

## Installation notes

### 1. Safety instructions

- Switch main power off before connect or disconnect the device. Danger of explosion!
- To guarantee sufficient convection cooling, please keep a distance of 50mm above and below the device as well as a lateral distance of 20mm to other units.
- Please note, that the enclosure of the device can become very hot depending on the ambient temperature and load of the power supply. Risk of burns!
- Only plug in and unplug connectors when power is turned off!
- Do not introduce any objects into the unit!
- Dangerous voltage present for at least 5 minutes after disconnecting all sources of power.

### 2. Device description (Fig. 1)

- (1) Input terminal block connector
- (2) Output terminal block connector
- (3) DC voltage adjustment potentiometer
- (4) DC OK control LED (green)
- (5) Universal mounting rail system

### 3. Mounting (Fig. 2)

The power supply unit can be mounted on 35mm DIN rails in accordance with EN60715. The device should be installed horizontally with input terminal blocks on the bottom.

Each device is delivered ready to install.

Snap on the DIN rail as shown in Fig. 2:

1. Tilt the unit slightly upwards and put it onto the DIN rail.
2. Push downwards until stopped.
3. Press against the bottom front side for locking.
4. Shake the unit slightly to ensure that it is secured.

### 4. Dismounting (Fig. 3)

To uninstall, pull or slide down the latch as shown in Fig. 3. Then, slide the PSU in the opposite direction, release the latch and pull out the PSU from the rail.

### 5. Connection

The terminal block connectors allow easy and fast wiring. A plastic cover provides the necessary isolation of the electric connection.

You can use flexible (stranded wire) or solid cables with cross section 0.32-2.1mm<sup>2</sup> (AWG 22-14) and torque of 0.78-0.98Nm (6.94-8.68lb in). To secure reliable and shock proof connections, the stripping length should be 7 mm.

In accordance to EN60950 / UL60950, flexible cables require ferrules.

Use appropriate copper cables that are designed to sustain operating temperature of at least 75°C or more to fulfill UL requirements.

For stranded wires it is recommended to use suitable lug to crimp wires (see Fig. 4).

#### 5.1. Input connection (Fig. 1, Fig. 5)

Use L, N and PE connections of input terminal connector (see Fig. 1 (1)) to establish the 100-240VAC connection.

At 3-phase systems, just use two phases for the connection to L and N. Need to connect PE and provide an isolation facility for all poles.

The device has an internal fuse. 6A, 10A or 16A power circuit breakers are recommended as backup fuses.



**The internal fuse must not be replaced by the user.  
In case of internal defect, return the unit for inspection to the manufacturer.**

#### 5.2. Output connection (Fig. 1 (2))

Use the "+" and "-" screw connections to establish the 24VDC connection. The output provides 24VDC. The output voltage can be adjusted from 22 to 28VDC on the potentiometer. The green LED DC OK displays correct function of the output (Fig. 1 (4)). The device has a short circuit and overload protection and an over voltage protection limited to 35VDC.

#### 5.3. Output characteristic curve

The device functions normal under operating line and load conditions. In the event of a short circuit or over load the output voltage and current collapses ( $I_{OL}$  or  $I_{SC}$  is  $> I_{surge}$  (150%)). The secondary voltage is reduced and bounces until short circuit or overload on the secondary side has been removed.

#### 5.4. Thermal behavior (Fig. 6)

In the case of ambient temperatures above +50°C, the output capacity has to be reduced by 2.5% per Kelvin increase in temperature. If the output capacity is not reduced when  $T_{Amb} > 50^\circ\text{C}$  device will run into thermal protection by switching off i.e. device will go in bouncing mode and will recover when ambient temperature is lowered or load is reduced as far as necessary to keep device in working condition.

## Technical data

<b>Input (AC)</b>	
Nominal input voltage	100-240VAC
Voltage range	85-264VAC (DC input range 120-375VDC)
Frequency	47-63Hz (0Hz @ DC input)
Nominal current	1.1A @ 115VAC, 0.7A @ 230VAC
Inrush current limitation. Pt (+25°C) typ.	< 40A @ 115VAC, < 80A @ 230VAC
Mains buffering at nominal load (typ.)	> 20ms @ 115VAC, > 125ms @ 230VAC
Turn-on time	< 2.5 sec.
Internal fuse	T 3.15 AH / 250V
Recommended backup fuse	6A, 10A or 16A
Power circuit-breaker characteristic	B
Leakage current	< 1mA
<b>Output (DC)</b>	
Nominal output voltage $U_o$ / tolerance	24VDC $\pm$ 2%
Adjustment range of the voltage	22-28VDC
Nominal current	2.5A
Derating above +50°C	2.5% / K. (< 0°C 1% / K., > 70°C 4% / K.)
Startup with capacitive loads	Max. 8,000µF
Max. power dissipation idling / nominal load approx.	10W
Efficiency	> 85% typical
Residual ripple/ peak switching (20MHz) (at nominal values)	< 50mV / < 240mVpp
Parallel operation	With oring diode
<b>General Data</b>	
Type of housing	Plastic (PC), closed
Signals	Green LED DC OK
MTBF	> 800,000 hrs.
Dimensions (L x W x H)	126mm x 32mm x 113mm
Weight	0.325kg
Connection method	Screw connection
Stripping length	7mm or use suitable lug to crimp
Operating temperature	-20°C to +75°C (> 50°C derating)
Storage temperature	-25°C to +85°C
Humidity at +25°C, no condensation	< 95% RH
Vibration (operating)	10 to 150Hz, 0.35mm acc. 50m / s <sup>2</sup> , single amplitude (5G max.) for 90min. in each X, Y & Z directions, in acc. with IEC68-2-6
Pollution degree	2
Climatic class	3K3 according to EN60721
<b>Certification and Standards</b>	
Electrical equipments of machines	IEC60204-1 (over voltage category III)
Electronic equipment for use in electrical power installations	EN50178 / IEC62103
Safety entry low voltage	PELV (EN60204), SELV (EN60950)
Electrical safety (of information technology equipment)	EN60950-1 (GS-mark), UL/C-UL recognized to UL60950-1, CSA C22.2 No. 60950-1, CB scheme to IEC60950-1, cCSAus to UL60950-1 and CSA C22.2 No. 60950-1 (File no. 181564)
Industrial control equipment	UL / C-UL listed to UL508 and CSA C22.2 No. 107.1-01, CSA to CSA C22.2 No. 107.1-01 (file no. 181564)
Protection against electric shock	DIN57100-410
CE	In conformance with EMC directive 2004/108/EC and low voltage directive 2006/95/EC
ITE	EN55022, EN61000-3-2, EN61000-3-3, EN55024
Industrial	EN55011
Limitation of mains harmonic currents	EN61000-3-2
<b>Safety and Protection</b>	
Transient surge voltage protection	VARISTOR
Current limitation at short-circuits approx.	$I_{surge} = 150\%$ of $P_{o,max}$ typically
Surge voltage protection against internal surge voltages	Yes
Isolation voltage: Input / output (type test/routine test) Input / PE (type test/routine test) Output / PE (type test/routine test)	4kVAC / 3kVAC 1.5kVAC / 1.5kVAC 1.5kVAC / 500VAC
Protection degree	IPX0
Safety class	Class I with PE connection
Shock (in all directions)	30G (300m/s <sup>2</sup> ) in all directions according to IEC68-2-27