

MINI-PS- 12- 24DC/ 5-15DC/2 - DC/DC converter



2320018

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Please use the following item in new systems: 1066704.

Primary-switched MINI DC/DC converter for DIN rail mounting, input: 12 V DC ... 24 V DC, output: 5 V DC ... 15 V DC/2 A

Product description

MINI DC/DC converter for MCR technology.

DC/DC converters alter the voltage level, regenerate the voltage at the end of long cables or enable the creation of independent supply systems by means of electrical isolation.

Your advantages

- Electrical isolation: for setting up independent supply systems
- Support conversion to various voltage levels
- Constant voltage: output voltage regenerated even at the end of long cables

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Technical data

Input data

DC operation

Nominal input voltage range	12 V DC ... 24 V DC
Input voltage range	10 V DC ... 32 V DC (> 10.5 V DC start)
Wide-range input	yes
Input voltage range DC	10 V DC ... 32 V DC (> 10.5 V DC start)
Voltage type of supply voltage	DC
Inrush current	< 10 A (typical)
Inrush current integral (I^2t)	0.2 A ² s
Frequency range DC	0 Hz
Mains buffering time	typ. 4 ms (12 V DC) typ. 18 ms (24 V DC)
Current consumption	2.3 A (12 V DC) 1.1 A (24 V DC)
Typical response time	< 0.5 s
Input fuse	6.3 A (slow-blow, internal)

Output data

Efficiency	> 88 % (at 24 V DC and nominal values)
Output characteristic	U/I
Nominal output voltage	12 V DC \pm 1 %
Setting range of the output voltage (U_{Set})	5 V DC ... 15 V DC
Nominal output current (I_N)	2 A (-25 °C ... 60 °C)
Derating	60 °C ... 70 °C (2.5 %/K)
Feedback voltage resistance	30 V DC
Protection against overvoltage at the output (OVP)	< 25 V DC
Residual ripple	< 20 mV _{PP} (20 MHz)
Output power	24 W
Peak switching voltages nominal load	< 10 mV _{PP} (20 MHz)
Maximum no-load power dissipation	< 1 W
Power loss nominal load max.	< 4.2 W
Connection in parallel	yes, for assembling redundant systems and increasing efficiency
Connection in series	yes

Signal: DC OK active

Output description	$U_{OUT} > 0.9 \times U_N$: High signal
Continuous load current	\leq 20 mA

Connection data

Input

Connection method	Pluggable screw connection
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Conductor cross section, rigid min.	0.2 mm ²
Conductor cross section, rigid max.	2.5 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.	14
Stripping length	7 mm
Screw thread	M3
Tightening torque, min	0.5 Nm
Tightening torque max	0.6 Nm

Output

Connection method	Pluggable screw connection
Conductor cross section, rigid min.	0.2 mm ²
Conductor cross section, rigid max.	2.5 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.	14
Stripping length	7 mm
Screw thread	M3
Tightening torque, min	0.5 Nm
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Signal

Conductor cross section, rigid min.	0.2 mm ²
Conductor cross section, rigid max.	2.5 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.	14
Screw thread	M3
Tightening torque, min	0.5 Nm
Tightening torque max	0.6 Nm

Signaling

Types of signaling	LED
	Active switching output

Signal output: DC OK active

Status display	"DC OK" LED green
Note on status display	$U_{OUT} > 0.9 \times U_N$: LED ON
Color	green
Note on status display	LED on

Electrical properties

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Number of phases	1.00
Insulation voltage input/output	1.5 kV (type test)
	1 kV (routine test)

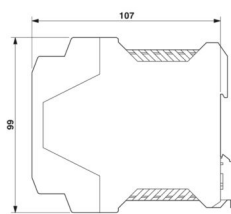
Product properties

Product type	DC/DC converters
MTBF (IEC 61709, SN 29500)	> 2072000 h (40 °C)

Insulation characteristics

Protection class	III
Degree of pollution	2

Dimensions

Dimensional drawing	
Width	22.5 mm
Height	99 mm
Depth	107 mm

Installation dimensions

Installation distance right/left	0 mm / 0 mm (≤ 70 °C)
Installation distance top/bottom	50 mm / 50 mm (≤ 70 °C)

Mounting

Assembly instructions	alignable: horizontally 0 mm, vertically 50 mm
Mounting position	horizontal DIN rail NS 35, EN 60715
With protective coating	No

Material specifications

Housing material	Plastic
Type of housing	Polyamide PA, color: green
Housing material	Polyamide (PA)

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-25 °C ... 70 °C (> +60°C derating)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Climatic class	3K3 (in acc. with EN 60721)
Max. permissible relative humidity (operation)	≤ 95 % (At +25°C, non-condensing)

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Shock	18 ms, 30g, in each space direction (according to IEC 60068-2-27)
Vibration (operation)	< 15 Hz, amplitude ± 2.5 mm (according to IEC 60068-2-6)
	15 Hz ... 150 Hz, 2.3g

Standards and regulations

Rail applications	EN 50121-4
Standard – Electronic equipment for use in electrical power installations and their assembly into electrical power installations	EN 50178/VDE 0160 (PELV)
Standard - Electrical safety	EN 60950-1/VDE 0805 (SELV)
Standard - Safe isolation	DIN VDE 0100-410
	DIN VDE 0106-101

Approvals

CSA	CSA-C22.2 No. 107.1-01
UL approvals	UL/C-UL listed UL 508
	UL/C-UL Recognized UL 60950-1
	UL ANSI/ISA-12.12.01 Class I, Division 2, Groups A, B, C, D (Hazardous Location)

EMC data

Low Voltage Directive	Conformance with Low Voltage Directive 2014/35/EC
EMC requirements for noise emission	EN 61000-6-3
	EN 61000-6-4
EMC requirements for noise immunity	EN 61000-6-1
	EN 61000-6-2
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Noise emission	EN 55011 (EN 55022)

Electrostatic discharge

Standards/regulations	EN 61000-4-2
Housing	> Level 3

Electrostatic discharge

Contact discharge	8 kV (Contact discharge)
Discharge in air	8 kV (Air discharge)
Comments	Criterion B

Electromagnetic HF field

Standards/regulations	EN 61000-4-3
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Electromagnetic HF field

Frequency range	80 MHz ... 3 GHz
Test field strength	10 V/m
Comments	Criterion A

Fast transients (burst)

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Standards/regulations	EN 61000-4-4
Fast transients (burst)	
Input	4 kV (level 4 - asymmetrical: conductor to ground)
Output	2 kV (level 3 - asymmetrical: conductor to ground)
Signal	1 kV (Level 2 - asymmetrical cable to ground)
Comments	Criterion B
Surge voltage load (surge)	
Standards/regulations	EN 61000-4-5
Conducted interference	
Standards/regulations	EN 61000-4-6
Conducted interference	
Input/Output	Level 3
Frequency range	0.15 MHz ... 80 MHz (10 V)
Voltage dips	
Standards/regulations	EN 61000-4-11
Emitted interference	
Standards/regulations	EN 61000-6-3
Radio interference voltage in acc. with EN 55011	EN 55011 (EN 55022) Class B, area of application: Industry and residential
Emitted radio interference in acc. with EN 55011	EN 55011 (EN 55022) Class B, area of application: Industry and residential

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