

# TRIO-UPS-2G/1AC/1AC/230V/750VA - Uninterruptible power supply



2905909

<https://www.phoenixcontact.com/us/products/2905909>

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1AC/1AC/750 VA uninterruptible power supply with integrated battery, lead AGM, VRLA technology, 24 V DC, 4 Ah for 230 V AC applications.

## Product description

UPS modules with integrated battery are particularly space-saving: the UPS module and battery are combined in one housing. The TRIO AC UPS ensures seamless transition to battery operation thanks to the pure sine curve. Connected industrial PCs can be shut down safely via the integrated USB interface.

## Your advantages

- Smooth transition, thanks to the pure sine curve: the sine generated in battery operation is synchronous with the mains previously used for supply
- Space saving: Combination of UPS module and battery in the same housing
- Long buffer times with integrated VRLA battery, can be extended with additional battery module
- USB interface for connection to higher-level controllers such as industrial PCs
- Startup from the energy storage system possible, even without mains input

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 2905909       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | CM26          |
| Product key                          | CMUO15        |
| GTIN                                 | 4055626007502 |
| Weight per piece (including packing) | 6,355 g       |
| Weight per piece (excluding packing) | 6,009 g       |
| Customs tariff number                | 85371091      |
| Country of origin                    | DE            |

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## Technical data

### Notes

#### General

|                     |                                                                                                                                                                                                                                                                                   |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Note on the battery | This product contains a battery with a limited shelf life that must be charged every few months. The product packaging indicates when the battery must be started up or recharged. The general shelf life can be found in the energy storage devices area under "Latest startup". |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Input data

#### AC operation

|                                |                                    |
|--------------------------------|------------------------------------|
| Input voltage                  | 230 V AC                           |
| Input voltage range            | 184 V AC ... 264 V AC              |
| Voltage type of supply voltage | AC                                 |
| Frequency range ( $f_N$ )      | 45 Hz ... 55 Hz<br>55 Hz ... 65 Hz |
| Current consumption            | 3 A (max.)                         |
| Power factor (cos phi)         | 0.8                                |
| Input fuse                     | 10 A 400 V gRL                     |
| Permissible backup fuse        | B6 B10 B16                         |

#### Digital Control (configurable)

|             |                                                |
|-------------|------------------------------------------------|
| Designation | Remote                                         |
| Low signal  | Connection to SGnd with < 2.7 k $\Omega$       |
| High signal | Open (> 35 k $\Omega$ between Remote and SGnd) |

#### Digital Control Low-Active (configurable)

|                                             |                                                     |
|---------------------------------------------|-----------------------------------------------------|
| Battery-operated start 230 V AC low signal  | Connection to SGnd with < 2.7 k $\Omega$            |
| Battery-operated start 230 V AC high signal | Open (> 200 k $\Omega$ between Bat.-Start and SGnd) |

### Output data

|                                         |                                                                  |
|-----------------------------------------|------------------------------------------------------------------|
| Classification according to IEC 62040-3 | VFD-SS-311                                                       |
| Efficiency                              | > 95 % (100% load, with charged battery)<br>~ 81 % (100 % load ) |
| Nominal output voltage                  | 230 V AC                                                         |
| Form of output voltage                  | Pure sine                                                        |
| Nominal output current ( $I_N$ )        | 3 A                                                              |
| Bridging time                           | 60 s                                                             |
| UPS connection in parallel              | no                                                               |
| UPS connection in series                | no                                                               |
| Apparent power                          | 750 VA                                                           |
| Nominal power                           | 600 W (Real power)                                               |

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|                        |         |
|------------------------|---------|
| Crest factor           | 2.8     |
| Switch-over time       | < 10 ms |
| Connection in parallel | no      |
| Connection in series   | no      |

## Mains operation

|                                  |              |
|----------------------------------|--------------|
| Nominal output voltage           | 230 V AC     |
| Nominal output current ( $I_N$ ) | 3 A (750 VA) |

## Battery operation

|                                                          |              |
|----------------------------------------------------------|--------------|
| Nominal output voltage                                   | 230 V AC     |
| Nominal output current ( $I_N$ )                         | 3 A (750 VA) |
| Frequency (after automatic detection in mains operation) | 50 Hz        |
|                                                          | 60 Hz        |

## Signal: Alarm

|                         |              |
|-------------------------|--------------|
| Output voltage          | 24 V (SELV)  |
| Continuous load current | $\leq 20$ mA |

## Signal: Battery mode

|                         |              |
|-------------------------|--------------|
| Output voltage          | 24 V (SELV)  |
| Continuous load current | $\leq 20$ mA |

## Signal: Ready

|                         |              |
|-------------------------|--------------|
| Output voltage          | 24 V (SELV)  |
| Continuous load current | $\leq 20$ mA |

## Signal:

|                    |                                                                  |
|--------------------|------------------------------------------------------------------|
| Signal ground SGnd | Reference potential for Bat.-Mode, Ready, Remote, and Bat.-Start |
|--------------------|------------------------------------------------------------------|

## Energy storage

|                                       |                                                  |
|---------------------------------------|--------------------------------------------------|
| Nominal voltage $U_N$                 | 24 V DC                                          |
| Charging current                      | 0.7 A ... 1.1 A                                  |
| Nominal capacity                      | 4 Ah                                             |
| Nominal capacity range                | 4 Ah                                             |
| Charging time                         | 7 h                                              |
| Buffer period                         | 20 min (100 W)                                   |
|                                       | 4 min (300 W)                                    |
|                                       | 1 min (600 W)                                    |
| Latest startup date (battery only)    | 6 Months (0 °C ... 20 °C)                        |
| Latest startup (battery only) - range | 6 Months ... 3 Months (20 °C ... 30 °C)          |
|                                       | 3 Months ... 1 Months (30 °C ... 40 °C)          |
| Battery technology                    | Lead rechargeable battery module                 |
| Memory medium                         | Lead rechargeable battery module                 |
| Accumulator type                      | 2x Panasonic UP-VW1220P1 / BB Battery HR4.2-12FR |

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|                                       |              |
|---------------------------------------|--------------|
| Can be extended with external battery | 1x 24 V 4 Ah |
| Battery fuse                          | 40 A, 32 V   |

## Connection data

### Input

|                                       |                     |
|---------------------------------------|---------------------|
| Connection method                     | Push-in connection  |
| Conductor cross-section, rigid min.   | 0.2 mm <sup>2</sup> |
| Conductor cross-section, rigid max.   | 4 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                      | 10 mm               |

### Output

|                                       |                     |
|---------------------------------------|---------------------|
| Connection method                     | Push-in connection  |
| Conductor cross-section, rigid min.   | 0.2 mm <sup>2</sup> |
| Conductor cross-section, rigid max.   | 4 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                      | 10 mm               |

### Signal

|                                       |                     |
|---------------------------------------|---------------------|
| Connection method                     | Push-in connection  |
| Conductor cross-section, rigid min.   | 0.2 mm <sup>2</sup> |
| Conductor cross-section, rigid max.   | 1.5 mm <sup>2</sup> |
| Conductor cross-section flexible min. | 0.2 mm <sup>2</sup> |
| Conductor cross-section flexible max. | 1.5 mm <sup>2</sup> |
| Conductor cross-section AWG min.      | 24                  |
| Conductor cross-section AWG max.      | 16                  |
| Stripping length                      | 8 mm                |

### Signal

|                                       |                     |
|---------------------------------------|---------------------|
| Connection method                     | Push-in connection  |
| Conductor cross-section, rigid min.   | 0.2 mm <sup>2</sup> |
| Conductor cross-section, rigid max.   | 1.5 mm <sup>2</sup> |
| Conductor cross-section flexible min. | 0.2 mm <sup>2</sup> |
| Conductor cross-section flexible max. | 1.5 mm <sup>2</sup> |
| Conductor cross-section AWG min.      | 24                  |
| Conductor cross-section AWG max.      | 16                  |
| Stripping length                      | 8 mm                |

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## Interfaces

|                      |                 |
|----------------------|-----------------|
| Interface            | MINI-USB type B |
| Maximum cable length | 3 m             |

## Signaling

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

Signal output: Transistor output, active

|                           |       |
|---------------------------|-------|
| Signalization designation | Alarm |
| Status display            | LED   |
| Color                     | red   |

Signal output: Transistor output, active

|                           |              |
|---------------------------|--------------|
| Signalization designation | Battery mode |
| Status display            | LED          |
| Color                     | yellow       |

Signal output: Transistor output, active

|                           |       |
|---------------------------|-------|
| Signalization designation | Ready |
|---------------------------|-------|

Signal output

|                |       |
|----------------|-------|
| Status display | LED   |
| Color          | green |

Signal output

|                           |                |
|---------------------------|----------------|
| Signalization designation | Battery charge |
| Status display            | LED            |
| Color                     | yellow         |

Signal output

|                           |         |
|---------------------------|---------|
| Signalization designation | Service |
| Status display            | LED     |
| Color                     | red     |

## Electrical properties

|                  |   |
|------------------|---|
| Number of phases | 1 |
|------------------|---|

## Product properties

|                            |                                           |
|----------------------------|-------------------------------------------|
| Product type               | AC UPS                                    |
| Product family             | TRIO AC UPS – UPS with integrated battery |
| MTBF (IEC 61709, SN 29500) | > 206000 h (40 °C)                        |

Insulation characteristics

|                      |     |
|----------------------|-----|
| Protection class     | I   |
| Overvoltage category | III |

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|                                           |         |
|-------------------------------------------|---------|
| Degree of pollution                       | 2       |
| Life expectancy (electrolytic capacitors) |         |
| Time                                      | 32000 h |

## Dimensions

|        |        |
|--------|--------|
| Width  | 210 mm |
| Height | 170 mm |
| Depth  | 136 mm |

## Installation dimensions

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

## Mounting

|               |                   |
|---------------|-------------------|
| Mounting type | DIN rail mounting |
|---------------|-------------------|

## Material specifications

|                 |                                    |
|-----------------|------------------------------------|
| Type of housing | DX51D+AZ (steel sheet / Galvalume) |
| Hood version    | PC + ABS                           |

## Environmental and real-life conditions

### Ambient conditions

|                                                |                                                                                   |
|------------------------------------------------|-----------------------------------------------------------------------------------|
| Degree of protection                           | IP20                                                                              |
| Ambient temperature (operation)                | 0 °C ... 40 °C                                                                    |
| Ambient temperature (storage/transport)        | -15 °C ... 40 °C (with charged energy storage device)                             |
| Maximum altitude                               | ≤ 3000 m (> 2000 m, observe derating)                                             |
| Climatic class                                 | 3K3 (in acc. with EN 60721)                                                       |
| Max. permissible relative humidity (operation) | ≤ 95 % (25 °C, non-condensing)                                                    |
| Shock                                          | 20g in all directions (EN 60068-2-27)<br>30g in each space direction with UWA 130 |
| Vibration (operation)                          | 5 Hz ... 100 Hz, 0.7g (EN 60068-2-6)                                              |

## Standards and regulations

### Standards

|                                               |            |
|-----------------------------------------------|------------|
| Standard uninterruptible power supply systems | EN 62040-1 |
|-----------------------------------------------|------------|

## EMC data

|                               |                                                   |
|-------------------------------|---------------------------------------------------|
| Electromagnetic compatibility | Conformance with EMC Directive 2014/30/EU         |
| Low Voltage Directive         | Conformance with Low Voltage Directive 2014/35/EC |
| Interference emission         | Noise emission in accordance with EN 62040-2      |
| Noise immunity                | Immunity in accordance with EN 62040-2            |

## Electrostatic discharge

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|                                |                                    |
|--------------------------------|------------------------------------|
| 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 A                        |
| Electromagnetic HF field       |                                    |
| Standards/regulations          | EN 61000-4-3                       |
| Electromagnetic HF field       |                                    |
| Frequency range                | 80 MHz ... 3 GHz                   |
| Test field strength            | 10 V/m                             |
| Comments                       | Criterion A                        |
| Fast transients (burst)        |                                    |
| Standards/regulations          | EN 61000-4-4                       |
| Fast transients (burst)        |                                    |
| Input                          | 2 kV (Test Level 3 - asymmetrical) |
|                                | 2 kV (Test Level 3 - asymmetrical) |
| Output                         | 2 kV (Test Level 3 - asymmetrical) |
| Signal                         | 2 kV (Test Level 3 - asymmetrical) |
|                                | 2 kV (Test Level 3 - asymmetrical) |
| Comments                       | Criterion A (B for USB)            |
| Surge voltage load (surge)     |                                    |
| Standards/regulations          | EN 61000-4-5                       |
| 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                       |
| Conducted interference         |                                    |
| Frequency range                | 0.15 MHz ... 80 MHz                |
| Comments                       | Criterion A                        |
| Voltage                        | 10 V                               |
| Power frequency magnetic field |                                    |
| Standards/regulations          | EN 61000-4-8                       |

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|                     |             |
|---------------------|-------------|
| Frequency           | 50 Hz       |
| Test field strength | 100 A/m     |
| Comments            | Criterion A |

## Emitted interference

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

TRIO-UPS-2G/1AC/1AC/230V/750VA - Uninterruptible power supply

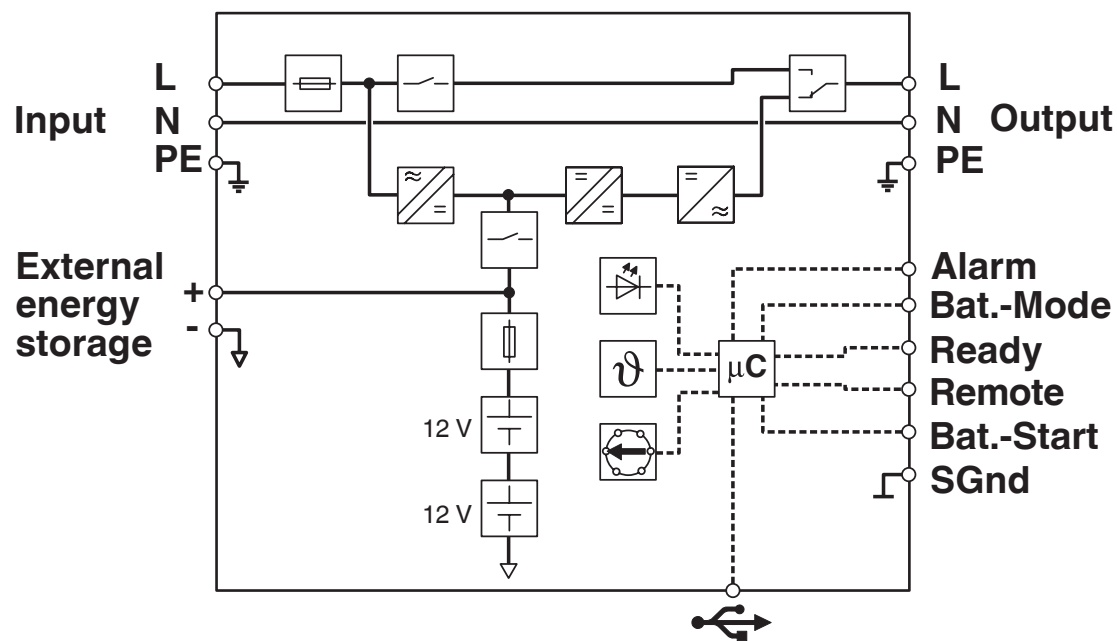


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Drawings

Block diagram



Block diagram

Graphic

| Load<br>Current | Buffertime |     |    |    |    |    |    |    |    |    |    |    |       |     |
|-----------------|------------|-----|----|----|----|----|----|----|----|----|----|----|-------|-----|
|                 | Minutes    |     |    |    |    |    |    |    |    |    |    |    | Hours |     |
|                 | 1          | 1.5 | 2  | 4  | 6  | 8  | 10 | 15 | 20 | 30 | 40 | 50 | 1     | 1.5 |
| 50 W            |            |     |    |    |    |    |    |    |    |    |    | 2x | 2x    | 2x  |
| 100 W           |            |     |    |    |    |    |    |    |    | 2x | 2x | 2x |       |     |
| 150 W           |            |     |    |    |    |    |    | 2x | 2x | 2x |    |    |       |     |
| 200 W           |            |     |    |    |    |    | 2x | 2x | 2x |    |    |    |       |     |
| 250 W           |            |     |    |    |    | 2x | 2x | 2x |    |    |    |    |       |     |
| 300 W           |            |     |    |    | 2x | 2x | 2x |    |    |    |    |    |       |     |
| 400 W           |            |     |    | 2x | 2x | 2x |    |    |    |    |    |    |       |     |
| 500 W           |            |     | 2x | 2x | 2x |    |    |    |    |    |    |    |       |     |
| 600 W           |            | 2x  | 2x | 2x |    |    |    |    |    |    |    |    |       |     |

2x: In this case, two battery modules of the same capacity are required. The data is based on an ambient temperature of +25 °C at the start of use.

Buffer times for TRIO AC UPS

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## Approvals

 To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2905909>



**IECEE CB Scheme**

Approval ID: DK-56005-M1-UL



**EAC**

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



**EAC**

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

**DNV**

Approval ID: TAA00000BM



**KC**

Approval ID: R-R-PCK-2905909

# TRIO-UPS-2G/1AC/1AC/230V/750VA - Uninterruptible power supply



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## Classifications

### ECLASS

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

### ETIM

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

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 39121000 |
|-------------|----------|

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## 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-3                                                                                                                                                                                                                            |
|                                        | 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                                | f7fc7f0f-4fc5-4c8c-8269-59a3dd1d48c3 |

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## Accessories

### TRIO-BAT/PB/24DC/4AH - Battery module

1394730

<https://www.phoenixcontact.com/us/products/1394730>



Battery module (device with battery), VRLA-AGM, 24 V DC, 4 Ah

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### UPS-BAT/PB/24DC/4AH - Battery module

1274117

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



Battery module (device with battery), VRLA-AGM, 24 V DC, 4 Ah, automatic detection and communication with QUINT UPS-IQ

## TRIO-UPS-2G/1AC/1AC/230V/750VA - Uninterruptible power supply



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### UPS-BAT-KIT/PB/2X12V/4AH - Uninterruptible power supply replacement battery

1283116

<https://www.phoenixcontact.com/us/products/1283116>



Replacement battery, VRLA-AGM, 2x12 V DC, 4 Ah. Only for 1274117 UPS-BAT/PB/24DC/4AH, 2320267 QUINT-UPS/24DC/24DC/10/3.4AH from V/C 06, 2905908 TRIO-UPS-2G/1AC/1AC/120V/750VA, and 2905909 TRIO-UPS-2G/1AC/1AC/230V/750VA

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### MINI-SCREW-USB-DATACABLE - Data cable

2908217

<https://www.phoenixcontact.com/us/products/2908217>



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

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## PLT-SEC-T3-230-FM-UT - Type 3 surge protection device

2907919

<https://www.phoenixcontact.com/us/products/2907919>



Type 2/3 surge protection, consisting of protective plug and base element with screw connection. For single-phase power supply network with integrated status indicator and remote signaling. Nominal voltage: 230 V AC/DC

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## UWA 130 - Mounting adapter

2901664

<https://www.phoenixcontact.com/us/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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## FUSE 10A/400V GRL - Fuse

2908358

<https://www.phoenixcontact.com/us/products/2908358>

Fuse, nominal current: 10 A, length: 31.8 mm, diameter: 6.35 mm



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## FUSE 40A/32V ATOF - Fuse

2908357

<https://www.phoenixcontact.com/us/products/2908357>

Fuse, nominal current: 40 A, length: 19 mm, width: 5 mm, height: 18.8 mm



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