

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



2907160

<https://www.phoenixcontact.com/pc/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

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## Commercial Data

Item number	2907160
Packing unit	1 pc
Minimum order quantity	1 pc
Product Key	CMUO13
Catalog Page	Page 354 (C-4-2019)
GTIN	4055626166575
Weight per Piece (including packing)	931 g
Weight per Piece (excluding packing)	931 g
Customs tariff number	85044030
Country of origin	CN

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2907160

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

## Technical Data

### 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 <sup>2</sup> s
Frequency range ( $f_N$ )	50 Hz ... 60 Hz ( $\pm 10$ %)
Mains buffering time	$\geq 15$ 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 $\Omega$
High signal	Open (> 200 k $\Omega$ between Bat.-Start and SGnd)

### Signal Remote

Connection labeling	3.5
Signalization designation	Remote
Low signal	Connection to SGnd with < 2.7 k $\Omega$
High signal	Open (> 35 k $\Omega$ 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	$\leq 35$ 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 $\pm 10$ %)
Rise time	< 15 ms
Permissible backup fuse	B10

### Mains operation

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



2907160

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

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
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

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



2907160

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

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 <sub>0</sub> U

## Connection data

### Conductor connection

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

### Conductor connection

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

### Conductor connection

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

### Conductor connection

Connection method	Push-in connection
rigid	0.2 mm <sup>2</sup> ... 10 mm <sup>2</sup>
flexible	0.2 mm <sup>2</sup> ... 6 mm <sup>2</sup>
flexible with ferrule without plastic sleeve	0.25 mm <sup>2</sup> ... 6 mm <sup>2</sup>

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2907160

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

flexible with ferrule with plastic sleeve	0.25 mm <sup>2</sup> ... 4 mm <sup>2</sup>
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	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)

## Product properties

Product type	Uninterruptible power supply
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

## Dimensions

Width	60 mm
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

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2907160

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Depth	60 mm
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## 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

Inflammability class in acc. with UL 94 (housing / terminal blocks)	V0
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

## Standards and regulations

### Overvoltage category

EN 61010-1	II
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### Safety for measurement, control, and laboratory equipment

Standards/specifications	IEC 61010-1
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### Protective extra-low voltage

Standards/specifications	IEC 61010 (SELV) / (PELV)
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### Safe isolation

Standards/specifications	DIN VDE 0100-410
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### Low-voltage power supplies, DC output

Standards/specifications	EN 61204-3
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### Ship's bridge

Standards/specifications	IEC/EN 60945
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## Approval data

UL

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



2907160

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Identification	UL Listed UL 61010
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## UL

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

Identification	DNV
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## Shipbuilding

Identification	LR
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## EMC data

Low Voltage Directive	Conformance with Low Voltage Directive 2014/35/EC
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
Conducted noise emission	EN 61000-6-3
Interference emission	Interference emission in accordance with EN 61000-6-3 (residential areas), EN 61000-6-4 (industrial areas) and EN 61000-6-8 (commercial areas)
Noise emission	EN 61000-6-3
Noise immunity	Immunity according to EN 61000-6-2 (industrial)
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
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## Flicker

Standards/regulations	EN 61000-3-3
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## 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)

## Electromagnetic HF field

Standards/regulations	EN 61000-4-3
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## Electromagnetic HF field

Frequency range	80 MHz ... 6 GHz
Test field strength	10 V/m



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Frequency range	1.4 GHz ... 6 GHz
Test field strength	3 V/m

## Fast transients (burst)

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

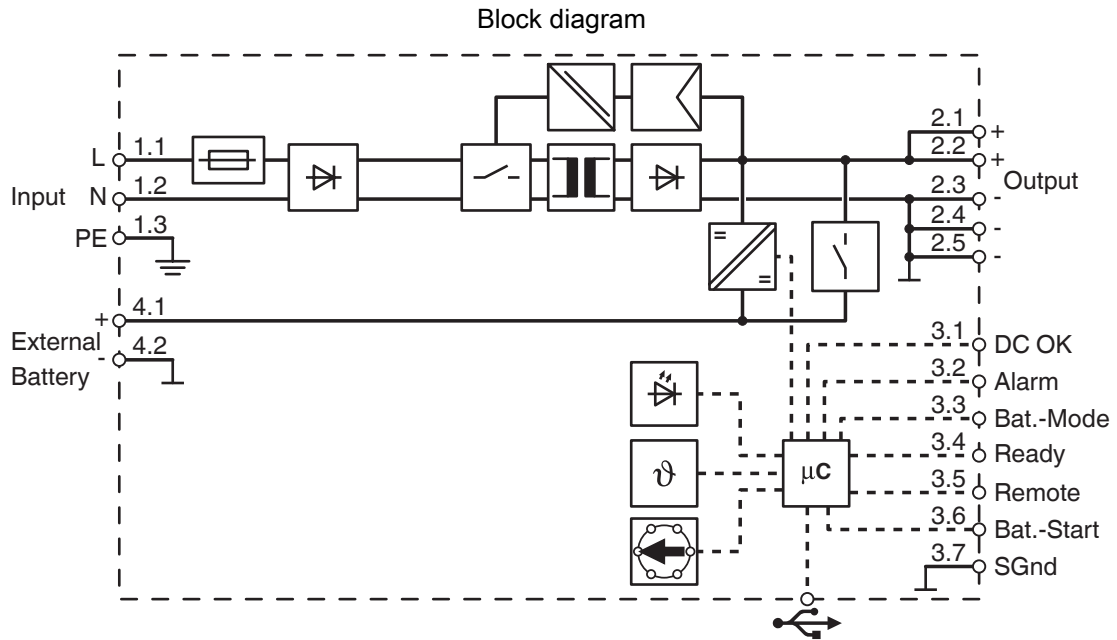
Frequency range	0.15 MHz ... 80 MHz
Voltage	10 V

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2907160

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## Drawings

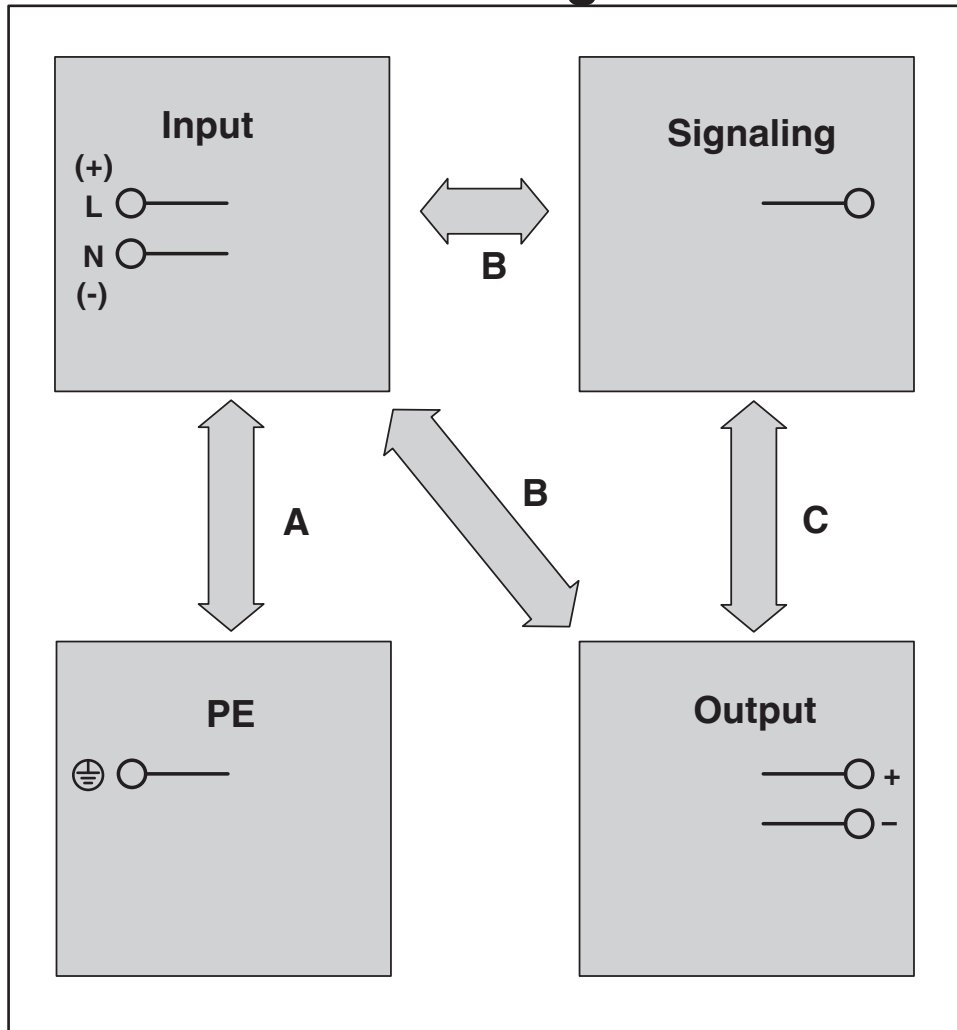


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Schematic diagram

## Housing



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## Approvals



**IECEE CB Scheme**

Approval ID: DK-63811-UL



**cUL Listed**

Approval ID: FILE E 123528



**UL Listed**

Approval ID: FILE E 123528

**BSH**

Approval ID: 1025a



**LR**

Approval ID: LR2002877TA



**EAC**

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



**EAC**

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

**DNV**

Approval ID: TAA00002DW



**IECEE CB Scheme**

Approval ID: DK-63811-UL



**EAC**

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



**DNV GL**

Approval ID: TAA00002DW



**LR**

Approval ID: LR2002877TA

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2907160

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**EAC**

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



**UL Listed**

Approval ID: FILE E 123528



**cUL Listed**

Approval ID: FILE E 123528

**BSH**

Approval ID: 1025a



**UL Listed**

Approval ID: FILE E 199827



**cUL Listed**

Approval ID: FILE E 199827



**cUL Listed**

Approval ID: FILE E 199827



**UL Listed**

Approval ID: FILE E 199827

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## Classifications

### ECLASS

ECLASS-9.0	27040705
ECLASS-10.0.1	27040705
ECLASS-11.0	27040705

### ETIM

ETIM 8.0	EC000382
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### UNSPSC

UNSPSC 21.0	39121011
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## Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 25; For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

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## Accessories

### Data cable

Data cable - MINI-SCREW-USB-DATACABLE - 2908217

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



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

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### Mounting adapter

Mounting adapter - UWA 130 - 2901664

<https://www.phoenixcontact.com/pc/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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## Mounting adapter

Mounting adapter - UWA 182/52 - 2938235

<https://www.phoenixcontact.com/pc/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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## Energy storage

Energy storage - UPS-BAT/PB/24DC/1.2AH - 1274520

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



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

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2907160

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## Energy storage

Energy storage - UPS-BAT/PB/24DC/4AH - 1274117

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



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

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## Energy storage

Energy storage - UPS-BAT/PB/24DC/7AH - 1274118

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



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

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



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## Energy storage

Energy storage - UPS-BAT/PB/24DC/12AH - 1274119

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



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

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## Energy storage

Energy storage - UPS-BAT/VRLA-WTR/24DC/13AH - 2320416

<https://www.phoenixcontact.com/pc/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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