

TRIO-UPS-2G/1AC/24DC/10 - Uninterruptible power supply



2907161

<https://www.phoenixcontact.com/be/products/2907161>

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TRIO UPS - UPS with integrated power supply, USB (Modbus/RTU), DIN rail mounting, Push-in connection, input: 1-phase, output: 24 V DC / 10 A

Product description

Supply DC loads reliably and save space with the TRIO uninterruptible power supplies. An input grid is no longer necessary for startup. Connected industrial PCs can be shut down easily via the integrated USB interface.

Your advantages

- Space saving: Combination of UPS module and power supply in the same housing
- Long buffer times, thanks to large selection of VRLA energy storage systems
- USB interface for connection to higher-level controllers such as industrial PCs
- Startup from energy storage possible, even without mains input
- Universal range of possible applications, thanks to a comprehensive package of approvals and an extended temperature range
- Easy installation, thanks to push-in connection technology

Commercial data

| | |
|--------------------------------------|---------------------|
| Item number | 2907161 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | CMUO13 |
| Product key | CMUO13 |
| Catalog page | Page 354 (C-4-2019) |
| GTIN | 4055626166582 |
| Weight per piece (including packing) | 1.637 g |
| Weight per piece (excluding packing) | 1.357 g |
| Customs tariff number | 85044095 |
| Country of origin | CN |

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Technical data

Input data

| | |
|------------------------------------|---------------------------------------|
| Input voltage range | 100 V AC ... 240 V AC -15 % ... +10 % |
| Voltage type of supply voltage | AC |
| Inrush current | < 9 A |
| Inrush current integral (I^2t) | < 0.2 A ² s |
| Frequency range (f_N) | 50 Hz ... 60 Hz (± 10 %) |
| Mains buffering time | ≥ 25 ms (120 V AC) |
| Switch-on time | typ. 200 ms |
| Typical current consumption | 4.5 A (100 V AC) |
| Input fuse | 6.3 A (slow-blow, internal) |

Signal Bat.-Start

| | |
|---------------------------|---|
| Connection labeling | 3.6 |
| Signalization designation | Bat.-Start |
| Low signal | Connection to SGnd with < 2.7 k Ω |
| High signal | Open (> 200 k Ω between Bat.-Start and SGnd) |

Signal Remote

| | |
|---------------------------|--|
| Connection labeling | 3.5 |
| Signalization designation | Remote |
| Low signal | Connection to SGnd with < 2.7 k Ω |
| High signal | Open (> 35 k Ω between Remote and SGnd) |

Output data

| | |
|--|--|
| Efficiency | typ. 90 % (120 V AC) |
| | typ. 91 % (230 V AC) |
| | typ. 96 % (Battery operation) |
| Derating | > 60 °C (2.5%/K of P _{Out} nom.) |
| Crest factor | 1.5 (120 V AC) |
| | 1.5 (230 V AC) |
| Switch-over time | < 20 ms |
| UPS connection in parallel | yes, with diode module uncoupled |
| UPS connection in series | no |
| Energy storage device connection in parallel | yes |
| Feedback voltage resistance | ≤ 35 V DC |
| Protection against overvoltage at the output (OVP) | < 30 V DC |
| Residual ripple | < 20 mV |
| Control deviation | < 0.55 % (change in load, static 10 % ... 90 %) |
| | < 2.6 % (Dynamic load change 10 % ... 90 %, 10 Hz) |
| | < 0.05 % (change in input voltage ± 10 %) |
| Rise time | < 30 ms |
| Permissible backup fuse | B10 |

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Mains operation

| | |
|---|--|
| Output voltage | 24 V DC |
| Output voltage range | 24 V DC ... 28 V DC (> 24 V constant capacity) |
| Output current I_N | 10 A |
| Dynamic Boost ($I_{Dyn.Boost}$) | 15 A |
| Output power P_{OUT} ($U_N, I_{OUT} = I_N$) | 240 W |
| Maximum no-load power dissipation | < 3 W (230 V AC) |
| Power loss nominal load max. | < 32 W (230 V AC) |

Battery operation

| | |
|----------------------|----------------------|
| Output voltage | $U_{BAT} - 0.1$ V DC |
| Output voltage range | 18 V DC ... 30 V DC |
| Output current I_N | 10 A |

Signal Alarm

| | |
|---------------------------|---------------------------|
| Connection labeling | 3.2 |
| Signalization designation | Alarm |
| Type of signaling | LED red |
| Switching output | Transistor output, active |
| Output voltage | 24 V DC |
| Continuous load current | 20 mA |
| LED status indicator | red |

Signal Battery mode

| | |
|---------------------------|---------------------------|
| Connection labeling | 3.3 |
| Signalization designation | Battery mode |
| Type of signaling | Yellow LED |
| Switching output | Transistor output, active |
| Output voltage | 24 V DC |
| Continuous load current | 20 mA |
| LED status indicator | yellow |

Signal DC OK

| | |
|---------------------------|---------------------------|
| Connection labeling | 3.1 |
| Signalization designation | DC OK |
| Type of signaling | Green LED |
| Switching output | Transistor output, active |
| Output voltage | 24 V DC |
| Continuous load current | 20 mA |
| LED status indicator | green |

Signal Ready

| | |
|---------------------------|---------------------------|
| Connection labeling | 3.4 |
| Signalization designation | Ready |
| Switching output | Transistor output, active |
| Output voltage | 24 V DC |

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| | |
|-------------------------|-------|
| Continuous load current | 20 mA |
|-------------------------|-------|

Energy storage

| | |
|---------------------------------|----------------------------------|
| Nominal voltage U_N | 24 V DC |
| End-of-charge voltage | max. 30 V DC |
| Charging current (Configurable) | 0.2 A ... 3 A (-25 °C ... 40 °C) |
| Charging current (Reduced) | 3 A ... 0 A (40 °C ... 65 °C) |
| Charging current (Preset) | 2.1 A (-25 °C ... 40 °C) |
| Charging current () | 3 A |
| Nominal capacity range | 1.2 Ah ... 40 Ah |
| Battery technology | VRLA-AGM |
| Charge characteristic curve | IU ₀ U |

Connection data

Conductor connection

| | |
|--|--|
| Connection method | Push-in connection |
| rigid | 0.2 mm ² ... 4 mm ² |
| flexible | 0.2 mm ² ... 2.5 mm ² |
| flexible with ferrule without plastic sleeve | 0.25 mm ² ... 2.5 mm ² |
| flexible with ferrule with plastic sleeve | 0.25 mm ² ... 1.5 mm ² |
| rigid (AWG) | 24 ... 12 |
| Stripping length | 10 mm |

Conductor connection

| | |
|--|--|
| Connection method | Push-in connection |
| rigid | 0.2 mm ² ... 4 mm ² |
| flexible | 0.2 mm ² ... 2.5 mm ² |
| flexible with ferrule without plastic sleeve | 0.25 mm ² ... 2.5 mm ² |
| flexible with ferrule with plastic sleeve | 0.25 mm ² ... 1.5 mm ² |
| rigid (AWG) | 24 ... 12 |
| Stripping length | 10 mm |

Conductor connection

| | |
|--|--|
| Connection method | Push-in connection |
| rigid | 0.2 mm ² ... 1.5 mm ² |
| flexible | 0.2 mm ² ... 1.5 mm ² |
| flexible with ferrule without plastic sleeve | 0.2 mm ² ... 1.5 mm ² |
| flexible with ferrule with plastic sleeve | 0.2 mm ² ... 0.75 mm ² |
| rigid (AWG) | 24 ... 16 |
| Stripping length | 8 mm |

Conductor connection

| | |
|-------------------|--|
| Connection method | Push-in connection |
| rigid | 0.2 mm ² ... 10 mm ² |
| flexible | 0.2 mm ² ... 6 mm ² |

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| | |
|--|--|
| flexible with ferrule without plastic sleeve | 0.25 mm ² ... 6 mm ² |
| flexible with ferrule with plastic sleeve | 0.25 mm ² ... 4 mm ² |
| rigid (AWG) | 24 ... 8 |
| Stripping length | 15 mm |

Interfaces

| | |
|----------------------|------------------|
| Interface | USB (Modbus/RTU) |
| Number of interfaces | 1 |
| Connection method | MINI-USB Type B |
| Locking | Screw |

Electrical properties

| | |
|---------------------------------|---|
| Number of phases | 1.00 |
| Insulation voltage input/output | 4 kV AC (type test) 2 kV AC (routine test) |
| Insulation voltage output / PE | 500 V AC 500 V AC (routine test) |
| Insulation voltage input / PE | 3.5 kV AC (type test) 2 kV AC (routine test) |

Product properties

| | |
|----------------------------|---|
| Product type | DC UPS with integrated power supply |
| Product family | TRIO UPS |
| MTBF (IEC 61709, SN 29500) | > 2007013 h (230 V AC, at 25 °C) > 1210518 h (230 V AC, at 40 °C) > 575978 h (230 V AC, at 60 °C) |

Insulation characteristics

| | |
|---------------------|---|
| Protection class | I |
| Degree of pollution | 2 |

Life expectancy (electrolytic capacitors)

| | |
|-----------------|----------|
| Current | 10 A |
| Temperature | 40 °C |
| Time | 73005 h |
| Additional text | 230 V AC |

Dimensions

Item dimensions

| | |
|--------|--------|
| Width | 68 mm |
| Height | 130 mm |
| Depth | 68 mm |

Installation dimensions

| | |
|----------------------------------|-------------|
| Installation distance right/left | 0 mm / 0 mm |
|----------------------------------|-------------|

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| | |
|----------------------------------|---------------|
| Installation distance top/bottom | 50 mm / 50 mm |
|----------------------------------|---------------|

Mounting

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

Material specifications

| | |
|--|----------|
| Flammability rating according to UL 94 (housing / terminal blocks) | V0 |
| Housing material | Metal |
| Hood version | PC |
| Side element version | Aluminum |

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 |
| Ambient temperature (start-up type tested) | -40 °C |
| Maximum altitude | ≤ 4000 m (> 2000 m, observe derating) |
| Climatic class | 3K3 (in acc. with EN 60721) |
| Max. permissible relative humidity (operation) | ≤ 93 % (At +25°C, non-condensing) |
| Shock | 30g, 18 ms in accordance with IEC 60068-2-27 |
| Vibration (operation) | < 12 ... 13.2 Hz, amplitude ±1 mm, 13.2 ... 100 Hz, 0.7g in accordance with IEC 60068-2-6 |

Standards and regulations

Overvoltage category

| | |
|------------|----|
| EN 61010-1 | II |
|------------|----|

Safety for measurement, control, and laboratory equipment

| | |
|--------------------------|---|
| Standard designation | Safety for equipment for measurement, control, and laboratory use |
| Standards/specifications | IEC 61010-1 |

Protective extra-low voltage

| | |
|--------------------------|------------------------------|
| Standard designation | Protective extra-low voltage |
| Standards/specifications | IEC 61010 (SELV) / (PELV) |

Safe isolation

| | |
|--------------------------|------------------|
| Standard designation | Safe isolation |
| Standards/specifications | DIN VDE 0100-410 |

Low-voltage power supplies, DC output

| | |
|----------------------|---------------------------------------|
| Standard designation | Low-voltage power supplies, DC output |
|----------------------|---------------------------------------|

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| | |
|--------------------------|---------------|
| Standards/specifications | EN 61204-3 |
| Ship's bridge | |
| Standard designation | Ship's bridge |
| Standards/specifications | IEC/EN 60945 |

Approvals

| | |
|----------------|--------------------|
| UL | |
| Identification | UL Listed UL 61010 |

| | |
|----------------|--|
| UL | |
| Identification | UL/C-UL Listed ANSI/ISA-12.12.01 Class I, Division 2, Groups A, B, C |

| | |
|----------------|-----|
| Shipbuilding | |
| Identification | DNV |

| | |
|----------------|----|
| Shipbuilding | |
| Identification | LR |

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 |
| Noise immunity | Immunity in accordance with EN 61000-6-2 (industrial) |
| Electromagnetic compatibility | Conformance with EMC Directive 2014/30/EU |
| Conducted noise emission | EN 61000-6-3 |
| Noise emission | EN 61000-6-3 |
| DNV GL conducted interference | Class B |
| Additional text | Area power distribution |
| DNV GL noise radiation | Class B |
| Additional text | Bridge and deck area |

| | |
|-----------------------|--------------|
| Harmonic currents | |
| Standards/regulations | EN 61000-3-2 |

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

| | |
|-------------------------|--------------|
| 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) |

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Electromagnetic HF field

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

Electromagnetic HF field

| | |
|---------------------|-------------------|
| Frequency range | 80 MHz ... 6 GHz |
| Test field strength | 10 V/m |
| Frequency range | 1.4 GHz ... 6 GHz |
| Test field strength | 3 V/m |

Fast transients (burst)

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

Fast transients (burst)

| | |
|--------|------|
| Input | 4 kV |
| Output | 2 kV |
| Signal | 2 kV |

Surge voltage load (surge)

| | |
|-----------------------|------------------------------------|
| Standards/regulations | EN 61000-4-5 |
| Input | 2 kV (Test Level 4 - symmetrical) |
| | 4 kV (Test Level 4 - asymmetrical) |
| Output | 1 kV (Test Level 3 - symmetrical) |
| | 2 kV (Test Level 3 - asymmetrical) |
| Signal | 1 kV (Test Level 2 - asymmetrical) |

Conducted interference

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

Conducted interference

| | |
|-----------------|---------------------|
| Frequency range | 0.15 MHz ... 80 MHz |
| Voltage | 10 V |

Attenuated sinusoidal oscillations (ring wave)

| | |
|-----------------------|---------------|
| Standards/regulations | EN 61000-4-12 |
| Comments | Criterion A |

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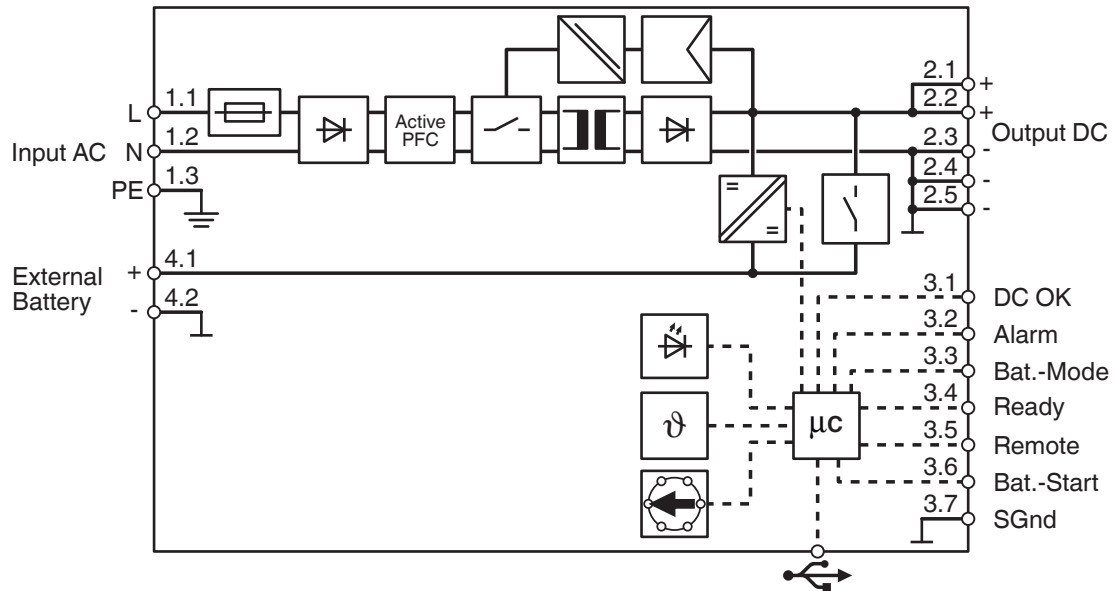


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Drawings

Block diagram



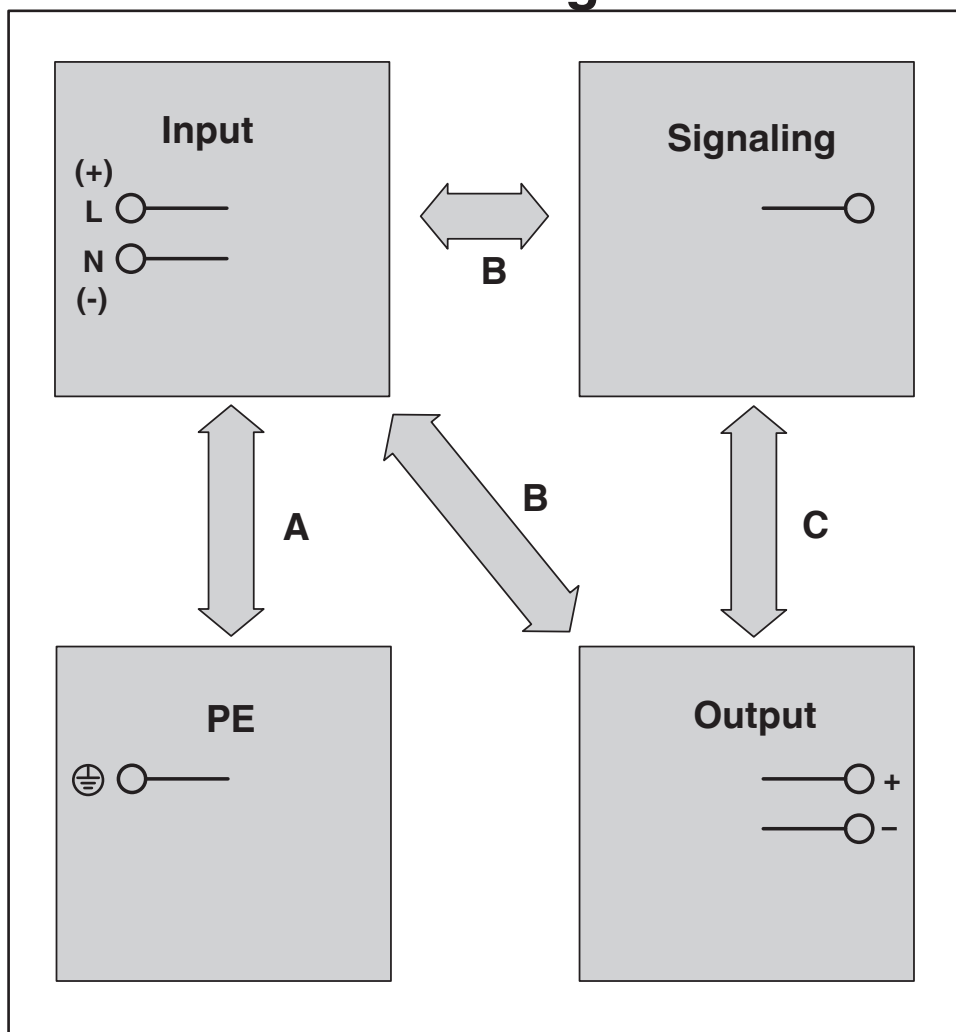
Block diagram

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Schematic diagram

Housing



Insulation electric strength

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Approvals

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DNV

Approval ID: TAA00002DW



IECEE CB Scheme

Approval ID: DK-67494-UL



EAC

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



LR

Approval ID: LR2002877TA



EAC

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



UL Listed

Approval ID: FILE E 123528



cUL Listed

Approval ID: FILE E 123528

BSH

Approval ID: 1025a



KC

Approval ID: R-R-PCK-2907160



cUL Listed

Approval ID: FILE E 199827



UL Listed

Approval ID: FILE E 199827

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cULus Listed

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Classifications

ECLASS

| | |
|-------------|----------|
| ECLASS-11.0 | 27040705 |
| ECLASS-13.0 | 27040705 |
| ECLASS-12.0 | 27040705 |

ETIM

| | |
|----------|----------|
| ETIM 9.0 | EC000382 |
|----------|----------|

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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PHOENIX CONTACT nv/sa

Minervastraat 10-12

1930 Zaventem-Keiberg II

+32 (0)2/723 98 11

info@phoenixcontact.be