

## 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 CANBUS port J1939

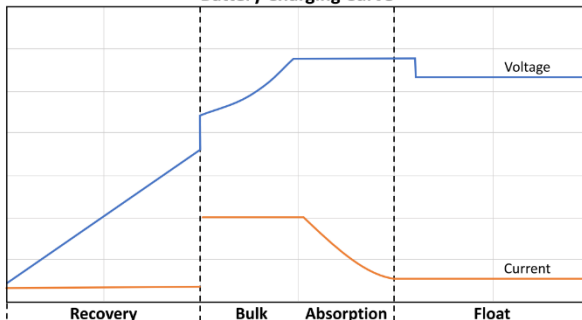
### Norms and certifications

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
Recovery Charge	2-10V				2-20V			
Voltage max	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

<b>Input</b>	
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

<b>Output</b>	
Output Voltage (U <sub>out</sub> ) 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 <sub>o</sub> )	6 A      5 A

<b>Outputs for Alarm and Diagnostics Signals</b>			
Dry contact	Change-over relay contact		
LEDs	N. 2, Three-color LEDs, flashing code		
Data Link	CAN port CanBus J1939		

<b>Protection - Alarms</b>	<b>Fault LED</b>	<b>Battery LED</b>	<b>Change-over contact</b>
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

<b>Battery Monitoring</b>			
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

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

<b>General Data</b>	
Efficiency (Typ.)	>90%      >92%
Temperature Auto-Derating Factor	2.5 %/°C, T <sub>A</sub> > 50°C
Altitude Derating Factor <sup>1</sup>	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

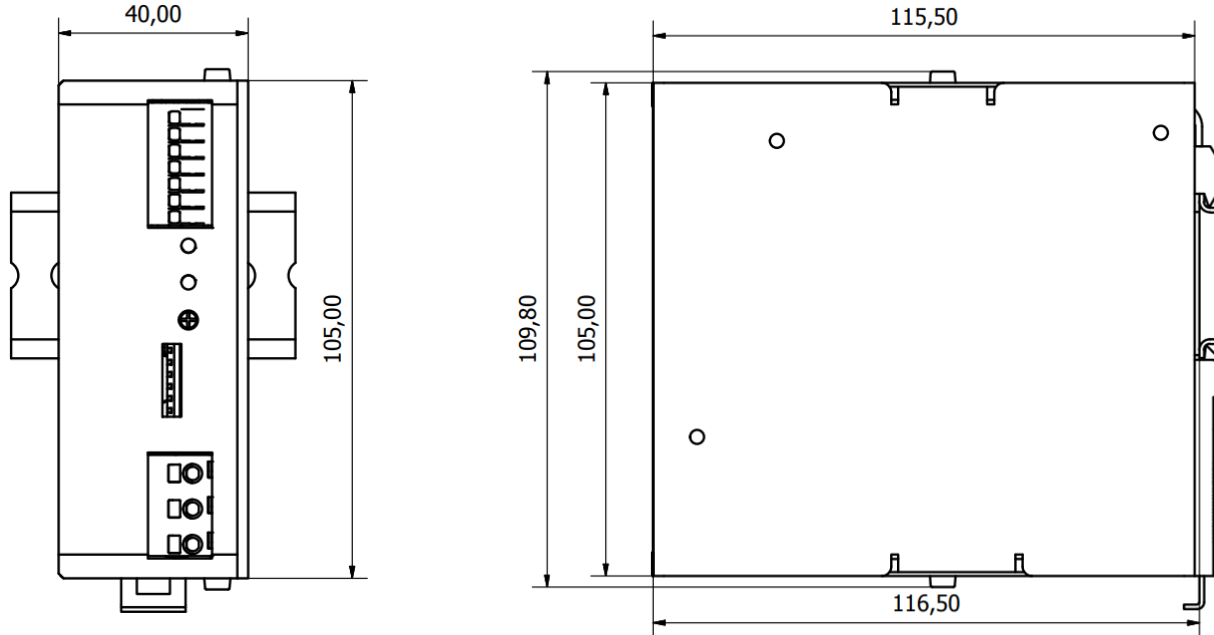
### Mechanical Data

Input Terminal Blocks	Push-in type, 2.5 mm <sup>2</sup> (10 AWG)
Output Terminal Blocks	Push-in type, 1.5 mm <sup>2</sup> (15 AWG)
Signal Terminal Blocks	Push-in type, 1.5 mm <sup>2</sup> (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 <sup>3</sup>
Custom Tariff	85072080
Country of origin	Italy
Weight, including packing	0.42 kg

### Drawings



### Connections

