

Power supply unit - TRIO-PS-2G/1AC/24DC/5/B+D - 2903144

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Primary-switched TRIO POWER power supply with push-in connection for DIN rail mounting, input: 1-phase, output: 24 V DC/5 A

Product Description

TRIO POWER power supplies for more stringent EMC requirements in shipbuilding


The TRIO POWER power supply range with Push-in connection has been perfected for use in shipbuilding. All functions and the space-saving design of the single and three-phase modules are optimally tailored to the stringent requirements. Under challenging ambient conditions, the power supply units, which feature an extremely robust electrical and mechanical design, ensure the reliable supply of all loads.

Your advantages

- ✓ Can be used on the bridge of a ship in accordance with EN 60945
- ✓ Increase system availability, thanks to dynamic boost with 150% of the nominal current for five seconds
- ✓ Maximum flexibility due to the wide temperature range from -25°C to +70°C and device startup at -40°C
- ✓ Electrically robust, thanks to high electric strength
- ✓ Mechanically robust, thanks to high vibration and shock resistance
- ✓ Save time and costs, thanks to the Push-in connection and narrow design



Key Commercial Data

Packing unit	1 pc
GTIN	 4 046356 726955
GTIN	4046356726955
Weight per Piece (excluding packing)	0.560 g
Custom tariff number	85044030
Country of origin	China

Technical data

Dimensions

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Technical data

Dimensions

Width	35 mm
Height	130 mm
Depth	115 mm

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-25 °C ... 70 °C (> 60 °C Derating: 2.5 %/K)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Max. permissible relative humidity (operation)	≤ 95 % (at 25 °C, non-condensing)
Climatic class	3K3 (in acc. with EN 60721)
Degree of pollution	2
Installation height	≤ 5000 m (> 2000 m, observe derating)

Input data

Nominal input voltage range	100 V AC ... 240 V AC 110 V DC ... 250 V DC
Input voltage range	100 V AC ... 240 V AC -15 % ... +10 % 99 V DC ... 275 V DC
Dielectric strength maximum	≤ 300 V AC 15 s
AC frequency range	50 Hz ... 60 Hz ±5 Hz
Discharge current to PE	< 0.25 mA
Current consumption	2.2 A (100 V AC) 1.9 A (120 V AC) 1.1 A (230 V AC) 1.1 A (240 V AC)
Nominal power consumption	272 VA
Inrush surge current	≤ 16 A (typical)
Mains buffering	> 20 ms (120 V AC) > 100 ms (230 V AC)
Input fuse	6.3 A (internal (device protection))
Choice of suitable circuit breakers	6 A ... 16 A (Characteristics B, C, D, K)
Power factor (cos phi)	0.5
Type of protection	Transient surge protection
Protective circuit/component	Varistor

Output data

Nominal output voltage	24 V DC ±1 %
Setting range of the output voltage (U_{Set})	24 V DC ... 28 V DC (> 24 V DC, constant capacity restricted)
Nominal output current (I_N)	5 A

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Output data

Dynamic Boost ($I_{\text{Dyn.Boost}}$)	7.5 A (5 s)
Derating	> 60 °C ... 70 °C (2.5%/K)
Connection in parallel	Yes, for redundancy and increased capacity
Connection in series	yes
Feedback resistance	≤ 35 V DC
Protection against surge voltage on the output	≤ 30 V DC
Control deviation	< 1 % (change in load, static 10 % ... 90 %)
	< 3 % (Dynamic load change 10 % ... 90 %, 10 Hz)
	< 0.1 % (change in input voltage ±10 %)
Residual ripple	< 50 mV _{PP} (with nominal values)
Output power	120 W
Typical response time	< 1 s
Maximum power dissipation in no-load condition	< 1 W
Power loss nominal load max.	< 16 W

General

Net weight	0.45 kg
Efficiency	> 89 % (for 230 V AC and nominal values)
Insulation voltage input/output	3 kV AC (type test)
	1.5 kV AC (routine test)
Protection class	II (in closed control cabinet)
Degree of protection	IP20
MTBF (IEC 61709, SN 29500)	> 3380000 h (25 °C)
	> 1970000 h (40 °C)
	> 900000 h (60 °C)
Mounting position	horizontal DIN rail NS 35, EN 60715
Assembly instructions	alignable: horizontally 0 mm (≤ 40 °C) 10 mm (≤ 70 °C), vertically 50 mm

Connection data, input

Connection method	Push-in connection
Conductor cross section solid min.	0.2 mm ²
Conductor cross section solid max.	4 mm ²
Conductor cross section flexible min.	0.2 mm ²
Conductor cross section flexible max.	2.5 mm ²
Conductor cross section AWG min.	24
Conductor cross section AWG max.	12
Stripping length	10 mm

Connection data, output

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Technical data

Connection data, output

Connection method	Push-in connection
Conductor cross section solid min.	0.2 mm ²
Conductor cross section solid max.	4 mm ²
Conductor cross section flexible min.	0.2 mm ²
Conductor cross section flexible max.	2.5 mm ²
Conductor cross section AWG min.	24
Conductor cross section AWG max.	12
Stripping length	8 mm

Connection data for signaling

Connection method	Push-in connection
Conductor cross section solid min.	0.2 mm ²
Conductor cross section solid max.	1.5 mm ²
Conductor cross section flexible min.	0.2 mm ²
Conductor cross section flexible max.	1.5 mm ²
Conductor cross section AWG min.	24
Conductor cross section AWG max.	16
Stripping length	8 mm

Standards and Regulations

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Noise emission	EN 55011 (EN 55022)
Noise immunity	EN 61000-6-2:2005
Standards/regulations	EN 61000-4-2
Contact discharge	4 kV (Test Level 2)
Standards/regulations	EN 61000-4-3
Frequency range	80 MHz ... 1 GHz
Test field strength	10 V/m (Test Level 3)
Frequency range	1.4 GHz ... 2 GHz
Test field strength	3 V/m (Test Level 2)
Standards/regulations	EN 61000-4-4
Comments	Criterion B
Standards/regulations	EN 61000-4-5
Signal	1 kV (Test Level 2 - asymmetrical)
Standards/regulations	EN 61000-6-3
	EN 61000-4-6
Frequency range	0.15 MHz ... 80 MHz
Voltage	10 V (Test Level 3)

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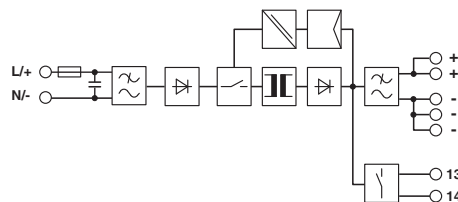
Technical data

Standards and Regulations

Low Voltage Directive	Conformance with LV directive 2006/95/EC
Standard - Safety of transformers	EN 61558-2-16 (air clearances and creepage distances only)
Standard - Electrical safety	IEC 60950-1/VDE 0805 (SELV)
Standard – Electronic equipment for use in electrical power installations and their assembly into electrical power installations	EN 50178/VDE 0160 (PELV)
Standard – Safety extra-low voltage	IEC 60950-1 (SELV) and EN 60204-1 (PELV)
Standard - Safe isolation	DIN VDE 0100-410
Standard – Limitation of mains harmonic currents	EN 61000-3-2
Shipbuilding approval	DNV GL (EMC A)
UL approvals	UL Listed UL 508
	UL/C-UL Recognized UL 60950-1
Shock	18 ms, 30g, in each space direction (according to IEC 60068-2-27)
Vibration (operation)	< 25 Hz, amplitude ±1.6 mm (according to DNV GL CG-0339)
	15 Hz ... 150 Hz, 4g, 90 min.
Approval - requirement of the semiconductor industry with regard to mains voltage dips	Semi F47-0706
Rail applications	EN 50121-4

Drawings

Block diagram



Classifications

eCl@ss

eCl@ss 4.0	27040702
eCl@ss 4.1	27040702
eCl@ss 5.0	27049002
eCl@ss 5.1	27049000
eCl@ss 6.0	27049000
eCl@ss 7.0	27049002
eCl@ss 8.0	27049002
eCl@ss 9.0	27040701

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Classifications

ETIM

ETIM 3.0	EC001039
ETIM 4.0	EC000599
ETIM 5.0	EC002540
ETIM 6.0	EC002540

UNSPSC

UNSPSC 6.01	30211502
UNSPSC 7.0901	39121004
UNSPSC 11	39121004
UNSPSC 12.01	39121004
UNSPSC 13.2	39121004

Approvals




Approvals

Approvals

UL Recognized / UL Listed / cUL Recognized / cUL Listed / EAC / BSH / DNV GL / cULus Recognized

Ex Approvals

Approval details

UL Recognized		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 211944
UL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 123528
cUL Recognized		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 211944

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Approvals

cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 123528
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EAC			RU C- DE.A*30.B.01082
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BSH		http://www.bsh.de/de/index.jsp	Nr. 967
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DNV GL		http://exchange.dnv.com/tari/	TAA00000BM
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cULus Recognized		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	
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Accessories

Accessories

Device circuit breakers

Electronic device circuit breaker - CBM E4 24DC/0.5-10A NO-R - 2905743



Multi-channel, electronic device circuit breaker with active current limitation for protecting four loads at 24 V DC in the event of overload and short circuit. With nominal current assistant and electronic locking of the set nominal currents. For installation on DIN rails.

Electronic device circuit breaker - CBM E8 24DC/0.5-10A NO-R - 2905744



Multi-channel, electronic device circuit breaker with active current limitation for protecting eight loads at 24 V DC in the event of overload and short circuit. With nominal current assistant and electronic locking of the set nominal currents. For installation on DIN rails.

Potential distributor

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Accessories

Potential distributors - VIP-2/SC/PDM-2/24 - 2315269



VARIOFACE module, with two equipotential busbars (P1, P2) for potential distribution, for mounting on NS 35 rails.
Module width: 70.4 mm

Potential distributors - VIP-3/PT/PDM-2/24 - 2903798



VARIOFACE module with push-in connection and two equipotential busbars (P1, P2) for potential distribution, for mounting on NS 35 rails. Module width: 57.1 mm
