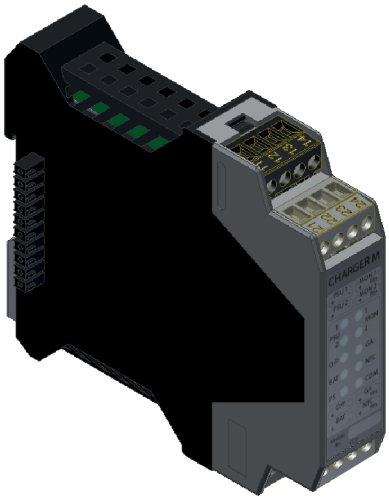

G000265

Charger M H

Part no. 5100062-01A

System: TERRA FIRE

General Description

Charger M provides power to the system through the Backbone Bus.

It connects directly to a power supply and the power supply units.

By using dual Charger M modules, it is possible to replace one Charger M module without powering down the system.

For details on assembling a system and definitions of common system terms, refer to the Installation Manual.

Data

PSU input	28 VDC
Operating voltage range	19-30 VDC
Current consumption (at 24 V, battery supply only)	43 mA
Max. output current	8 A
Cable terminals	2.5 mm^2
NTC resistor	10 kΩ 2%, B=3977, 3×3
GA input resistor	10 kΩ
Operating temperature range	-5 °C to +55 °C
Weight (with housing)	140 g ± 5%
Spare part no. (without housing)	5100061-03A
Certified according to	CE 09 2531-CPR-232.1686 DOP no. 6301900

Settings

The module is identified by a physical address on the Backbone Bus. The address and power setup is set with a 10-pole DIP switch SW1.

The charging characteristic can be set on the Charger M using a second DIP-switch SW2.

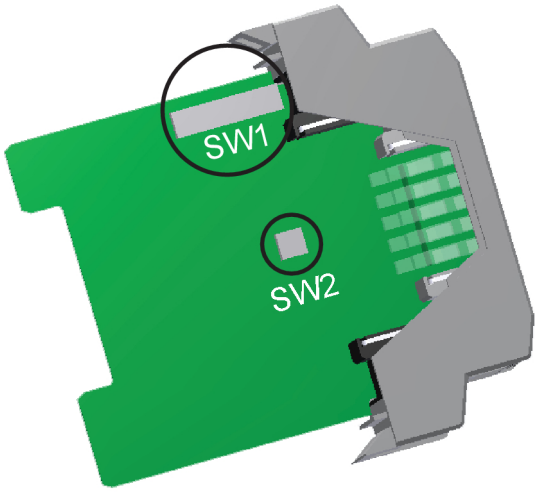

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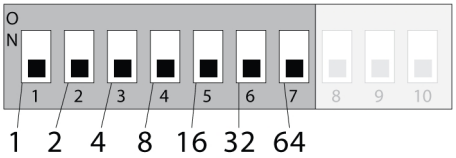
Figure 1. Location of switch SW1 and switch SW2 on the PCB.

DIP Switch SW1

Setting the address switch

The DIP switch SW1 value follows the binary system. The address no. can be set using the DIP-switch pole 1 to 7. The address selected on the DIP-switch must correspond to the settings in the configuration program.



Setting the power switch

Table 1. SW1 DIP pole 8 to 10

DIP SW1 No.	Description	ON	OFF
8	Power to Backbone Bus channel 1	Deactivated	Active
9	Power to Backbone Bus channel 2	Deactivated	Active
10	Power output	Default active	Programmable

NOTE!
If DIP-switch pole 10 is used the output will always be active. In this case the output must be set to "not used" in the configuration program to avoid a configuration fault in the system.

Example 1: One Charger M in the system
= 8 + 9 OFF

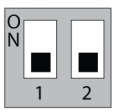
Example 2: Two Charger M in the system
Charger M no. 1 = 8 OFF, 9 ON
Charger M no. 2 = 8 ON, 9 OFF

DIP Switch SW2

Setting the charging characteristic

The Charger M has a 2-pole DIP switch SW2 for setting battery charging characteristic. The setting shall correspond with chosen battery size/capacity.

Table 2. SW2 DIP pole 1 and 2

DIP SW2 No.		Max. Battery Size [Ah]	
1	2		
ON	ON	0-12	
OFF	ON	12-24	
ON	OFF	Not allowed	
OFF	OFF	Not allowed	

NOTE!
It is very important that the charging characteristic is set correctly. An incorrect setting may cause over- or undercharging, and may also lead to power supply overload.

Redundancy

It is possible to connect two charger modules on the same bus, feeding the system modules from both sides. When this power method is used, one of the power lines out from the charger module is disabled making each charger module feed one of the two bus power lines (see Table 1). This gives a power redundancy on the bus in those cases the charger module itself breaks down.

If this power redundancy method is used the earth supervision must be disabled on one of the Charger M by removing the jumper from the PCB according to the following illustration.

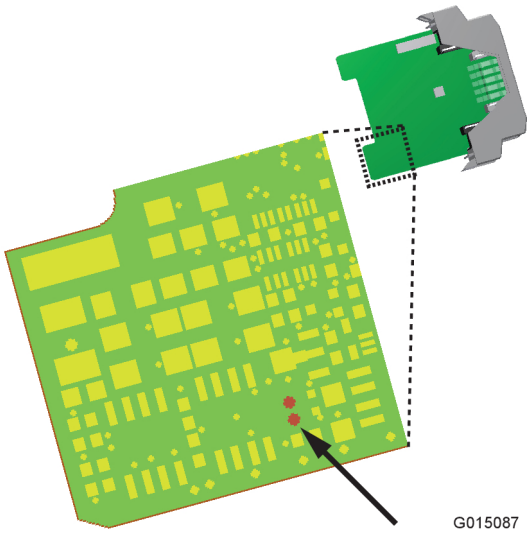
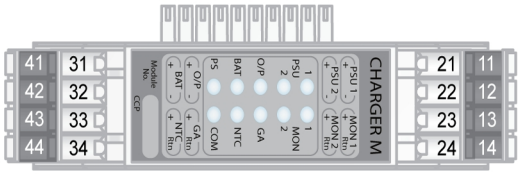


Figure 2. Location of the jumper on the PCB

Connections



CHARGER M X
ADDRESS: NUMBER

1	2	3	4	5	6	7	8
PSU 1	MONITORING PSU 1/MAINS	PSU 2	MONITORING PSU 2/EMCY	POWER OUTPUT *	GENERAL ALARM (MORSE)	BATTERY	NTC RESISTOR
+ -	+ Rtn	+ -	+ Rtn	24V + * A -	+ Rtn	+ -	+ Rtn
11 12	13 14	21 22	23 24	31 32	33 34	41 42	43 44

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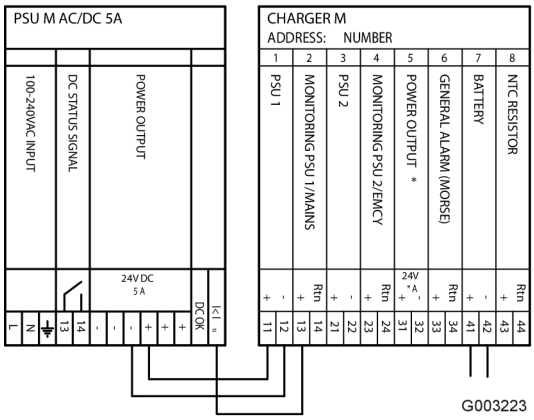
*Note: Max power output depends on PSU capacity and BB load.

Connection to PSU M AC/DC 5A

An example of installation with PSU M AC/DC 5A and Charger M.

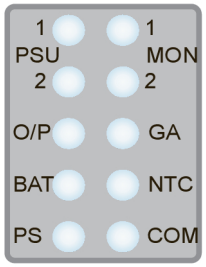


*Note: Max power output depends on PSU capacity and BB load.

Technical Information

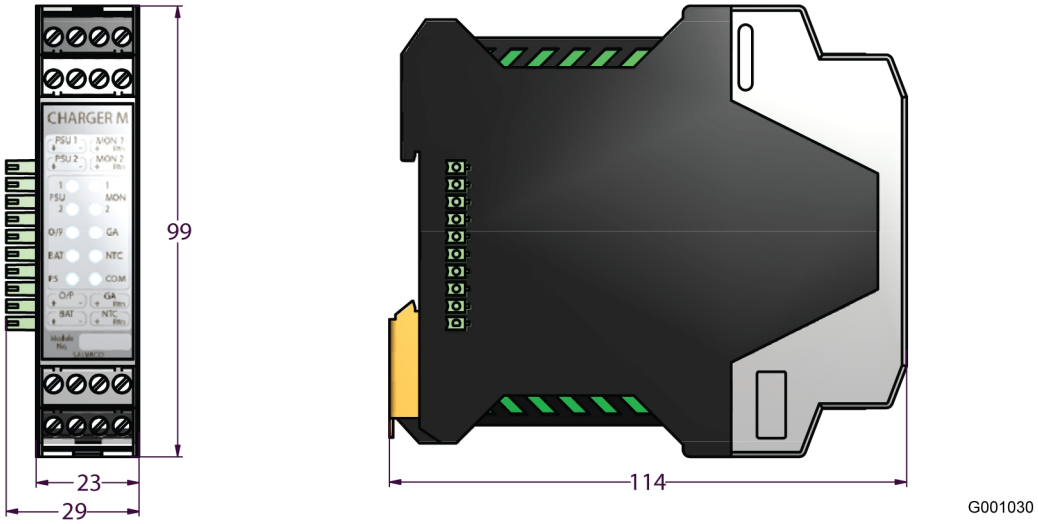
- Charger M adjusts its charging parameters depending on ambient temperature which is monitored by the external NTC resistor. This allows full capacity of rechargeable batteries in a wide temperature range with optimal performance ensured between -5 °C and 40 °C.
- The Charger M external NTC thermistor shall be located on the battery holder, or as close as possible to the battery (not directly on battery) to monitor temperature, enabling correct charging characteristics.
- Batteries connected to the Charger M must be of the type **Valve regulated lead acid batteries (AGM)**.
- The Charger M is not designed to charge batteries that have been discharged too deeply. In this case, replace the battery or charge it separately with a charger designed for this purpose.
- When battery charging is enabled, the Charger M outputs will be shut off if the battery voltage falls below 21 VDC (+/- 0.5 V) during the absence of power to PSU 1 or 2. However, the Charger M will stay in standby mode and require approximately 25 mA which will slowly drain the battery further.
- **NOTE!**
  If the Charger M stays in standby mode for more than 1 hour, physical battery disconnection becomes mandatory. This prevents draining the batteries to a voltage level too low to recharge them when main/emergency power is reestablished.
- General Alarm (Morse):
  The GA-Morse input supplies 24 V DC to the GA signal in the internal backbone (BBI) via hardware driver circuits. Note that GA-Morse is designed only for a common BBI in a cabinet and may not be connected between stretched parts of the backbone bus.

Indicators

Front label	Indicator	Colour, pattern	Module status
 G000752	PSU 1	Green Yellow None	OK Fault* Input not in use
	PSU 2		
	MON 1		
	MON 2		
	O/P	Green	Output is ON
		Yellow	Fault*
		None	Output is OFF or not in use
	GA	Green	General Alarm Active
		Yellow	Fault*
		None	OK
	BAT	Green	OK
		Yellow	Fault*
		None	Input not in use
	NTC	Green	Overheated fault
		Yellow	Cable break fault
		None	OK
	PS (Power Supply)	Green	Power OK
		Yellow	Power Fault
	COM (Communication)	Green	Communication OK
		Green, flashing	Communication OK, module not configured
		Yellow	Communication fault
	PS + COM	PS = Yellow, flashing COM = Green	Boot-loader mode
	PS + COM (both flashing)	PS = Yellow, flashing COM = Yellow, flashing	Boot-loader mode, Firmware download in progress
	PS + COM	PS = Yellow, flashing COM = None	Safe State (module is not functional)

* E.g. power absent, voltage out of range, broken fuse, GA resistor removed, battery absent, low battery capacity, NTC removed.

Module Dimensions (mm)



Mounting

Mount the module on a horizontal 35 mm DIN rail.