



12V - 6A / 24V - 5A

ABC Series - Smart Battery Charger

ABC120M1224S - Smart battery charger and tester for Lead Acid, NiMH, NiCd, and Li-Ion batteries. Very flexible and suited to the most demanding applications.

Dual use: Power supply and/or Battery charger, all in one box. Fully resonant configuration for the highest efficiency.

- Selectable Output Voltage, 12 Vdc or 24 Vdc
- Wide input voltage range AC and DC
- Adjustable maximum battery charging current
- Universal charging output, selectable battery types
- External digital sensor for Temperature compensation
- Extensive BATTSAFE battery management firmware
- Full set of protection and monitoring functions
- Local monitoring and diagnostics on LEDs
- Remote alarm via voltage-free relay contact
- Data Link on **MODBUS RTU**

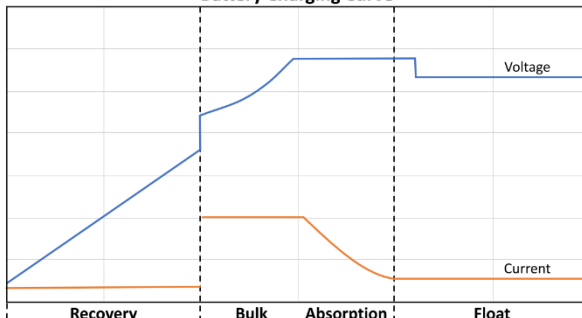
Norms and certifications

Compliance	Electrical safety	EN IEC 62368-1, UL1236, DIN41773
	EMC	Emission: IEC 61000-6-3 Immunity: IEC 61000-6-2
Declaration of Conformity	CE, UKCA	

Battery Management

Charging Curve	3 stages (IUoU) + Recovery							
Rated Voltage	12 Vdc				24 Vdc			
Charge Current setting min/max	0.6 A / 6.0 A				0.5 A / 5.0 A			
Battery Type, selectable by dipswitch	Lead Acid		Other		Lead Acid		Other	
	AGM	GEL	Li-Io, Li-PoFe	NiCd/Ni-Mh	AGM	GEL	Li-Io, Li-PoFe	NiCd/Ni-Mh
Boost Voltage	14.4V		14.6V	13.1V	28.8V		29.2V	26.1V
Float Voltage	13.6V	13.8V	13.8V	12.8V	27.2V	27.6V	27.6V	25.6V
	2-10V				2-20V			
Recovery Charge	14.75 Vdc				29.50 Vdc			
Time Boost-Bulk Charge (Typ. IN)	min 5 s, max 15 h							
Fast charge voltage	Enable/Disable by dipswitch							
Power supply mode	Enable/Disable by dipswitch							
Float/Rest	Enable/Disable by dipswitch							
Quiescent current	≤ 5 mA or 0 mA if Vbat < 26.0V							

Battery Charging Curve



Technical Data

Input	
Rated Input Voltage AC	115/230/277 Vac (range 85-305 Vac)
Frequency Range	50/60 Hz (range 47-440 Hz)
Input Current AC (Typ.)	1.9 A (115 Vac), 1.0 A (230 Vac)
Rated Input Voltage DC	110/220 Vdc (range 110-420 Vdc)
Input Current DC (Typ.)	1.3 A (110 Vdc), 0.7 A (220 Vdc)
Inrush Current (Typ. Cold Start)	≤ 16 A @ t ≤ 5ms
Recommended External Fuse/MCB	10 A, curve B

Output	
Output Voltage (U _{out}) in Power supply mode	13 Vdc 26 Vdc
Voltage Range, Automatic Set in Charge mode	12-14.4 Vdc 24-28.8 Vdc
Rated Current (I _o)	6 A 5 A

Outputs for Alarm and Diagnostics Signals			
Dry contact	Change-over relay contact		
LEDs	N. 2, Three-color LEDs, flashing code		
Data Link	MODBUS RTU		

Protection - Alarms	Fault LED	Battery LED	Change-over contact
Reverse Polarity Protection	1 pulse	Red	OFF
Disconnected Battery	2 pulses	Red	OFF
Wrong Battery Voltage Protection	3 pulses	Red	OFF
Cell-In Short Circuit	4 pulses	Red	OFF
Low Battery Voltage	5 pulses	Red	OFF
Overload or Short Circuit Protection	1 pulse	Green	OFF
Thermal Protection	Red	Green	OFF
Device fault	Red	Green	OFF
Over Voltage Protection < 35 Vdc	Red	-	OFF
Power Supply mode	Green	Yellow/Red	OFF
Mains disconnection	-	-	OFF

Battery Monitoring	Fault LED	Battery LED	Change-over contact
Power Initializing	Yellow	Green	ON
Battery charged, Float	Green	Green	ON
Charging battery Recovery	Red	Yellow	ON
Charging battery Bulk	Green	Yellow	ON
Charging Absorption	Green	Yellow	ON

Climatic Data	
Operating Ambient Temperature (T _a)	-25 up to +70 °C
Relative Humidity, no condensation @ 25°C	max 95%
Storage Temperature	-40 up to +85 °C
Cooling	Natural Convection

General Data	
Efficiency (Typ.)	>90% >92%
Temperature Auto-Derating Factor	2.5 %/°C, T _A > 50°C
Altitude Derating Factor ¹	0.5°C/100 m, above 2000 m
Insulation Voltage (In/Out)	4 kVac
Insulation Voltage (In/PE)	2 kVac
Insulation Voltage (Out/PE)	500 Vdc
Insulation Resistance (500 V)	> 100 MΩ
Protection Class (EN/IEC 60529)	IP 20
Pollution Degree Environment	2
Protection class (EN/IEC 61140)	I with PE connected
Reliability: MTBF IEC 61709	> 300.000 h

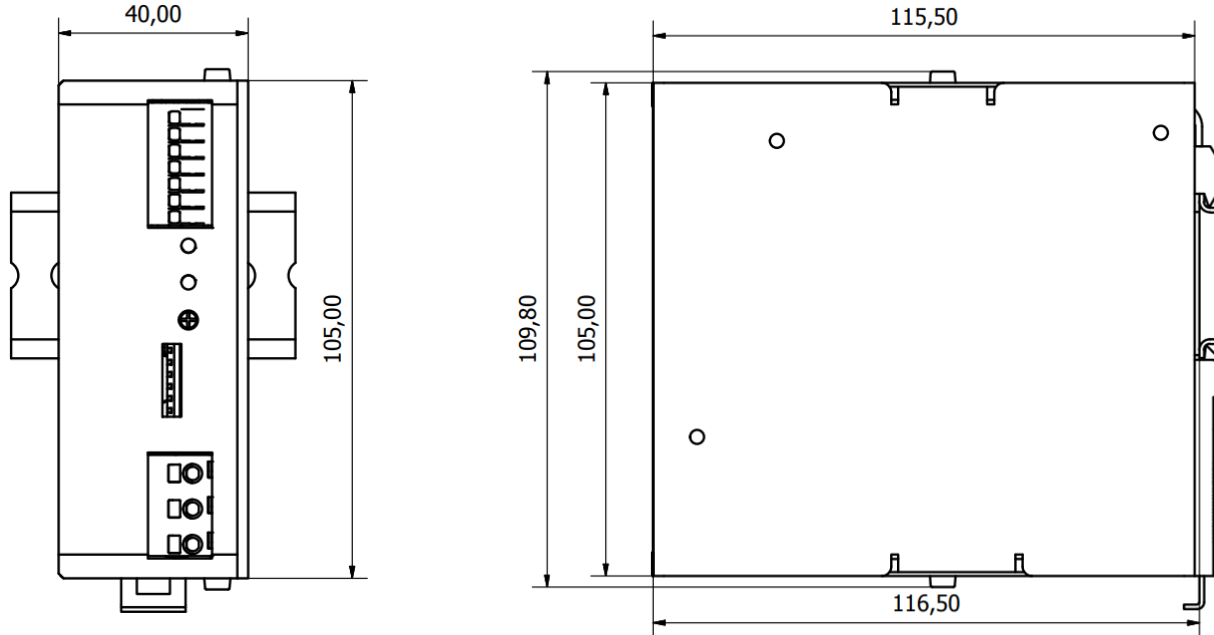
Mechanical Data

Input Terminal Blocks	Push-in type, 2.5 mm ² (10 AWG)
Output Terminal Blocks	Push-in type, 1.5 mm ² (15 AWG)
Signal Terminal Blocks	Push-in type, 1.5 mm ² (15 AWG)
Casing material	Aluminum
Mounting Position	Vertical
Mounting Clearance	10 mm on both sides
Dimensions (W x H x D)	40 x 105 x 116 mm
Weight	0.35 kg

Commercial data

Dimensions and Volume per unit, including packing (W x H x D)	50 x 120 x 130 mm - 0.0008 m ³
Custom Tariff	85072080
Country of origin	Italy
Weight, including packing	0.42 kg

Drawings



Connections

