



Power supply unit, 3-phase, 400-500VAC/24VDC, 40A



Part no. PSG960F24RM
Catalog No. 172886
Alternate Catalog No. PSG960F24RM
EL-Nummer (Norway) 4560884

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	40
Setting range for the output voltage			24 - 28 V DC
Rated output power		W	960

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	< 1.7 bei 3 x 400 V AC < 1.4 bei 3 x 500 V AC
Inrush current limitation I ² t (+25 °C)		A	< 60 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	< 1500
Internal input fuse (device protection, not accessible)			T4 AH/500 V
Back-up fuse			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	960
Rated output voltage			24 V DC (± 2%)
Tolerance			±2 %
Setting range for the output voltage			24 - 28 V DC
Nominal current		A	40
Derating from T _{amb} > +50 °C			Vertical: > 50°C (2.5 %/ °C)
Capacitive load starting			Max 10000 µF
Heat dissipation		W	94
Efficiency		%	> 92 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 0 ring diode (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	255
Depth		mm	117.3
Weight		kg	2.6
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 - +65
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			2 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
Approvals			EAC

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	94
Heat dissipation capacity	P _{diss}	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	65
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 7.0

Low-voltage industrial components (EG000017) / DC-power supply (EC002540)		
Electric engineering, automation, process control engineering / Power supply devices / Power supply device / Continuous current supply (ecl@ss10.0.1-27-04-07-01 [AFX040003])		
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	40
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	24
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	680
Power output	W	960
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	225

Built-in height	mm	121
Direct mounting possible		No
Width	mm	225
Height	mm	121
Depth	mm	117.3
Suitable for safety functions		No
SIL according to IEC 61508		None
Performance level acc. EN ISO 13849-1		None
Degree of protection (IP)		IP20
Degree of protection (NEMA)		1

Dimensions

