**SmartCharge DC 120-LC** hybrid automatic battery chargers provide a cost effective solution to most industrial battery charging requirements.

Utilising the latest high efficiency switch-mode technology and micro-processor control, the SmartCharge DC 120-LC is suitable for charging most sealed or flooded batteries and is easily calibrated by the end user to suit the battery type. The multi-stage intelligent charging characteristic ensures accurate and efficient battery charging and is designed for permanent connection to the batteries maintaining them in a fully charged condition without overcharging.

The SmartCharge DC 120-LC is fully protected against overload, reverse input polarity, reverse battery connection, over voltage and over temperature.

**INPUT SPECIFICATION**

<table>
<thead>
<tr>
<th>Voltage range, $V_{IN}$</th>
<th>34 - 67V DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input current</td>
<td>2.8A @ 48V DC</td>
</tr>
<tr>
<td>Inrush current</td>
<td>5.0A @ 48V DC</td>
</tr>
</tbody>
</table>

**OUTPUT SPECIFICATION**

- **Voltage / Current**: 12.0V Nominal 10A
- **Ripple and noise**: ±0.5%
- **Line regulation**: ±0.5%
- **Load regulation**: ±1.0%
- **Efficiency**: Up to 89%
- **Overload protection**: Constant current limit
- **Over temp. protection**: Output shutdown with automatic recovery
- **Reversed battery protection**: Automatic protection. Disabled when in PSU mode.

**ALARMS AND LEVELS**

- **DC output voltages**: Float = Factory set to 13.8V. Boost (Bulk/Absorb) = Float Voltage +4%.
- **AC / charger fail**: Loss of DC input or DC output voltage control
- **Low DC voltage alarm**: Float voltage -12% alarm, -8% Reset
- **High DC voltage alarm**: Float voltage +7% alarm, +5% Reset
- **Over voltage protection**: 16V Instantaneous lockout
- **Battery disconnected**: Open circuit on DC output (Disabled in PSU mode)

**APPLICATIONS**

- Hybrid power generators
- Engine driven battery chargers
- Hybrid assist power systems
- DC lighting towers

**FEATURES**

- Cost effective
- Micro-processor control
- Small footprint & compact size
- DIN rail mounting
- Automatic multi-stage charging
- Continuously rated
- Protections:
  - Input polarity
  - Short circuit and overload
  - Over voltage
  - Over temperature
  - Reverse battery
- Low ripple output
- Naturally cooled
- Simple calibration procedure
- Comprehensive alarm monitoring
- Fail alarm contact set

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**ISOLATION**

Withstand voltage  
Input - Output, Input - Earth 1.5kV AC

Isolation resistance  
Input - Output, Input - Earth, Output - Earth 500V DC / 100M Ohms

**ENVIRONMENTAL SPECIFICATION**

Working temperature  
-10ºC to +50ºC

Working humidity  
20 - 90% RH

Storage temperature  
-20ºC to +85ºC

Storage humidity  
10 - 95% RH

Unpacked weight  
0.8 kgs

**FINISH**

Aluminium / RAL9005 black fine texture

**FAIL ALARM RELAY CONTACT SET (OPTIONAL)**

Volt-free form C relay contact set for signalling of a fault alarm condition. The relay contacts de-energise 60 seconds after a fault occurs. The over voltage protection shutdown alarm de-energises the contacts instantly.

**ORDERING INFORMATION**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>DC output</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAS 481012R</td>
<td>12V 10A</td>
</tr>
</tbody>
</table>

**TERMINATION**

DC input and DC output: Connections terminate to rising clamp screw terminals and will accept 2.5mm² stranded cable.

Fail alarm: Connections terminate to rising clamp screw terminals and will accept 2.5mm² stranded cable.

Connector ‘C1’ (signals): Pins 7 and 8 should be linked when the charger should also function as a PSU.

NOTE: Reverse battery and battery disconnected alarms are disabled in PSU mode.

The remaining pins are for expansion modules, communication interfaces, firmware upgrade etc. and should not be used.

**GENERAL ARRANGEMENT**

Top-hat din rail mount. Optional brackets for screw fixing.

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