

QUINT4-UPS/24DC/24DC/10/EC - Uninterruptible power supply



2907070

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QUINT USV, IQ Technology, EtherCAT[®], DIN rail mounting, Screw connection, 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[®] 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	2907070
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CM21
Product key	CMUI43
Catalog page	Page 321 (C-4-2019)
GTIN	4055626171265
Weight per piece (including packing)	525 g
Weight per piece (excluding packing)	477 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
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

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Static Boost ($I_{\text{Stat.Boost}}$)	12.5 A
Dynamic Boost ($I_{\text{Dyn.Boost}}$)	20 A (5 s)
Selective Fuse Breaking (I_{SFB})	60 A (15 ms)
Output power P_{OUT} (U_{N} , $I_{\text{OUT}} = I_{\text{N}}$)	240 W
Output power P_{OUT} (U_{N} , $I_{\text{OUT}} = I_{\text{stat.Boost}}$)	300 W
Output power P_{OUT} (U_{N} , $I_{\text{OUT}} = I_{\text{dyn.Boost}}$)	480 W (5 s)
Power dissipation No load (U_{N} , $I_{\text{Out}} = 0$, $I_{\text{Charge}} = 0$)	1 W
Power dissipation Nominal load (U_{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_{N}	10 A
Static Boost ($I_{\text{Stat.Boost}}$)	12.5 A
Selective Fuse Breaking (I_{SFB})	60 A (15 ms)
Output power P_{OUT} (U_{N} , $I_{\text{OUT}} = I_{\text{N}}$)	240 W
Output power P_{OUT} (U_{N} , $I_{\text{OUT}} = I_{\text{stat.Boost}}$)	300 W
Output power P_{OUT} (U_{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	EtherCAT®
Number of interfaces	2
Connection method	RJ45
Locking	Locking clip
Transmission physics	Twisted-Pair
Features	Autonegotiation
	Autocrossing
	Half- or full-duplex

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	automatic recognition
Topology	Ring
	Line
Transmission speed	100 Mbps
Transmission length	max. 100 m
Cycle time	< 100 µs
Access time	≤ 2 s
Supported protocols	CoE
Chipset	Renesas R-IN32M3
Electrical isolation	yes
Device ID	2C5B74 _{hex}
Vendor ID	84 _{hex}

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

Item dimensions

Width	35 mm
Height	130 mm
Depth	125 mm

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	125 mm (Device depth (DIN rail mounting))
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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

Overvoltage category

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

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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
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)

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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)

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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.

Notes

General	EtherCAT® 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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