

Technical data sheet · DC UPS battery management system PRO

DC UPS battery management system PRO
250 W



Identification	Type	L-COPS-B1-BM-250-24
	Part-No.	723011

Use/Area of application	Active PFC wide range Extensive protective measures such as short circuit/no-load proof, overvoltage and overtemperature Very low standby power and equally high effectiveness over the entire entrance area no inrush current Patent protected, highly efficient ACS battery charging and diagnostic method (ACS: Adaptive Current Step) Thermal battery management incl. cyclic monitoring – prevents thermal runaway Maximum battery charging current adjustable Deep discharge protection (residual discharge current < 300 µA) electronic battery short-circuit protection Suitable for VDS applications Absence of feedback on energy sources Fault diagnosis (battery temperature, ageing, cable break, etc.) Signalling via LEDs, relays
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Input	
Nominal voltage	AC 120 V / 230 V
Operation voltage range	AC 85 V – 276 V, short-time < 1 sec. AC 60 V – 300 V, DC 130 V – 350 V, (TN-S, TN-C, TT, IT networks)
Line frequency	47 – 65 Hz
Rated current	$U_i = AC 230 V: 4 A / U_i = AC 120 V: 9 A$

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Inrush current	no inrush current (active limit: start-up by means of ramp)
Internal fuse	T10 A / AC 250 V
External fuse	additional fuse not necessary
Power Factor Correction P.F.C.	> 0.98 (active)
Over voltage protection	Varistor 4.5 kA, 71 J

Output

Rated voltage output	DC 24 V
Rated current output	DC 10 A
Voltage trim range	22.5 V – 28.8 V
Load control (static)	10 % – 90 %: < 0.05 % (type 0.05 %)
Load control (dynamic)	10 % – 90 %: < 5 %
Response time	< 1 ms
Change of input	< 0.2 % (type 0.02 %)
Temperature drift /K	-25 °C – 70 °C: < 1 %, (type 0.5 %), 0 °C – 60 °C: 0.4 %
Rise time	10 % – 90 %: < 50 ms
Ripple	< 50 mV pp
Switching peaks (20 MHz)	< 100 mV pp
Hold up time	UPS

Current limit behaviour

Rated over load protection	In the case of an overload, the buffer battery is switched to the power supply (I=const.)
Short-circuit protection	Locking electronic deactivation of the battery path (if I _{out} > I _{nom} × 2.05)

Supported load circuit voltage (battery operation)

Output voltage	Battery voltage (Attention – note configurable switch-off threshold)
Deep discharge protection	Signal thresholds or threshold values are individually adjustable via interface Early warning: type DC 21.0 V, switch-off threshold type DC 19.2 V buffer time threshold: 10 s to infinity
Reverse battery protection	Electronic isolation switch
Battery charge	Temperature is controlled by means of an external sensor, emergency operation if sensor is not connected
Battery charging current	see table
Note	Important note: Apart from the output power for supplying the load, the power supply unit integrated in the battery management must also be provided for the charging power, which is needed by the battery. The L-COPS battery management system has been designed to be able to provide the nominal output power for supplying the load and as well as the nominal charging current for supplying the battery under normal operating conditions (s. table 1). If a higher charging current is configured than the nominal value, care must be taken to ensure that the power requirement of the load is reduced accordingly (in case of doubt, an L-COPS variant with a greater power supply unit should be chosen).

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Calculation of the charging capacity

$$P_{\text{change}} = U_{\text{out}} \cdot I_{\text{change}}$$
$$P_{\text{change}} = 30 \text{ V} \cdot 2 \text{ A} = 60 \text{ W}$$
$$P_{\text{change}} = 30 \text{ V} \cdot 4 \text{ A} = 120 \text{ W}$$

EMC (electromagnetic compatibility)

HF emission	EN 55011, class B
Primary side current harmonics	EN 61000-3-2
Discharge of static capacity	EN 61000-4-2, 4/8 kV, criterion B
Electromagnetic HF field	EN 61000-4-3, 10 V/m, criterion A
Burst	EN 6100-4-4, 2 kV/1 kV, criterion B
Surge	EN 61000-4-5, 1 kV sym/2 kV unsym., criterion B
Conducted HF influence	EN 61000-4-6, 10 V
Voltage interruptions	EN 61000-4-11, mains buffering > 20 ms

General

Operation temperature range	-25 °C – 50 °C, 70 °C: from 50 °C: derating 1.5 %/°C	
Cooling	Air convection	
Storage temperature range	-40 °C – 85 °C	
Humidity	100 %, condensation allowed (coated circuit boards)	
Vibration acc. IEC 68-2-6	10 Hz – 150 Hz, 0.15 mm or 2g, 90 min in resonance	
Shock acc. IEC 68-2-27	30g for 18 ms in three spatial directions	
Pollution degree	2 acc. EN 50178	
Climate class	3K3 acc. EN 60721	
Installation position	Horizontal on all mounting rails acc. EN 60715	
Clearance above	> 80 mm	
Clearance at the side	> 3 mm	
Connection cross-sections		
	Mains supply	Plug-in screw terminals, 0.2 – 2.5 mm ² , flexible, rigid
	Load, battery	Plug-in screw terminals, 0.25 – 4 mm ² , flexible, rigid
	Signal	Plug-in screw terminals, 0.5 – 2.5 mm ² , flexible, rigid
Dimensions (w × h × d) in mm	98.0 × 139.0 × 130.0	
Weight (kg/piece)	1.600	
Electrical safety	UL 508, EN 60950, UL 60950, EN 50178	
Insulation voltage	Input/output: 3 kV, individually checked output/housing: 500 V	
Protection class	IP 20	
IP rating	Class 1, with PE connection	
M.T.B.F.	>1000000 h, IEC 1709 (SN 29500)	

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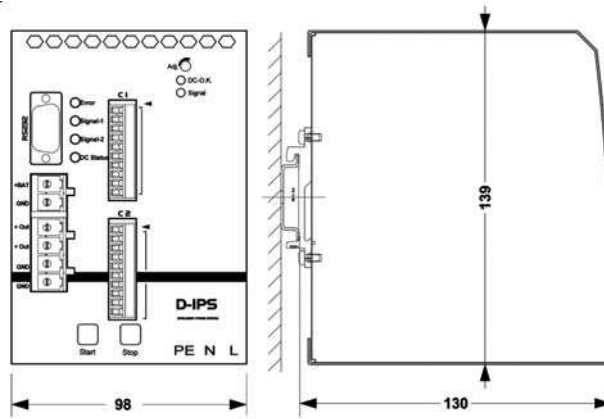


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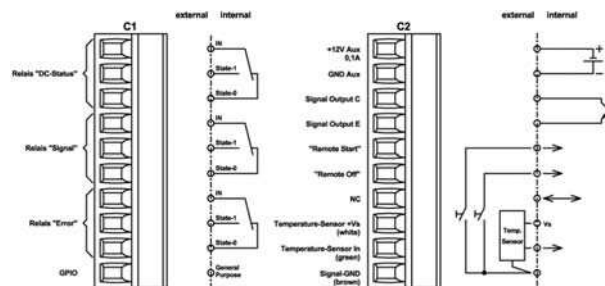
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Efficiency	approx. 91 %	
No-load power	type 3.5 W	
Own consumption	type 1.5 W	
Battery residual discharge current	type 300 µA (deep discharge protection, battery disconnected from load)	
Signalling		
Signalling	Mains supply	green: 90 % – 110 % from the set value, red: overload
Signal outputs	Battery MM	4 LEDs (green, 2 x yellow, red)
Remote start/OFF	3 potential free relays with one changeover each (DC 30 V, 1 A)	
Temperature sensor	Battery support of the load can be activated/deactivated by means of control cable in the absence of mains supply	
	Connection of an analogue, active temperature sensor	

Dimensions



Signal connection



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