

Uninterruptible power supply - QUINT-UPS/ 1AC/ 1AC/500VA



2320270

<https://www.phoenixcontact.com/pc/products/2320270>

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Uninterruptible power supply with IQ technology 1AC/1AC/500 VA. For 120 V AC/230 V AC applications. Provides information regarding the charging state, remaining runtime, and service life of your rechargeable battery module at all times and thereby increases system availability.

Product Description

The UPS module for 120 V AC/230 V AC delivers a pure sine curve at the output. For 400 W/500 VA of power, only one energy storage is required, the power supply is already integrated.

Your advantages

- Optimum use of the buffer time and preventive monitoring of the energy storage
- Can be used worldwide
- Maximum efficiency
- Comprehensive signaling and parameterization
- Simplified startup

Commercial Data

Item number	2320270
Packing unit	1 pc
Minimum order quantity	1 pc
Product Key	CMUQ15
Catalog Page	Page 330 (C-4-2019)
GTIN	4046356560078
Weight per Piece (including packing)	2,510 g
Weight per Piece (excluding packing)	2,244 g
Customs tariff number	85371091
Country of origin	DE

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Technical Data

Input data

AC operation

Input voltage	240 V AC
	100 V AC
	120 V AC -20 % / +15 %
	230 V AC -20 % / +15 %
Nominal input voltage range	100 V AC ... 240 V AC
Input voltage range	184 V AC ... 264 V AC
	96 V AC ... 138 V AC
	96 V AC ... 264 V AC
Input voltage range AC	196 V AC ... 264 V AC
	102 V AC ... 138 V AC
	96 V AC ... 264 V AC
Voltage type of supply voltage	AC
Nominal frequency	50 Hz ... 60 Hz
	50 Hz ... 60 Hz
AC frequency range	45 Hz ... 65 Hz
Buffer period	1 h (38 AH)
Current consumption	2.2 A (230 V AC)
	0.18 A (230 V AC)
	0.8 A (230 V AC)
	3.7 A (230 V AC)
	4.3 A (120 V AC)
	0.35 A (120 V AC)
	1.3 A (120 V AC)
	6.8 A (120 V AC)
Fixed backup threshold	Configurable, 10% deviation from nominal input voltage set by default
Variable connect threshold	Can be configured using UPS-CONF software
Power factor (cos phi)	0.8
Device mains fuse	10 A
Permissible backup fuse	B16 230 V AC
	20 A 120 V AC, Listed breaker

Digital Control Low-Active (configurable)

Battery-operated start 120 V AC Default	Plug-in bridge (output +24 V DC, 30 mA to input A1)
Battery-operated start 230 V AC Default	Plug-in bridge (output +24 V DC, 30 mA to input A2)

Output data

Classification according to IEC 62040-3	VFD-SS-311
	> 98 % (Mains operation)

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Efficiency	> 98 % (120 V AC)
	> 86 % (Battery operation)
Nominal output voltage	120 V AC
	230 V AC
Output voltage range	96 V AC ... 144 V AC
	184 V AC ... 264 V AC
Form of output voltage	Pure sine
Nominal output current (I_N)	4.3 A (120 V AC, -25°C ... 50°C)
	2.2 A (230 V AC, -25°C ... 40°C)
Output current limit	5.2 A (120 V AC)
	2.7 A (230 V AC)
POWER BOOST (I_{Boost})	5.2 A (120 V AC, -25°C ... 40°C)
	2.7 A (230 V AC, -25°C ... 40°C)
Bridging time	3600 s
Derating	> 50 °C ... 70 °C (2.5%/K)
UPS connection in parallel	no
UPS connection in series	no
Output power	516 W
Apparent power	500 VA
Nominal power	400 W
Crest factor	2.8
Switch-over time	< 10 ms
Connection in parallel	no
Connection in series	No

Mains operation

Nominal output voltage	120 V AC
	230 V AC
Output voltage range	102 V AC ... 138 V AC
	196 V AC ... 264 V AC
Nominal output current (I_N)	4.3 A (120 V AC)
	2.2 A (230 V AC)
POWER BOOST (I_{Boost})	5.2 A
	2.7 A
Permissible backup fuse	AC: 1 x circuit breaker - recommended fuse

Battery operation

Nominal output voltage	120 V AC
	230 V AC
Nominal output current (I_N)	2.2 A (230 V AC)
	4.3 A (120 V AC)
POWER BOOST (I_{Boost})	2.7 A (230 V AC)
	5.2 A (120 V AC)
Permissible backup fuse	25 A in parallel operation of 3.5 AH and 60 WH
	50 A in parallel operation of 7.2 AH, 12 AH, and 38 AH

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Buffer period	10 min. (400 W / 7,2 Ah)
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Signal: Alarm

Maximum switching voltage	≤ 30 V DC
Output voltage	24 V (SELV)
Continuous load current	≤ 30 mA

Signal: Battery mode

Maximum switching voltage	≤ 30 V DC
Output voltage	24 V (SELV)
Continuous load current	≤ 30 mA

Signal: POWER BOOST

Maximum switching voltage	≤ 30 V DC
Output voltage	24 V (SELV)
Continuous load current	≤ 30 mA

Energy storage

Nominal voltage U_N	24 V DC
End-of-charge voltage	25 V DC ... 30 V DC (temperature compensated)
Charging current	2 A
Nominal capacity range	3.4 Ah ... 114 Ah (3x 38 Ah)
Battery presence check/time interval	1 min.
Battery presence check (cyclic)	60 s
Energy storage device connection in parallel	yes, 3 (observe line protection)
Energy storage device connection in series	no
IQ technology	Yes
Temperature compensation	42 mV/K (preset)
Temperature compensation (preset)	-42 mV/K
Permissible backup fuse	50 A
Network management	Yes

Connection data

Input

Connection method	Screw connection
Conductor cross section solid min.	1.5 mm ²
Conductor cross section solid max.	6 mm ²
Conductor cross section flexible min.	1.5 mm ²
Conductor cross section flexible max.	4 mm ²
Conductor cross section AWG min.	18
Conductor cross section AWG max.	10
Stripping length	8 mm
Screw thread	M4
Tightening torque, min	0.5 Nm
Tightening torque max	0.6 Nm

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Output

Connection method	Screw connection
Conductor cross section solid min.	1.5 mm ²
Conductor cross section solid max.	6 mm ²
Conductor cross section flexible min.	1.5 mm ²
Conductor cross section flexible max.	4 mm ²
Conductor cross section AWG min.	18
Conductor cross section AWG max.	10
Stripping length	8 mm
Screw thread	M4
Tightening torque, min	0.5 Nm
Tightening torque max	0.6 Nm

Signal

Connection method	Screw connection
Conductor cross section solid min.	0.2 mm ²
Conductor cross section solid max.	2.5 mm ²
Conductor cross section flexible min.	0.2 mm ²
Conductor cross section flexible max.	2.5 mm ²
Conductor cross section AWG min.	24
Conductor cross section AWG max.	10
Stripping length	8 mm
Screw thread	M4
Tightening torque, min	0.5 Nm
Tightening torque max	0.6 Nm

Interfaces

Interface	IFS (Interface system data port)
	MINI-USB type B

LED signaling

Types of signaling	LED
	Active switching outputs
	Interface/software

Signal output: Status indicator 120 V AC

Signalization designation	AC mode of operation
Status display	LED
Note on status display	Static to

Signal output: Status indicator 230 V AC

Signalization designation	AC mode of operation
Status display	LED
Color	green
Note on status display	Static to

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Signal output: Transistor output, active

Signalization designation	Alarm
Status display	LED
Color	red
Note on status display	Static to

Signal output: Transistor output, active

Signalization designation	Battery mode
Status display	LED
Color	yellow
Note on status display	Static to

Signal output: Transistor output, active

Signalization designation	POWER BOOST
Status display	LED
Color	yellow
Note on status display	Static to

Signal output

Signalization designation	Battery charge
Status display	Bar graph
Color	red/green

Electrical properties

Insulation voltage input, output / housing	1.5 kV AC
	2.1 kV DC

Product properties

Product type	Uninterruptible power supply, AC
	QUINT USV
IQ technology	Yes
MTBF (IEC 61709, SN 29500)	> 240513 h (40 °C)

Insulation characteristics

Protection class	I
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Life expectancy (electrolytic capacitors)

Time	184982 h
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Dimensions

Width	125 mm
Height	130 mm
Depth	125 mm

Installation dimensions

Installation distance right/left	5 mm / 5 mm
Installation distance top/bottom	50 mm / 50 mm

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Mounting

Mounting type	DIN rail mounting
Assembly instructions	alignable: $P_N \geq 50\%$, 5 mm horizontally, 15 mm next to active components, 50 mm vertically alignable: $P_N < 50\%$, 0 mm horizontally, 40 mm vertically top, 20 mm vertically bottom
Mounting position	horizontal DIN rail NS 35, EN 60715

Material specifications

Color	aluminium
Housing material	Metal
Type of housing	Aluminum (AIMg3)
Hood version	Galvanized sheet steel, free from chrome (VI)
Side element version	Aluminum
Housing material	Steel sheet, zinc-plated

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-25 °C ... 70 °C (> 50 °C Derating: 2.5 %/K)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Ambient temperature (start-up type tested)	-40 °C
Climatic class	3K3 (in acc. with EN 60721)
Max. permissible relative humidity (operation)	≤ 95 % (25 °C, non-condensing)
Shock	18 ms, 30g, in each space direction (according to IEC 60068-2-27)
Vibration (operation)	< 15 Hz, amplitude ±2.5 mm (according to IEC 60068-2-6) 15 Hz ... 150 Hz, 2.3g $t_v = 90$ min.

Standards and regulations

Rail applications	EN 50121-4
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Standards

Standard uninterruptible power supply systems	EN 62040-1
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Uninterruptible power supply systems

Standards/specifications	EN 62040-1
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Approval data

UL

Identification	UL/C-UL Recognized UL 1778
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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

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Interference emission	Noise emission in accordance with EN 62040-2
Noise immunity	Immunity in accordance with EN 62040-2

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 A

Electromagnetic HF field

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

Frequency range	80 MHz ... 3 GHz
Test field strength	10 V/m
Frequency range	1 GHz ... 3 GHz
Test field strength	10 V/m
Frequency range	2 GHz ... 3 GHz
Test field strength	3 V/m
Comments	Criterion A

Fast transients (burst)

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

Input	2 kV (Test Level 3 - asymmetrical)
Output	2 kV (Test Level 3 - asymmetrical)
Signal	2 kV (Test Level 4 - asymmetrical)
Comments	Criterion A

Surge voltage load (surge)

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

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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Emitted interference

Radio interference voltage	EN 62040-2 (Class C1)
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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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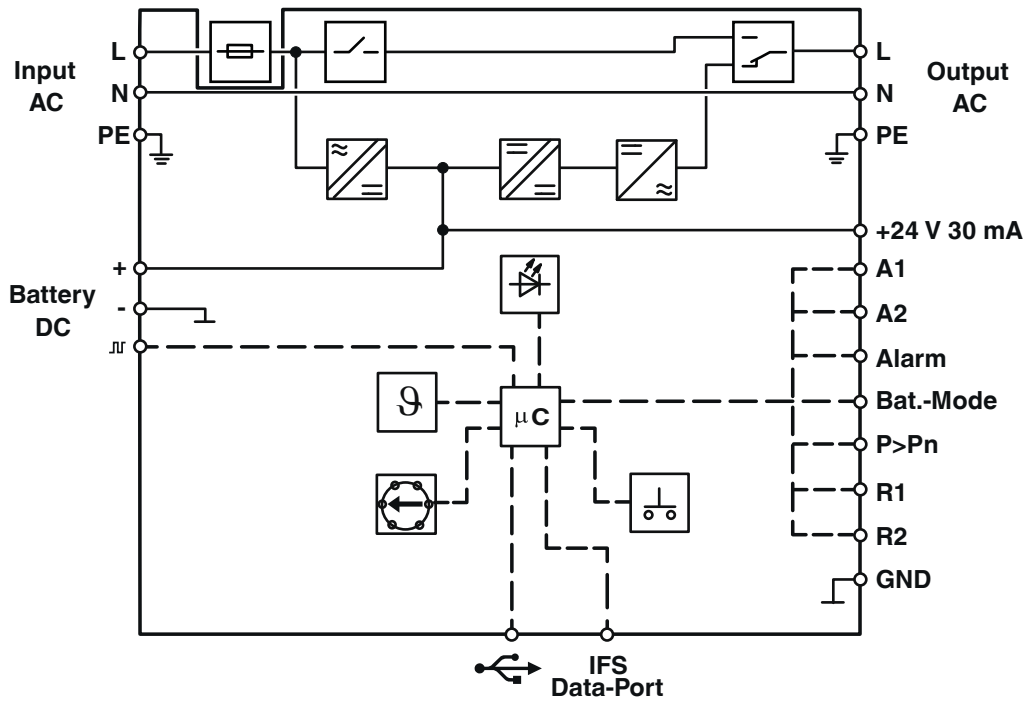


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Drawings

Block diagram



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Approvals



cUL Recognized
Approval ID: FILE E 342453



UL Recognized
Approval ID: FILE E 342453



IECEE CB Scheme
Approval ID: SI-7771



EAC
Approval ID: EAC-Zulassung



EAC
Approval ID: EAC-Zulassung



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



KC
Approval ID: R-R-PCK-2320270



UL Recognized
Approval ID: FILE E 342453



IECEE CB Scheme
Approval ID: SI-7771



cUL Recognized
Approval ID: FILE E 342453



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



KC
Approval ID: R-R-PCK-2320270

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EAC

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



EAC

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



cUL Recognized

Approval ID: FILE E 359066



UL Recognized

Approval ID: FILE E 359066



cUL Recognized

Approval ID: FILE E 359066



UL Recognized

Approval ID: FILE E 359066

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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	39121000
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Environmental Product Compliance

China RoHS	Environmentally friendly use period: unlimited = EFUP-e
	No hazardous substances above threshold values

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Accessories

Energy storage

Energy storage - UPS-BAT/VRLA/24DC/ 3.4AH - 2320306

<https://www.phoenixcontact.com/pc/products/2320306>



Energy storage device, lead AGM, VRLA technology, 24 V DC, 3.4 Ah, tool-free battery replacement, automatic detection, and communication with QUINT UPS-IQ

Energy storage

Energy storage - UPS-BAT/VRLA/24DC/7.2AH - 2320319

<https://www.phoenixcontact.com/pc/products/2320319>



Energy storage device, lead AGM, VRLA technology, 24 V DC, 7.2 Ah, tool-free battery replacement, automatic detection, and communication with QUINT UPS-IQ

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2320270

<https://www.phoenixcontact.com/pc/products/2320270>

Energy storage

Energy storage - UPS-BAT/VRLA/24DC/12AH - 2320322

<https://www.phoenixcontact.com/pc/products/2320322>



Please use the following item in new systems: 1274119.

Energy storage device, lead AGM, VRLA technology, 24 V DC, 12 Ah, tool-free battery replacement, automatic detection, and communication with QUINT UPS-IQ

Energy storage

Energy storage - UPS-BAT/VRLA/24DC/20AH - 1109004

<https://www.phoenixcontact.com/pc/products/1109004>



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

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2320270

<https://www.phoenixcontact.com/pc/products/2320270>

Energy storage

Energy storage - UPS-BAT/VRLA/24DC/38AH - 2320335

<https://www.phoenixcontact.com/pc/products/2320335>



Energy storage device, lead AGM, VRLA technology, 24 V DC, 38 Ah, automatic detection, and communication with QUINT UPS-IQ

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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Energy storage

Energy storage - UPS-BAT/VRLA-WTR/24DC/26AH - 2320429

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

Energy storage

Energy storage - UPS-BAT/LI-ION/24DC/120WH - 2320351

<https://www.phoenixcontact.com/pc/products/2320351>



Energy storage device, LI-ION technology, 24 V DC, 120 Wh, for ambient temperatures of -20°C ... 60°C, automatic detection and communication with QUINT UPS-IQ

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Energy storage

Energy storage - UPS-CAP/24DC/20A/20KJ - 2320380

<https://www.phoenixcontact.com/pc/products/2320380>



Maintenance-free energy storage based on double-layer capacitor, 24 V DC, 20 kJ, automatic detection and communication with QUINT UPS-IQ

USB cable

USB cable - CABLE-USB/MINI-USB-3,0M - 2986135

<https://www.phoenixcontact.com/pc/products/2986135>

USB connecting cable: USB plug type A to USB plug type Mini-B; length: 3 m



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Data cable

Data cable - IFS-MINI-DIN-DATACABLE - 2320487

<https://www.phoenixcontact.com/pc/products/2320487>



Data cable for communication, e.g., between Phoenix Contact type ILC 1xx Inline controllers and Phoenix Contact devices with the 12-pos. IFS data port, such as QUINT UPS-IQ UPS or TRIO UPS

Data cable

Data cable - IFS-RS232-DATACABLE - 2320490

<https://www.phoenixcontact.com/pc/products/2320490>



Data cable for communication between devices with a D-SUB 9 RS-232 connection and Phoenix Contact devices with the 12-pos. IFS data port such as QUINT UPS-IQ or TRIO UPS.

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Data cable

Data cable - IFS-USB-DATACABLE - 2320500

<https://www.phoenixcontact.com/pc/products/2320500>

Used for communicating between industrial PCs and Phoenix Contact devices with the 12-pos. IFS data port, such as QUINT UPS or TRIO UPS.



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.

Fuse

Fuse - FUSE 10A/400V GRL - 2908358

<https://www.phoenixcontact.com/pc/products/2908358>



Fuse, nominal current: 10 A, length: 31.8 mm, diameter: 6.35 mm

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Memory block

Memory block - IFS-CONFSTICK - 2986122

<https://www.phoenixcontact.com/pc/products/2986122>



Multi-functional memory block for the INTERFACE system for easy storage and backup of the configuration.

Memory block

Memory block - IFS-CONFSTICK-L - 2901103

<https://www.phoenixcontact.com/pc/products/2901103>



Multi-functional memory block with handle for the INTERFACE system; for easy storage and back up of the configuration.

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