

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



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 $\square$ 1741-certified DC/DC converter

## Commercial data

|                                      |                     |
|--------------------------------------|---------------------|
| Item number                          | 2906300             |
| Packing unit                         | 1 pc                |
| Minimum order quantity               | 1 pc                |
| Sales key                            | CM06                |
| Product key                          | CMDU43              |
| Catalog page                         | Page 274 (C-4-2019) |
| GTIN                                 | 4055626062648       |
| Weight per piece (including packing) | 317 g               |
| Weight per piece (excluding packing) | 317 g               |
| Customs tariff number                | 85044095            |
| 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  |
| 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 |
|--------------------|--|

### Connection data

#### Input

|                   |                  |
|-------------------|------------------|
| Connection method | Screw connection |
|-------------------|------------------|

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|                                       |                     |
|---------------------------------------|---------------------|
| Conductor cross section, rigid min.   | 0.2 mm <sup>2</sup> |
| Conductor cross section, rigid 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, rigid min.   | 0.2 mm <sup>2</sup> |
| Conductor cross section, rigid 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              |

## Signaling

|                    |     |
|--------------------|-----|
| Types of signaling | LED |
|--------------------|-----|

Signal output: DC OK active

|                |                   |
|----------------|-------------------|
| Status display | "DC OK" LED green |
|----------------|-------------------|

## Electrical properties

|                                 |                        |
|---------------------------------|------------------------|
| Number of phases                | 1.00                   |
| Insulation voltage input/output | 8 kV DC (type test)    |
|                                 | 3 kV DC (routine test) |
|                                 | 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)<br>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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## Approvals

|              |         |
|--------------|---------|
| 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 |
| 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         |

### Electrostatic discharge

|                       |              |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-2 |
|-----------------------|--------------|

### 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 |
|-----------------------|--------------|

### 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 |
|-----------------------|--------------|

### 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) |
| Output                | 1 kV (Test Level 2 - symmetrical)  |

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|  |  |
|--|--|
|  | 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. |

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-11.0 | 27040701 |
| ECLASS-13.0 | 27040701 |
| ECLASS-12.0 | 27040701 |

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | EC002540 |
|----------|----------|

### 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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