STEP-CAP/24VDC/2/0.4KJ - Capacity module

1519633

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STEP capacity module, with maintenance-free energy storage based on double-layer capacitor, DIN rail mounting, input: 24 V DC, output: 24 V DC / 2 A / 0.4 kJ

Product description

The compact STEP DC UPS with integrated capacitor can bridge power failures lasting up to one minute. The space-saving capacity module combines an 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. This ensures high system availability.

Your advantages

- Space savings, thanks to the compact design
- Maintenance-free double layer condensators
- High system availability due to long capacitor service life
- Modular and flexible for various applications: -25°C ... +60°C

Commercial data

Item number	1519633
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	CM20
Product key	CMUSC3
GTIN	4063151987343
Weight per piece (including packing)	313.3 g
Weight per piece (excluding packing)	233 g
Customs tariff number	85322900
Country of origin	IN

Technical data

Input data

Input voltage	24 V DC (SELV)
Input voltage range	23.7 V DC ... 26.5 V DC
Fixed backup threshold	> 23.8 V DC (±2 %)
	< 21.8 V DC (±2 %)
Reverse polarity protection	yes
Current consumption $I_{No-Load}(U_N, I_{OUT} = 0, I_{charge} = 0)$	0.1 A
Current consumption I_{charge} (U_N, $I_{OUT} = 0$, I_{charge} = max)	0.7 A
Power consumption P_N (U_N, $I_{OUT} = I_N$, $I_{charge} = 0$)	50 W
Buffer time	39 s (0.5 A)
	10 s (2 A)
	29 s (0.5 A)
	6 s (2 A)
Charging time	142 s (Pos. A)
	119 s (Pos. B)
Recharging time	71 s (Pos. A)
	51 s (Pos. B)
Inrush current	< 15 A (At an ambient temperature of 20°C)
Internal input fuse	yes (3 A)
Dielectric strength	< 32.5 V DC

Output data

Efficiency	> 95 %
Connection in parallel	yes, for increasing the buffer period
Connection in series	no

Mains operation

Output voltage	24 V DC ±2 % (Mains operation)
Output current I_N	2 A
Output power P_{OUT} (U_N, $I_{OUT} = I_N$)	48 W
Power dissipation No load (U_N, $I_{Out} = 0$, $I_{Charge} = 0$)	1.4 W
Power dissipation Nominal load (U_N, $I_{Out} = I_N$, $I_{Charge} = 0$)	2.3 W
Maximum no-load power dissipation	1.4 W
Short-circuit-proof	yes (with internal 3 A fuse)
Idling-proof	yes

Battery operation

Output voltage	23 V DC ±2 % (Battery operation)
Output current I_N	2 A
Output power P_{OUT} (U_N, $I_{OUT} = I_N$)	48 W
Maximum no-load power dissipation	1.3 W (<0.1 A)
Output current limit	2.4 A ±10 %

Short-circuit-proof	yes
Idling-proof	yes

Energy storage

Input

Nominal capacity	0.4 kJ
Charging current	< 1 A (at 24 V DC)
Charging voltage	2.8 V (Position A)
	2.4 V (Position B)

General

Capacity	0.4 kJ
Energy	270 J (Position B)
	416 J (Position A)
Service life	2.5 Years ... 5 Years (Position A)
	10 Years ... 20 Years (Position B)
Storage medium	Double-layer capacitor
Buffer time	39 s (0.5 A)
	10 s (2 A)
	29 s (0.5 A)
	6 s (2 A)

Connection data

Input

Position	1.x
Identification	1.1 (+), 1.2 (-)

Conductor connection

Connection method	Screw connection
rigid	0.14 mm² ... 1.5 mm²
flexible	0.14 mm² ... 1.5 mm²
flexible with ferrule without plastic sleeve	0.25 mm² ... 1 mm²
flexible with ferrule with plastic sleeve	0.25 mm² ... 1.5 mm²
rigid (AWG)	26 ... 16
Stripping length	6 mm
Tightening torque	0.5 Nm ... 0.6 Nm
Drive form screw head	Slotted L

2-conductor connection

rigid	0.14 mm² ... 0.75 mm²
flexible	0.14 mm² ... 0.75 mm²
flexible with TWIN ferrule with plastic sleeve	0.5 mm² ... 0.75 mm²

Output

Position	2.x

Identification	2.1 (+), 2.2 (-)

Conductor connection

Connection method	Screw connection
rigid	0.14 mm² ... 1.5 mm²
flexible	0.14 mm² ... 1.5 mm²
flexible with ferrule without plastic sleeve	0.25 mm² ... 1 mm²
flexible with ferrule with plastic sleeve	0.25 mm² ... 1.5 mm²
rigid (AWG)	26 ... 16
Stripping length	6 mm
Tightening torque	0.5 Nm ... 0.6 Nm
Drive form screw head	Slotted L

2-conductor connection

rigid	0.14 mm² ... 0.75 mm²
flexible	0.14 mm² ... 0.75 mm²
flexible with TWIN ferrule with plastic sleeve	0.5 mm² ... 0.75 mm²

Signal

Position	3.x
Identification	3.1 (PF), 3.2 (SGnd), 3.3 (SoH)

Conductor connection

Connection method	Screw connection
rigid	0.14 mm² ... 1.5 mm²
flexible	0.14 mm² ... 1.5 mm²
flexible with ferrule without plastic sleeve	0.25 mm² ... 1 mm²
flexible with ferrule with plastic sleeve	0.25 mm² ... 1.5 mm²
rigid (AWG)	26 ... 16
Stripping length	6 mm
Tightening torque	0.5 Nm ... 0.6 Nm
Drive form screw head	Slotted L

Signaling

LED signaling

Types of signaling	LED

Signal state Power Failure

Connection labeling	3.1
Channel	Open collector
Switching contact	Transistor
Output voltage	30 V
Output can be loaded	10 mA
Signal - state assignment	low - active
Reference potential	SGnd
LED status indicator	green

Resistance	10 Ω (at 24 V)

Signal state State of health (SOH)

Connection labeling	3.3
Channel	Open collector
Switching contact	Transistor
Output voltage	30 V
Output can be loaded	10 mA
Signal - state assignment	low - active
Reference potential	SGnd
LED status indicator	red
Resistance	10 Ω (at 24 V)

Signal ground SGnd

Connection labeling	3.2
Switching voltage	0 V
Current carrying capacity	20 mA
Function	Power Failure (PF), State of Health (SOH)
Reference potential	SGnd

Electrical properties

Insulation voltage input, output / housing	500 V

Product properties

Product type	DC UPS with integrated capacitor
Product family	STEP capacity module
MTBF (IEC 61709, SN 29500)	> 500000 h (@ 25 °C)

Insulation characteristics

Protection class	III
Overvoltage category	II
Degree of pollution	2

Dimensions

Item dimensions

Width	80 mm
Height	125 mm
Depth	60 mm

Installation dimensions

Installation distance right/left	0 mm / 0 mm
Installation distance top/bottom	50 mm / 50 mm

Mounting

Mounting type	DIN rail mounting
Mounting position	on horizontal DIN rail NS 35 in acc. with EN 60715

Material specifications

Flammability rating according to UL 94 (housing / terminal blocks)	V0

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-25 °C ... 60 °C
Ambient temperature (storage/transport)	-30 °C ... 70 °C
Maximum altitude	≤ 2000 m
Climatic class	3K3 (EN 60721)
Max. permissible relative humidity (operation)	< 90 % (non-condensing)
Shock	30g, 18 ms
Vibration (operation)	18 Hz ... 1000 Hz (1.14g RMS)

Approvals

Electronic devices in rail vehicles

Shock (operation)	30g, 18 ms, half sine
Vibration (operation)	18 Hz ... 1000 Hz

EMC data

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Interference emission	Interference emission in accordance with EN 61000-6-3 (residential and commercial) and EN 61000-6-4 (industrial)

Electrostatic discharge

Standards/regulations	EN 61000-4-2

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

Electromagnetic HF field

Frequency range	80 MHz ... 6 GHz
Test field strength	10 V/m
Comments	Criterion A

Fast transients (burst)

Standards/regulations	EN 61000-4-4

Fast transients (burst)

Input	2 kV

Output	2 kV
Signal	1 kV

Surge voltage load (surge)

Standards/regulations	EN 61000-4-5

Surge voltage load (surge)

Input	symmetrical 0.5 kV
	symmetrical 1 kV
Output	symmetrical 0.5 kV
	asymmetrical 1 kV
Signal	asymmetrical 1 kV
Comments	Criterion B

Conducted interference

Standards/regulations	EN 61000-4-6
Typical deviation from the measuring range final value	80 %

Conducted interference

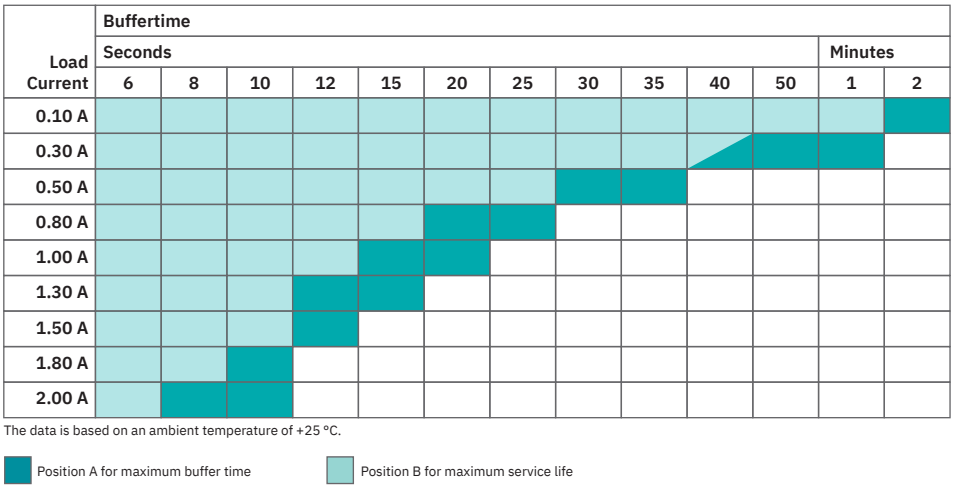
Frequency range	150 kHz ... 80 MHz
Comments	Criterion A
Voltage	10 V

Criteria

Criterion A	Normal operating behavior within the specified limits.
Criterion B	Temporary impairment to operational behavior that is corrected by the device itself.
Criterion C	Temporary adverse effects on the operating behavior, which the device corrects automatically or which can be restored by actuating the operating elements.

Drawings

Graphic



Buffer times for STEP-CAP

Classifications

ECLASS

ECLASS-13.0	27040705
ECLASS-15.0	27040705

ETIM

ETIM 9.0	EC000382

UNSPSC

UNSPSC 21.0	39121000

Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	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)
SCIP	e51fbe43-fedd-4971-a6e7-856a84198cb2

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