Power supply unit, 3-phase, 400-500VAC/24VDC, 20A

Part no. PSG480F24RM
Article no. 172885
Catalog No. PSG480F24RM

Powering Business Worldwide

Delivery program

Product range			Power supplies PSG
Subrange			power supply unit
Description			Power Boost via 1.5-fold rated operational current for 5 s PELV (EN 60204), SELV (EN 60950)
Phases			Three-phase
Input voltage range			320 - 600 V AC (450 - 800 V DC)
Nominal input voltage			3 x 400 - 500 V AC
Rated output voltage			24 V DC (± 2%)
Rated output current		A	20
Setting range for the output voltage			24 - 28 V DC
Rated output power		W	480

Technical data

Input characteristics

Nominal input voltage			3 x 400 - 500 V AC
Input voltage range		V	3 x 320 - 600 V AC 2 x 360 - 600 V AC 450 - 800 V DC
Supply frequency			
Rated value		Hz	50/60
Range		Hz	47 - 63
Nominal current	I_n	A	< 1 bei 3 x 400 V AC < 0.75 bei 3 x 500 V AC
Inrush current limitation I^2t (+25 °C)		A	Voltage source up to 3 KVA: < 50 A with 3x 400 V AC & 3x 500 V AC Voltage source up to 18 KVA: < 120 A with 3x 400 V AC & 3x 500 V AC
Mains buffering at nominal load		ms	
Mains failure bridging		ms	> 20 with 3x 400 V AC & 3x 500 V AC
Run-up time after mains voltage applied		ms	< 1000
Internal input fuse (device protection, not accessible)			T3.15 AH/ 500 V
Back-up fuse			6, 10, 16 A (recommended)
Tripping characteristic			B
Leakage Current			< 3.5 mA at 500 V AC
Short-term interruption			100% voltage dip, 1 cycle (20 ms at 50 Hz), automatic start
DC duty			L1 +, L2 –, L3 nc, PE ⏚ L1 +, L2 nc, L3 –, PE ⏚

Output characteristics

Rated output power		W	480
Rated output voltage			24 V DC (± 2%)
Tolerance			±2 %
Setting range for the output voltage			24 - 28 V DC
Nominal current		A	20
Derating from T_{amb} > +50 °C			Vertical: > 50°C (2.5 %/ °C) > 70°C (5% / °C)
Capacitive load starting			Max 10000 µF
Heat dissipation		W	53
Efficiency		%	> 90 with 3 x 400 V AC & 3 x 500 V AC
Residual ripple and switching peaks			< 50 mVpp / < 150 mVpp
Can be switched in parallel			for redundancy, with O ring diode (PSG480R24RM/PSG960R24RM)

General characteristics

Housing			Aluminium
Status indication			green LED for "DC OK"
MTBF (mean time between failures)			> 300,000 h

Height		mm	121
Width		mm	140
Depth		mm	117.3
Weight		kg	1.35
Terminations			Screw connection
Stripping length		mm	7
Terminal capacity			
flexible with ferrules/solid		mm^2	Primary side: 0.82 - 8.4 mm^2 (18 - 8 AWG) Secondary side: 3.3 - 5.3 mm^2 (12 - 10 AWG)
Tightening torque		Nm	Primary side: 0.9 Secondary side: 0.9
Ambient air temperature range		°C	
Operation		°C	-25 - +80
Storage, transport	ϑ	°C	
Storage	ϑ	°C	-25 - +85
damp heat			< 95 % relative humidity at +25 °C, no condensation
Vibrations (IEC/EN 60068-2-6)			10 - 500 Hz at 30 m/s^2 (3 G max) for 60 min. in X-axis, Y-axis, Z-axis directions
Mechanical shock resistance (IEC 60068-2-27)			30 g (300 m/s^2) in all directions
Climatic class (IEC)			3K3 according to EN 60721

Safety and safety features

Transient overvoltage protection			Varistor
Current limitation at short-circuit			$I_{Überstrom}$ = 150 % der max. Ausgangsleistung
Overvoltage protection			Yes, against internal overvoltage
Insulation voltage			
Input/Output			4 kV AC
Input/PE			1.5 kV AC
Output/PE			1.5 kV AC
Degree of Protection			IP20
Protection class			Class I with PE connection

Standards

			Electrical equipment of machines: IEC60204-1 (Overvoltage category III) Equipping power installations with electronic apparatus: EN 50178/IEC 62103 Safety extra-low voltage: PELV (EN 60204), SELV (EN 60950) Protection against electric shock: DIN 57100-410 CE: according to EMC Directive 2014/30/EU and Low Voltage Directive 2014/35/EU RoHS-compliant: RoHS Directive 2011/65/EU ITE: EN 55022, EN 61000-3-2, EN 61000-3-3, EN 55024 Industrial: EN 55011 Mains harmonics limitation: EN 601000-3-2 Electrical Safety (of IT equipment) : SIQ to EN60950-1, UL/c-UL recognized to UL 60950-1, CSA C22.2 No. 60950-1, CB scheme to IEC 60950-1 UL508 Class2: UL/c-UL recognized to UL1310 and CSA C22.2 No. 223 | Component power supply unit for general use: EN61204-3

Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	I_n	A	0
Heat dissipation per pole, current-dependent	P_{vid}	W	0
Equipment heat dissipation, current-dependent	P_{vid}	W	0
Static heat dissipation, non-current-dependent	P_{vs}	W	53
Heat dissipation capacity	P_{diss}	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	80
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures			Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat			Meets the product standard's requirements.
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects			Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation			Meets the product standard's requirements.

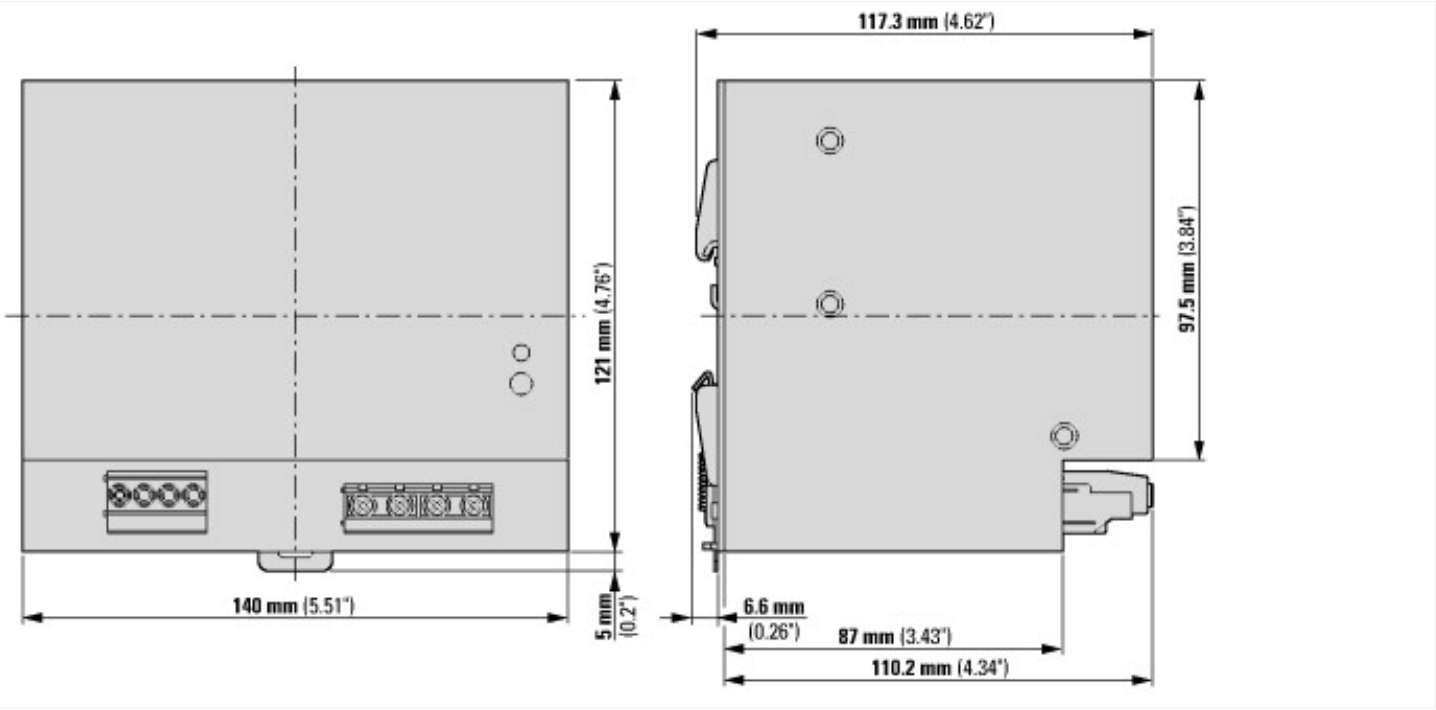
10.2.5 Lifting			Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact			Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions			Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES			Meets the product standard's requirements.
10.4 Clearances and creepage distances			Meets the product standard's requirements.
10.5 Protection against electric shock			Does not apply, since the entire switchgear needs to be evaluated.
10.6 Incorporation of switching devices and components			Does not apply, since the entire switchgear needs to be evaluated.
10.7 Internal electrical circuits and connections			Is the panel builder's responsibility.
10.8 Connections for external conductors			Is the panel builder's responsibility.
10.9 Insulation properties			
10.9.2 Power-frequency electric strength			Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage			Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material			Is the panel builder's responsibility.
10.10 Temperature rise			The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
10.11 Short-circuit rating			Is the panel builder's responsibility.
10.12 Electromagnetic compatibility			Is the panel builder's responsibility.
10.13 Mechanical function			The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

Technical data ETIM 6.0

Low-voltage industrial components (EG000017) / DC-power supply (EC002540)		
Electric engineering, automation, process control engineering / Power supply / Power supply (other) / DC-power supply (ecl@ss8.1-27-04-90-02 [AFZ644012])		
Voltage type of supply voltage		AC
1st secondary output voltage	V	24 - 28
2nd secondary output voltage	V	0 - 0
3rd secondary output voltage	V	0 - 0
Max. output current 1	A	20
Max. output current 2	A	0
Max. output current 3	A	0
Secondary voltage adjustable		Yes
Nominal value output voltage 1	V	24
Nominal value output voltage 2	V	0
Nominal value output voltage 3	V	0
Nominal value output current 1	A	20
Nominal value output current 2	A	0
Nominal value output current 3	A	0
Short-circuit-proof		Yes
Rated supply voltage at AC 50 Hz	V	320 - 600
Rated supply voltage at AC 60 Hz	V	320 - 600
Rated supply voltage at DC	V	0 - 0
Output voltage stabilized		Yes
Power consumption	VA	500
Power output	W	480
Stabilized		Yes
Type of electric connection		Screw connection
Rail mounting possible		Yes
Wall mounting possible		No
Modular version		Yes
Width in number of modular spacings		0
Built-in width	mm	140
Built-in height	mm	121
Direct mounting possible		No
Width	mm	140
Height	mm	121
Depth	mm	117.3

Suitable for safety functions		No
SIL according to IEC 61508		None
Performance level acc. to EN ISO 13849-1		None
Degree of protection (IP)		IP20

Dimensions



Additional product information (links)

IL125013EN Installation Instructions for PSG480F24RM POWER SUPPLY	
IL125013EN Installation Instructions for PSG480F24RM POWER SUPPLY	ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL125013EN2014_06.pdf