# MINI-DC-UPS/24DC/2 - Uninterruptible power supply

2866640

https://www.phoenixcontact.com/us/products/2866640

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Uninterruptible power supply with integrated power supply unit, 2 A, in combination with MINI-BAT/24/DC 0.8 AH or 1.3 AH

## Product description

The MINI UPS modules with integrated power supply are particularly space-saving: UPS module and power supply in one housing. Only one battery module is required to complete the UPS system.
Battery modules with lead AGM technology enable buffer times of up to 2 hours under nominal load for output voltages of 24 V DC or 12 V DC.

## Your advantages

- High operational safety - comprehensive signaling and temperature-dependent battery charging
- Fast installation – minimal wiring effort with COMBICON connectors for easy connection

ELEKTROGERÄTE RÜCKNAHME

## Commercial data

| | |
|---|---|
| Item number | 2866640 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | CM20 |
| Product key | CMUM13 |
| GTIN | 4046356113533 |
| Weight per piece (including packing) | 486 g |
| Weight per piece (excluding packing) | 447 g |
| Customs tariff number | 85371091 |
| Country of origin | CN |

# Technical data

## Input data

DC operation

| | |
|---|---|
| Input voltage range | 100 V DC ... 350 V DC |
| Voltage type of supply voltage | DC |
| Inrush current | < 34 A (< 1.1 $A^2s$) |
| Inrush current integral ($I^2t$) | < 1.1 $A^2s$ |
| Mains buffering time | see diagram |
| Buffer period | 20 min (2 A) |
| Rotary selector switch | Can be set to: 0.5 min; 1 min; 2 min; 3 min; 5 min; 10 min; 15 min; 20 min; 30 min; permanent |
| Current consumption | 0.6 A |
| | 0.85 A (230 V AC) |
| | 1.1 A |
| | 1.5 A (120 V AC) |
| Protective circuit | Varistor |
| Power factor | approx. 0.5 |
| Typical response time | 100 ms |
| Input fuse | 3.15 A (slow-blow, internal) |
| Permissible backup fuse | B6 B10 B16 |
| Recommended breaker for input protection | 6 A ... 16 A (Characteristics B, C, D, K) |

AC operation

| | |
|---|---|
| Nominal input voltage range | 100 V AC ... 240 V AC |
| Input voltage range | 85 V AC ... 264 V AC |
| Voltage type of supply voltage | AC |

## Output data

| | |
|---|---|
| Efficiency | > 83 % |
| Nominal output voltage | 24 V DC (AC input voltage available: 22.5 to 29.5 V DC, AC input voltage not available: 27.9 to 19.2 V DC) |
| Setting range of the output voltage ($U_{Set}$) | 22.5 V DC ... 29.5 V DC (normal mode; in the buffer mode, dependent on a battery voltage of 27.9 V DC ... 19.2 V DC) |
| Nominal output current ($I_N$) | 2 A |
| Output current limit | max. 3 A |
| Bridging time | 1200 s |
| Derating | 60 °C ... 70 °C (2.5 %/K) |
| Feedback voltage resistance | 35 V DC |
| Protection against overvoltage at the output (OVP) | < 35 V DC |
| Max. capacitive load | unlimited |
| Control deviation | < 1 % (change in load, static 10 % ... 90 %) |
| Residual ripple | < 50 $mV_{PP}$ |
| Output power | 48 W |

| | |
|---|---|
| Peak switching voltages nominal load | < 100 $mV_{PP}$ |
| Maximum no-load power dissipation | 3.8 W |
| Power loss nominal load max. | 15 W |
| Power dissipation battery operation | 2.1 W |
| Rise time | < 100 ms |
| Connection in parallel | yes |
| Connection in series | no |

Mains operation

| | |
|---|---|
| Nominal output voltage | 24 V DC |
| Output voltage range | 22.5 V DC ... 29.5 V DC |
| Nominal output current ($I_N$) | 2 A |

Battery operation

| | |
|---|---|
| Nominal output voltage | 24 V DC |
| Output voltage range | 19.2 V DC ... 27.6 V DC ($U_{OUT}$ = $U_{BAT}$ - 0,5 V DC) |
| Nominal output current ($I_N$) | 2 A |

Signal: Active (high = buffer module is loaded)

| | |
|---|---|
| Output description | Power Good |
| Maximum switching voltage | ≤ 24 V |
| Output voltage | + 24 V |
| Continuous load current | ≤ 20 mA |

Signal: Alarm

| | |
|---|---|
| Output description | Relay output |
| Maximum switching voltage | ≤ 24 V |
| Output voltage | 24 V |
| Continuous load current | ≤ 200 mA |

Signal: Battery charge

| | |
|---|---|
| Output description | Relay output |
| Maximum switching voltage | ≤ 24 V |
| Output voltage | 24 V |
| Continuous load current | ≤ 200 mA |

Signal: Battery mode

| | |
|---|---|
| Output description | Relay output |
| Maximum switching voltage | ≤ 24 V |
| Output voltage | 24 V |
| Continuous load current | ≤ 200 mA |

## Energy storage

| | |
|---|---|
| Charging current | 1 A |
| Nominal capacity range | 0.8 Ah ... 1.3 Ah |
| Memory medium | external, battery 0.8 Ah / 1.3 Ah |
| IQ technology | no |

| | |
|---|---|
| Network management | No |

## Connection data

### Input

| | |
|---|---|
| Connection method | Pluggable COMBICON screw connections |
| Conductor cross-section, rigid min. | 0.2 mm² |
| Conductor cross-section, rigid max. | 2.5 mm² |
| Conductor cross-section flexible min. | 0.2 mm² |
| Conductor cross-section flexible max. | 2.5 mm² |
| Conductor cross-section AWG min. | 24 |
| Conductor cross-section AWG max. | 12 |
| Stripping length | 8 mm |
| Screw thread | M3 |
| Tightening torque, min | 0.5 Nm |
| Tightening torque max | 0.6 Nm |

### Output

| | |
|---|---|
| Connection method | Pluggable COMBICON screw connections |
| Conductor cross-section, rigid min. | 0.2 mm² |
| Conductor cross-section, rigid max. | 2.5 mm² |
| Conductor cross-section flexible min. | 0.2 mm² |
| Conductor cross-section flexible max. | 2.5 mm² |
| Conductor cross-section AWG min. | 24 |
| Conductor cross-section AWG max. | 12 |
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### Signal

| | |
|---|---|
| Conductor cross-section, rigid min. | 0.2 mm² |
| Conductor cross-section, rigid max. | 2.5 mm² |
| Conductor cross-section flexible min. | 0.2 mm² |
| Conductor cross-section flexible max. | 2.5 mm² |
| Conductor cross-section AWG min. | 24 |
| Conductor cross-section AWG max. | 12 |
| Screw thread | M3 |
| Tightening torque, min | 0.5 Nm |
| Tightening torque max | 0.6 Nm |

## Signaling

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

### Signal output: Active (high = buffer module is loaded)

| | |
|---|---|
| Status display | LED "Power Good", green |

| | |
|---|---|
| Note on status display | Buffer module is loaded: LED ON |

Signal output: Alarm

| | |
|---|---|
| Status display | LED (red) |
| Note on status display | Malfunction/alarm: LED permanently lit |

Signal output: Battery charge

| | |
|---|---|
| Status display | LED flashing yellow |
| Note on status display | Battery charge/battery is being charged: LED flashing |

Signal output: Battery mode

| | |
|---|---|
| Status display | LED (yellow) |
| Note on status display | Battery mode/buffer mode: LED permanently lit |

## Electrical properties

| | |
|---|---|
| Insulation voltage input/output | 4 kV (type test) |
| | 2 kV (routine test) |

## Product properties

| | |
|---|---|
| Product type | DC UPS with integrated power supply |
| Product family | MINI DC UPS with integrated power supply |
| IQ technology | no |
| MTBF (IEC 61709, SN 29500) | > 753000 h (40 °C) |

Insulation characteristics

| | |
|---|---|
| Protection class | II (in closed control cabinet) |
| Degree of pollution | 2 |

## Dimensions

| | |
|---|---|
| Width | 67.5 mm |
| Height | 99 mm |
| Depth | 107 mm |

Installation dimensions

| | |
|---|---|
| Installation distance right/left | 0 mm / 0 mm |
| Installation distance top/bottom | 30 mm / 30 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 | Plastic |
| Type of housing | Polyamide PA, color: green |

## 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 |
| 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

| | |
|---|---|
| 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) |
| | EN 61558-2-17 |
| Standard – Protection against shock currents, basic requirements for protective separation in electrical equipment | EN 50178 |
| Standard – Safety extra-low voltage | EN 60950-1 (SELV) |
| | EN 60204 (PELV) |
| Standard - Safe isolation | DIN VDE 0100-410 |

## Approvals

| | |
|---|---|
| UL approvals | 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

| | |
|---|---|
| Electromagnetic compatibility | Conformance with EMC Directive 2014/30/EU |
| 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 |

Noise emission

| | |
|---|---|
| Standards/regulations | EN 55011 (EN 55022) |

Electrostatic discharge

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

Electrostatic discharge

| | |
|---|---|
| Contact discharge | 6 kV |

| | |
|---|---|
| Discharge in air | 8 kV |
| Comments | Criterion B |

Electromagnetic HF field

| | |
|---|---|
| Standards/regulations | EN 61000-4-3 |

Electromagnetic HF field

| | |
|---|---|
| Frequency range | 80 MHz ... 2 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 (level 4 - asymmetrical: conductor to ground) |
| Output | 2 kV (level 3 - asymmetrical: conductor to ground) |
| Signal | 1 kV (level 2 - asymmetrical: conductor to ground) |
| Comments | Criterion B |

Surge voltage load (surge)

| | |
|---|---|
| Standards/regulations | EN 61000-4-5 |

Surge voltage load (surge)

| | |
|---|---|
| Input | 4 kV (level 4 - asymmetrical: conductor to ground) |
| | 2 kV (level 4 - symmetrical: conductor to conductor) |
| Output | 2 kV (Level 3 - asymmetrical) |
| | 1 kV (Level 3 - symmetrical) |
| Signal | 2 kV (Level 3 - asymmetrical) |
| | 1 kV (Level 3 - symmetrical) |
| Comments | Criterion B |

Conducted interference

| | |
|---|---|
| Standards/regulations | EN 61000-4-6 |

Conducted interference

| | |
|---|---|
| Input/output/signal | Level 3 |
| Frequency range | 10 kHz ... 80 MHz |
| Comments | Criterion A |
| Voltage | 10 V |

Voltage dips

| | |
|---|---|
| Standards/regulations | EN 61000-4-11 |

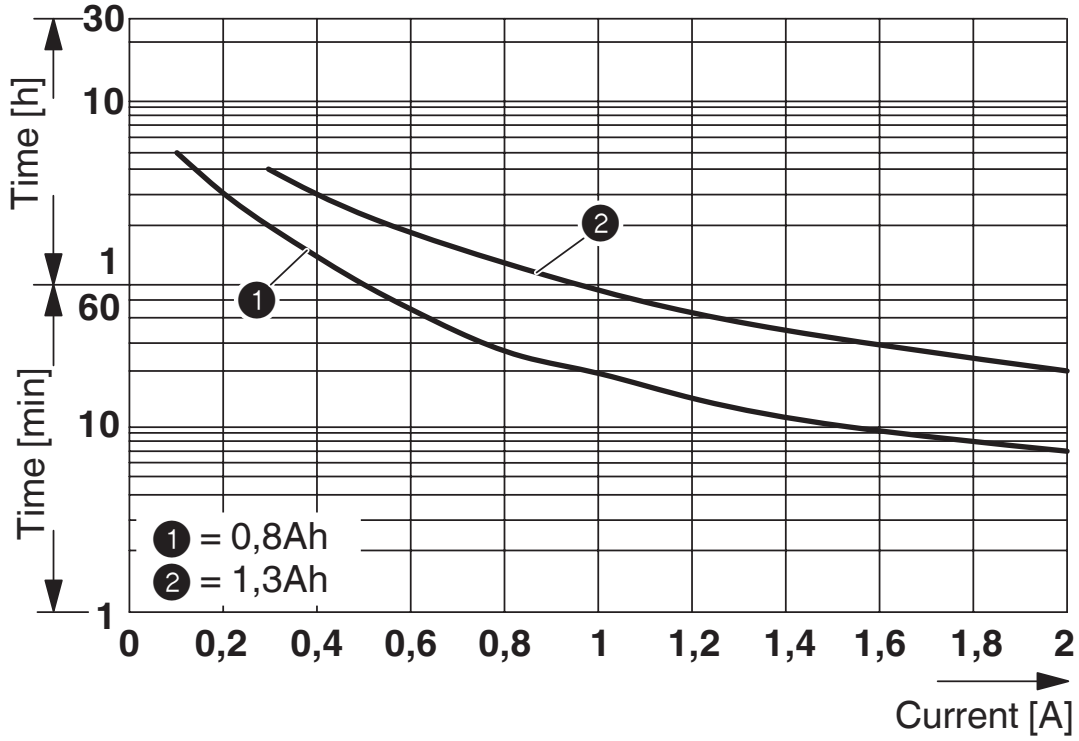
Emitted interference

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

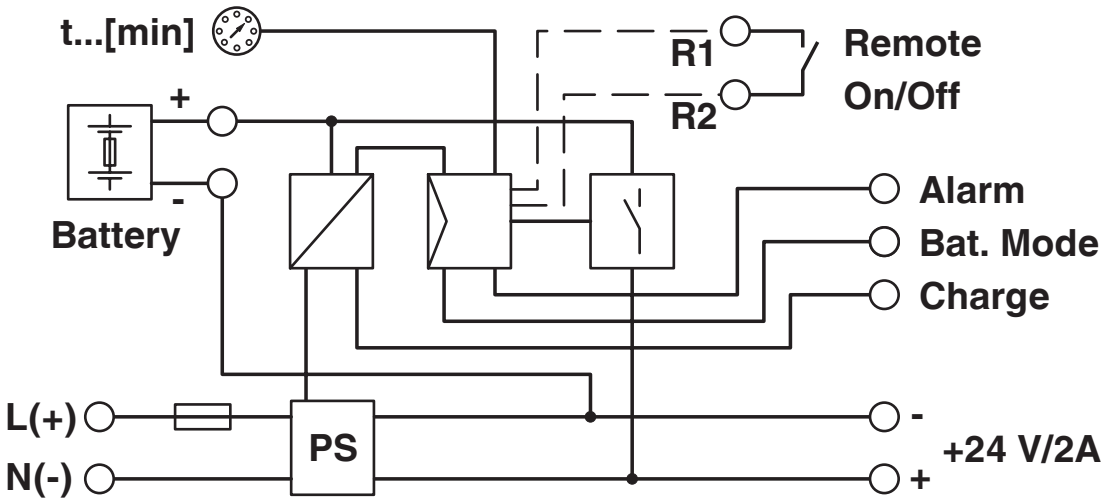
| | |
|---|---|
| | residential |

## Drawings

Diagram




Block diagram



## Graphic

| Load Current | Buffertime for 24 V DC system | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Minutes | | | | | | | | | | Hour |
| | 8 | 9 | 10 | 15 | 20 | 25 | 30 | 40 | 45 | 50 | 1 |
| 0.5 A | | | | | | | | | | | |
| 1 A | | | | | | | | | | | |
| 1.5 A | | | | | | | | | | | |
| 2 A | | | | | | | | | | | |

The data is based on an ambient temperature of +25 °C at the start of use.

**2866666** MINI-BAT/24DC/0.8AH

**1394729** TRIO-BAT/PB/24DC/1.2AH

Buffer times for MINI DC UPS for 24 V systems

## Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2866640

**cUL Recognized**
Approval ID: FILE E 211944

**UL Recognized**
Approval ID: E211944

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

**EAC**
Approval ID: RU-DE.B.00184/20

**UL Listed**
Approval ID: E123528

**KC**
Approval ID: R-R-PCK-2866640

**CoC / Compliance Statement**
Approval ID: 17-235-00

**cUL Listed**
Approval ID: E199827

**UL Listed**
Approval ID: E199827

## Classifications

### ECLASS

| | |
|---|---|
| ECLASS-13.0 | 27040705 |
| ECLASS-15.0 | 27040705 |

### ETIM

| | |
|---|---|
| ETIM 10.0 | EC000382 |

### 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) |
| SCIP | 2b4b9094-1235-45d0-bf72-fefce9e27e6c |

EF3.1 Climate Change

| | |
|---|---|
| CO2e kg | 9.642 kg CO2e |

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