

2906300

<https://www.phoenixcontact.com/us/products/2906300>

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Primary-switched UNO DC/DC converter with wide range input, for DIN rail mounting, input: 350 ... 900 V DC, output: 24 V DC/60 W

## Product Description

UNO DC/DC converters with basic functionality

With the DC/DC converters from the UNO POWER range, the control cabinet is supplied directly from the photovoltaic system. This saves installation costs and increases the efficiency of the system.

## Your advantages

- Wide input voltage range
- Direct field installation
- Minimal space required in the control box
- Simplified startup
- UL 1741-certified DC/DC converter

## Commercial Data

Item number	2906300
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	C13
Product Key	CMDU43
Catalog Page	Page 274 (C-4-2019)
GTIN	4055626062648
Weight per Piece (including packing)	316.9 g
Weight per Piece (excluding packing)	316.9 g
Customs tariff number	85044083
Country of origin	DE

## Technical Data

### Input data

#### DC operation

Nominal input voltage range	350 V DC ... 900 V DC
Input voltage range	300 V DC ... 1000 V DC
Wide-range input	yes
Electric strength, max.	≤ 1050 V DC
Voltage type of supply voltage	DC
Inrush current	< 1 A (typical)
Inrush current integral ( $I^2t$ )	< 0.38 A <sup>2</sup> s
Current consumption	0.19 A (350 V DC)
	0.07 A (1000 V DC)
Typical response time	< 1 s
Recommended breaker for input protection	1 A (Characteristic gPV or comparable)
Recommended fuse for input protection	1000 V DC

### Output data

Efficiency	> 90 %
Output characteristic	U/I
Nominal output voltage	24 V DC ±1 %
Nominal output current ( $I_N$ )	2.5 A (-25 °C ... 55 °C)
Derating	55 °C ... 70 °C (2.5%/K)
Feedback voltage resistance	< 35 V DC
Protection against overvoltage at the output (OVP)	< 35 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	< 20 mV <sub>PP</sub> (with nominal values)
Output power	60 W
Maximum no-load power dissipation	< 0.5 W
Power loss nominal load max.	< 6.5 W
Rise time	< 1 s ( $U_{OUT}$ (10 % ... 90 %))
Response time	< 2 ms
Connection in parallel	yes, for redundancy and increased capacity
Connection in series	No

Signal: DC OK active

Output description	$U_{OUT} > 0.9 \times U_N$ : High signal
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### Connection data

#### Input

Connection method	Screw connection
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Conductor cross section solid min.	0.2 mm <sup>2</sup>
Conductor cross section solid max.	2.5 mm <sup>2</sup>
Conductor cross section flexible min.	0.2 mm <sup>2</sup>
Conductor cross section flexible max.	2.5 mm <sup>2</sup>
Conductor cross section AWG min.	24
Conductor cross section AWG max.	14
Stripping length	8 mm
Screw thread	M3
Tightening torque, min	0.5 Nm
Tightening torque max	0.6 Nm

## Output

Connection method	Screw connection
Conductor cross section solid min.	0.2 mm <sup>2</sup>
Conductor cross section solid max.	2.5 mm <sup>2</sup>
Conductor cross section flexible min.	0.2 mm <sup>2</sup>
Conductor cross section flexible max.	2.5 mm <sup>2</sup>
Conductor cross section AWG min.	24
Conductor cross section AWG max.	14
Stripping length	8 mm
Screw thread	M3
Tightening torque, min	0.5 Nm
Tightening torque max	0.6 Nm

## LED signaling

Types of signaling	LED
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Signal output: DC OK active

Status display	"DC OK" LED green
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## Electrical properties

Number of phases	1.00
Insulation voltage input/output	8 kV DC (type test)
	3 kV DC (routine test)
Insulation voltage input/output	8 kV

## Product properties

Product type	DC/DC converters
Product family	UNO POWER
MTBF (IEC 61709, SN 29500)	> 1160000 h (40 °C)

## Insulation characteristics

Protection class	II
Degree of pollution	2

## Dimensions

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Width	55 mm
Height	90 mm
Depth	84 mm

#### Installation dimensions

Installation distance right/left	0 mm / 0 mm ( $\leq 70\text{ }^{\circ}\text{C}$ )
Installation distance top/bottom	30 mm / 30 mm ( $\leq 70\text{ }^{\circ}\text{C}$ )

#### Mounting

Mounting type	DIN rail mounting
Assembly instructions	alignable: 0 mm horizontally, 30 mm vertically
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
Foot latch material	POM (Polyoxymethylene)
Housing material	Polycarbonate

#### Environmental and real-life conditions

##### Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-25 °C ... 70 °C (> 55° C derating : 2.5%/K)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Ambient temperature (start-up type tested)	-40 °C
Climatic class	3K3 (in acc. with EN 60721)
Max. permissible relative humidity (operation)	$\leq 95\%$ (at 25 °C, non-condensing)
Shock	18 ms, 30g, in each space direction (according to IEC 60068-2-27)
Vibration (operation)	< 15 Hz, amplitude $\pm 2.5$ mm (according to IEC 60068-2-6) 15 Hz ... 150 Hz, 2.3g, 90 min.

#### Standards and regulations

Standard – Limitation of mains harmonic currents	EN 61000-3-2
Standard - Electrical safety	IEC 62109-1
Standard – Safety extra-low voltage	IEC 60950-1 (SELV) and EN 60204-1 (PELV)
Standard - Safe isolation	DIN VDE 0100-410
Standard - Safety of power converters for use in photovoltaic power systems	IEC 62109-1
Approval - requirement of the semiconductor industry with regard to mains voltage dips	EN 61000-4-11

##### Overvoltage category

IEC 62109-1	II
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## Approval data

UL approvals	UL 1741
Conformity/Approvals	
SIL in accordance with IEC 61508	0

## EMC data

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

### Electrostatic discharge

Standards/regulations	EN 61000-4-2
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### Electrostatic discharge

Contact discharge	6 kV (Test Level 3)
Discharge in air	8 kV (Test Level 3)
Comments	Criterion B

### Electromagnetic HF field

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

Frequency range	80 MHz ... 1 GHz
Test field strength	10 V/m
Frequency range	1 GHz ... 2 GHz
Test field strength	10 V/m
Frequency range	2 GHz ... 3 GHz
Test field strength	10 V/m
Comments	Criterion A

### Fast transients (burst)

Standards/regulations	EN 61000-4-4
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### Fast transients (burst)

Input	4 kV (Test Level 4 - asymmetrical)
Output	2 kV (Test Level 3 - asymmetrical)
Comments	Criterion B

### Surge voltage load (surge)

Standards/regulations	EN 61000-4-5
Input	2 kV (Test Level 3 - symmetrical)
	4 kV (Test Level 4 - asymmetrical)

# DC/DC converters - UNO-PS/350-900DC/24DC/60W



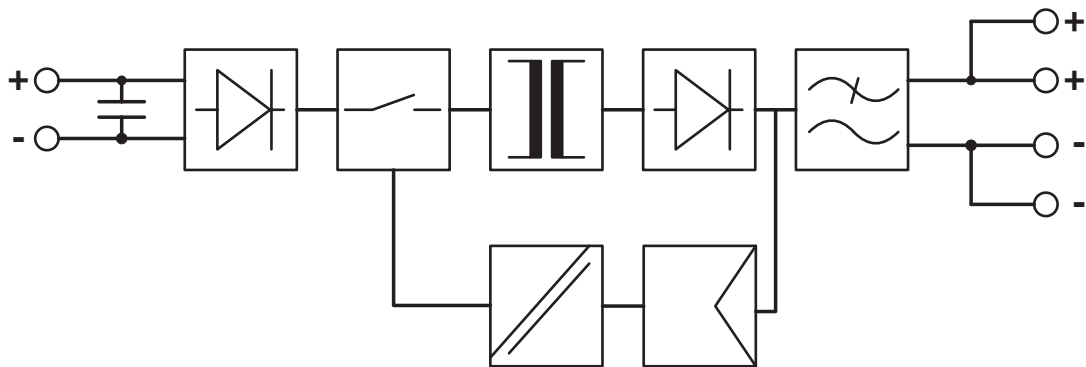
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Output	1 kV (Test Level 2 - symmetrical)
	2 kV (Test Level 3 - asymmetrical)
Comments	Criterion B
Conducted interference	
Standards/regulations	EN 61000-4-6
Conducted interference	
Frequency range	10 kHz ... 80 MHz
Comments	Criterion A
Voltage	10 V (Test Level 3)
Voltage dips	
Standards/regulations	EN 61000-4-11
Emitted interference	
Standards/regulations	EN 61000-6-3
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
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

Block diagram



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## Approvals



**cUL Recognized**  
Approval ID: FILE E 476951



**UL Recognized**  
Approval ID: FILE E 476951



**IECEE CB Scheme**  
Approval ID: US-27376-M1-UL



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



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## Classifications

### ECLASS

ECLASS-9.0	27210901
ECLASS-10.0.1	27210901
ECLASS-11.0	27040701

### ETIM

ETIM 8.0	EC002046
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### UNSPSC

UNSPSC 21.0	39121000
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## Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 25;
	For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads"

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## Accessories

### Redundancy module

Redundancy module - UNO-DIODE/5-24DC/2X10/1X20 - 2905489

<https://www.phoenixcontact.com/us/products/2905489>

Redundancy module, 5 V - 24 V DC, 2 x 10 A, 1 x 20 A.



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### Fuse holder

Fuse holder - UK 10,3-HESI 1000V - 3211236

<https://www.phoenixcontact.com/us/products/3211236>



Fuse holder, fuse type: Glass / ceramics / ..., fuse type: gPV 10.3 x 38 mm in accordance with 60269-6, nom. voltage: 1000 V, nominal current: 30 A, connection method: Screw connection, Rated cross section: 16 mm<sup>2</sup>, cross section: 1.5 mm<sup>2</sup>- 25 mm<sup>2</sup>, mounting type: NS 35/7,5, NS 35/15, color: black

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## Type 3 surge protection device

Type 3 surge protection device - PLT-SEC-T3-24-FM-UT - 2907916

<https://www.phoenixcontact.com/us/products/2907916>



Type 3 surge protection, consisting of protective plug and base element, with integrated status indicator and remote signaling for single-phase power supply networks. Nominal voltage: 24 V AC/DC

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