

# AC/DC – DC/DC converters


## Switching power supply with low voltage input


Thank you for having chosen one of our products for your work. We are certain that it will give the utmost satisfaction and be a notable help on the job.

### Application

The power AC/DC – DC/DC low voltage converters can be used in areas from extreme industrial environment, and complies with the latest technical standard. Before working with the unit, read these instructions carefully and completely. All these low voltage converters are single output and have Mounting DIN Rail.

### Installation

 Switch off the system before connecting the module. Never work on the machine when it is live. The device must be installed in according with EN 93/68 EEC. The device must have a suitable isolating facility outside the power supply unit, via which can be switched to idle.

 It's possible to connect the negative pole (-) to ground only if is not connect to ground also a pole of the input (transformer secondary).

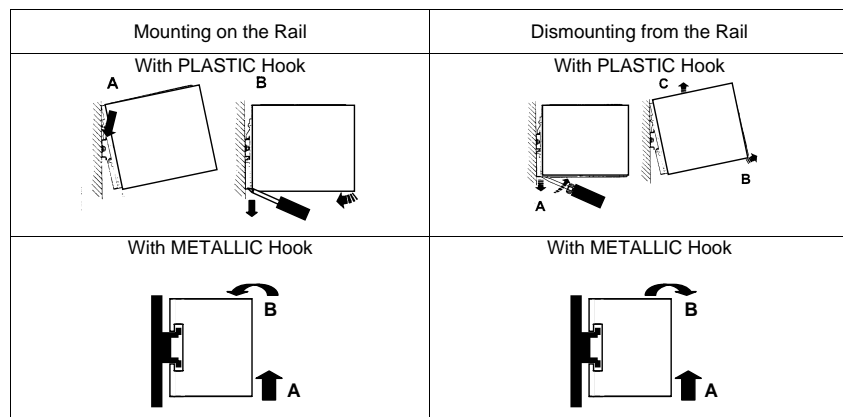
### Connection:


The following cable cross-sections may be used:

Model	Input		Output		Stripping length
	Rigid	Flexible	Rigid	Flexible	
PFALVP series SW series PFAL247 PFAL2410	0.2÷4 mm <sup>2</sup>	0.2÷2.5 mm <sup>2</sup>	0.2÷4 mm <sup>2</sup>	0.2÷2.5 mm <sup>2</sup>	7mm
PFAL2415 PFAL2420	0.2÷6 mm <sup>2</sup>	0.2÷4 mm <sup>2</sup>	0.2÷6 mm <sup>2</sup>	0.2÷4 mm <sup>2</sup>	7mm

The input – output connection is made by the screw.

### Rail Mounting:



 Other modules must have a minimum vertical distance of 10 cm to this power supply in order to guarantee sufficient auto convection.

### Signaling

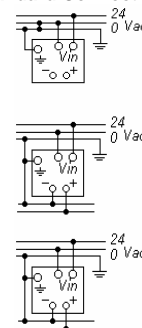
The green led lights up permanently when the input voltage is applied at the power supply.

The red led (DC ok):

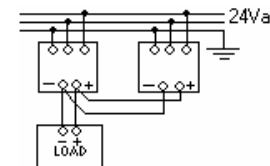
- lights up permanently when the output voltage is OK
- blink when there is in overload range or in short circuit protection.

### Cables connection

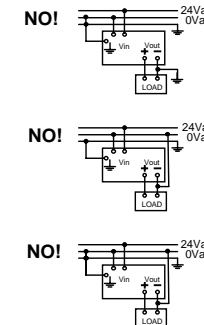
**Standard Connection:**



**Parallel Connection: PFAL series only:**



**Wrong Connection:**



### Protection:

**On the primary side:** the device must be protected with an external fuse follow the table into the next page

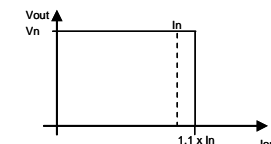
**On the secondary side:** the device is electrically protected against:

- Short circuit
- Over Load
- Over Voltage Output (only PFAL series)

### Characteristic Curves

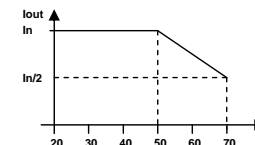
#### Short circuit and overload

The output of the device is electrically protected against overload and short circuit. At nominal voltage the device can supply 1.1 the nominal Current without switching off. In the case of higher overload, the operating point traces the curve illustrated in figure. As the overload increases, the output voltage is reduced until zero.



#### Thermal behaviour

The device supplies the nominal output current at ambient temperature of up 50°C. For ambient temperature of over 50°C, the output current must be reduced by 2.5% per °C increase in temperature. At the temperature of 70°C the output current will be In/2. The equipment does not switch off in case of ambient temperature above 70°C or thermal overload.



### Standards and Certification

Electrical safety is ensured by assembling the devices in according with 93/68 EEC.  
Electromagnetics compatibility:emission in according with the directive EN 55011 class B  
Electromagnetics compatibility:immunity in according with the directive EN 50082-2 level 4

In according to EMC 89/336/EEC and Low voltage 93/68/EEC



Ordering Information								
Input (Voltage)	6÷28Vac 8÷39Vdc	6÷28Vac 8÷39Vdc	6÷28Vac 8÷39Vdc	6÷28Vac 8÷39Vdc	6÷28Vac 8÷39Vdc	6÷28Vac 8÷39Vdc	6÷28Vac 8÷39Vdc	6÷28Vac 8÷39Vdc
Output Vn – In	1.25÷28 – 2A	24Vdc – 3A	24Vdc - 5A	24Vdc - 7A	24Vdc - 7A	24Vdc - 10A	24Vdc - 15A	24Vdc – 20A
Model	PFALVPX	SW243LC	SW245HP	SW247HP	PFAL247	PFAL2410	PFAL2415	PFAL2420

INPUT DATA								
Input Rated Voltage (Vn) <i>Tensione d'ingresso nominale</i>	6÷28Vac 8÷39Vdc	25Vac 40Vdc	25Vac 40Vdc	25Vac 40Vdc	25Vac 40Vdc	25Vac 40Vdc	25Vac 40Vdc	25Vac 40Vdc
Rated Voltage Range (*) <i>Campo di funzionamento (*)</i>		24÷32Vac 33÷45Vdc	24÷32Vac 33÷45Vdc	24÷32Vac 33÷45Vdc	24÷32Vac 33÷45Vdc	24÷32Vac 33÷45Vdc	24÷32Vac 33÷45Vdc	24÷32Vac 33÷45Vdc
Frequency / <i>Frequenza di Ingresso</i>	47 ÷ 63 Hz	47 ÷ 63 Hz	47 ÷ 63 Hz	47 ÷ 63 Hz	47 ÷ 63 Hz	47 ÷ 63 Hz	47 ÷ 63 Hz	47 ÷ 63 Hz
Internal Fuse / <i>Fusibile Interno</i>		No	No	No	10A	15A	20A	25A
External Fuse (Raccomanded) <i>Fusibile raccomandato Esterno</i>	Fast 4 A	Fast 4 A	Fast 6 A	Fast 10 A	Fast 10 A	Fast 15 A	Fast 20 A	Fast 25 A

OUTPUT DATA								
Output Voltage - Nominal Current <i>Tensione di Uscita - Corrente Nominale</i>	+1.25÷28Vdc / 2 A ± 2% [P3] 1.5 A ± 2% [P2] 0.8 A ± 2% [P1]	24Vdc 3A ±2%	24Vdc 5A ±2%	24Vdc 7A ±2%	24Vdc 7A ±2%	24Vdc 10A ±2%	24Vdc 15A ±2%	24Vdc 20A ±2%
Adjustment range (Vadj) <i>Campo di regolazione (Vadj)</i>	Yes	No	No	No	± 10 %	± 10 %	± 10 %	± 10 %
Switch. On delay applying manis voltage <i>Tensione in Uscita dopo l'accensione</i>	≤ 100 msec.	≤ 100 msec.	≤ 100 msec.	≤ 100 msec.	≤ 100 msec.	≤ 100 msec.	≤ 100 msec.	≤ 100 msec.
Start up with capacitive load <i>Start up con carichi capacitivi</i>		30.000µF 1.5A	30.000µF 2A	30.000µF 2A				
Max Current / <i>Corrente max.</i>	1.05xIn ±7%	3 A ±7%	5 A ±7%	7 A ±7%	7 A ±7%	10 A ±7%	15 A ±7%	20 A ±7%
Continuous Current <i>Corrente funzionamento continuo</i>		3 A	3.5 A	5 A	5 A	7 A	10 A	15 A
Residual Ripple / <i>Ripple residuo</i>	≤ 60 mVpp	≤ 60 mVpp	≤ 60 mVpp	≤ 60 mVpp	≤ 60 mVpp	≤ 60 mVpp	≤ 60 mVpp	≤ 60 mVpp
Minimum load / <i>Carico minimo</i>	No	No	No	No	No	No	No	No
Efficiency / <i>Rendimento tipico (al 50% Vn)</i>		≥ 88 %	≥ 88 %	≥ 88 %	≥ 85 %	≥ 85 %	≥ 85 %	≥ 85 %
Short-circuit protection <i>Protezione contro il C.C.</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Over load protection <i>Protezione sovraccarico</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Over voltage Output protection <i>Protezione sovratensione in Uscita</i>	Yes	No	No	No	Yes	Yes	Yes	Yes
Parallel connection <i>Collegamento in parallelo</i>	Yes	No	No	No	Yes	Yes	Yes	Yes

CLIMATIC DATA								
Ambient Temperature (operation) <i>Temp. Ambiente</i>	-10 ÷ 70°C	-10 ÷ 70°C	-10 ÷ 70°C	-10 ÷ 70°C	-10 ÷ 70°C	-10 ÷ 70°C	-10 ÷ 70°C	-10 ÷ 70°C
Ambient Temperature (storage) <i>Temp Magazzino</i>	-25 ÷ +85°C	-25 ÷ +85°C	-25 ÷ +85°C	-25 ÷ +85°C	-25 ÷ +85°C	-25 ÷ +85°C	-25 ÷ +85°C	-25 ÷ +85°C
Humidity / <i>Umidità</i>	95 % to 25°C	95 % to 25°C	95 % to 25°C	95 % to 25°C	95 % to 25°C	95 % to 25°C	95 % to 25°C	95 % to 25°C

GENERAL DATA								
Protection Degree / <i>Grado di protezione</i>	IP20	IP20	IP20	IP20	IP20	IP20	IP20	IP20
Protection Class <i>Protezione Classe</i>	I, with PE connected	I, with PE connected	I, with PE connected	I, with PE connected	I, with PE connected	I, with PE connected	I, with PE connected	I, with PE connected
Dimension (w-h-d) / <i>Dimensioni (l-h-p) mm</i>	50x95x61	50x95x61	50x95x61	70x95x61	108x94x63	124x94x73	150x115x96	150x115x96
Weight / <i>Peso</i>	0.20 Kg	0.20 Kg	0.20 Kg	0.35kg	0.4kg	0.55kg	0.95kg	1.15kg

(\*)Only SW243LC/48, SW245HP/48, PFAL2415/48 and PFAL2420/48 input voltage is 36÷72Vdc.