

# QUINT4-UPS/24DC/24DC/5/EC - Uninterruptible power supply



2906996

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QUINT USV, IQ Technology, EtherCAT<sup>®</sup>, DIN rail mounting, Screw connection, input: 24 V DC, output: 24 V DC / 5 A, charging current: 1.5 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	2906996
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CM21
Product key	CMUI43
Catalog page	Page 320 (C-4-2019)
GTIN	4055626171210
Weight per piece (including packing)	504 g
Weight per piece (excluding packing)	456 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
Electric strength, max.	35 V DC (Protected against polarity reversal)
Internal input fuse	no
Voltage type of supply voltage	DC
Inrush current	≤ 7 A (≤ 4 ms)
Reverse polarity protection	yes
Fixed backup threshold	22 V DC
Dynamic activation threshold	> 1 V / 100 ms
Switch-on time	max. 3 s
Switch-on time during battery operation (Bat.-Start)	8 s
Voltage drop, input/output	0.3 V DC
Current consumption $I_N$ ( $U_N, I_{OUT} = I_N, I_{charge} = 0$ )	5.1 A
Current consumption $I_{max}$ ( $U_N, I_{OUT} = I_{Stat.Boost}, I_{charge} = max$ )	8.3 A
Current consumption $I_{No-Load}$ ( $U_N, I_{OUT} = 0, I_{charge} = 0$ )	105 mA
Current consumption $I_{charge}$ ( $U_N, I_{OUT} = 0, I_{charge} = max$ )	1.9 A
Power consumption $P_N$ ( $U_N, I_{OUT} = I_N, I_{charge} = 0$ )	123 W
Power consumption $P_{max}$ ( $U_N, I_{OUT} = I_{Stat.Boost}, I_{charge} = max$ )	213 W
Power consumption $P_{No-Load}$ ( $U_N, I_{OUT} = 0, I_{charge} = 0$ )	2.5 W
Power consumption $P_{charge}$ ( $U_N, I_{OUT} = 0, I_{charge} = max$ )	44 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 ( $U_{OUT} = U_{IN} - 0.3$ V DC)
Output voltage range	18 V DC ... 30 V DC ( $U_{Out} = U_{In} - 0.3$ V DC) 18 V DC ... 32 V DC
Output current $I_N$	5 A
Static Boost ( $I_{Stat.Boost}$ )	6.25 A
Dynamic Boost ( $I_{Dyn.Boost}$ )	10 A (5 s)
Selective Fuse Breaking ( $I_{SFB}$ )	30 A (15 ms)

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Output power $P_{OUT}$ ( $U_N$ , $I_{OUT} = I_N$ )	120 W
Output power $P_{OUT}$ ( $U_N$ , $I_{OUT} = I_{stat.Boost}$ )	155 W
Output power $P_{OUT}$ ( $U_N$ , $I_{OUT} = I_{dyn.Boost}$ )	240 W (5 s)
Power dissipation No load ( $U_N$ , $I_{Out} = 0$ , $I_{Charge} = 0$ )	3 W
Power dissipation Nominal load ( $U_N$ , $I_{Out} = I_N$ , $I_{Charge} = 0$ )	4 W

## Battery operation

Output voltage	24 V DC ( $U_{OUT} = U_{BAT} - 0.3$ V DC)
Output voltage range	19 V DC ... 32 V DC ( $U_{OUT} = U_{BAT} - 0.3$ V DC)
Output current $I_N$	5 A
Static Boost ( $I_{Stat.Boost}$ )	6.25 A
Selective Fuse Breaking ( $I_{SFB}$ )	30 A (15 ms)
Output power $P_{OUT}$ ( $U_N$ , $I_{OUT} = I_N$ )	120 W
Output power $P_{OUT}$ ( $U_N$ , $I_{OUT} = I_{stat.Boost}$ )	150 W
Output power $P_{OUT}$ ( $U_N$ , $I_{OUT} = I_{dyn.Boost}$ )	240 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)	max. 1.5 A
Nominal capacity (without additional charger)	0.8 Ah ... 30 Ah
Max. capacity	40 Ah
Charging time	2.5 h (3.4 Ah)
Buffer time	25 min. (3.4 Ah)
Deep discharge protection (configurable)	19.2 V DC
Battery technology	VRLA, VRLA-WTR, LI-ION
Charge characteristic curve	IU <sub>0</sub> U
IQ-Technology	yes
Temperature sensor	yes
Temperature compensation (configurable)	42 mV/K

## Interfaces

Interface	EtherCAT®
Number of interfaces	2
Connection method	RJ45
Locking	Locking clip
Transmission physics	Twisted-Pair
Features	Autonegotiation
	Autocrossing
	Half- or full-duplex
	automatic recognition
Topology	Ring
	Line
Transmission speed	100 Mbps
Transmission length	max. 100 m

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Cycle time	< 100 µs
Access time	≤ 2 s
Supported protocols	CoE
Chipset	Renesas R-IN32M3
Electrical isolation	yes
Device ID	2C5B74 <sub>hex</sub>
Vendor ID	84 <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	224011 h
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## Dimensions

### Item dimensions

Width	35 mm
Height	130 mm
Depth	125 mm
	125 mm (Device depth (DIN rail mounting))

### Item dimensions with alternative mounting

Width	123 mm
Height	130 mm
Depth	37 mm

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## 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

### Overvoltage category

EN 61010-1	II (≤ 4000 m)
EN 61010-2-201	II (≤ 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

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Identification	UL/C-UL Listed UL 61010-1
UL	
Identification	UL/C-UL Listed UL 61010-2-201
UL	
Identification	UL/C-UL Listed ANSI/ISA-12.12.01 Class I, Division 2, Groups A, B, C, D T4 (Hazardous Location)
CSA	
Identification	CAN/CSA-C22.2 No. 61010-1-12
CSA	
Identification	CAN/CSA-IEC 61010-2-201
CSA	
Identification	CAN/CSA-C22.2 No. 213 Class I, Division 2, Groups A, B, C, D T4 (Hazardous Location)
CB scheme	
Identification	IEC 61010-1
CB scheme	
Identification	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
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
Electrostatic discharge	
Contact discharge	8 kV (Test Level 4)
Discharge in air	15 kV (Test Level 4)
Comments	Criterion B

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## 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

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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.

## Notes

General	EtherCAT <sup>®</sup> is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.
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## Classifications

### ECLASS

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

### ETIM

ETIM 9.0	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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