

# STEP-UPS/12DC/12DC/4 - Uninterruptible power supply



2868693

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Uninterruptible power supply with integrated battery module. The STEP-BAT/LIPO/18.5 DC/1.4 AH battery module can be re-ordered separately.

## Product description

UPS modules with integrated battery are particularly space-saving: the UPS module and battery are combined in one housing. It's just a case of connecting a power supply upstream.

## Your advantages

- UPS with integrated lithium-polymer battery

## Commercial data

Item number	2868693
Packing unit	1 pc
Note	Made to order (non-returnable)
Sales key	CM20
Product key	CMUS42
GTIN	4046356519922
Weight per piece (including packing)	595.4 g
Weight per piece (excluding packing)	595.4 g
Customs tariff number	85371091
Country of origin	DE

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## Technical data

### Input data

#### DC operation

Input voltage	12 V DC
Nominal input voltage range	12 V DC
Input voltage range	10 V DC ... 16.5 V DC
Voltage type of supply voltage	DC
Buffer period	100 min (1 A) 50 min (2 A) 30 min (3 A) 23 min (4 A)
Rotary selector switch	Service ∞ 5 min. 10 min. 20 min.
Current consumption	6 A < 30 mA < 0.8 A (Charging (I <sub>Charge</sub> = max, I <sub>Out</sub> = 0))
Fixed backup threshold	< 10 V
Variable connect threshold	1 V / 1 s
Typical response time	< 0.5 s
Input fuse	7 A (slow-blow, internal)
Maximum current I <sub>max</sub>	6 A

### Output data

Efficiency	> 97.4 % (Mains operation, with charged energy storage) > 92 % (Battery operation)
Nominal output voltage	12 V DC
Nominal output current (I <sub>N</sub> )	4 A (0 °C ... 40 °C)
Output current limit	In mains mode according to connected upstream current limiting device > 5 A (Battery operation)
POWER BOOST (I <sub>Boost</sub> )	5 A (0 °C ... 35 °C)
Bridging time	1200 s
Derating	35 °C ... 40 °C (5 %/K)
Output power	48 W
Power dissipation	0.4 W (Mains operation) 1.2 W (Mains operation) 5.5 W (Mains operation) 1 W (Battery operation) 4.4 W (Battery operation)

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	5.4 W (Battery operation)
Connection in series	no

## Mains operation

Nominal output voltage	12 V DC
Output voltage range	10 V DC ... 16.5 V DC ( $U_{Out} = U_{In} - 0.3 \text{ V DC}$ )
Output current $I_{max}$	5 A (0 °C ... 35 °C)
Nominal output current ( $I_N$ )	4 A (0 °C ... 40 °C)

## Battery operation

Nominal output voltage	12 V DC
Output voltage range	10 V DC ... 15 V DC ( $U_{Out} = U_{In(t-1)}$ )
Output current $I_{max}$	5 A (0 °C ... 35 °C)
Nominal output current ( $I_N$ )	4 A (0 °C ... 40 °C)

## Signal: Alarm

Output description	Transistor
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## Signal: Battery charge

Output description	Transistor
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## Signal: Battery mode

Output description	Transistor
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## Energy storage

Nominal voltage $U_N$	18.5 V DC
End-of-charge voltage	18.5 V DC ... 21 V DC
Charging current	0.4 A
Nominal capacity	1.4 Ah
Nominal capacity range	1.4 Ah
Deep discharge protection	< 15 V DC
Latest startup date (battery only)	9 Months (20 °C ... 30 °C)
Battery technology	LIPO
Memory medium	Lithium polymer
Battery presence check (cyclic)	60 s
Quality check of battery	yes, with each charge and cyclically once per month
IQ technology	no
Network management	No

## Connection data

### Input

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>

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Conductor cross-section AWG min.	24
Conductor cross-section AWG max.	12
Stripping length	6.5 mm
Screw thread	M3
Tightening torque, min	0.6 Nm
Tightening torque max	0.8 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.	12
Stripping length	6.5 mm
Screw thread	M3
Tightening torque, min	0.6 Nm
Tightening torque max	0.8 Nm

## Signal

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.	12
Stripping length	6.5 mm
Screw thread	M3
Tightening torque, min	0.5 Nm
Tightening torque max	0.6 Nm

## Signaling

Types of signaling	LED
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## Signal output

Signalization designation	Power In OK
Status display	LED
Note on status display	static on

## Signal output: Switching output

Signalization designation	Alarm
Status display	LED
Note on status display	static on

## Signal output: Switching output

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Signalization designation	Battery charge
Status display	LED
Note on status display	flashing

## Signal output: Switching output

Signalization designation	Battery mode
Status display	LED
Note on status display	static on

## Signal output

Signalization designation	Overload
Status display	LED
Note on status display	flashing

## Signal output

Signalization designation	Service/Battery Error
Status display	LED
Note on status display	flashing

## Product properties

Product type	DC UPS
Product family	STEP DC UPS
IQ technology	no
MTBF (IEC 61709, SN 29500)	> 1997000 h (40 °C)

## Insulation characteristics

Protection class	III
Degree of pollution	2

## Dimensions

Width	108 mm
Height	90 mm
Depth	61 mm

## Installation dimensions

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

## Mounting

Mounting type	DIN rail mounting
Assembly note	alignable: horizontally 0 mm, vertically 50 mm
Mounting position	horizontal DIN rail NS 35, EN 60715

## Material specifications

Housing material	PC
Type of housing	Plastic
Foot latch material	POM (Polyoxymethylene)

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## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	0 °C ... 40 °C
Ambient temperature (storage/transport)	-20 °C ... 45 °C
Climatic class	3K3 (in acc. with EN 60721)
Max. permissible relative humidity (operation)	≤ 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 ±2.5 mm (according to IEC 60068-2-6) 15 Hz ... 150 Hz, 2.3g, 90 min.

## Standards and regulations

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)

## Approvals

UL approvals	UL Listed UL 508 UL/C-UL Recognized UL 60950-1
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## EMC data

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

### 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 A

### 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 (Test Level 3)
Frequency range	1 GHz ... 2 GHz
Test field strength	10 V/m (Test Level 3)
Frequency range	2 GHz ... 3 GHz

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Test field strength	10 V/m (Test Level 3)
Comments	Criterion A

## Fast transients (burst)

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

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

## Surge voltage load (surge)

Standards/regulations	EN 61000-4-5
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## Surge voltage load (surge)

Input	1 kV (Test Level 2 - symmetrical)
	2 kV (Test Level 3 - asymmetrical)
Output	1 kV (Test Level 2 - symmetrical)
	2 kV (Test Level 3 - asymmetrical)
Signal	1 kV (Test Level 2 - asymmetrical)
Comments	Criterion A

## Conducted interference

Standards/regulations	EN 61000-4-6
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## Conducted interference

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

## 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.

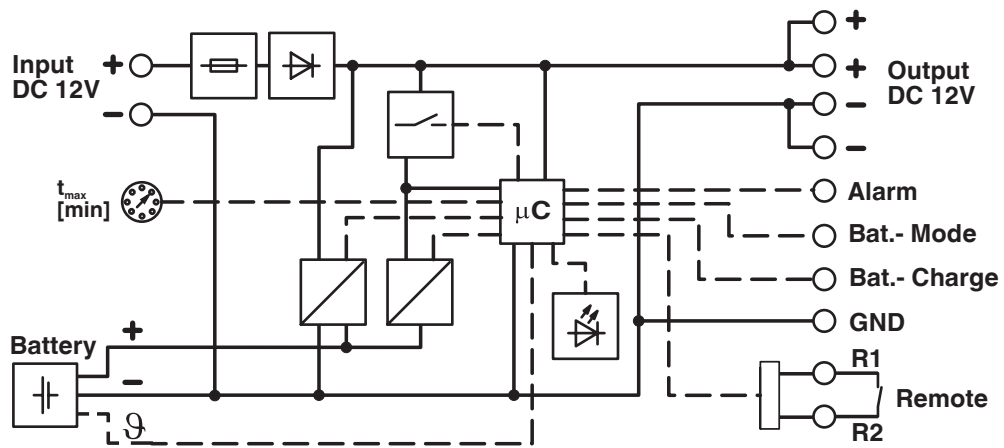
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## Drawings

Block diagram



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## Classifications

### UNSPSC

UNSPSC 21.0	39121011
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## Environmental product compliance

### EU RoHS

Fulfills EU RoHS substance requirements	Yes, No exemptions
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### 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.)	No substance above 0.1 wt%
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