

TRIO-UPS-2G/1AC/24DC/5 - Uninterruptible power supply



2907160

<https://www.phoenixcontact.com/in/products/2907160>

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TRIO UPS - UPS with integrated power supply for lead AGM energy storage 1.2 Ah - 12 Ah, USB (Modbus/RTU), DIN rail mounting, Push-in connection, input: 1-phase, output: 24 V DC / 5 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 | 2907160 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales Key | CMU |
| Product Key | CMUO13 |
| Catalog Page | Page 354 (C-4-2019) |
| GTIN | 4055626166575 |
| Weight per Piece (including packing) | 957.8 g |
| Weight per Piece (excluding packing) | 741 g |
| Customs tariff number | 85044083 |
| Country of origin | CN |

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Technical Data

Product properties

| | |
|----------------------------|-------------------------------------|
| Product type | DC UPS with integrated power supply |
| Product family | TRIO UPS |
| MTBF (IEC 61709, SN 29500) | > 1395470 h (230 V AC, at 25 °C) |
| | > 825726 h (230 V AC, at 40 °C) |
| | > 388314 h (230 V AC, at 60 °C) |

Insulation characteristics

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

Life expectancy (electrolytic capacitors)

| | |
|-----------------|----------|
| Current | 5 A |
| Temperature | 40 °C |
| Additional text | 230 V AC |

Electrical properties

| | |
|---------------------------------|--------------------------|
| Number of phases | 1.00 |
| Insulation voltage input/output | 3 kV AC (type test) |
| | 1.5 kV AC (routine test) |
| Insulation voltage output / PE | 500 V AC (type test) |
| | 500 V AC (routine test) |
| Insulation voltage input / PE | 1.5 kV AC (type test) |
| | 1.5 kV AC (routine test) |

Input data

| | |
|------------------------------------|---------------------------------------|
| Input voltage range | 100 V AC ... 240 V AC -15 % ... +10 % |
| Voltage type of supply voltage | AC |
| Inrush current | < 16 A |
| Inrush current integral (I^2t) | < 0.43 A ² s |
| Frequency range (f_N) | 50 Hz ... 60 Hz (± 10 %) |
| Mains buffering time | ≥ 15 ms (120 V AC) |
| Switch-on time | typ. 60 ms |
| Typical current consumption | 3.3 A (100 V AC) |

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

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

Output data

| | |
|--|---|
| Efficiency | typ. 85 % (120 V AC) |
| | typ. 87 % (230 V AC) |
| | typ. 96 % (Battery operation) |
| Derating | > 60 °C (2.5%/K of P _{Out} nom.) |
| Crest factor | 2.7 (120 V AC) |
| | 3.2 (230 V AC) |
| Switch-over time | < 75 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 | < 0.75 % (change in load, static 10 % ... 90 %) |
| | < 1.25 % (Dynamic load change 10 % ... 90 %, 10 Hz) |
| | < 0.1 % (change in input voltage ±10 %) |
| Rise time | < 15 ms |
| Permissible backup fuse | B10 |

Mains operation

| | |
|---|--|
| Output voltage | 24 V DC |
| Output voltage range | 24 V DC ... 28 V DC (> 24 V constant capacity) |
| Output current I _N | 5 A |
| Dynamic Boost (I _{Dyn.Boost}) | 7.5 A |
| Output power P _{OUT} (U _N , I _{OUT} = I _N) | 120 W |
| Maximum no-load power dissipation | < 3 W (230 V AC) |
| Power loss nominal load max. | < 19 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 | 5 A |
| Dynamic Boost (I _{Dyn.Boost}) | 7.5 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 |

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

Signal supply 24 V DC, 20 mA, SGnd

| | |
|---------------------|-----|
| Connection labeling | 3.7 |
|---------------------|-----|

Energy storage

| | |
|---|------------------|
| Nominal voltage U_N | 24 V DC |
| End-of-charge voltage | max. 30 V DC |
| Nominal capacity (without additional charger) | 1.2 Ah ... 12 Ah |
| Battery technology | VRLA-AGM |
| Charge characteristic curve | IU_0U |

Interfaces

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

Dimensions

| | |
|-------|-------|
| Width | 60 mm |
|-------|-------|

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| | |
|--------|--------|
| Height | 130 mm |
| Depth | 115 mm |

Installation dimensions

| | |
|----------------------------------|---------------|
| Installation distance right/left | 0 mm / 0 mm |
| Installation distance top/bottom | 50 mm / 50 mm |

Alternative assembly

| | |
|--------|--------|
| Width | 115 mm |
| Height | 130 mm |
| Depth | 60 mm |

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) | ≤ 95 % (At +25°C, non-condensing) |
| Shock | 30g, 18 ms according to 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 |

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

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

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) |

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

Standards and regulations

Overvoltage category

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

Safety for measurement, control, and laboratory equipment

| | |
|--------------------------|-------------|
| Standards/specifications | IEC 61010-1 |
|--------------------------|-------------|

Protective extra-low voltage

| | |
|--------------------------|---------------------------|
| Standards/specifications | IEC 61010 (SELV) / (PELV) |
|--------------------------|---------------------------|

Safe isolation

| | |
|--------------------------|------------------|
| Standards/specifications | DIN VDE 0100-410 |
|--------------------------|------------------|

Low-voltage power supplies, DC output

| | |
|--------------------------|------------|
| Standards/specifications | EN 61204-3 |
|--------------------------|------------|

Ship's bridge

| | |
|--------------------------|--------------|
| Standards/specifications | IEC/EN 60945 |
|--------------------------|--------------|

Mounting

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

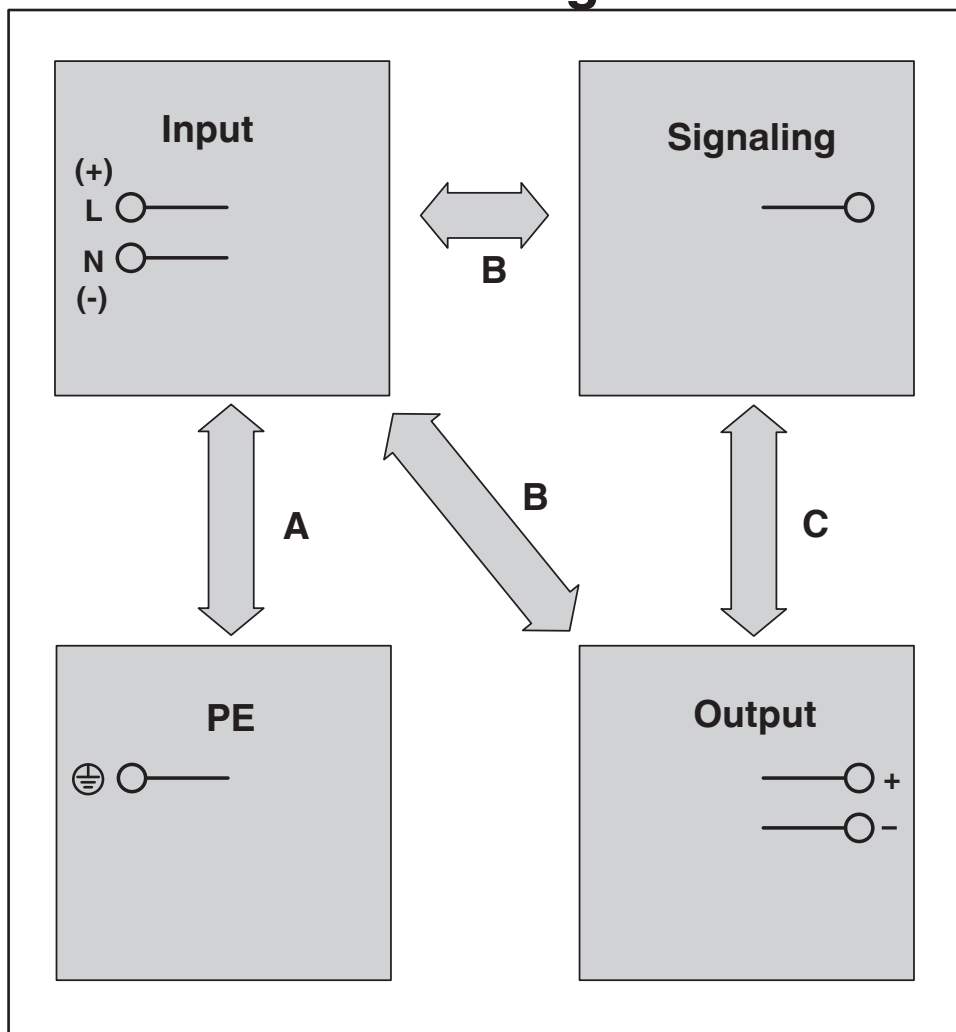
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Drawings

Schematic diagram

Housing



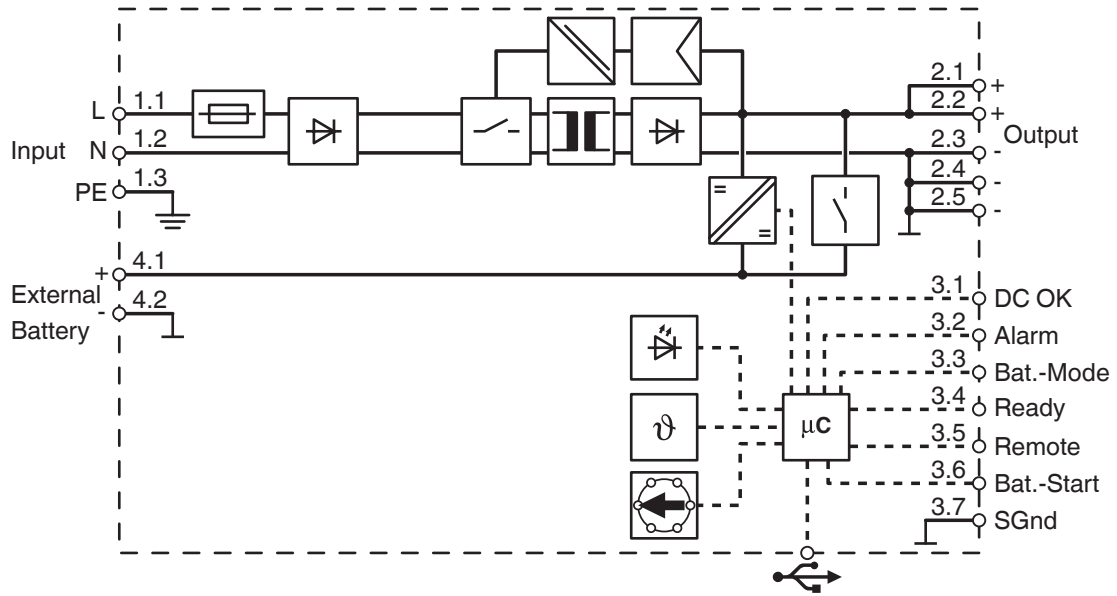
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Block diagram



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Approvals



IECEE CB Scheme
Approval ID: DK-63811-UL



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



LR
Approval ID: LR2002877TA



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



UL Listed
Approval ID: FILE E 123528



cUL Listed
Approval ID: FILE E 123528



KC
Approval ID: R-R-PCK-2907160



IECEE CB Scheme
Approval ID: DK-63811-UL



cUL Listed
Approval ID: FILE E 123528



UL Listed
Approval ID: FILE E 123528



LR
Approval ID: LR2002877TA



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

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EAC

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



KC

Approval ID: R-R-PCK-2907160



cUL Listed

Approval ID: FILE E 199827



UL Listed

Approval ID: FILE E 199827



UL Listed

Approval ID: FILE E 199827



cUL Listed

Approval ID: FILE E 199827

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Classifications

ECLASS

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

ETIM

| | |
|----------|----------|
| ETIM 8.0 | 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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Accessories

UPS-BAT/PB/24DC/1.2AH - Energy storage

1274520

<https://www.phoenixcontact.com/in/products/1274520>



Energy storage, VRLA-AGM, 24 V DC, 1.2 Ah, automatic detection and communication with QUINT UPS-IQ

UPS-BAT/PB/24DC/4AH - Energy storage

1274117

<https://www.phoenixcontact.com/in/products/1274117>



Energy storage, VRLA-AGM, 24 V DC, 4 Ah, automatic detection and communication with QUINT UPS-IQ

TRIO-UPS-2G/1AC/24DC/5 - Uninterruptible power supply



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UPS-BAT/PB/24DC/7AH - Energy storage

1274118

<https://www.phoenixcontact.com/in/products/1274118>



Energy storage, VRLA-AGM, 24 V DC, 7 Ah, automatic detection and communication with QUINT UPS-IQ

UPS-BAT/PB/24DC/12AH - Energy storage

1274119

<https://www.phoenixcontact.com/in/products/1274119>



Energy storage, VRLA-AGM, 24 V DC, 12 Ah, automatic detection and communication with QUINT UPS-IQ

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UPS-BAT/PB/24DC/20AH - Energy storage

1348516

<https://www.phoenixcontact.com/in/products/1348516>



Energy storage, VRLA-AGM, 24 V DC, 20 Ah, automatic detection and communication with QUINT UPS-IQ

UPS-BAT/PB/24DC/40AH - Energy storage

1354641

<https://www.phoenixcontact.com/in/products/1354641>



Energy storage, VRLA-AGM, 24 V DC, 40 Ah, automatic detection and communication with QUINT UPS-IQ

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UPS-BAT/VRLA-WTR/24DC/26AH - Energy storage

2320429

<https://www.phoenixcontact.com/in/products/2320429>

Energy storage device, lead AGM, VRLA technology, 24 V DC, 26 Ah, tool-free battery replacement, automatic detection, and communication with QUINT UPS-IQ



UPS-BAT/VRLA-WTR/24DC/13AH - Energy storage

2320416

<https://www.phoenixcontact.com/in/products/2320416>

Energy storage device, lead AGM, VRLA technology, 24 V DC, 13 Ah, tool-free battery replacement, automatic detection, and communication with QUINT UPS-IQ



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MINI-SCREW-USB-DATACABLE - Data cable

2908217

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Used for communication between an industrial PC and Phoenix Contact devices with USB-Mini-B connection.

UWA 130 - Mounting adapter

2901664

<https://www.phoenixcontact.com/in/products/2901664>



2-piece universal wall adapter for securely mounting the device in the event of strong vibrations. The profiles that are screwed onto the side of the device are screwed directly onto the mounting surface. The universal wall adapter is attached on the left/right.

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UWA 182/52 - Mounting adapter

2938235

<https://www.phoenixcontact.com/in/products/2938235>



Universal wall adapter for securely mounting the device in the event of strong vibrations. The device is screwed directly onto the mounting surface. The universal wall adapter is attached on the top/bottom.

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