

TRIO3-CAP/1AC/24DC/10/6KJ/USB-485 - DC UPS with integrated power supply and capacity



1467808

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TRIO DC UPS with integrated power supply and capacitor, with maintenance-free energy storage based on double-layer capacitor, USI (Universal Service Interface), DIN rail mounting, input: 230 V AC, input: 1-phase, output: 24 V DC / 10 A / 6 kJ incl. mounted UTA 107 universal DIN rail adapter

Product description

The TRIO3 capacity module combines the power supply, electronic switch-over unit, and energy storage in the same housing. The capacity module stores the energy required to bridge mains failures in maintenance-free double-layer capacitors. Several minutes of mains buffering is possible depending on the required load current. The USB-C (USI) or RS-485 interfaces make it convenient to shut down your PC.

Commercial data

Item number	1467808
Packing unit	1 pc
Minimum order quantity	1 pc
Product key	CMUDC3
GTIN	4063151864392
Weight per piece (including packing)	2,223 g
Weight per piece (excluding packing)	1,768 g
Customs tariff number	85322900
Country of origin	CN

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Technical data

Input data

Input voltage	230 V AC
Input voltage range	100 V AC ... 240 V AC -15 % ... +10 %
	115 V AC ... 240 V AC ± 10 % (UL)
	100 V DC ... 240 V DC ± 10 %
	160 V DC ... 240 V DC ± 10 % (UL)
Frequency range (f_N)	50 Hz ... 60 Hz ± 10 %
Derating	< 100 V AC (1 %/V)
	140 V DC (1 %/V)
Current consumption	typ. 2.8 A (100 V AC)
	typ. 1.3 A (240 V AC)
	typ. 2.7 A (100 V DC)
	typ. 1.2 A (240 V DC)
Charging time	approx. 4 min (For completely discharged capacitors)
Recharging time	approx. 3 min
ON duration	≤ 5 min ($120\% \times P_N$)
	≥ 2 h ($100\% \times P_N$)
Switch-on time	≤ 1 ms
Recommended breaker for input protection	6 A ... 20 A (Characteristic B, C, D, K or comparable)

Output data

Efficiency	typ. 94.4 % (230 V AC)
	typ. 93.4 % (120 V AC)
Short-circuit-proof	yes
No-load proof	yes
Crest factor	typ. 1.58 (120 V AC)
	typ. 1,7 (230 V AC)
Connection in parallel	yes, for increased performance
Connection in series	yes
Feedback voltage resistance	≤ 35 V DC
Protection against overvoltage at the output (OVP)	≤ 35 V DC
Residual ripple	< 100 mV
Rise time	≤ 1 s (U_{OUT} (10 % ... 90 %))

Mains operation

Output voltage	24 V DC ± 2 %
Output voltage range	24 V DC ... 28 V DC (> 24 V constant capacity)
Output current I_N	10 A
Dynamic Boost ($I_{Dyn.Boost}$)	15 A (5 s)
Dynamic BOOST (ICAP.Boost)	35 A (350 ms)

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Output power P_{OUT} (U_N , $I_{OUT} = I_N$)	240 W
Output power P_{OUT} (U_N , $I_{OUT} = I_{stat.Boost}$)	840 W (350 ms)
Output power P_{OUT} (U_N , $I_{OUT} = I_{dyn.Boost}$)	360 W (5 s)
Power dissipation Nominal load (U_N , $I_{Out} = I_N$, $I_{Charge} = 0$)	14.15 W
Short-circuit-proof	yes
Idling-proof	yes

Battery operation

Output voltage	23.5 V DC $\pm 2\%$
Output voltage range	23.5 V DC ... 27.5 V DC (> 24 V constant capacity)
Output current I_N	10 A
Dynamic Boost ($I_{Dyn.Boost}$)	15 A (5 s)
Dynamic BOOST (ICAP.Boost)	35 A (350 ms)
Output power P_{OUT} (U_N , $I_{OUT} = I_N$)	240 W
Power dissipation No load (U_N , $I_{Out} = 0$, $I_{Charge} = 0$)	5 W
Power dissipation Nominal load (U_N , $I_{Out} = I_N$, $I_{Charge} = 0$)	18 W
Power loss nominal load max.	15 W
Maximum no-load power dissipation	6 W
Output current limit	35 A (350 ms)
Recovery time	55 s (dyn. Boost) 2 h (buffer mode)
Short-circuit-proof	yes
Idling-proof	yes

Energy storage

Input

Charging current	1 A ... 5 A
Charging power	24 W

General

Capacity	6 kJ
Storage medium	Double-layer capacitor
Permissible backup fuse	B10

Connection data

Input

Position	1.x
Identification	1.1 (L/+), 1.2 (N/-), 1.3 ($\oplus$

Conductor connection

Connection method	Push-in spring connection
rigid	0.2 mm ² ... 4 mm ² 1.5 mm ²

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flexible	0.2 mm² ... 2.5 mm²
	1.5 mm²
flexible with ferrule without plastic sleeve	0.25 mm² ... 2.5 mm²
	1.5 mm²
flexible with ferrule with plastic sleeve	0.25 mm² ... 2.5 mm²
	1.5 mm²
AWG	24 ... 12
	16
Stripping length	10 mm

Output

Position	2.x
Identification	2.1 (+), 2.2 (-)

Conductor connection

Connection method	Push-in spring connection
rigid	0.2 mm² ... 10 mm²
	4 mm²
flexible	0.2 mm² ... 6 mm²
	4 mm²
flexible with ferrule without plastic sleeve	0.25 mm² ... 2.5 mm²
	4 mm²
flexible with ferrule with plastic sleeve	0.25 mm² ... 1.5 mm²
	4 mm²
AWG	24 ... 12
	12
Stripping length	10 mm

Signal

Position	3.x
Identification	3.1 (Mains Mode), 3.2 (Alarm), 3.3 (Ready), 3.4 (Remote)

Conductor connection

Connection method	Push-in spring connection
rigid	0.2 mm² ... 1.5 mm²
	0.5 mm²
flexible	0.2 mm² ... 1.5 mm²
	0.5 mm²
flexible with ferrule without plastic sleeve	0.25 mm² ... 1.5 mm²
	0.5 mm²
flexible with ferrule with plastic sleeve	0.25 mm² ... 0.75 mm²
	0.5 mm²
AWG	24 ... 16
	20

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Stripping length	10 mm
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Interfaces

Communication

Connection method	RS-485
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Communication

Connection method	USI (USB-C)
Interface	USI (Universal Service Interface)
	RS-485

Signaling

Signal state Mains_Mode

Connection labeling	3.1
Channel	DO (digital output)
Switching contact	non-floating
State condition (configurable)	High: $U_{out} > U_{set} - 2\text{ V} \pm \text{[tolerance]}$ and $U_{out} < 30.5 \pm \text{[tolerance]}$ Low: $U_{out} < U_{set} - 2\text{ V} \pm \text{[tolerance]}$ or $U_{out} > 30.5 \pm \text{[tolerance]}$ Device is in buffer mode
Output can be loaded	20 mA
State - signal assignment	active - high
Reference potential	SGnd
LED status indicator	green
Resistance	1.2 k Ω (Pull-up)

Signal state Alarm

Connection labeling	3.2
Channel	DO (digital output)
Switching contact	non-floating
State condition (configurable)	Alarm threshold
Output can be loaded	20 mA
State - signal assignment	NC (Normally Closed)
Current carrying capacity	20 mA
Reference potential	SGnd
LED status indicator	red
Resistance	1.2 k Ω (Pull-up)

Signal state Ready

Connection labeling	3.3
Channel	DO (digital output)
Switching contact	non-floating
State condition (configurable)	High: CAPs are fully charged Device is in buffer mode Low: CAPs are charging

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Output can be loaded	20 mA
State - signal assignment	active - high
Current carrying capacity	20 mA
Reference potential	SGnd
LED status indicator	green
Resistance	1.2 k Ω (Pull-up)

Signal state Remote

Connection labeling	3.4
Channel	DI (digital input)
State (configurable)	Remote
State condition (configurable)	Remote
State - signal assignment	active - low
Reference potential	2.2 (negative pole, identical to 3.1, 3.2, 3.3)

Electrical properties

Number of phases	1
Insulation voltage input/output	5.3 kV DC (type test)
	3.1 kV DC (routine test)
	6 kV DC
Insulation voltage input / PE	4 kV DC

Product properties

Product family	TRIO DC UPS with integrated power supply and capacitor
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Insulation characteristics

Protection class	I
Degree of pollution	2

Dimensions

Item dimensions

Width	154 mm
Height	135 mm
Depth	125 mm
Depth (Device depth (DIN rail mounting))	125 mm

Mounting

Mounting type	DIN rail mounting
Mounting position	horizontal DIN rail NS 35, EN 60715

Material specifications

Flammability rating according to UL 94 (housing / terminal blocks)	V0
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Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-25 °C ... 60 °C
Ambient temperature (storage/transport)	-40 °C ... 70 °C
Ambient temperature (start-up type tested)	-40 °C
Maximum altitude	≤ 5000 m (> 2000 m, Derating: 10 %/1000 m)
Climatic class	3K3
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)	10 Hz ... 50 Hz, amplitude ±0.2 mm
	50 Hz ... 150 Hz, 2.3g, 90 min.

Standards and regulations

Overvoltage category

EN 61010-1	III (≤ 2000 m) / II (≤ 5000 m)
EN 61010-2-201	III (≤ 2000 m)

Safety of power supply units up to 1100 V (insulation distances)

Standard designation	Safety of power supply units up to 1100 V (insulation distances)
Standards/specifications	DIN EN 61558-2-16

Electrical safety

Standard designation	Electrical safety
Standards/specifications	IEC 61010-2-201 (SELV)

Electronic equipment for use in power installations

Standard designation	Equipping high voltage installations with electronic equipment
Standards/specifications	EN 50178/VDE 0160 (PELV)

Safety for measurement, control, and laboratory equipment

Standard designation	Safety for equipment for measurement, control, and laboratory use
Standards/specifications	IEC 61010-1

Protective extra-low voltage

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

Safe isolation

Standard designation	Safe isolation
Standards/specifications	IEC 61558-2-16

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	IEC 61010-2-201
Limitation of harmonic line currents	
Standard designation	Limitation of harmonic line currents
Standards/specifications	EN 61000-3-2

Approvals

UL

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

Identification	UL/C-UL Listed UL 61010-2-201
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ANSI/UL 121201

Identification	PROCESS CONTROL EQUIPEMENT FOR HAZARDOUS LOCATIONS
	(EN) • This equipment is suitable for use in Class I, Division 2, Groups A, B, C and D, Hazardous Locations, or non-hazardous locations only. (FR) • Cet appareil convient uniquement pour une utilisation en atmosphères explosibles de classe I, division 2, groupes A, B, C et D ou en atmosphères non explosibles.
	(EN) • WARNING: Explosion Hazard - Do not connect or disconnect equipment unless power has been switched off or the area is known to be non-hazardous. (FR) • AVERTISSEMENT : risque d'explosion - ne pas connecter ou déconnecter les équipements sauf si l'alimentation a été coupée ou si la zone est réputée non dangereuse.
	(EN) • If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired. (FR) • Si l'équipement est utilisé d'une manière non spécifiée par le fabricant, la protection fournie par cet équipement peut être altérée.
	(EN) • This equipment must be installed in a suitable, tool secured/key locked enclosure. (FR) • Cet équipement doit être installé dans un boîtier approprié, verrouillé par une clé ou dont l'ouverture nécessite l'utilisation d'un outil.

EMC data

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Low Voltage Directive	Conformance with Low Voltage Directive 2014/35/EC
Interference emission	Interference emission in accordance with EN 61000-6-3 (residential and commercial) and EN 61000-6-4 (industrial)
Noise immunity	Immunity in accordance with EN 61000-6-1 (residential), EN 61000-6-2 (industrial)

Conducted noise emission

Standards/regulations	EN 61000-6-3
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Noise emission

Standards/regulations	EN 61000-6-3
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DNV GL conducted noise emissions

DNV	Class A
Additional text	Area power distribution

DNV GL noise radiation

DNV	Class B
Additional text	Bridge and deck area

Harmonic currents

Standards/regulations	EN 61000-3-2
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Flicker

Standards/regulations	EN 61000-3-3
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Electrostatic discharge

Standards/regulations	EN 61000-4-2
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Electrostatic discharge

Contact discharge	6 kV (Test Level 3)
Discharge in air	8 kV (Test Level 3)
Comments	Criterion B

Electromagnetic HF field

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

Frequency range	80 MHz ... 6 GHz
Test field strength	10 V/m (Test Level 3)

Fast transients (burst)

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

Input	asymmetrical 4 kV (Test Level 3)
Comments	Criterion A

Surge voltage load (surge)

Standards/regulations	EN 61000-4-5
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Surge voltage load (surge)

Input	symmetrical 1 kV (Test Level 3)
	asymmetrical 2 kV (Test Level 3)
Output	symmetrical 1 kV (Test Level 2)
	asymmetrical 1 kV (Test Level 3)
Signal	asymmetrical 1 kV (Test Level 2)

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Comments	Criterion B
Conducted interference	
Standards/regulations	EN 61000-4-6
Conducted interference	
Input/output/signal	asymmetrical
Frequency range	0.15 MHz ... 80 MHz
Comments	Criterion A
Voltage	10 V
Voltage dips	
Standards/regulations	EN 61000-4-11
Voltage	230 V AC
Frequency	50 Hz
Voltage dip	70 %
Number of periods	25 periods
Additional text	Class 3
Comments	Criterion A
Voltage dip	40 %
Number of periods	10 periods
Additional text	Class 3
Comments	Criterion A
Voltage dip	0 %
Number of periods	1 period
Additional text	Class 3
Comments	Criterion A

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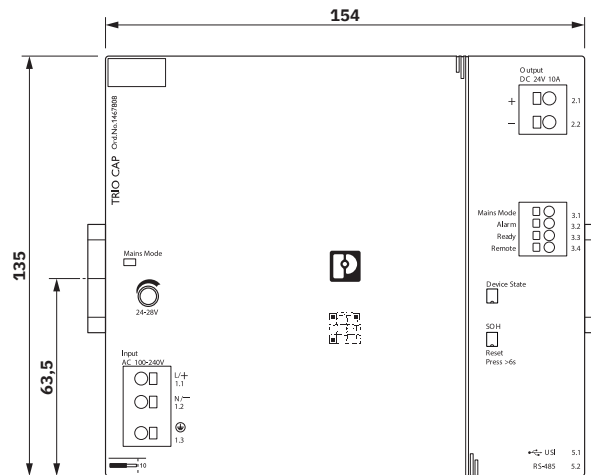


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Drawings

Dimensional drawing



Dimensions, front view (in mm)

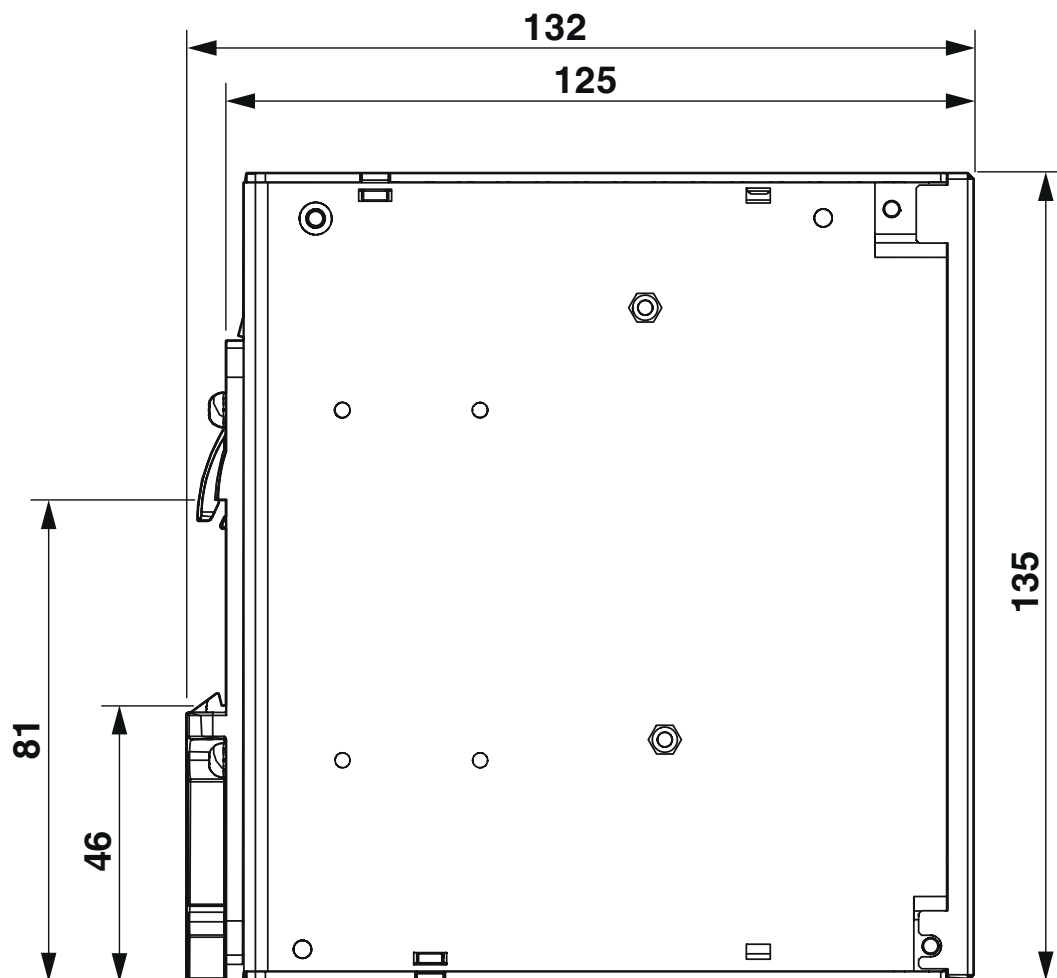
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Dimensional drawing



Dimensions, side view (in mm)

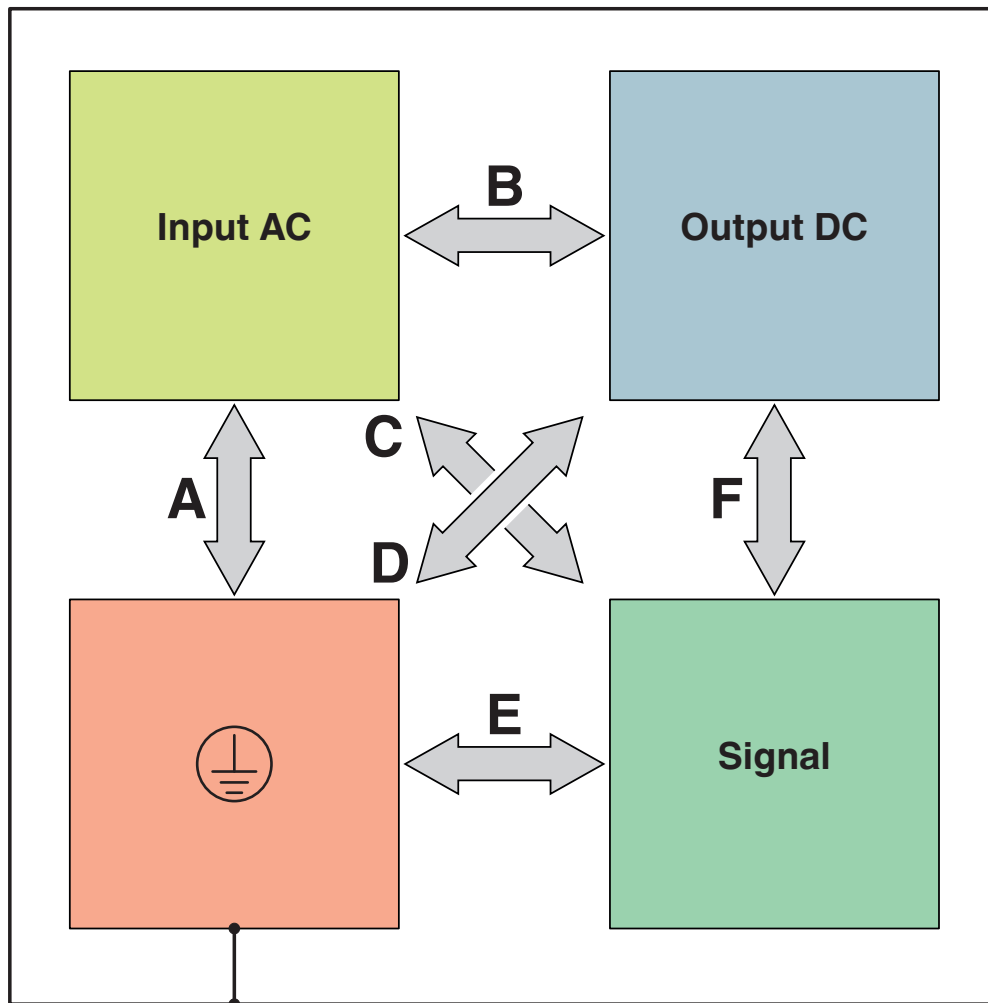
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Schematic diagram

Housing



Test sections, insulation voltage

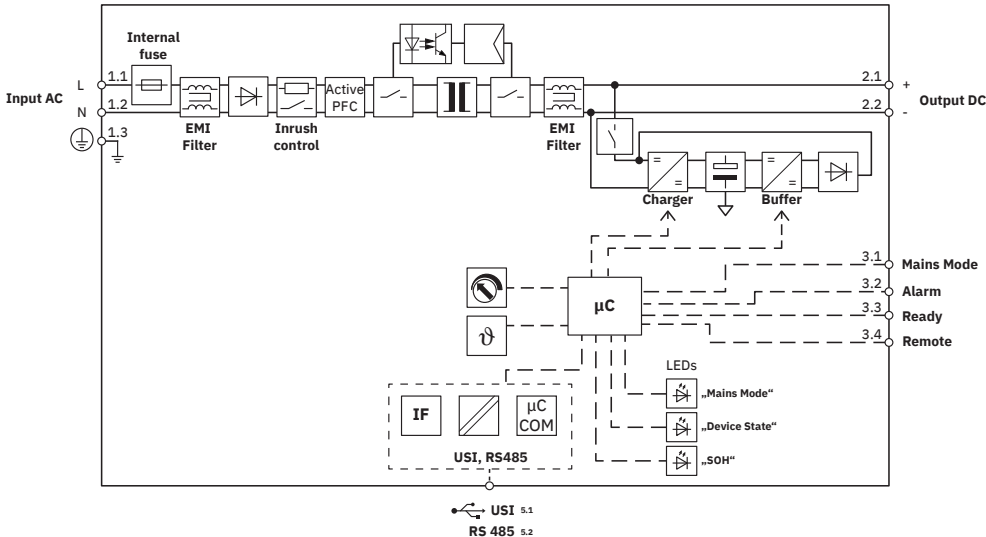
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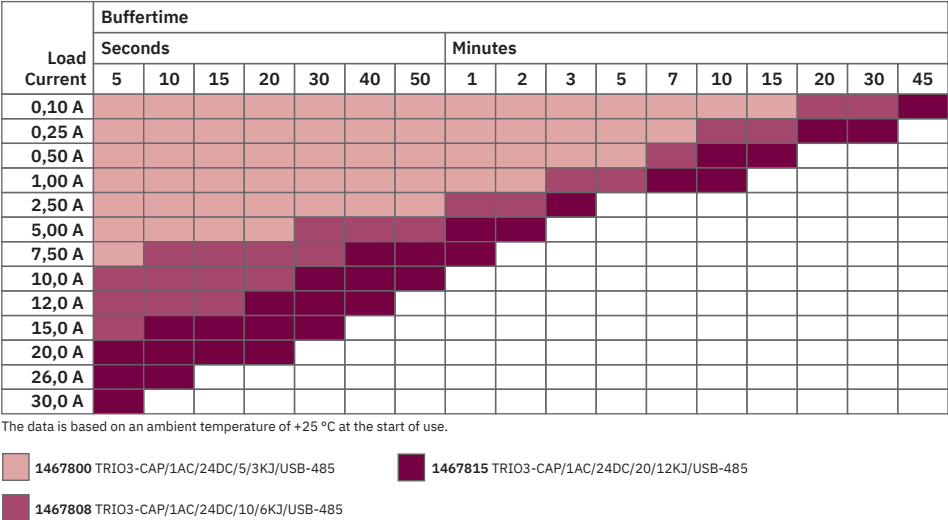
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Block diagram



Block diagram

Graphic



Buffer times TRIO CAP

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Classifications

ECLASS

ECLASS-13.0	27040705
ECLASS-15.0	27040705

ETIM

ETIM 10.0	EC000382
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Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	6(c), 7(a), 7(c)-I

China RoHS

Environment friendly use period (EFUP)	EFUP-25
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.

EU REACH SVHC

REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
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Accessories

TRIO3-CAP/1AC/24DC/20/12KJ/USB-485 - DC UPS with integrated power supply and capacity

1467815

<https://www.phoenixcontact.com/pc/products/1467815>



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UWA 182/52 - Mounting adapter

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.

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SZS 0,6X3,5 - Screwdriver

1205053

<https://www.phoenixcontact.com/pc/products/1205053>



Actuation tool, for ST terminal blocks, insulated, also suitable for use as a bladed screwdriver, size: 0.6 x 3.5 x 100 mm, 2-component grip, with non-slip grip

POTI SEALING PLUG - Sealing plug

1175957

<https://www.phoenixcontact.com/pc/products/1175957>



Sealing plug for protection against manipulation (adjustment of the DC output voltage) by sealing off the potentiometer opening

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PHOENIX CONTACT GmbH & Co. KG

Flachsmarktstraße 8

D-32825 Blomberg

+49 (0) 5235-3 00

info@phoenixcontact.com