TRIO-PS-2G/1500DC/24DC/1.5 - DC/DC converter

1107892

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Primary-switched TRIO POWER DC/DC converter with Push-in connection for DIN rail mounting, input: 1,500 V DC, output: 24 V DC / 1.5 A

Product description

The DC/DC converters in the TRIO POWER family supply your system directly from the field and provide a reliable power supply even without a central grid. They are particularly well-suited for photovoltaic applications, where they also allow the central inverter to be started without a supplying grid.

Your advantages

- Suitable for use in all photovoltaic systems with high input voltage due to conformity with standards UL 62109 and UL 1741
- High system availability with a robust design that ensures partial discharge resistance
- Direct, immediate supply from the solar field to supply the string monitoring function within string combiner boxes
- Quick and easy installation with Push-in connection

Commercial data

Item number	1107892
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CM04
Product key	CMDO43
GTIN	4063151010546
Weight per piece (including packing)	567.3 g
Weight per piece (excluding packing)	350 g

Customs tariff number	85044095
Country of origin	CN

Technical data

Input data

DC operation

Nominal input voltage range	500 V DC ... 1500 V DC
Input voltage range	450 V DC ... 1650 V DC
Wide-range input	no
Electric strength, max.	≤ 1800 V DC 1 s
Typical national grid voltage	500 V DC
	1500 V DC
Voltage type of supply voltage	DC
Inrush current integral (I^2t)	typ. 0.15 A^2s
Current consumption	typ. 85 mA (450 V DC)
	typ. 30 mA (1500 V DC)
Recommended breaker for input protection	1 A (gPV)
Recommended fuse for input protection	1500 V DC

Output data

Efficiency	typ. 88 % (500 V DC)
	typ. 87 % (900 V DC)
	typ. 83 % (1500 V DC)
Nominal output voltage	24 V DC ±3 %
Nominal output current (I_N)	1.5 A
Derating	> 60 °C ... 70 °C (2.5 %/K)
Feedback voltage resistance	≤ 35 V DC
Protection against overvoltage at the output (OVP)	≤ 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	< 40 mV_{PP} (Ripple)
	< 50 mV_{PP} (Noise)
Short-circuit-proof	yes
No-load proof	yes
Output power	36 W
Maximum no-load power dissipation	< 1.1 W (500 V DC)
	< 1.4 W (900 V DC)
	< 2.4 W (1500 V DC)
Power loss nominal load max.	< 4.2 W (500 V DC)
	< 5.5 W (900 V DC)
	< 7.5 W (1500 V DC)
Rise time	≤ 30 ms (U_{OUT} (10 % ... 90 %))
Connection in parallel	yes, for redundancy and increased capacity
Connection in series	no

Fuse protection (secondary side)	electronic

Connection data

Input

Connection method	Push-in connection
Conductor cross-section, rigid min.	1 mm²
Conductor cross-section, rigid max.	4 mm²
Conductor cross-section flexible min.	1 mm²
Conductor cross-section flexible max.	2.5 mm²
Single conductor/flexible terminal point with ferrule with plastic sleeve, min.	1 mm²
Single conductor/flexible terminal point with ferrule with plastic sleeve, max.	2.5 mm²
Single conductor/flexible terminal point with ferrule without plastic sleeve, min.	1 mm²
Single conductor/flexible terminal point with ferrule without plastic sleeve, max.	2.5 mm²
Conductor cross-section AWG min.	18
Conductor cross-section AWG max.	12
Stripping length	10 mm

Output

Connection method	Push-in connection
Conductor cross-section, rigid min.	1 mm²
Conductor cross-section, rigid max.	4 mm²
Conductor cross-section flexible min.	1 mm²
Conductor cross-section flexible max.	2.5 mm²
Single conductor/flexible terminal point with ferrule with plastic sleeve, min.	1 mm²
Single conductor/flexible terminal point with ferrule with plastic sleeve, max.	2.5 mm²
Single conductor/flexible terminal point with ferrule without plastic sleeve, min.	1 mm²
Single conductor/flexible terminal point with ferrule without plastic sleeve, max.	2.5 mm²
Conductor cross-section AWG min.	18
Conductor cross-section AWG max.	12
Stripping length	10 mm

Signaling

Types of signaling	LED

Signal output: LED status indicator

Signalization designation	DC OK
Status display	"DC OK" LED green
Note on status display	U_{OUT} > 21.5 V: LED lights up
Color	green

DC OK	U_{OUT} > 0.9 x U_N (U_N = 24 V DC)
13/14	U_{OUT} > 0.9 x U_N (U_N = 24 V DC)

Electrical properties

Number of phases	1
Insulation voltage input/output	2.4 kV DC (type test)
	1.6 kV DC (routine test)

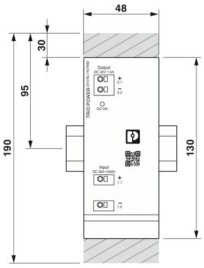
Product properties

Product type	DC/DC converters
Product family	TRIO POWER
MTBF (IEC 61709, SN 29500)	> 3300000 h (25 °C)
	> 1760000 h (40 °C)
	> 740000 h (60 °C)

Insulation characteristics

Protection class	II
Overvoltage category (IEC 62109-1)	II
Degree of pollution	2

Dimensions

Dimensional drawing	
Width	48 mm
Height	130 mm
Depth Device depth (DIN rail mounting)	115 mm (Device depth (DIN rail mounting))

Installation dimensions

Installation distance right/left	0 mm / 0 mm
Installation distance top/bottom	50 mm / 50 mm

Mounting

Mounting type	DIN rail mounting
Assembly note	alignable: horizontally 0 mm (≤ 40 °C) 10 mm (≤ 70 °C), vertically 50 mm
Mounting position	horizontal DIN rail NS 35, EN 60715
With protective coating	no

Material specifications

Flammability rating according to UL 94 (housing / terminal blocks)	V0
Housing material	Plastic
Type of housing	Polycarbonate

Environmental and real-life conditions

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
Maximum altitude	≤ 4000 m (> 2000 m, Derating: 10 %/1000 m)
Max. permissible relative humidity (operation)	≤ 95 % (at 25 °C, non-condensing)
Shock	11 ms, 15 g, 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, 90 min.

Standards and regulations

Standard - Electrical safety	EN 62109-1:2011
Standard – Safety extra-low voltage	IEC 62109-1:2011 (SELV)
Standard - Safe isolation	DIN VDE 0100-410

Approvals

UL approvals	UL 62109-1:2014
	UL 1741

EMC data

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Low Voltage Directive	Conformance with Low Voltage Directive 2014/35/EC
Noise immunity	EN 61000-6-2:2005

Conducted noise emission

Standards/regulations	EN 55016
	EN 61000-6-4 (Class A)

Noise emission

Standards/regulations	EN 55016
	EN 61000-6-4 (Class A)

Electrostatic discharge

Standards/regulations	EN 61000-4-2

Electrostatic discharge

Contact discharge	4 kV (Test Level 2)
Discharge in air	8 kV (Test Level 3)
Comments	Criterion A

Electromagnetic HF field

Standards/regulations	EN 61000-4-3

Electromagnetic HF field

Frequency range	80 MHz ... 1 GHz
Test field strength	10 V/m (> Test intensity 3)
Frequency range	1 GHz ... 2.7 GHz
Test field strength	10 V/m (Test Level 2)
Frequency range	2.7 GHz ... 6 GHz
Test field strength	3 V/m (Test Level 1)
Comments	Criterion A

Fast transients (burst)

Standards/regulations	EN 61000-4-4

Fast transients (burst)

Input	4 kV (Test Level 4 - asymmetrical)
Output	4 kV (Test Level 4 - asymmetrical)
Comments	Criterion A

Surge voltage load (surge)

Standards/regulations	EN 61000-4-5

Surge voltage load (surge)

Input	3 kV (Test intensity >4 - symmetrical)
	4 kV (Test Level 4 - asymmetrical)
Output	0.5 kV (Test Level 2 - symmetrical)
	1 kV (Test Level 2 - asymmetrical)
Comments	Criterion A

Conducted interference

Standards/regulations	EN 61000-4-6

Conducted interference

Input/Output	asymmetrical
Frequency range	0.15 MHz ... 80 MHz
Comments	Criterion A
Voltage	10 V (Test Level 3)

Voltage dips

Standards/regulations	EN 61000-4-11

Emitted interference

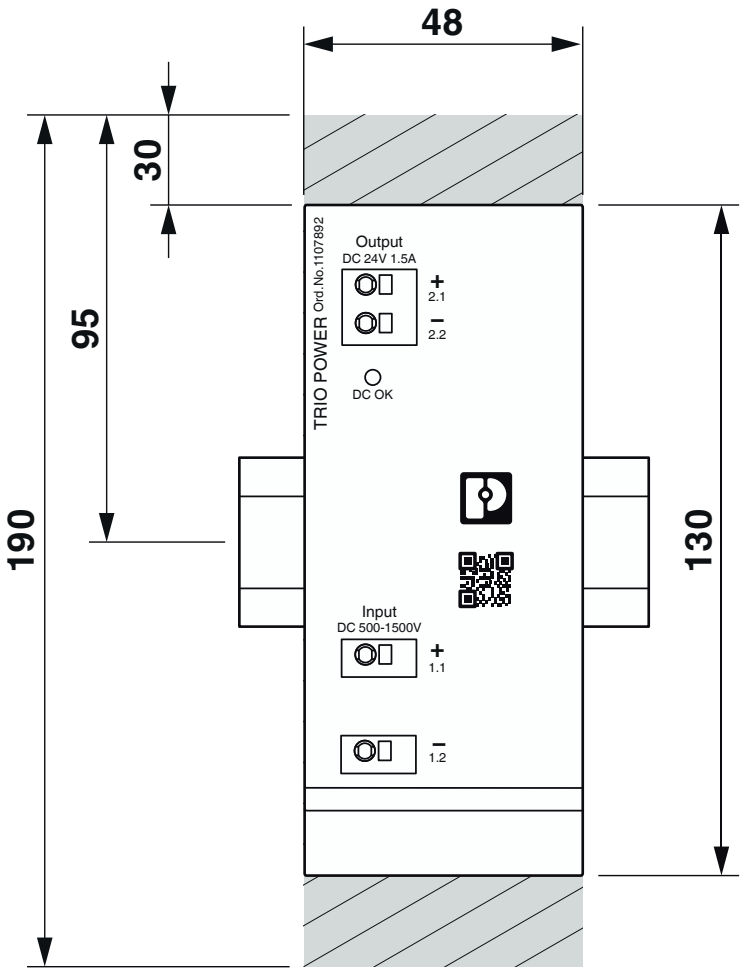
Standards/regulations	EN 61000-6-4
Radio interference voltage in acc. with EN 55011	EN 55011 (EN 55022) Class A industrial area of application
Emitted radio interference in acc. with EN 55011	EN 55011 (EN 55022) Class A industrial area of application

Criteria

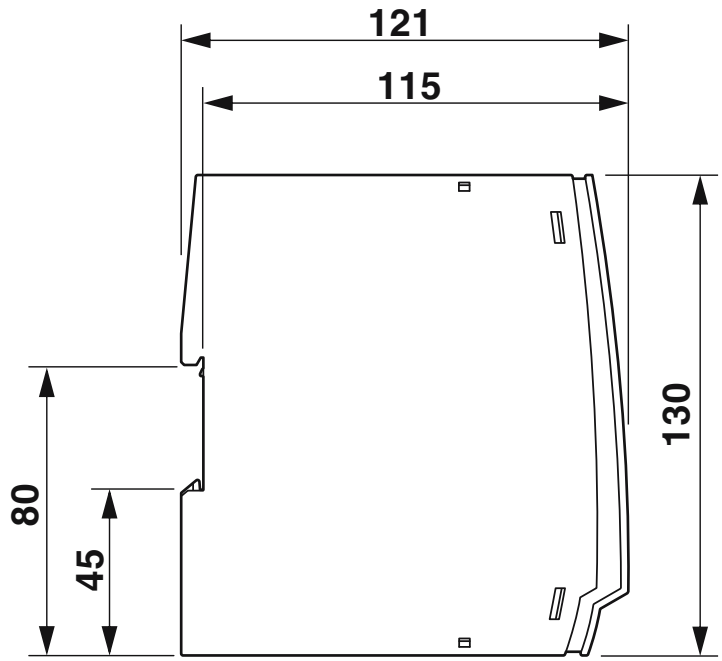
Criterion A	Normal operating behavior within the specified limits.
Criterion B	Temporary impairment to operational behavior that is corrected by the device itself.

Drawings

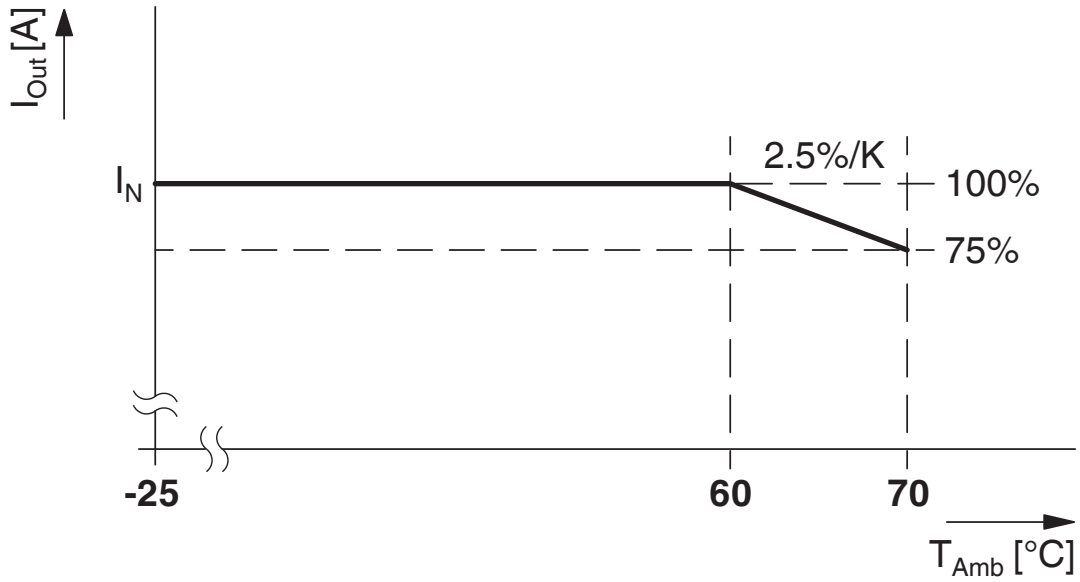
Dimensional drawing



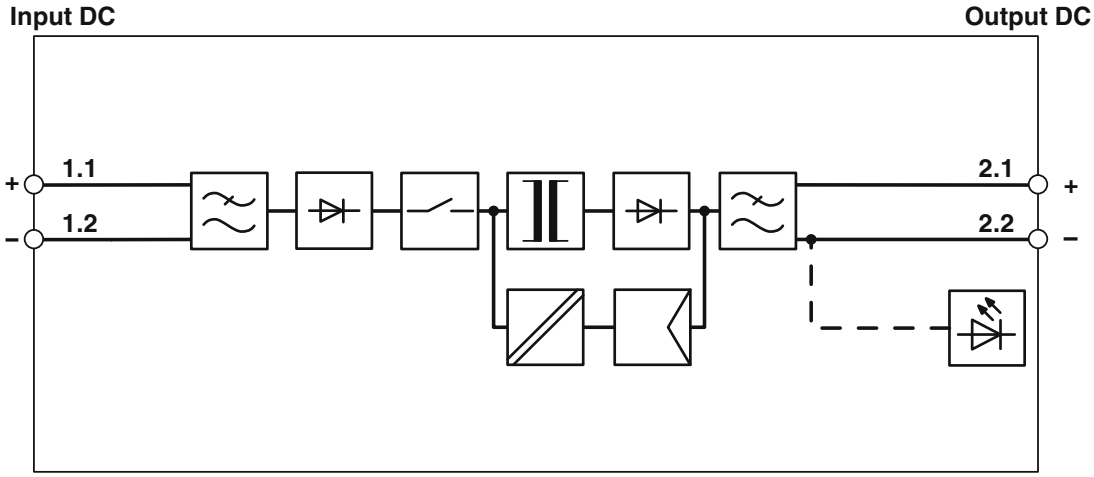
Dimensional drawing



Diagram



Block diagram



Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/1107892

EAC
Approval ID: RU S-DE.BL08.W.00764

cULus Recognized
Approval ID: FILE E 476951

EAC
Approval ID: KZ7500651 0101 12535

EAC
Approval ID: C-DE.BL08.W.00764/20

Classifications

ECLASS

ECLASS-13.0	27040701
ECLASS-15.0	27040701

ETIM

ETIM 10.0	EC002540

UNSPSC

UNSPSC 21.0	39121000

Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	7(a), 7(c)-I

China RoHS

Environment friendly use period (EFUP)	EFUP-25
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.

EU REACH SVHC

REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)

EF3.1 Climate Change

CO2e kg	17.25 kg CO2e

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https://www.phoenixcontact.com

Phoenix Contact USA
586 Fulling Mill Road
Middletown, PA 17057, United States
(+717) 944-1300
info@phoenixcon.com