	SPPC..6001	SPPC..8001	
<b>Leakage current (input - output)</b>	≤ 0.25 mA						
<b>Earth leakage current (input - PG)</b>	≤ 3.5 mA						
<b>Efficiency @115 VAC</b>	<b>5 VDC</b>	79 %	-				
	<b>12 VDC</b>	84 %	84 %	84.5 %	88 %	88 %	-
	<b>15 VDC</b>	-					
	<b>24 VDC</b>	86 %	86 %	87 %	89 %	89 %	≥ 88 %
	<b>36 VDC</b>	-			90 %	90 %	-
	<b>48 VDC</b>	87.5 %	-	87.5 %	90 %	90 %	≥ 89 %
<b>Efficiency @230VAC</b>	<b>5 VDC</b>	79 %	-				
	<b>12 VDC</b>	84 %		84.5 %	88 %		-
	<b>15 VDC</b>	-					
	<b>24 VDC</b>	86 %		87 %	89 %		≥ 88 %
	<b>36 VDC</b>	-			90 %		-
	<b>48 VDC</b>	87.5 %	-	87.5 %	90 %		≥ 89 %
<b>Power factor (full load) 110 VAC 230 VAC</b>	> 0.98 > 0.95			> 0.98 > 0.96			
<b>Ingress protection</b>	IP 20						
<b>MTBF (MIL-HDBK-217F)</b>	> 200,000 hours						
<b>Case material</b>	Metal						
<b>Weights</b>	0.78 kg (1.72 lb)	0.81 kg (1.79 lb)		1.13 kg (2.49 lb)		1.22 kg (2.69 lb)	
<b>Switching frequency</b>	83 kHz			100 kHz			
<b>Fan speed control</b>	Yes						
<b>Remote sense function</b>	No			Yes			
<b>Mounting</b>	Panel						

**Dimensions**

**SPPC..251**  
Unit: mm



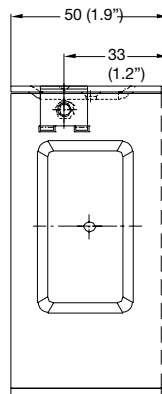
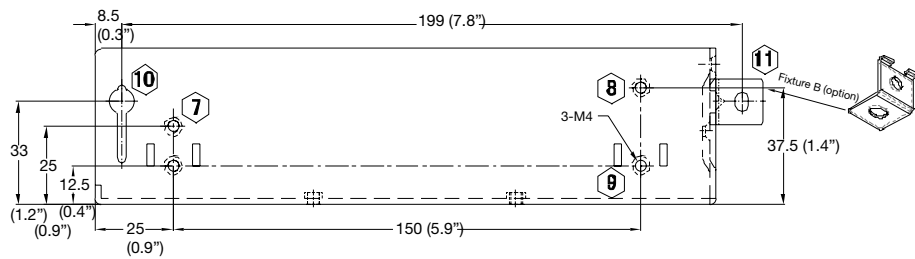
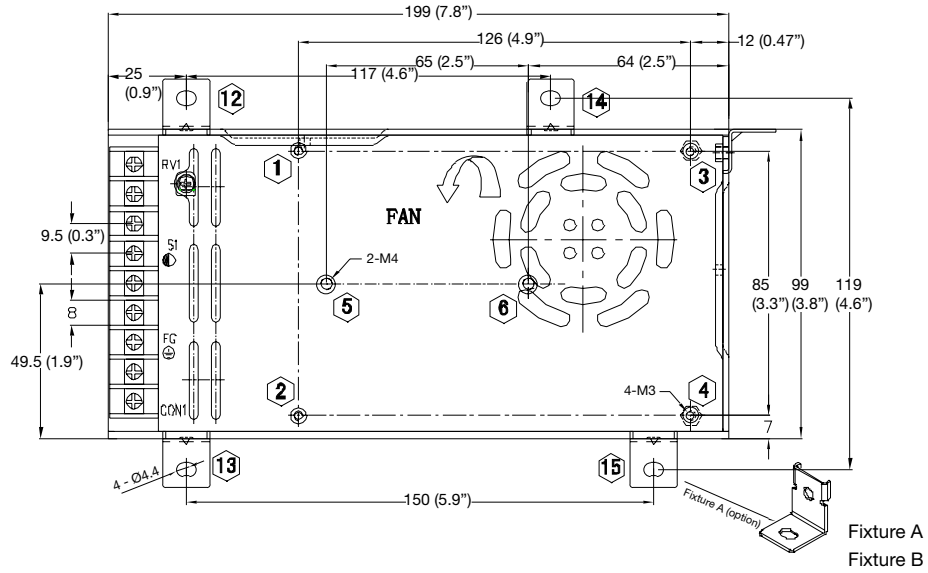
**SPPC..351**  
Unit: mm



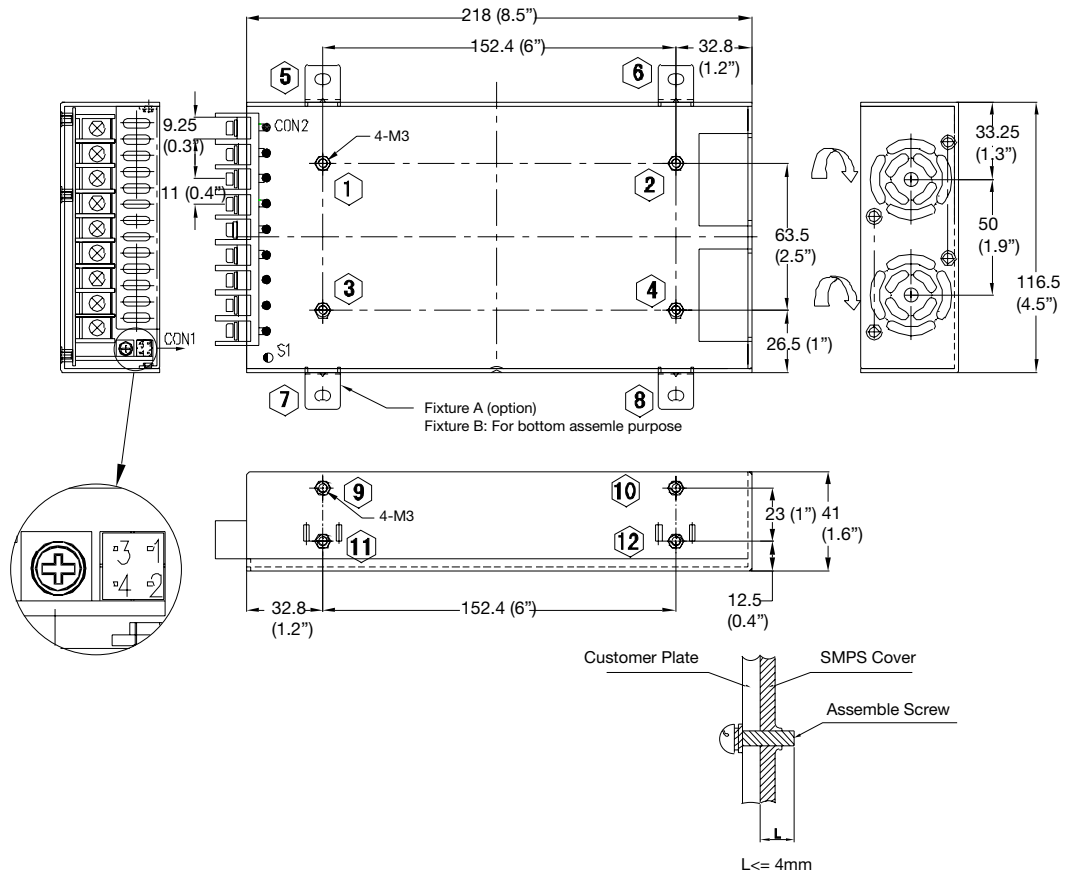




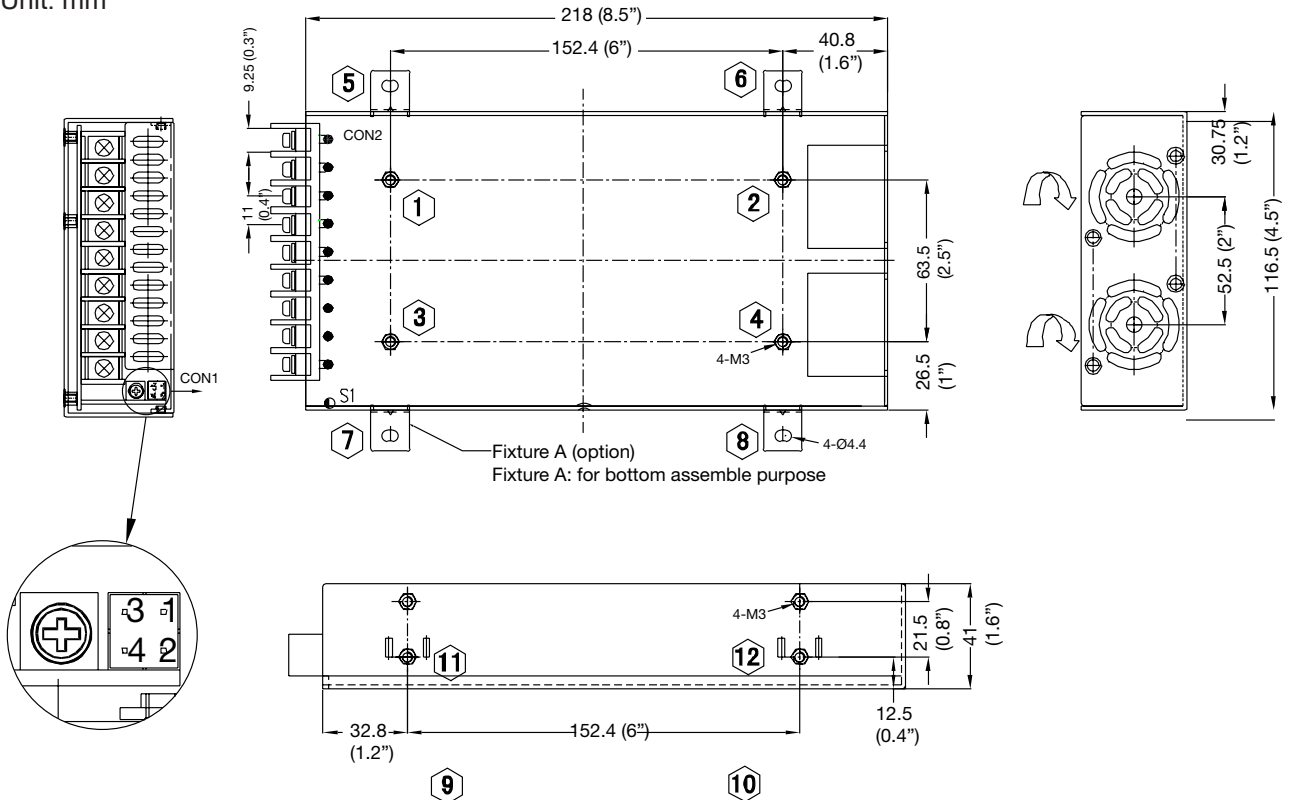
**SPPC..2001 / 2401 / 3201**  
Unit: mm



**SPPC 4801**  
Unit: mm



**SPPC 6001 / 8001**  
Unit: mm



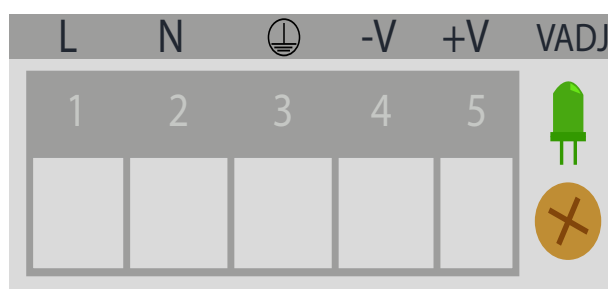
## Connection diagram

### Terminal markings



#### SPPC..251

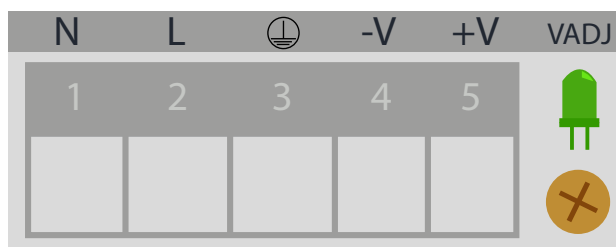
Terminal	Designation	Description
1	L	Input terminals (phase conductor, no polarity with DC input)
2	N	Input terminals (neutral conductor, no polarity with DC input)
3	Ground	Ground this terminal to minimize high frequency emissions
4	V-	Negative output terminal
5	V+	Positive output terminal
	Vout ADJ	Potentiometer for output voltage adjustment



#### SPPC..351

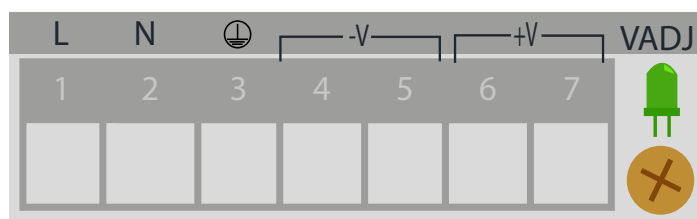
Terminal	Designation	Description
1	L	Input terminals (phase conductor, no polarity with DC input)
2	N	Input terminals (neutral conductor, no polarity with DC input)
3	Ground	Ground this terminal to minimize high frequency emissions
4	V-	Negative output terminal
5	V+	Positive output terminal
	Vout ADJ	Potentiometer for output voltage adjustment
	DC Status	LED indication of power supply output status





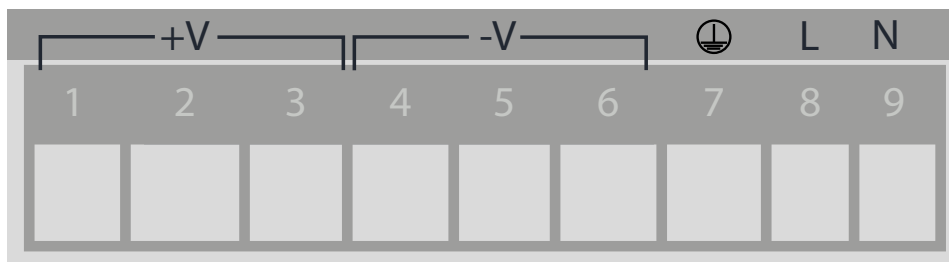
### SPPC.. 501 / 751

Terminal	Designation	Description
1	N	Input terminals (neutral conductor, no polarity with DC input)
2	L	Input terminals (phase conductor, no polarity with DC input)
3	Ground	Ground this terminal to minimize high frequency emissions
4	V-	Negative output terminal
5	V+	Positive output terminal
	Vout ADJ	Potentiometer for output voltage adjustment
	DC Status	LED indication of power supply output status



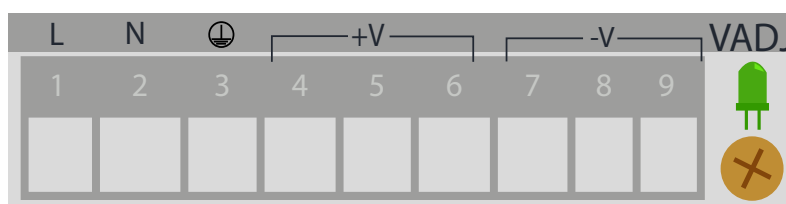
### SPPC 1501

Terminal	Designation	Description
1	L	Input terminals (phase conductor, no polarity with DC input)
2	N	Input terminals (neutral conductor, no polarity with DC input)
3	Ground	Ground this terminal to minimize high frequency emissions
4, 5	V-	Negative output terminal
6, 7	V+	Positive output terminal
	Vout ADJ	Potentiometer for output voltage adjustment
	DC Status	LED indication of power supply output status



**SPPC.. 2001 / 2401 / 3201**

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



**SPPC.. 4801 / 6001 / 8001**

Terminal	Designation	Description
1	L	Input terminals (phase conductor, no polarity with DC input)
2	N	Input terminals (neutral conductor, no polarity with DC input)
3	Ground	Ground this terminal to minimize high frequency emissions
4, 5, 6	V+	Positive output terminal
7, 8, 9	V-	Negative output terminal
	DC Status	LED indication of power supply output status
	Vout ADJ	Potentiometer for output voltage adjustment

**Environmental**

	SPPC..251	SPPC..351	SPPC..501	SPPC..751	SPPC..1501
<b>Operating temperature range</b>	-20°C to 70°C (-4°F to 158°F)	-25°C to 70°C (-13°F to 158°F)			-20°C to 70°C (-4°F to 158°F)
<b>Storage temperature</b>	-40°C to 85°C (-40°F to 185°F)				-30°C to 85°C (-22°F to 185°F)
<b>Humidity</b>	20 % ~ 90 % RH no condensing				
<b>Temperature derating</b>	50°C (122°F)				40°C (104°F)
<b>Temperature regulation</b>	± 0.03 % /°C ( ± 32.054 % /°F)				

	SPPC..2001	SPPC..2401	SPPC..3201	SPPC..4801	SPPC..6001	SPPC..8001
<b>Operating temperature range</b>	-20°C to 65°C (-4°F to 149°F)			- 30°C to 70°C (- 22°F to 158°F)		
<b>Temperature storage</b>	-40°C to +85°C (-40°F to 185°F)					
<b>Humidity</b>	20 % ~ 90 % RH no condensing					
<b>Temperature derating</b>	50°C (122°F)					
<b>Temperature regulation</b>	± 0.03 % /°C ( ± 32.054 % /°F)					

**Compatibility and conformity**

	SPPC..251	SPPC..351	SPPC..501	SPPC..751	SPPC..1501
<b>Safety standards</b>	UL60950-1 EN62368-1:2014 +A11: 2017				
<b>EMC Emission:</b> <b>EMI conductor &amp; radiation</b> <b>EMS immunity</b>	Compliance to EN55022, EN55024 Compliance to EN61000-4-2,3,4,5,6,8,11				
<b>Harmonic current</b>	Compliance to EN61000-3-2, 3				-
<b>EMC immunity</b>	Compliance to EN61000-4-2, 3, 4, 5, 6, 8, 11; EN55024, EN61000-6-2 Heavy industry level				-
<b>CE</b>	CE approved				
<b>UL Certification</b>	UL approved				
<b>Vibration resistance</b>	10 ~ 150Hz, 2G 10 min. / 1 cycle, period for 60 min. each along X, Y, Z axes	10~500 Hz, 5G 10 min / 1 cycle, 60 min, each along X, Y, Z axes.			
<b>Shock resistance</b>	20 G, 11 ms, 3 times along X, Y, Z axes				

SPPC	SPPC..2001	SPPC..2401	SPPC..3201	SPPC..4801	SPPC..6001	SPPC..8001
Safety standards	UL60950-1 EN62368-1:2014 +A11: 2017					
EMC Emission: EMI conduction & radiation EMS immunity	Compliance to EN55022, EN55024 Compliance to EN61000-4-2,3,4,5,6,8,11					
Harmonic current	Compliance to EN61000-3-2, Class D					
EMC immunity	-					
CE	CE approved					
UL Certification	UL approved					
Vibration resistance	10 ~ 500 Hz, 2G 10 min. / 1 cycle, period for 60 min. each along X, Y, Z axes		10 ~ 150 Hz, 2G 10 min. / 1 cycle, period for 60 min. each along X, Y, Z axes		10 ~ 500 Hz, 2G 10 min. / 1 cycle, period for 60 min. each along X, Y, Z axes	
Shock resistance	20 G / 11 ms pulse, 3 times at each X, Y, Z axes					

## Insulation

	SPPC..251	SPPC..351	SPPC..501	SPPC..751	SPPC..1501
Insulation / withstand voltage (I/PE)	Primary - PG: 1.5k VAC / $\leq 10$ mA				
Insulation / withstand voltage (I/O)	Primary - Secondary: 3.0k VAC / 10 mA				
Insulation / withstand voltage (O/PE)	Secondary - PG: 0.5k VDC / 10 mA				
Insulation resistance	100 $\Omega$			10 M $\Omega$	
Overvoltage category	II				
Pollution degree	2				

	SPPC..2001	SPPC..2401	SPPC..3201	SPPC..4801	SPPC..6001	SPPC..8001
Insulation / withstand voltage (I/PE)	Primary - PG: 1.5K VAC/10 mA					
Insulation / withstand voltage (I/O)	Primary - Secondary: 3.0K VAC/10 mA					
Insulation / withstand voltage (O/PE)	Secondary - PG: 0.5k VDC ; $\leq 10$ mA	$\leq 10$ mA Secondary - PG: 0.5k VAC ; $\leq 10$ mA				
Insulation resistance	10 M $\Omega$			100 M $\Omega$		10 M $\Omega$
Overvoltage category	II					
Pollution degree	2					

**Input data**

	SPPC..251	SPPC..351	SPPC..501	SPPC..751	SPPC..1501
<b>Rated input voltage</b>	100 VAC ~ 240 VAC				
<b>Input voltage range</b>	88 VAC ~ 264 VAC (264 VAC max.)	90 VAC ~ 264 VAC (264 VAC max.)	88 VAC ~ 264 VAC (264 VAC max.)	90 VAC ~ 264 VAC (264 VAC max.)	
	-	127 VDC ~ 370 VDC (370 VDC max.)		-	120 VDC ~ 370 VDC (370 VDC max.)
<b>AC current (max)</b> 115 VAC 230 VAC	< 0.7 A -	< 1 A -	< 1.3 A -	< 2.5 A -	-
<b>Frequency range</b>	47 Hz ~ 63 Hz				
<b>Inrush current</b> 115 VAC 230 VAC	20 A (120 VAC) 40 A	- < 50 A	- 45 A	- <60 A	< 30 A < 45 A
<b>Internal input fuse</b>	2A / 250 VAC	3.15 / 250 VAC		5 A / 250 VAC	5 A / 250 VAC

	SPPC..2001	SPPC..2401	SPPC..3201	SPPC..4801	SPPC..6001	SPPC..8001
<b>Rated input voltage</b>	100 VAC ~ 240 VAC					
<b>Input voltage range</b>	90 VAC ~ 264 VAC (264 VAC max.)	85 VAC ~ 264 VAC (264 VAC max.)	90 VAC ~ 264 VAC (264 VAC max.)			
	120 VDC ~ 370 VDC (370 VDC max.)			-		
<b>AC current (max)</b> 115 VAC 230 VAC	< 3.5 A -	< 4.5 A -	< 4.5 A -	< 7 A -	≤ 12 A -	
<b>Frequency range</b>	47 Hz ~ 63 Hz					
<b>Inrush current</b> 115 VAC 230 VAC	< 30 A < 50 A			- < 20 A		≤ 20 A (220 VAC)
<b>Internal input fuse</b>	5 A / 250 VAC	6.3 A / 250 VAC		10 A / 250 VAC		15 A / VAC

**Output data**

		SPPC..251	SPPC..351	SPPC..501	SPPC..751	SPPC..1501
Rated output power at different output voltages and currents	5	25 W	30 W	40 W	60 W	-
	12	25.2 W	36 W	50.4 W	72 W	150 W
	15	-		51 W	-	
	24	26.4 W	36 W	52.8 W	76.8 W	151.2 W
	36	-				
	48	-		53.76 W	76.8 W	-
Voltage accuracy		± 2%	± 3%		± 1%	± 2%
Line regulation		± 1%	± 0.5%			
Load regulation		± 2%	± 1%			
Voltage regulation span		-10 % ~ 10 %				
Rated output current at different output voltages	5	5 A	6 A	8 A	12 A	-
	12	2.1 A	3 A	4.2 A	6 A	12.5 A
	15	-		3.4 A	-	
	24	1.1 A	1.5 A	2.2 A	3.2 A	6.3 A
	36	-				
	48	-		1.12 A	1.6 A	-
Ripple and noise at different output voltages <small>*Note</small>	5	< 80 mV	< 50 mV (0°C ~ 70°C) < 80 mV (-25°C ~ 0°C)	< 80 mV (0°C ~ 70°C) < 80 mV (-25°C ~ 70°C)	<50mV (0°C ~ 70 °C) <80mV (-25 °C ~ 70°C)	-
	12	< 120 mV	< 80 mV (0°C ~ 70 °C) < 180 mV (-25 °C ~ 0°C)	< 120 mV (0°C ~ 70 °C) < 200 mV (-25 °C ~ 70°C)	< 80 mV (0°C ~ 70 °C) <200 mV (-25 °C ~ 70°C)	≤ 100 mV (0°C ~ 70°C) ≤ 200 mV (-20°C ~ 0°C)
	15	-		< 120 mV (0°C ~ 70 °C) < 200 mV (-25 °C ~ 0°C)	-	
	24	<240 mV	< 120 mV (0°C ~ 70 °C) < 200 mV (-25 °C ~ 0°C)	< 200 mV (0°C ~ 70 °C) < 300 mV (-25 °C ~ 70°C)	< 80 mV (0°C ~ 70 °C) <200mV (-25 °C ~ 70°C)	≤ 100 mV (0°C ~ 70°C) ≤ 200 mV (-20°C ~ 0°C)
	36	-				
	48	-		< 200 mV (0°C ~ 70 °C) < 500 mV (-25 °C ~ 70°C)	<120 mV (0°C ~ 70 °C) <240 mV (-25 °C ~ 70°C)	-
Hold up time		115 VAC 230 VAC		> 10 ms (120 VAC) > 20 ms	- > 50 ms	> 10 ms (120 VAC) > 20 ms - > 10 ms
Set up time		115 VAC 230 VAC		< 2 s < 1 s	- < 1 s	< 2.0 s < 1.5 s ≤ 3 s ≤ 2 s
Turn-on overshoot		<+5%				
Overshoot and undershoot		<5%				
Series operation		Support				
Parallel operation		No				
Power boost		No				

\*NOTE: Measured at 20 MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 uF and 10 uF parallel capacitor

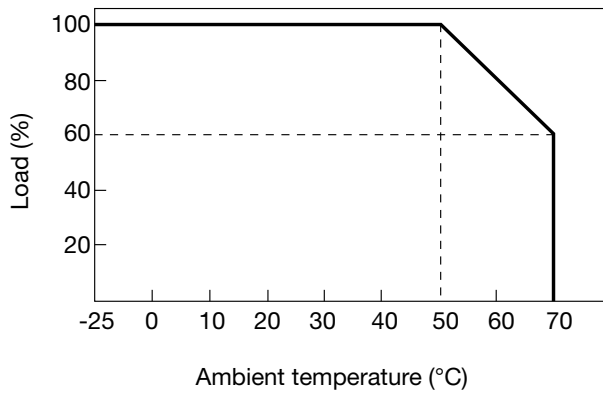
		SPPC..2001	SPPC..2401	SPPC..3201	SPPC..4801	SPPC..6001	SPPC..8001
Rated output power at different output voltages and currents	5	200 W	-				
	12	200.4 W	240 W	300 W	408 W	504 W	-
	15	-					
	24	201.6 W	240 W	312 W	528 W	636 W	792 W
	36	-			504 W	630 W	-
	48	201.6 W	-	321.6 W	528 W	652.8 W	792 W
Voltage accuracy		±1%					±2%
Line regulation		±0.5%					
Load regulation		±1%					±2%
Voltage regulation span		-10 % ~ 10 %					
Rated output current at different output Voltages	5	40 A	-				
	12	16.7 A	20 A	25 A	34 A	42 A	-
	15	-					
	24	8.4 A	10 A	13 A	22 A	26.5 A	33 A
	36	-			14 A	17.5 A	-
	48	4.2 A	-	6.7 A	11 A	13.6 A	16.5 A
Ripple and noise at different output voltages <small>*Note</small>	5	-					
	12	< 150 mV (0~65°C) < 200 mV (-20~0°C)	< 200 mV (0~65°C) < 250 mV (-20~0°C)	< 200 mV (0~65°C) < 250 mV (-20~0°C)	< 120 mV (0°C ~ 70°C) < 180 mV (-30 °C)	< 120 mV (0°C ~ 70°C) < 180 mV (-30 °C)	-
	15	-					
	24	< 150mV (0~65°C) < 200 mV (-20~0°C)	< 150mV (0~65°C) < 200 mV (-20~0°C)	<150mV (0~65°C) <200 mV (-20~0°C)	< 150 mV (0°C ~ 70°C) < 150 mV (-30 °C)		≤ 200 mV
	36	-					-
	48	< 150mV (0~65°C) < 200 mV (-20~0°C)	-	< 150mV (0~65°C) < 200 mV (-20~0°C)	< 200 mV (0°C ~ 70°C) < 200 mV (-30 °C)		≤ 240 mV
Hold up time 115 VAC 230 VAC		- > 12 ms			- > 16 ms		> 8 ms (220 VAC) -
Set up time 115 VAC 230 VAC		< 4 s (120 VAC) ≤ 2 s			< 3 s < 1.5 s		≤ 3 s (220 VAC) -
Turn-on overshoot		<+5%					
Overshoot and undershoot		<5%					
Series operation		Support					
Parallel operation		No					
Power boost		No					

\*NOTE: Measured at 20 MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 uF and 10 uF parallel capacitor

# Performance

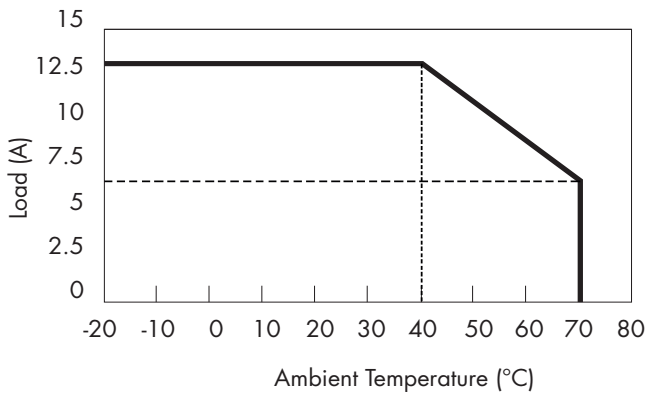
**Current derating**

**SPPC..251 / 351 / 501 / 751 / 6001 / 8001**

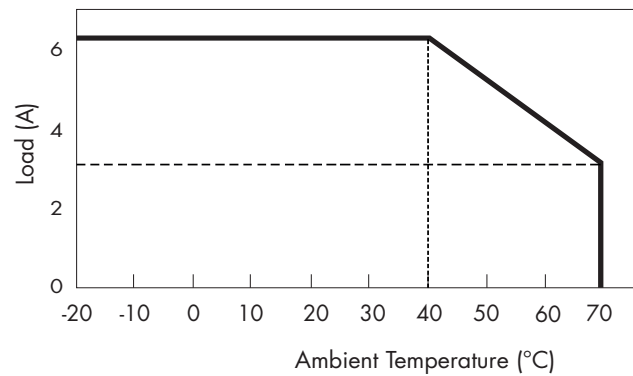


**SPPC.. 1501**

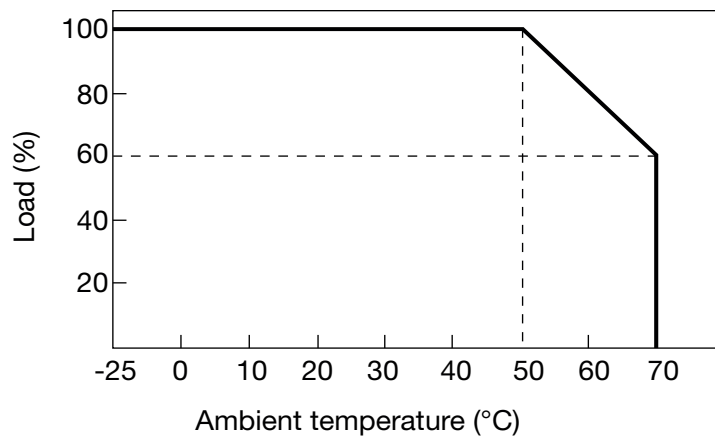
SPPC121501FC



SPPC241501FC



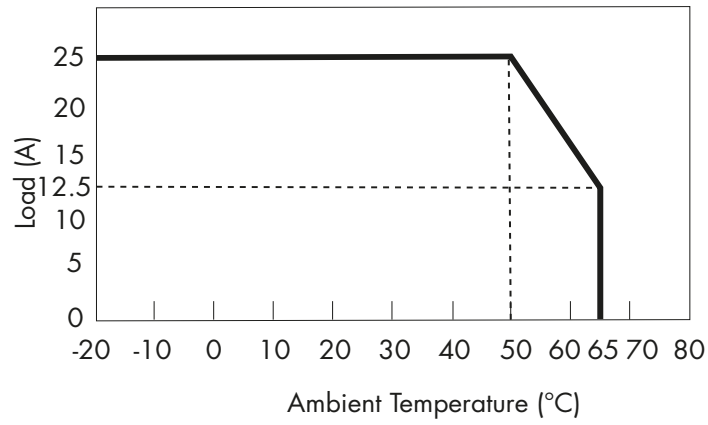
**SPPC..2001 / 2401 / 4801**



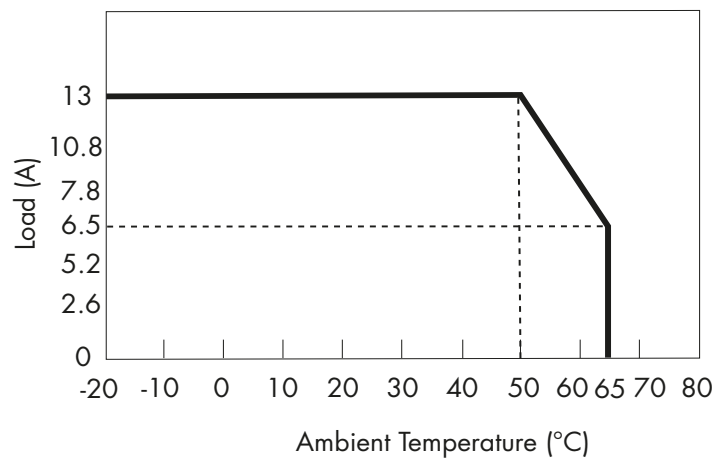


**SPPC..3201**

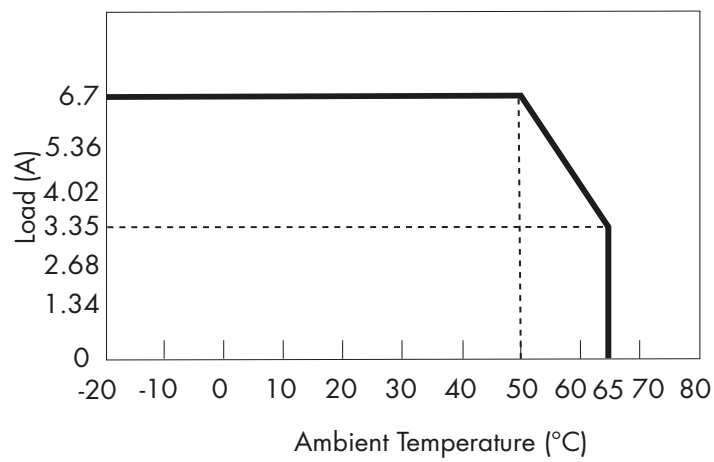
SPPC123201FC



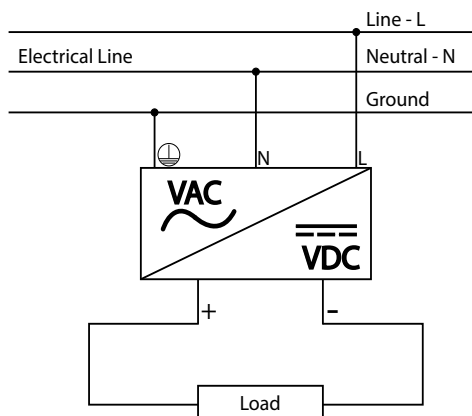
SPPC243201FC



SPPC483201FC



**Wiring diagram**

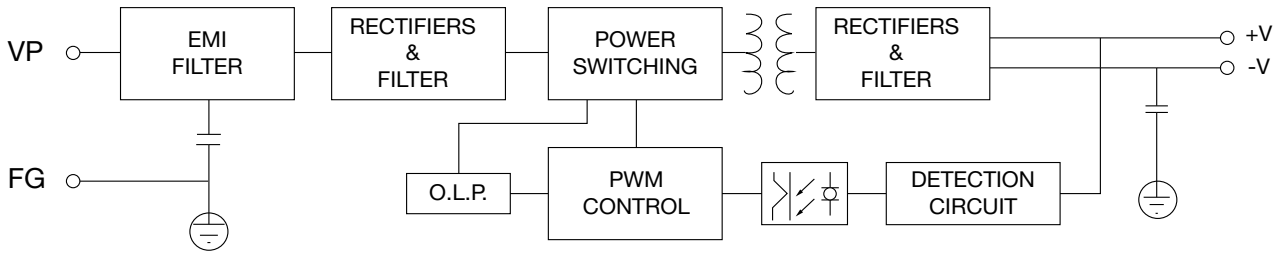


**Connection specification**

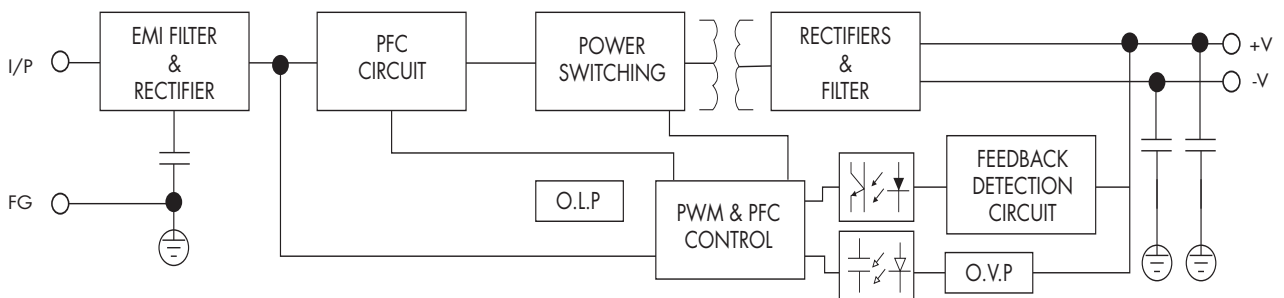
<b>Terminal type</b>	Input: 6.35 mm 3 PIN screw terminals
<b>Screw driver blade</b>	3.5 mm slotted or cross screwdriver
<b>Tightening torque (recommended)</b>	1 Nm
<b>Flexible conductor cross section max</b>	4 mm <sup>2</sup>
<b>Flexible conductor cross section min</b>	0.5 mm <sup>2</sup>
<b>Conductor cross section AWG max</b>	AWG 20 (GND wire >18 AWG)
<b>Conductor cross section AWG min</b>	AWG 10 (GND wire >18 AWG)
<b>Rigid conductor cross section min</b>	6 mm <sup>2</sup>
<b>Rigid conductor cross section max</b>	0.5 mm <sup>2</sup>
<b>Max wire diameter</b>	2.8 mm <sup>2</sup>

**Block diagram**

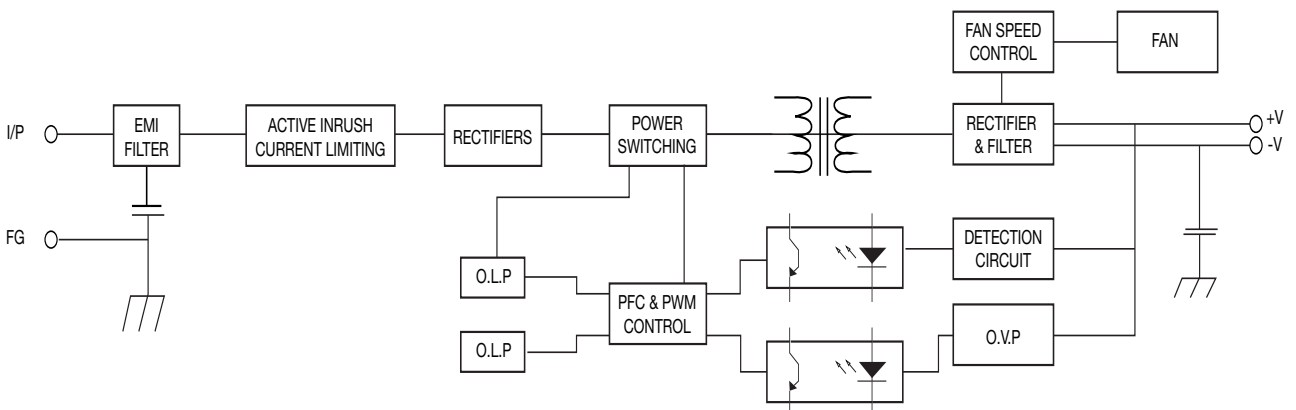
**SPPC..251 / 351 / 501 / 751**



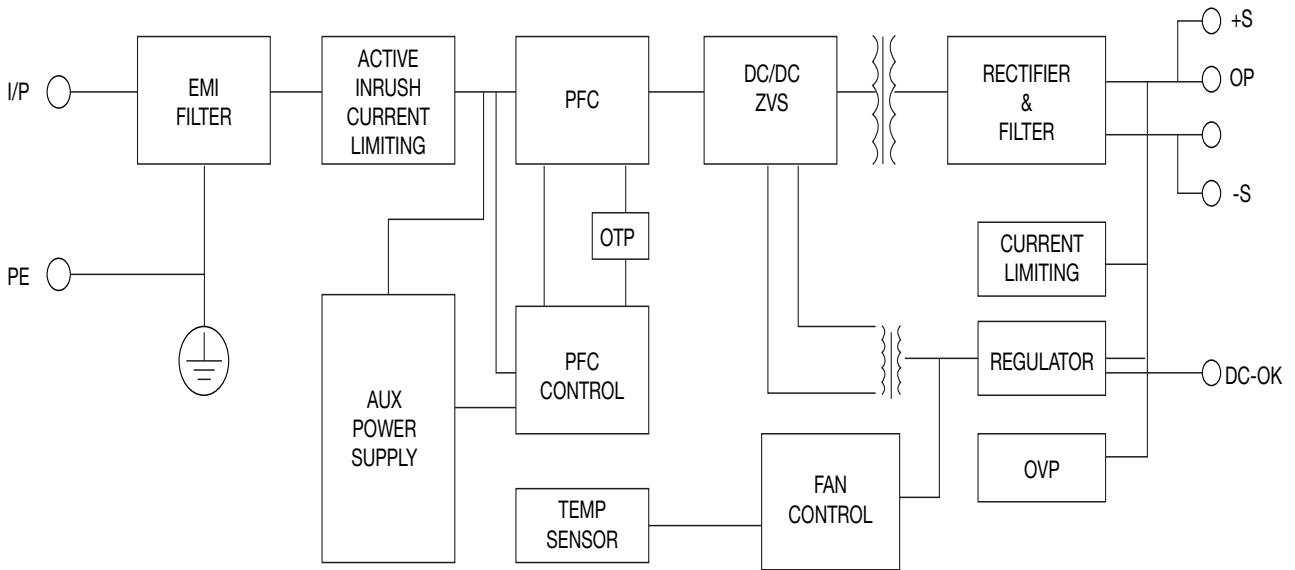
**SPPC 1501**



**SPPC 2001 / 2401 / 3201**



**SPPC 4801 / 6001 / 8001**



## Troubleshooting

### Signalling and controls

<b>DC OK LED</b>	Green when output voltage $\geq 90\%$ of rated output voltage red when output voltage $\leq 80\%$ or rated output voltage or overload
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## Operating description

### Control and protection

	SPPC..251	SPPC..351	SPPC..501	SPPC..751	SPPC..1501
<b>Overvoltage protection</b>	105 % ~ 150 % of rated output current, constant power, auto recovery	105 % ~ 150 % of rated output voltage, constant voltage	5.75 ~ 7.5V (5VDC) 13.8 ~ 18V (12VDC) 17.25 ~ 22.5V (15VDC) 27.6 ~ 36V (24VDC) 55.2 ~ 72V (48VDC)	5.5 ~ 7.5V (5VDC) 13.2 ~ 18V (12VDC) 16.5 ~ 22.5V (15VDC) 26.4 ~ 36V (24VDC) 52.8 ~ 72V (48VDC)	14 ~ 18 V (12 VDC) 17.8 ~ 22.5 V (15 VDC) 27 ~ 36 V (24 VDC) 52.5 ~ 72 V (48 VDC)
			Protection type: constant voltage	Protection type: constant voltage, auto recovery	Protection type: Hiccup mode, auto recovery
<b>Overload protection</b>	105 % ~ 150 % of rated output current, constant power, auto recovery		8.4 ~ 12 A (5VDC) 4.41 ~ 6.3 A (12VDC) 3.57 ~ 5.1A (15VDC) 2.31 ~ 3.3A (24VDC) 1.155 ~ 1.65A (48VDC)	12.6 ~ 18A (5VDC) 6.3 ~ 9A (12VDC) 5.25 ~ 7.5A (15VDC) 3.36 ~ 4.8A (24VDC) 1.7 ~ 2.43A (48VDC)	13.125 ~ 18.75 A (12 VDC) 10.5 ~ 17 A (15 VDC) 6.93 ~ 9.45 A (24 VDC) 3.36 ~ 4.8 A (48 VDC)
			Protection type: 5V is hiccup mode, rest are constant power, auto recovery	Protection type: 5V is hiccup mode, rest are constant power, auto recovery	Protection type: Hiccup mode, auto recovery
<b>Current limiting</b>	No support				
<b>Short circuit protection</b>	Long - term mode, auto recovery				
<b>Over temperature protection</b>					105 °C $\pm 5$ °C (detect on Mosfet temperature); shut down, auto recovery after the temperature goes down to 50 °C

	SPPC..2001	SPPC..2401	SPPC..3201	SPPC..4801	SPPC..6001	SPPC..8001
<b>Overvoltage protection</b>	-			110 % ~ 150 % of rated voltage, constant voltage		110 % ~ 150 % of rated output voltage, constant voltage, auto recovery
<b>Overload protection</b>	18 ~ 30 A (12 VDC) 10 ~ 15 A (24 VDC) 5.88 ~ 8.8 A (36 VDC) 5 ~ 7.56 A (48 VDC)	120 % ~ 170 % of rated output current, Hiccup mode, auto recovery	105 % ~ 150 % of rated output current, hiccup mode, auto recovery	110 % ~ 135 % of rated output current, constant current		
	Protection type: Hiccup mode, auto recovery					
<b>Current limiting</b>	No support					
<b>Short circuit protection</b>	Long - term mode, auto recovery			Long - term mode, constant current, auto recovery		
<b>Over temperature protection</b>	-			105°C + 5°C (detect on Mosfet temperature); shut down, auto recovery after the temperature goes down to 75°C		105°C + 5°C (detect on Mosfet temperature); shut down, auto recovery after the temperature goes down to 70°C

## Compatible components

### Accessories / power supplies

Power supply	Side mounting	Bottom mounting
SPPC 251 up to 751	SPPX - BKTLA + SPPX - DINCLIPA	SPPX - DINCLIPB
SPPC 1501	SPPX - BKTLB + SPPX - DINCLIPA	NOT AVAILABLE
SPPC 2001	SPPX - BKTLB + SPPX - DINCLIPA [NOT SUGGESTED*]	SPPX - DINCLIPB [NOT SUGGESTED*]
SPPC 2401	SPPX - BKTLB + SPPX - DINCLIPA [NOT SUGGESTED*]	SPPX - DINCLIPB [NOT SUGGESTED*]
SPPC 3201	SPPX - BKTLD + SPPX - DINCLIP [NOT SUGGESTED*]	NOT AVAILABLE
SPPC 4801 and above	NOT AVAILABLE	NOT AVAILABLE
SPPC 1501 1FC	NOT AVAILABLE	NOT AVAILABLE
NOT SUGGESTED*: The mounting is available only with 2 fixing screws		

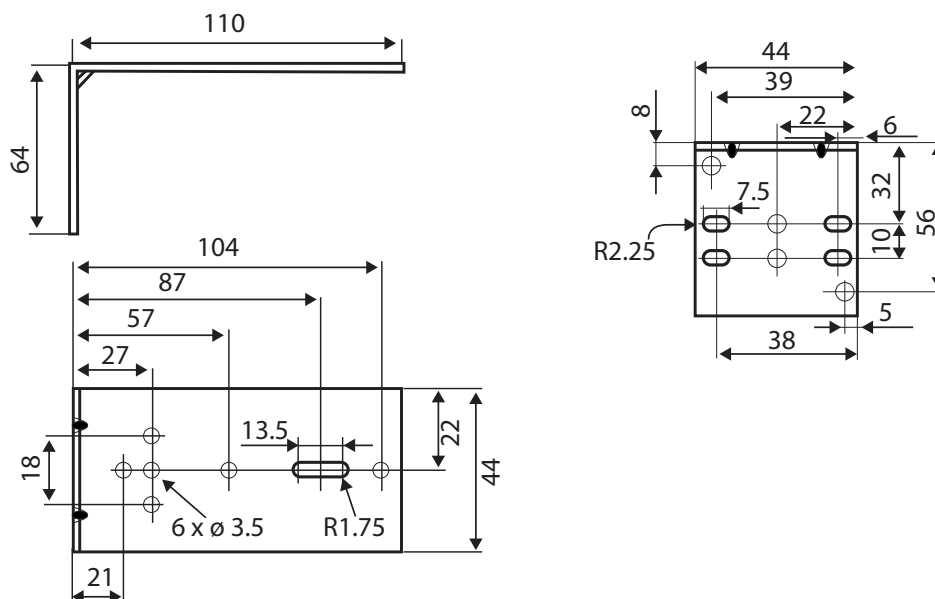
**Structure**

Items		
Order number	Description	Image
SPPX - BKTLA	small square	
SPPX - BKTLB	Medium square	
SPPX - BKTLD	Large square	

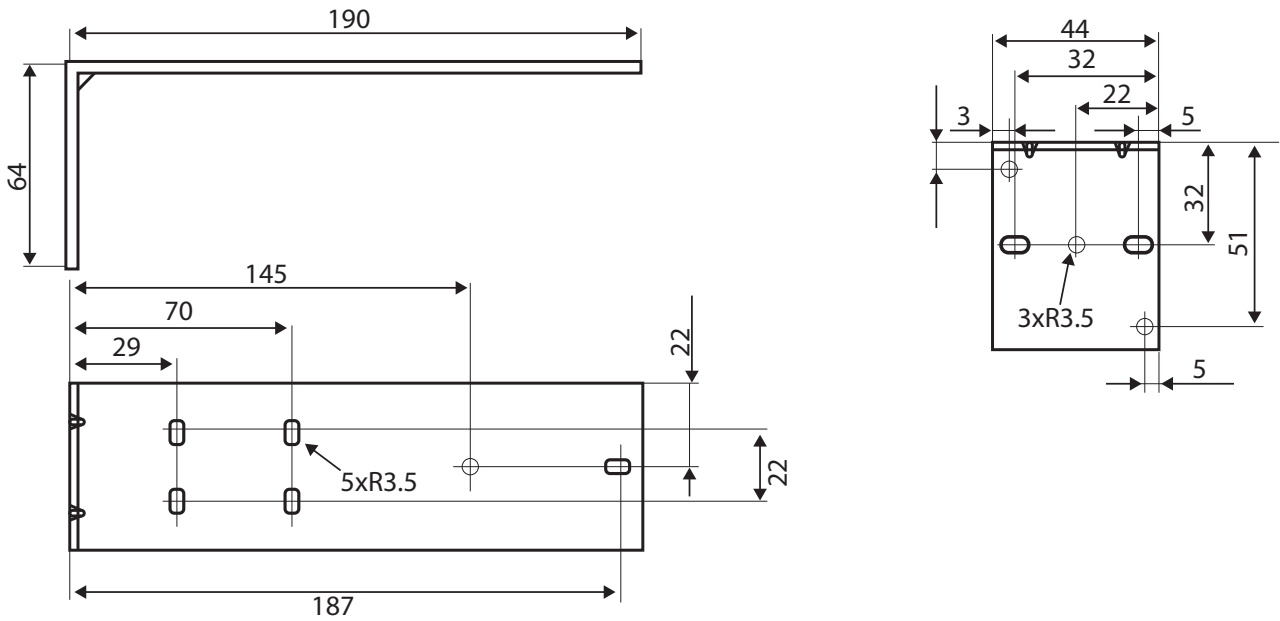
Items		
Order number	Description	Image
SPPX - DINCLIPA	Bracket for side mounting	
SPPX - DINCLIPB	Bracket for bottom mounting	

**Dimensions**

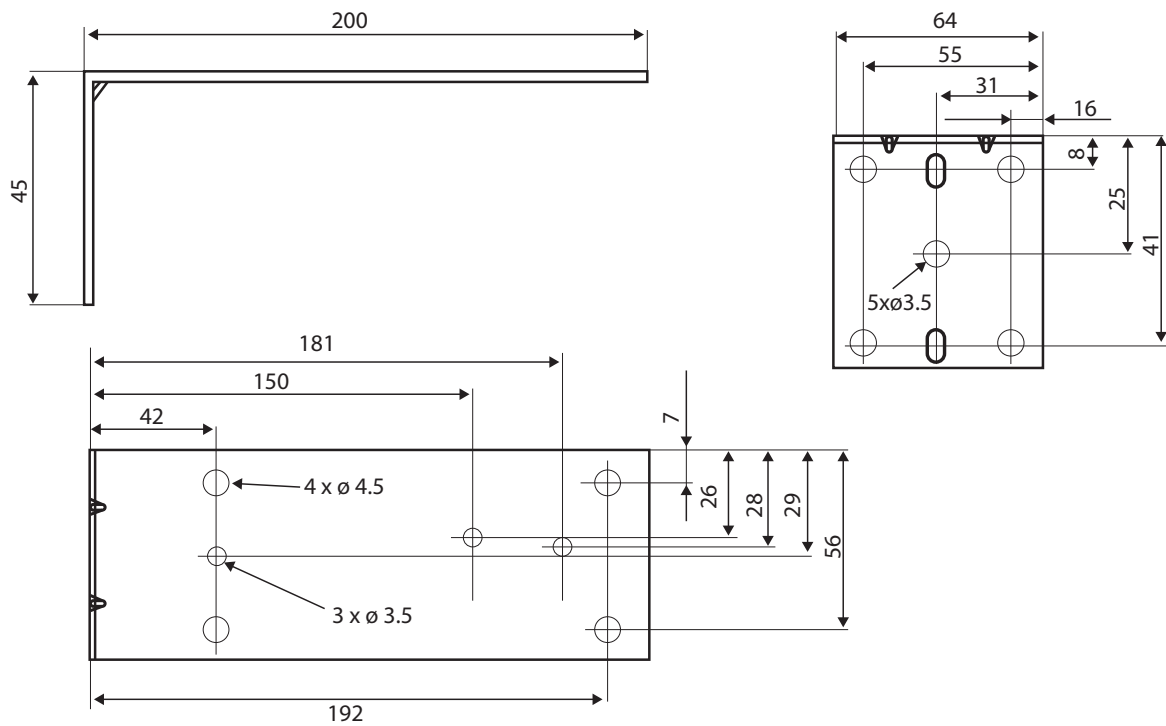
**SPPX - BKTLA bracket**



**SPPX - BKTLB bracket**

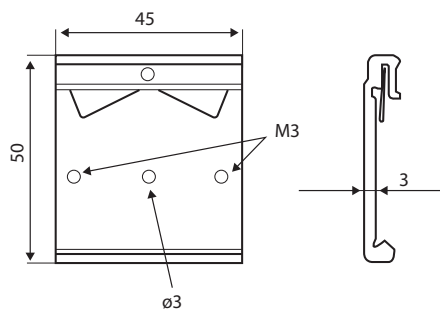


**SPPX - BKTLD bracket**

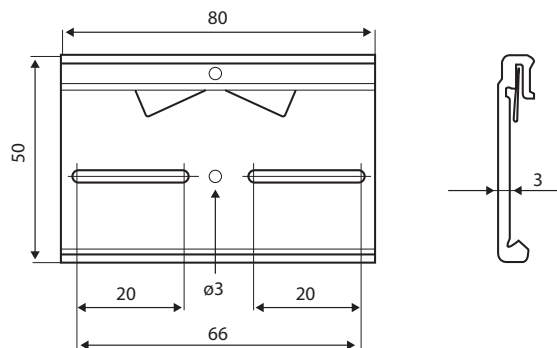




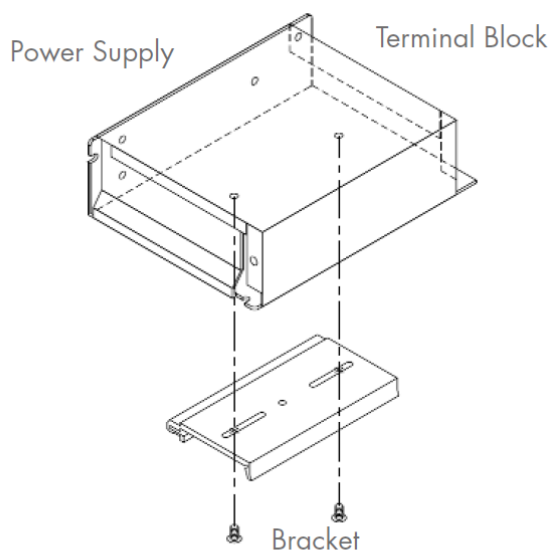
**SPPX - DINCLIP A**



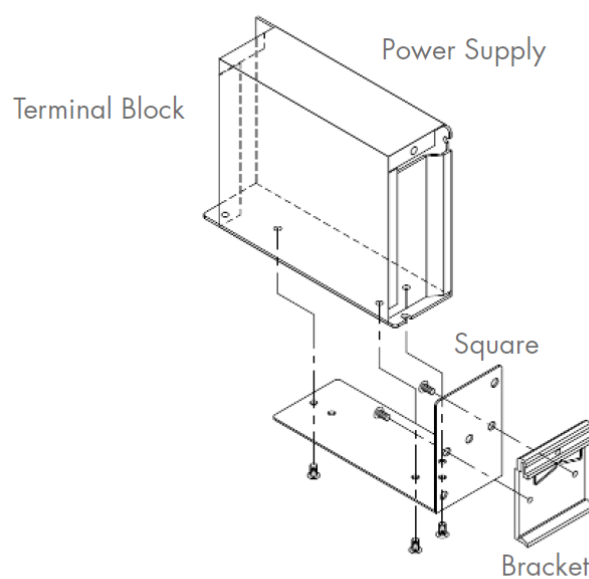
**SPPX - DINCLIP B**



**Mounting Drawings**



**Bottom Mounting**



**Side Mounting**