M-RD Series Harsh Environment Charger

DESCRIPTION

- Specially designed Charger / Power Supply for very harsh environmet.
- Waterproof and shock resistent, IP64.
- To be mounted in vehicles, marine vessels, containers, military camps, remote areas, remote platforms
- 1 to 4-channel charger output
- Adaptable for different battery types, like: Lead-Acid flooded or sealed, open NiCd, high-power Lithium Ion.
- Natural convection
- Latest MosFET technology
- 230VAC or 110VAC
- Custom designed charging algorithms are available.

ELECTRICAL CHARACTERISTICS	
Input voltage:	230VAC (standard) 110VAC (option)
Output voltage:	Nom. 12V, 24V, 48V, or 72V. Individual ouput of each channel available.
Output current:	From 17Amp to 60Amp. Depending on M-RD models.
Operating mode:	[1)] 3-step charging algorithm, [2)] as power supply, [3)] Mix of Channels & set-up's
Operating temperature:	-30°C to +55°C. At 70°C the output will be ≤50%.
Fuses:	AC: 1 x 6,5A / DC: 4 x 20A
Storage temperature:	-55°C to +85°C

ENVIRONMETAL SPECIFICATIONS	
Humidity:	0 – 100% RH
Splash:	Yes, IP64
Pressure wash:	Yes, IP64
Desert dust:	Yes, IP64
Mechanical vibration:	Power modules, 40G. Pottet. / IEC 60068-2-6

MECHANICAL SPECIFICATIONS	
Case material:	10mm aluminium. Stainless steel screws, handles and PG strain reliefs
Power modules:	Injection moulded aluminium.
Potting material:	Polyurethane.
DC power cables:	5 x 16mm^2 / "High Flex" red / black
AC power cable:	Black rubber, 3 x 1,5mm^2
Dimensions:	310mm x 240mm x 320mm
Weight:	16,5kg
Color:	Army green RAL6003 / Navy blue RAL5013. Other RAL colors available on request.
Finish:	Powder coating

APPROVALS
In accordance with: EN60335-1/EN60335-2/EN55014/EN55104/EN60552-2/EN60553-3 CE-marked.

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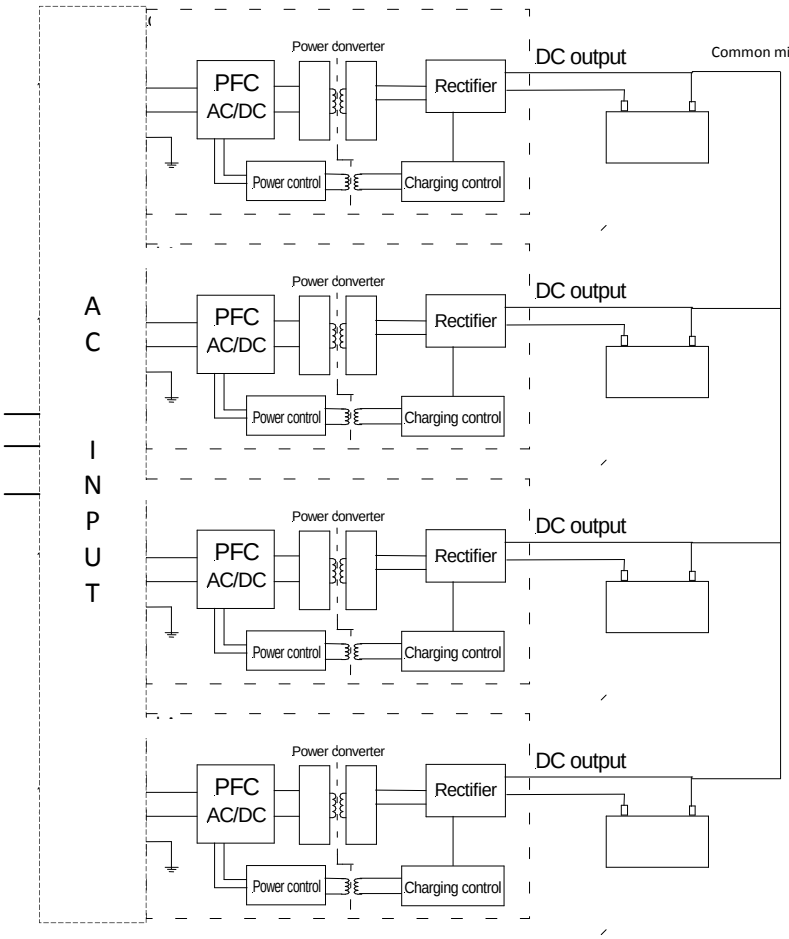
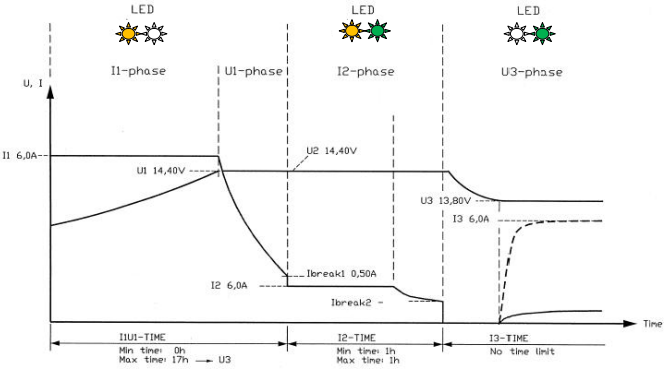
This M-RD product is a high efficient , intelligent and very compact battery charger unit. Most flexible solution for a compact charger working in a very harsh environment and it can be set up to operate as 4 independent units / chanels or as one central power unit, to obtain very high charging current or as a power supply. It can charge all kind of today known battery technologies, lead-acid, NiCd industrial, NiMH industrial and Lith.Ion high power. It is a switch mode design and includes the latest component and technology in power conversion. The internal electronics controls the charging phases and they are monitored and adjusted continuously during the charging process.

The AC input voltage is feed through a passive PFC stage and converted into a DC voltage of approx. 400V. A high frequency switch into a low DC voltage and does the power conversion. This voltage is controlled by the internal electronics and rectified to a correct charging voltage on output..





Charging algorithm

The charging in standard settings is indicated as follows: Step 1, the bulk phase is indicated with the yellow LED. This indication is kept through step 2. When the current is below 10% of the maximum output the charger goes into step 3 and the green LED is lit up. After approx 2 hours the yellow LED is turned off and the second green LED is turned on as long as the charger is connected to mains. In parallel load of some reason reduce the voltage level below the nominal value during maintenance charge, the charger goes back into step 1 and indicates that as stated above. If current does not reach under 10% of the current I1, the charger will enter step 4 on time conditions. This will be indicated with a second green LED on front panel. The maximum time in step 2 is set to 16h.

Settings:

Output	Min voltage	Typ voltage	Max voltage
12V nom.:	14,3/13,5	14,4/13,7	14,5/13,9
24V nom.:	28,5/26,8	28,8/27,5	29,0/27,9
48V nom.:	58/52	60/54	61/55
72V nom.:	88/80	90/81	92/85

Lithium Ion: CC/CV / Set-up according to cell spec.