

QUINT-UPS/ 24DC/ 24DC/20

Uninterruptible power supply

INTERFACE

Data sheet
104659_en_02

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1 Description

Uninterruptible power supplies (UPS) continue to deliver power even if the mains breaks down.

An uninterruptible solution consists of three function units:

- Power supply
- Electronic switchover unit
- Power storage device

The product described here is an electronic switchover unit. In the event of mains breakdowns or failures, it switches to battery operation without interruption so that loads continue to be consistently supplied.

As an option, you can monitor and configure the device with the free UPS-CONF software. The IFS-CONFSTICK memory stick is available for convenient transfer of parameters between more than one QUINT-UPS.

Features

- IQ technology for maximum system availability. The intelligent battery management optimizes and keeps you informed on the remaining runtime, current state of charge, service life and performance of the power storage device.
- Generous power reserve POWER BOOST
- Optimum use of the buffer time
- Preventive battery monitoring
- Fast battery charging
- Extensive signaling and parameterization
- SFB technology



Make sure you always use the latest documentation.
It can be downloaded from the product at www.phoenixcontact.net/catalog.



This data sheet is valid for all products listed on the following page:

2 Table of contents

1 Description..... 1

2 Table of contents 2

3 Ordering data 3

4 Technical data 4

5 Safety regulations and installation notes 8

6 Structure 9

7 Basic circuit diagram..... 11

8 Installation..... 12

 8.1 Convection 12

 8.2 Mounting position 12

 8.3 Mounting on a DIN rail 13

 8.4 Connection terminal blocks 14

 8.5 Installation of individual components 15

9 Connection and protection 16

 9.1 Input and protection of the primary side 16

 9.2 Output and protection on the secondary side 16

 9.3 Power storage device 17

 9.4 SFB technology..... 17

 9.5 Power reserves..... 17

 9.6 Temperature response 17

10 Signaling 18

 10.1 LED and bar graph test..... 19

 10.2 LED indicator 19

 10.3 Bar graph-display when the communication cable is installed 20

 10.4 Bar graph display without communication cable 20

11 Function 21

 11.1 IQ technology..... 21

 11.2 SOC application example 21

 11.3 SOH/SOF application example 21

 11.4 Charging characteristic 22

 11.5 Fast battery charging, intelligent charging (contact I< IN) 22

 11.6 Setting the buffer time 23

 11.7 PC mode 23

 11.8 Remote control (contact R1, R2) 25

12 Interfaces..... 25

 12.1 IFS-USB-DATACABLE 25

 12.2 IFS-CONFSTICK..... 25

13 Servicing 26

14 Application examples 27

 14.1 Parallel connection of the power storage devices 27

 14.2 Parallel connection for redundancy..... 28

3 Ordering data

Description	Type	Order No.	Pcs. / Pkt.
Uninterruptible power supply with IQ technology 24 V/20 A. Provides information regarding the charging state, remaining runtime, and service life of your rechargeable battery module at all times and thereby increases system availability.	QUINT-UPS/ 24DC/ 24DC/20	2320238	1
Accessories	Type	Order No.	Pcs. / Pkt.
Rechargeable battery module, lead AGM, VRLA technology, 24 V DC, 3.4 Ah, tool-free battery replacement, automatic detection and communication with QUINT UPS-IQ	UPS-BAT/VRLA/ 24DC/ 3.4AH	2320306	1
Rechargeable battery module, lead AGM, VRLA technology, 24 V DC, 7.2 Ah, tool-free battery replacement, automatic detection and communication with QUINT UPS-IQ	UPS-BAT/VRLA/ 24DC/ 7.2AH	2320319	1
Rechargeable battery module, lead AGM, VRLA technology, 24 V DC, 12 Ah, tool-free battery replacement, automatic detection and communication with QUINT UPS-IQ	UPS-BAT/VRLA/ 24DC/12AH	2320322	1
Rechargeable battery module, LI-ION technology, 24 V DC, 60 Wh, for ambient temperatures of -20°C ... +60°C, automatic detection and communication with QUINT UPS-IQ	UPS-BAT/LI-ION/24DC/60WH	2320351	1
Rechargeable battery module, lead AGM, VRLA technology, 24 V DC, 38 Ah, automatic detection and communication with the QUINT UPS-IQ	UPS-BAT/VRLA/ 24DC/38AH	2320335	1
Configuration software for QUINT UPS can be downloaded free of charge.	UPS-CONF	2320403	1
Used for communication between the UPS CONF configuration software and the QUINT UPS IQ and TRIO UPS uninterruptible power supply units.	IFS-USB-DATACABLE	2320500	1
Multi-functional memory block for the INTERFACE system for easy storage and backup of the configuration.	IFS-CONFSTICK	2986122	1

4 Technical data

Input data	
Nominal input voltage	24 V DC
DC input voltage range	18 V DC ... 30 V DC
Buffer period	1 h (with 38 AH)
Current consumption mains mode	
Max.	33.9 A
No load	64 mA
Charging process	6.9 A
Fixed connect threshold	≤ 22 V DC
Output data	
Nominal output voltage	24 V DC
Output voltage range	18 V DC ... 30 V DC
Nominal output current	20 A
Derating	60 °C ... 70 °C (2.5%/K)
Output current limit	(In mains mode according to connected upstream current limiting device) > 27 A (Battery operation)
Power dissipation (mains mode)	
Idle	1.5 W
Nominal Load	6.3 W
BOOST	7.9 W
Power dissipation (battery operation)	
Idle	1.1 W
Nominal Load	8.1 W
BOOST	10.5 W
Output power	480 W
Efficiency	> 98.2 %
Connection in parallel	Yes, up to 2 modules with redundancy module
Connection in series	No
Output data (mains operation)	
Nominal output voltage	24 V DC
Output voltage range	18 V DC ... 30 V DC
Output current (according to connected upstream power supply unit)	
Nominal output current I_N	20 A (-25 °C ... +60 °C)
POWER BOOST I_{BOOST}	26 A (-25 °C ... +40 °C)
SFB technology I_{SFB}	120 A (-25 °C ... +60 °C)
Duration	12 ms (SFB technology)
Output data (battery operation)	
Nominal output voltage	24 V DC
Output voltage range	19.2 V DC ... 27.6 V DC ($U_{OUT} = U_{BAT} - 0.5 \text{ V DC}$)
Output current	
Nominal output current I_N	20 A (-25 °C ... +60 °C)
POWER BOOST I_{BOOST}	27 A (-25 °C ... +40 °C)
SFB technology I_{SFB}	120 A (-25 °C ... +60 °C)
Duration	15 ms (SFB technology)

Power storage device

Nominal voltage U_N	24 V DC
End-of-charge voltage	24 V DC ... 29 V DC (temperature compensated)
Temperature compensation	42 mV/K (preset)
Nominal capacity range	3 Ah ... 200 Ah
Charge current	0.2 A ... 5 A
Battery presence check (time interval)	1 min

Power In OK

Status display	LED / Static to / green
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Alarm

Inverting with the UPS-CONF configuration and management software

Switching output	Relay
Maximum switching voltage	≤ 30 V AC/DC
Maximum switching current	≤ 100 mA
Status display	LED / Static to / red

Battery charge

Signal options are adjustable with the UPS-CONF configuration and management software

Switching output	Relay
Maximum switching voltage	≤ 30 V AC/DC
Maximum switching current	≤ 100 mA
Status display	LED bar graph / dynamic / green

Battery mode

Signal options are adjustable with the UPS-CONF configuration and management software

Switching output	Relay
Maximum switching voltage	≤ 30 V AC/DC
Maximum switching current	≤ 100 mA
Status display	LED / Static to / yellow

General data

MTBF	> 500000 h
Mounting position	horizontal DIN rail NS 35, EN 60715
Housing material	Steel sheet, zinc-plated
Dimensions W / H / D	40 mm / 130 mm / 125 mm
Dimensions W / H / D (90° turned)	122 mm / 130 mm / 43 mm
Weight	0.6 kg

Security

Degree of protection	IP20
Protection class	III

Connection data

Connection method	Screw connection
Conductor cross section, solid	0.2 mm ² ... 6 mm ²
Conductor cross section, stranded	0.2 mm ² ... 4 mm ²
Conductor cross section AWG/kcmil	12 ... 10
Stripping length	8 mm
Screw thread	M4
Tightening torque	0.5 Nm ... 0.6 Nm

Ambient conditions

Ambient temperature (operation)	-25 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Max. permissible relative humidity (operation)	≤ 95 % (25°C, no condensation)
Vibration (operation)	< 15 Hz, amplitude ±2.5 mm in acc. with IEC 60068-2-6 15 Hz ... 150 Hz, 2.3 g t _v = 90 min.
Shock	30g in all directions in acc. with IEC 60068-2-27
Climatic class	3K3 (in acc. with EN 60721)

Standards

Electrical safety (of information technology equipment)	EN 60950-1/VDE 0805 (SELV) EN 61558-2-17
Electronic equipment for use in electrical power installations	EN 50178/VDE 0160 (PELV)

Approvals

UL approvals	UL/C-UL Recognized UL 60950 UL Listed UL 508
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Conformance with EMC Directive 2004/108/EC

Noise immunity according to EN 61000-6-2

	EN 61000-6-2 requirement	Tested
Electrostatic discharge EN 61000-4-2		
Housing contact discharge	4 kV (Test intensity 2)	8 kV (Test intensity 4)
Housing air discharge	8 kV (Test intensity 3)	15 kV (Test intensity 4)
Comments	Criterion B	Criterion A
Electromagnetic HF field EN 61000-4-3		
Frequency range	80 MHz ... 1 GHz	80 MHz ... 1 GHz
Test field strength	10 V/m	20 V/m
Frequency range	1.4 GHz ... 2 GHz	1 GHz ... 3 GHz
Test field strength	3 V/m (Criterion A)	10 V/m (Test intensity X / 3)
Fast transients (burst) EN 61000-4-4		
Input	2 kV (Test intensity 3 - asymmetrical)	2 kV (Test intensity 3 - asymmetrical)
Output	2 kV (Test intensity 3 - asymmetrical)	2 kV (Test intensity 3 - asymmetrical)
Signal	1 kV (Test intensity 3 - asymmetrical)	2 kV (Test intensity 4 - asymmetrical)
Comments	Criterion B	Criterion A
Surge current loads (surge) EN 61000-4-5		
Input/Output	+/- 0.5 kV (Asymmetrical) 0.5 kV (symmetrical)	1 kV (symmetrical) 2 kV (Asymmetrical)
Signal	+/- 1 kV (Asymmetrical)	1 kV (Asymmetrical)
Comments	Criterion B	Criterion A
Conducted interference EN 61000-4-6		
Input/Output/Signal	asymmetrical	asymmetrical
Frequency range	0.15 MHz ... 80 MHz	0.15 MHz ... 80 MHz
Voltage	10 V (Test intensity 3)	10 V (Test intensity 3)
Comments	Criterion A	Criterion A

Emitted interference in acc. with EN 61000-6-3

Radio interference voltage in acc. with EN 55011	EN 55011 (EN 55022) Class B, area of application: Industry and residential
Emitted radio interference in acc. with EN 55011	EN 55011 (EN 55022) Class B, area of application: Industry and residential

5 Safety regulations and installation notes



EXPLOSION HAZARD

Only remove equipment when it is disconnected and not in the potentially explosive area!

DANGER

Never carry out work on live parts!
The housing can become very hot, depending on the ambient temperature and load!



CAUTION: Risk of injury

Use the device with the UPS-BAT.... recommended in the table of accessories. When using power storage devices other than UPS-BAT..., make sure that the corresponding parameters for the charging characteristics are adjusted and adhered to.

Phoenix Contact accepts no liability or responsibility for possible for any consequential damage.



CAUTION:

Before startup please ensure:

The connection must be carried out by a competent person and protection against electric shock guaranteed.

It must be possible to switch off power to device according to EN 60950.

All feed lines are sufficiently protected and dimensioned!

All output lines are dimensioned according to the maximum output current of the device or separately protected!

Sufficient convection must be guaranteed.

Observe mechanical and thermal limits.



ATTENTION: Danger if used improperly

Uninterruptible power supplies are installable devices. Installation and startup may only be carried out by qualified personnel. The relevant country-specific regulations must be observed.



CAUTION: Risk of injury

Cover termination area after installation in order to avoid accidental contact with live parts (e. g., installation in control cabinet).



Do not dispose of used batteries in the household waste! Dispose of these according to the currently valid national regulations.



They can also be returned to Phoenix Contact or the manufacturer.

6 Structure

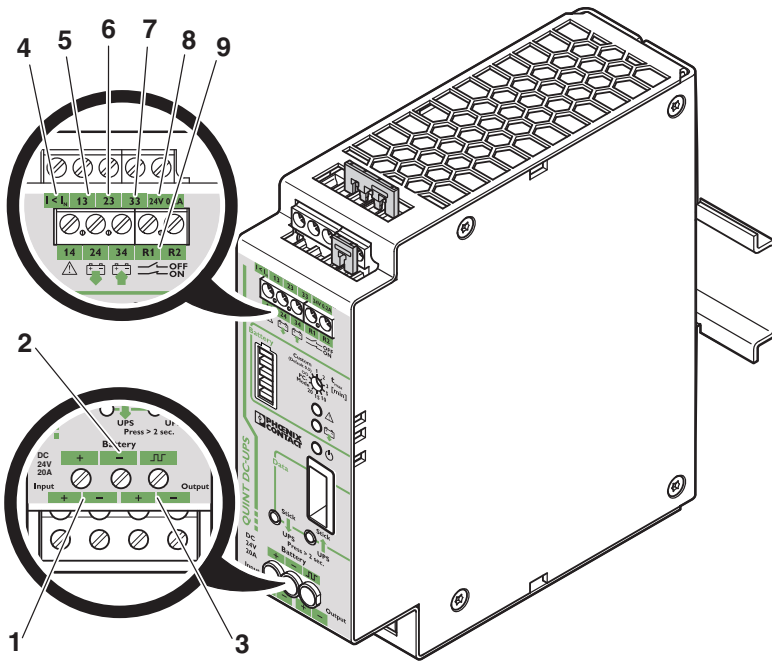


Figure 1 Connection terminal blocks

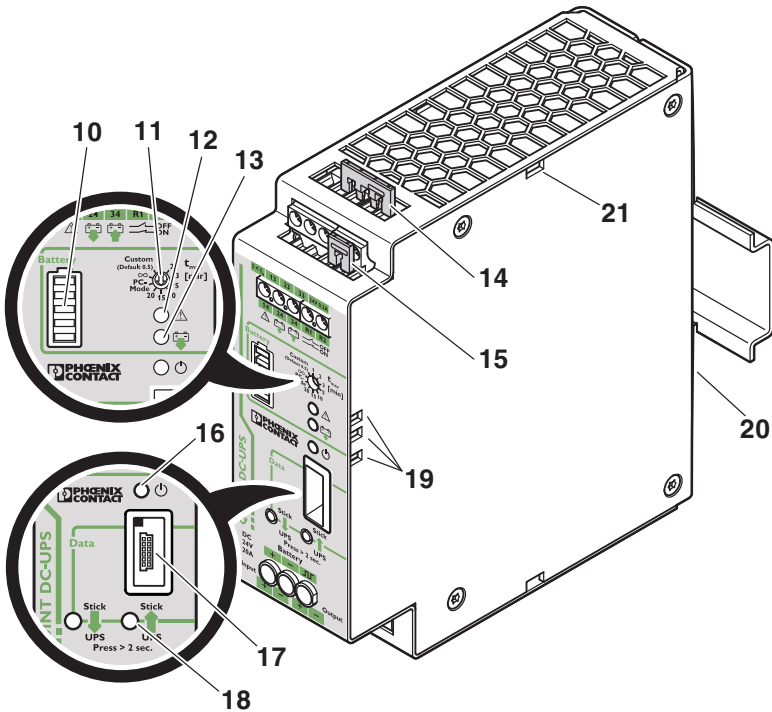


Figure 2 Function elements

Connections / Operating elements

- 1 DC input, 18 V DC ... 30 V DC
- 2 Power storage device connection, 24 V DC (+, -, communication between UPS and power storage device)
- 3 DC output, 24 V DC, buffered
- 17 Data port for data linking to the PC or the use of a memory block
- 18 Button for use of the memory block

Mains mode, charging

- 16 Green LED: Power In OK, mains mode
- 10 Bar graph for displaying the current charging state of the power storage device
- 7 Floating relay contact 33/34: battery charge
- 4 $I < I_N$, fast battery charging

Battery operation, discharging

- 13 Yellow LED: battery mode
- 6 Floating relay contact 23/24: battery mode
- 11 Buffer time setting: unlimited ∞ , 1 ... 20 mins., customized (customized default: 0.5), PC mode
- 9 Remote control (R1, R2)
- 15 Remote control plug-in bridge, pre-installed

General

- 12 Red LED: alarm
- 5 Floating contact 13/14: alarm
- 8 24 V DC supply voltage, maximum current limit 0.2 A for the signal contacts 13, 23, 33
- 14 Plug-in bridge for signal contact supply voltages, pre-installed
- 19 LED windows for flat mounting position
- 21 Accommodation for cable binders
- 20 Universal snap-on foot for EN DIN rails