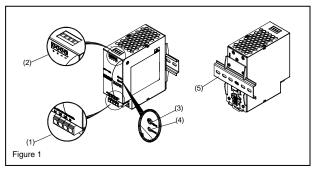
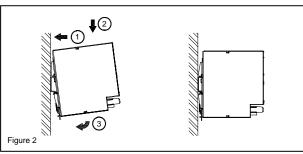
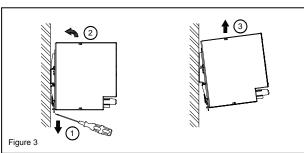


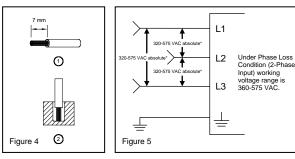
Installation Instructions for PSG60F24RM POWER SUPPLY

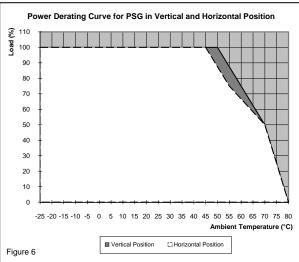
READ INSTRUCTIONS BEFORE INSTALLING OR OPERATING THIS DEVICE. KEEP FOR FUTURE REFERENCE.











1. Safety instructions

- Switch main power off before connecting or disconnecting the device. Risk of explosion! To guarantee sufficient convection cooling, please keep a distance of 50 mm above and below the device as well as a lateral distance of 5 mm to other units
- 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!
- The main power must be turned off before connecting or disconnecting wires to the terminals!
- Do not introduce any objects into the unit!
- Dangerous voltage present for at least 5 minutes after disconnecting all sources of power.

 The power supplies are built-in units and must be installed in a cabinet or room (condensation free environment and indoor location) that is relatively free of conductive contaminants. The unit must be installed in an IP54 enclosure or cabinet in the final installation.

- Warning: Explosion Hazard Substitution of components may impair suitability for Class I, Division 2. Warning: Explosion Hazard Do not disconnect equipment or adjust potentiometer unless the power has been switched off or the area is known to be non-hazardous

CAUTION: "FOR USE IN A CONTROLLED ENVIRONMENT".

- 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

The power supply unit can be mounting on 35 mm DIN rails in accordance with EN 60715. In Vertical Position, the device should be installed with input terminal block on the bottom. In Horizontal Position, the device should be installed with input terminal block on the left side.

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.
- Push downwards until stopped.
 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.

Connection

The terminal block connectors allow easy and fast wiring.

You can use flexible (stranded wire) or solid cables with cross sections:

	Table	Stranded / Solid		Torque	
		(mm²)	(AWG)	(Kgf-cm)	(lb in)
	(1)	0.82-3.3	18-12	9.3	8.1
	(2)	0.82-3.3	18-12	6.2	5.4

To secure reliable and shock proof connections, the stripping length should be 7 mm (see Fig. 4 (1)). Please ensure that wires are fully inserted into the connecting terminals as shown in Fig. 4 (2). In accordance to EN 60950 / UL 60950, flexible cables require ferrules.

Use appropriate copper cables that are designed to sustain operating temperature of: 1. 60°C, 60°C / 75°C for USA

- 2. Vertical Position: At least 75°C for ambient not exceeding 60°C, and 90°C for ambient exceeding 60°C for Canada. Horizontal Position: At least 75°C for ambient not exceeding 55°C, and 90°C for ambient exceeding 55°C for Canada.

5.1. Input connection (Fig. 1, Fig. 5)
Use L1, L2, L3 and PE connections of input terminal connector to establish the 3 x 400-500 VAC

connection. Fig. 5 shows the connection to the various network types. In the event of a phase failure, unrestricted operation is possible with nominal capacity. The device has an internal fuse. 3 x power circuit-breakers 6 A, 10 A or 16 A power circuit breakers are recommended as backup fuses. The unit shall be installed with branch circuit protective device 20 A (UL 489 Listed).



The internal fuse must not be replaced by the user In case of internal defect, please call 1 - 877 - ETN - CARE

5.2. Output connection (Fig. 1 (2)) Use the "+" and "-" screw connections to establish the 24Vdc connection. The output provides 24 VDC.

The output voltage can be adjusted from 24 to 28 VDC 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 overvoltage protection limited to 35 VDC.

5.3. Output characteristic curve

The device functions normal under operating line and load conditions. In the event of a short circuit or overload the output voltage and current collapses ($I_{O/L}$ or $I_{S/C}$ 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).
Vertical Position: In the case of ambient temperatures above +50°C, the output capacity has to be reduced by 2.5% per degree Celsius increase in temperature. Horizontal Position: In the case of ambient temperatures above +45°C, the output capacity has to be reduced by 2.5% per degree Celsius increase in temperature. At +55°C to +70°C, the output capacity has to be reduced by 1.66% per degree Celsius increase in temperature. In both Vertical and Horizontal Position, at +70°C to +80°C, the output capacity has to be reduced by 5% per degree Celsius increase in temperature. If the output capacity is not reduced when T_{Amb} > 50°C (Vertical) or > 45°C (Horizontal), the 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.

FOR TECHNICAL ASSISTANCE CALL 1 - 877 - ETN - CARE



Technical DATA FOR PSGGF2ARM Imput (Add Section		
Nominal plant voltage (Ingresser) 3 x 400 500 VAC (1900 IVE) VAC VALIdage range 320-600 VAC		
Vallage parings		0. 400 700 140 470 00 14
Frequency		
Naminal current		
Incust current limitation. IR (429°C) typ.		
Mains buffering at norminal load (typ.) 2-20 ms @ 3 x 400 VAC. AC Source capability up to 18 kVA		
Mane buffering at nominal load (typ.)	inrush current limitation. Pt (+25°C) typ.	
Internal fuse	Mains huffering at nominal load (typ.)	> 20 ms @ 3 × 400 VAC & 3 × 500 VAC, AC Source capability up to 10 kVA
T 3.15 AH / 500 V, 500 V -LITTERUSE: Type 4T Reated 3.15 A / 600 VAC for bit LE10480 and 3.15 A / 500 VAC for both UL E82696 and Europe Recommended backup fuse 3 x cross breakers 6 A, 10 A or 16 A - Power circus-breaker characteristic 8 - Power circus-breaker characteristic 8 - Power circus-breaker characteristic 8 - Recommended backup fuse 3 x cross breakers 6 A, 10 A or 16 A - Power circus-breaker characteristic 8 - Recommended backup fuse 4 x 24 x 24 x 25 x 3 x 4 x 4 x 24 x 25 x 3 x 4 x 4 x 24 x 25 x 3 x 4 x 4 x 24 x 25 x 3 x 4 x 4 x 24 x 25 x 3 x 24 x 25 x 25 x 3 x 24 x 25		·
LITTELFUSE Type 477 Rates 3.15 A / 500 VAC for UL £10480 and 3.15 A / 500 VAC for Europe CONQUERT Type UDE/UDE-A Rates 3.15 A / 500 VAC for both UL £82636 and 8.25 A / 500 VAC for both UL £82636 and 8.25 A / 500 VAC for both UL £82636 and 8.25 A / 500 VAC for both UL £82636 and 8.25 A / 500 VAC for both UL £82636 and 8.25 A / 500 VAC for both UL £82636 and 8.25 A / 500 VAC for both UL £82636 and 8.25 A / 500 VAC for both UL £82636 and 8.25 A / 500 VAC for both UL £82636 and 8.25 A / 500 VAC for both UL £82636 and 8.25 A / 500 VAC for both UL £82636 and 8.25 A / 500 VAC for both UL £82636 and 8.25 A / 500 VAC for both UL £82636 and 8.25 A / 500 VAC for both UL £82636 and 8.25 A / 500 VAC for both UL £82636 and 8.25 A / 500 VAC for both UL £82636 and 8.25 A / 500 VAC for both UL £82636 and 8.25 A / 500 VAC for both UL £82636 and 8.25 A / 500 VAC for both UL £82636 and 8.25 A / 500 VAC for both UL £82636 and 8.25 A / 500 VAC for both UL £82636 and 8.25 A / 500 VAC for both UL £82636 and 8.25 A / 500 VAC for both UL £82636 and 8.25 A / 500 VAC for both UL £82636 and 8.25 A / 500 VAC for both UL £82636 and 8.25 A / 500 VAC for both UL £82636 and 8.25 A / 500 VAC for both UL £82636 and 8.25 A / 500 VAC for \$1.55 A / 500 VAC for both UL £82636 and 8.25 A / 500 VAC for \$1.55 A / 500 VAC for both UL £82636 and 8.25 A / 500 VAC for \$1.55 A / 500 VAC		
Sacramended backup fuse Sacramended back	internal ruse	
CONQUER: Type UDE/UDE-A Rated 3.15 A / 500 VAC for both UL E8/856 and Europe		
Recommended backup use Sax circuit breakers 6 A, 10 A or 16 A		
Power forciul-breaker characteristic		Europe
Comparing the Comparing	Recommended backup fuse	3 x circuit breakers 6 A, 10 A or 16 A
Surprise Company	Power circuit-breaker characteristic	В
Naminal output voltage U.y folerance		< 3.5 mA
Naminal output voltage U.y folerance	Output (DC)	
Nominal current 2.5 A 50°C (2.5 %, "C), > 70°C (5%, "C) in Vertical > 45°C (2.5 %, "C), > 70°C (5%, "C) in Vertical > 45°C (2.5 %, "C), > 70°C (5%, "C) in Vertical > 45°C (2.5 %, "C), > 70°C (5%, "C) in Vertical > 45°C (2.5 %, "C), > 70°C (5%, "C) in Vertical > 48°C (4.6 %, "C), > 70°C (5%, "C) in Vertical > 48°C (4.6 %, "C), > 70°C (5%, "C) in Vertical > 48°C (4.6 %, "C), > 70°C (5%, "C), > 70°C (5%, "C) in Horizontal Max. 10,000 µF ### Standard Amount of the Max. 10,000 µF ### Standard A		24 VDC ± 2 %
Derating	Adjustment range of the voltage	24-28 VDC (maximum power ≤ 60 W)
Sarup with capacitive loads	Nominal current	2.5 A
Sarup with capacitive loads	Derating	> 50°C (2.5 % / °C), > 70°C (5% / °C) in Vertical
Startup with capacitive loads Max. power dissipation idling / nominal load approx. Efficiency (at 400 VAC & 500 VAC and nominal values) Residual ripple / peak switching (20 MHz) (at nominal values) Parallel operation Parallel operation Passidual ripple / peak switching (20 MHz) (at nominal values) Parallel operation Passidual ripple / peak switching (20 MHz) (at nominal values) Parallel operation Passidual ripple / peak switching (20 MHz) (at nominal values) Passidual operation Passidual ripple / peak switching (20 MHz) (at nominal values) Passidual operation Passidual ripple / peak switching (20 MHz) (at nominal values) Passidual operation Passidual ripple / peak switching (20 MHz) (at nominal values) Passidual ripple / peak switching (20 MHz) (at nominal values) Passidual ripple / peak switching (20 MHz) (at nominal values) Passidual ripple / peak switching (20 MHz) (at nominal values) Passidual ripple / peak switching (20 MHz) (at nominal values) Passidual ripple / peak switching (20 MHz) (at nominal values) Passidual ripple / peak switching (20 MHz) (at nominal values) Passidual ripple / peak switching (20 MHz) (at nominal values) Passidual ripple / peak switching (20 MHz) (at nominal values) Passidual ripple / peak switching (20 MHz) (at nominal values) Passidual ripple / peak switching (20 MHz) (at nominal values) Passidual ripple / peak switching (20 MHz) (at nominal values) Passidual ripple / peak switching (20 MHz) (at nominal values) Passidual ripple / peak switching (20 MHz) (at nominal values) Passidual ripple / peak switching (20 MHz) (at nominal values) Passidual ripple / peak switching (20 MHz) (at nominal values) Passidual ripple / peak switching (20 MHz) (at nominal values) Passidual ripple / peak switching (20 MHz) (at nominal values) Passidual ripple / peak switching (20 MHz) (at nominal values) Passidual ripple / peak switching (20 MHz) (at nominal values) Passidual ripple / peak switching (20 MHz) (at nominal values) Passidual ripple / peak switching (20 MHz) (at nominal values) Passidual	-	> 45°C (2.5 % / °C), > 55°C (1.66% / °C), > 70°C (5% / °C) in Horizontal
Second Project Protection		Max. 10,000 μF
Residual ripple peak switching (20 MHz) (at nominal values) FSG480R24RM / PSG960R24RM / With ORing Diode		
Parallel operation		
Aluminum		< 50 mVpp / < 150 mVpp
Type of housing		PSG480R24RM / PSG960R24RM / With ORing Diode
Signals	General Data	
MTBF	Type of housing	Aluminum
Dimensions (L x W x H)	Signals	Green LED DC OK
Weight		> 500,000 hrs.
Screw connection Screw connection	Dimensions (L x W x H)	121 mm x 50 mm x 117.3 mm
Stripping length		0.66 kg
Operating temperature (surrounding air temperature) -25°C to +80°C (Refer to Fig. 6)	Connection method	Screw connection
Storage temperature	Stripping length	7 mm
Humidity at +25°C, no condensation < 95% RH		
10 to 500 Hz @ 30 m/s² (3 G peak); displacement of 0.35 mm; 60 min. per axis for all X, Y, Z directions in acc, with IEC 60068-2-6	Storage temperature	-25°C to +85°C
All X, Y, Z directions in acc. with IEC 60068-2-6 Shock (in all directions)	Humidity at +25°C, no condensation	< 95% RH
Shock (in all directions) 30 G (300 m/s²) in all directions according to IEC 60068-2-27	Vibration (non-operating)	
Altitude (operating)		
2,500 Meters for ITE application		
Pollution degree	Altitude (operating)	
Certification and Standards		
Electrical equipments of machines Elec 60204-1 (over voltage category III)		
Electrical equipments of machines EC 60204-1 (over voltage category III)		3K3 according to EN 60721
Electronic equipment for use in electrical power installations	Certification and Standards	
Safety entry low voltage		
Industrial control equipment		
CSA to CSA C22.2 No.107.1-01 (File No. 250488)		
Hazardous location CSAus to CSA C22.2 No.213-M1987, ANSI / ISA 12.12.01:2007 [Class I, Division 2, Group A,B,C,D T4, T _a = -25°C to +80°C (Vertical: > +50°C derating, Horizontal: > +45°C derating)]	Industrial control equipment	
Division 2, Group A,B,C,D T4, T _a = -25°C to +80°C (Vertical: > +50°C derating, Horizontal: > +45°C derating)] Protection against electric shock DIN 57100-410 CE In conformance with EMC directive 2004/108/EC and low voltage directive 2006/95/EC Component Power Supply for general use EN 61204-3 ITE EN 55022, EN 61000-3-2, EN 61000-3-3, EN 55024 Industrial EN 55011 Limitation of mains harmonic currents EN 61000-3-2 ROHS Compliant Yes Safety and Protection Transient surge voltage protection VARISTOR Current limitation at short-circuits approx. Isuage = 150 % of Po _{max} typically Surge voltage protection against internal surge voltages Isolation voltage: Input / output Input / PE 2 kVAC Output / PE 1.5 kVAC Protection degree IP20		
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Input / PE 2 kVAC Output / PE 1.5 kVAC Protection degree IP20	•	4 kVAC
Protection degree IP20	Input / PE	2 kVAC
Protection degree IP20		
Safety class I with PE connection		
	Safety class	Class I with PE connection