

# QUINT4-UPS/24DC/24DC/10/PN - Uninterruptible power supply



2907068

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QUINT UPS with IQ Technology, RJ45 communication interfaces (PROFINET), for DIN rail mounting, input: 24 V DC, output: 24 V DC / 10 A, charging current: 3 A

## Product description

The intelligent QUINT UPS for integration into established industrial networks: your systems continue to be supplied with uninterrupted power, even in the event of a mains failure. The battery management system with IQ Technology and a powerful battery charger ensures superior system availability.

## Your advantages

- Easy integration into networks using PROFINET, EtherNet/IP, EtherCAT<sup>®</sup> and USB interfaces
- Evaluation of state of health (SOH) and state of charge (SOC), thanks to the intelligent battery management system (BMS)
- Automatic recognition of the battery capacities and technologies (VRLA-WTR, LI-ION)
- Monitoring of output current and voltage, as well as manual connection and disconnection of the system
- SFB Technology selectively trips standard miniature circuit breakers. Loads connected in parallel continue working.

## Commercial data

Item number	2907068
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CM21
Product key	CMUI43
Catalog page	Page 317 (C-4-2019)
GTIN	4055626170084
Weight per piece (including packing)	540.8 g
Weight per piece (excluding packing)	540.8 g
Customs tariff number	85371091
Country of origin	CN

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## Technical data

### Input data

Input voltage	24 V DC
Input voltage range	18 V DC ... 30 V DC
	18 V DC ... 32 V DC
Internal input fuse	no
Voltage type of supply voltage	DC
Inrush current	$\leq 7 \text{ A}$ ( $\leq 4 \text{ ms}$ )
Reverse polarity protection	yes
Fixed backup threshold	22 V DC
	30 V DC
Dynamic activation threshold	$> 1 \text{ V} / 100 \text{ ms}$
Switch-on time	max. 3 s
Switch-on time during battery operation (Bat.-Start)	8 s
Voltage drop, input/output	0.4 V DC
Current consumption $I_N$ ( $U_N, I_{OUT} = I_N, I_{charge} = 0$ )	10.1 A
Current consumption $I_{max}$ ( $U_N, I_{OUT} = I_{Stat.Boost}, I_{charge} = max$ )	16.3 A
Current consumption $I_{No-Load}$ ( $U_N, I_{OUT} = 0, I_{charge} = 0$ )	105 mA
Current consumption $I_{charge}$ ( $U_N, I_{OUT} = 0, I_{charge} = max$ )	3.7 A
Power consumption $P_N$ ( $U_N, I_{OUT} = I_N, I_{charge} = 0$ )	245 W
Power consumption $P_{max}$ ( $U_N, I_{OUT} = I_{Stat.Boost}, I_{charge} = max$ )	386 W
Power consumption $P_{No-Load}$ ( $U_N, I_{OUT} = 0, I_{charge} = 0$ )	2.6 W
Power consumption $P_{charge}$ ( $U_N, I_{OUT} = 0, I_{charge} = max$ )	92 W

### Output data

Efficiency	typ. 97 %
Number of outputs	1
Short-circuit-proof	yes
No-load proof	yes
Switch-over time	0 ms
UPS connection in parallel	no
UPS connection in series	no
Energy storage device connection in parallel	Yes, 5 (observe line protection)
Energy storage device connection in series	no

### Mains operation

Output voltage	24 V DC ( $U_{OUT} = U_{IN} - 0.4 \text{ V DC}$ )
Output voltage range	18 V DC ... 30 V DC
	18 V DC ... 32 V DC
Output current $I_N$	10 A
Static Boost ( $I_{Stat.Boost}$ )	12.5 A

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Dynamic Boost ( $I_{\text{Dyn.Boost}}$ )	20 A (5 s)
Selective Fuse Breaking ( $I_{\text{SFB}}$ )	60 A (15 ms)
Output power $P_{\text{OUT}}$ ( $U_{\text{N}}$ , $I_{\text{OUT}} = I_{\text{N}}$ )	240 W
Output power $P_{\text{OUT}}$ ( $U_{\text{N}}$ , $I_{\text{OUT}} = I_{\text{stat.Boost}}$ )	300 W
Output power $P_{\text{OUT}}$ ( $U_{\text{N}}$ , $I_{\text{OUT}} = I_{\text{dyn.Boost}}$ )	480 W (5 s)
Power dissipation No load ( $U_{\text{N}}$ , $I_{\text{Out}} = 0$ , $I_{\text{Charge}} = 0$ )	1 W
Power dissipation Nominal load ( $U_{\text{N}}$ , $I_{\text{Out}} = I_{\text{N}}$ , $I_{\text{Charge}} = 0$ )	6 W

## Battery operation

Output voltage	24 V DC ( $U_{\text{OUT}} = U_{\text{BAT}} - 0.4 \text{ V DC}$ )
Output voltage range	19 V DC ... 32 V DC
Output current $I_{\text{N}}$	10 A
Static Boost ( $I_{\text{Stat.Boost}}$ )	12.5 A
Dynamic Boost ( $I_{\text{Dyn.Boost}}$ )	20 A (5 s)
Selective Fuse Breaking ( $I_{\text{SFB}}$ )	60 A (15 ms)
Output power $P_{\text{OUT}}$ ( $U_{\text{N}}$ , $I_{\text{OUT}} = I_{\text{N}}$ )	240 W
Output power $P_{\text{OUT}}$ ( $U_{\text{N}}$ , $I_{\text{OUT}} = I_{\text{stat.Boost}}$ )	300 W
Output power $P_{\text{OUT}}$ ( $U_{\text{N}}$ , $I_{\text{OUT}} = I_{\text{dyn.Boost}}$ )	480 W (5 s)

## Energy storage

End-of-charge voltage	32 V DC
End-of-charge voltage (temperature-compensated)	25 V DC ... 32 V DC
Charging current (configurable)	3 A
Nominal capacity (without additional charger)	1.2 Ah ... 60 Ah
Max. capacity	80 Ah
Charging time	120 h
Buffer time	25 min. (7.2 Ah)
Deep discharge protection	19.2 V DC
Battery technology	VRLA, VRLA-WTR, LI-ION
Charge characteristic curve	$IU_0U$
IQ-Technology	yes
Temperature sensor	yes
Temperature compensation (configurable)	42 mV/K

## Interfaces

Interface	PROFINET
Number of interfaces	2
Connection method	RJ45
Locking	Locking clip
Transmission physics	Twisted-Pair
Features	Autonegotiation
	Autocrossing
	Autopolarity

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	full duplex
Topology	Star
	Line
Transmission speed	100 Mbps
Transmission length	max. 100 m
Cycle time	1 ms (RT)
Access time	≤ 2 s
Standards	IEEE 802.3
	IEC 61158
	IEC 61784-2
Supported protocols	PROFINET
	LLPD
Chipset	Renesas TPS-1
Electrical isolation	yes
Device ID	0142 <sub>hex</sub>
Vendor ID	00B0 <sub>hex</sub>

## Signaling

### LED signaling

Types of signaling	DC OK (green)
	Alarm (red)
	Bat.-Mode (yellow)
	SOC (red, green)
	Data (red, green)

## Product properties

Product type	DC UPS
Product family	QUINT USV
MTBF (IEC 61709, SN 29500)	> 1189000 h (25 °C)
	> 736900 h (40 °C)
	> 372700 h (60 °C)
Environmental protection directive	RoHS Directive 2011/65/EU
	WEEE
	Reach

### Insulation characteristics

Protection class	III (without PE)
Degree of pollution	2

### Life expectancy (electrolytic capacitors)

Time	137895 h
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## Dimensions

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## Item dimensions

Width	35 mm
Height	130 mm
Depth	125 mm

## Item dimensions with alternative mounting

Width	123 mm
Height	130 mm
Depth	37 mm

## Installation dimensions

Installation distance right/left (active)	5 mm / 5 mm ( $P_{Out} \geq 50\%$ )
Installation distance right/left (passive)	0 mm / 0 mm ( $P_{Out} \geq 50\%$ )
Installation distance right/left (active, passive)	0 mm / 0 mm ( $P_{Out} \leq 50\%$ )
Installation distance top/bottom (active)	50 mm / 50 mm ( $P_{Out} \geq 50\%$ )
Installation distance top/bottom (passive)	40 mm / 20 mm ( $P_{Out} \geq 50\%$ )
Installation distance top/bottom (active, passive)	40 mm / 20 mm ( $P_{Out} \leq 50\%$ )

## Mounting

Mounting type	DIN rail mounting
Mounting position	On horizontal DIN rail NS 35/7.5 and NS 35/15 acc. to EN 60715

## Material specifications

Flammability rating according to UL 94 (housing / terminal blocks)	V0
Housing material	Metal
Hood version	Stainless steel X6Cr17
Side element version	Aluminum AlMg3

## 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
Climatic class	3K3 (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)	2.3g

## Standards and regulations

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## Overvoltage category

EN 61010-1	II ( $\leq$ 4000 m)
EN 61010-2-201	II ( $\leq$ 4000 m)

## Protective extra-low voltage

Standard designation	Protective extra-low voltage
Standards/specifications	IEC 61010-1 (SELV)
	IEC 61010-2-201 (PELV)

## Approvals

### UL approval

Identification	UL/C-UL Listed UL 61010-1
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### UL approval

Identification	UL/C-UL Listed UL 61010-2-201
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### UL approval

Identification	UL/C-UL Listed ANSI/ISA-12.12.01 Class I, Division 2, Groups A, B, C, D T4 (Hazardous Location)
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### CSA

Identification	CAN/CSA-C22.2 No. 61010-1-12
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### CSA

Identification	CAN/CSA-IEC 61010-2-201
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### CSA

Identification	CAN/CSA-C22.2 No. 213 Class I, Division 2, Groups A, B, C, D T4 (Hazardous Location)
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### CB scheme

Identification	IEC 61010-1
	IEC 61010-2-201

### DNV

Identification	Class Guideline DNVGL-CG-0339
Note	Location classes: Temperature D (see Application/Limitation), Humidity B, Vibration A/C, EMC B

## 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

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Noise immunity	Immunity in accordance with EN 61000-6-1 (residential), EN 61000-6-2 (industrial), and EN 61000-6-5 (power station equipment zone), IEC/EN 61850-3 (power supply)
Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Noise emission	Additional basic standard EN 61000-6-5 (immunity in power station), IEC/EN 61850-3 (energy supply)

## Electrostatic discharge

Standards/regulations	EN 61000-4-2
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## Electrostatic discharge

Contact discharge	8 kV (Test Level 4)
Discharge in air	15 kV (Test Level 4)
Comments	Criterion B

## Electromagnetic HF field

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

Frequency range	80 MHz ... 1 GHz
Test field strength	20 V/m (Test Level 3)
Frequency range	1 GHz ... 6 GHz
Test field strength	10 V/m (Test Level 3)
Frequency range	1 GHz ... 6 GHz
Test field strength	10 V/m (Test Level 3)
Comments	Criterion A

## Fast transients (burst)

Standards/regulations	EN 61000-4-4
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## Fast transients (burst)

Input	4 kV (Test Level 4 - asymmetrical)
Output	4 kV (Test Level 4 - asymmetrical)
Signal	4 kV (Test Level 4 - asymmetrical)
Comments	Criterion B

## Surge voltage load (surge)

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

## Conducted interference

Standards/regulations	EN 61000-4-6
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## Conducted interference

I/O/S	asymmetrical
Frequency range	0.15 MHz ... 80 MHz
Comments	Criterion A
Voltage	10 V (Test Level 3)

## Power frequency magnetic field

Standards/regulations	EN 61000-4-8
Frequency	16.67 Hz
	50 Hz
	60 Hz
Test field strength	100 A/m
Additional text	60 s
Comments	Criterion A
Frequency	50 Hz
	60 Hz
Frequency range	50 Hz ... 60 Hz
Test field strength	1 kA/m
Additional text	3 s
Frequency	0 Hz
Test field strength	300 A/m
Additional text	DC, 60 s

## Criteria

Criterion A	Normal operating behavior within the specified limits.
Criterion B	Temporary impairment to operational behavior that is corrected by the device itself.



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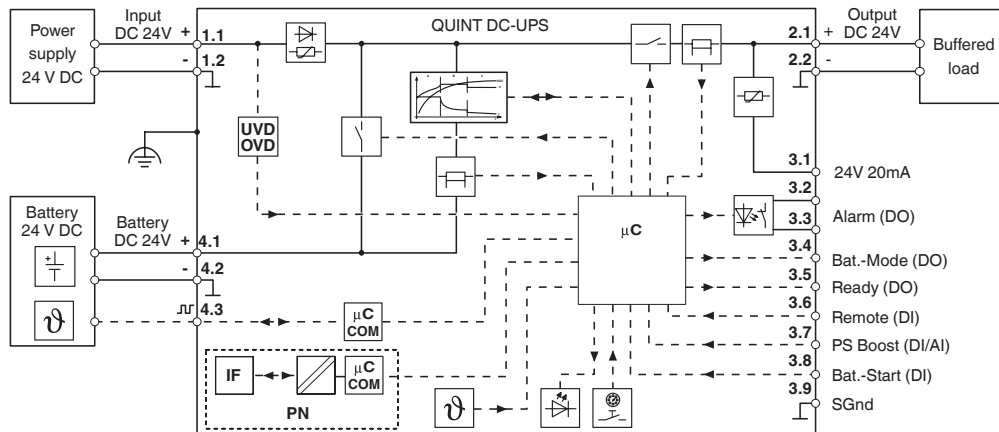


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## Drawings

Block diagram



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## Approvals

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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

**PROFINET**

Approval ID: Z12094



**EAC**

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

**DNV**

Approval ID: TAA00002K4



**KC**

Approval ID: R-R-PCK-2907068



**cUL Listed**

Approval ID: FILE E 199827



**UL Listed**

Approval ID: FILE E 199827

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## Classifications

### ECLASS

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

### ETIM

ETIM 8.0	EC000382
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### 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

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

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

1274117

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



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

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

1274118

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



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

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

1274119

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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/us/products/1348516>



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

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

1354641

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



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## UPS-BAT/LI/24DC/128WH - Energy storage

1396415

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Energy storage, Lithium-Ion (LiFePO<sub>4</sub>), 24 V DC, 128 Wh. For use with a QUINT UPS for ambient temperatures (charging) of 0°C ... 60°C and a maximum charging current of 5 A. For charging below 0°C, please note the permissible UPS V/C level.

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

2320416

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

2320429

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



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