MS-5012C-xx Series

Solar & PoE Battery Charger

USER'S MANUAL

Mstronic Co., Ltd.

Features:

- Dual Input, from solar panel and/or PoE (Solar First) to charge 12V battery, and another two outputs: PoE output on front and/or terminal block on rear
- Built-in DC/DC converter, with various passive PoE output, 12V, 18V, 24V, 48V available.
- Active PoE Output support 802.3af handshake (MS-5012C-48D)
- DIN Rail Mountable

Applications:

- Remote Power Systems; Surveillance, Sensors
- Wireless Station; AP/Client/Repeaters
- UPS Systems; Lighting, Fences, Gates

Protection:

- Battery Polarity Reverse Protection
- Battery Over Charge Protection
- Battery Over Discharge Protection
- Solar Panel Polarity Reverse Protection
- Solar Panel Over Charge Protection
- Output Short Circuit Protection
- Output Over Voltage Protection
- POE Output Short Circuit Protection
- Externally fused with a standard replaceable fuse

Panel Description:

Item	Name	Descriptions
1	POE :	PoE power input indicator: the LED constant lights when the PoE input jack (the lower jack) has 18V~57V steady input. Flash light means the input unstable.
2	SOL :	Solar power input indicator: the LED lights when SOL terminal is connecting to a solar panel and the solar panel input voltage is over 12V.
3	CHA :	Charging indicator: the LED lights when BAT terminal is connected to battery and charging
4	LOA :	Loading indicator: the LED lights when the rear panel output terminal is connecting to a device and offering power. The LED always on when power ready.
5	REV :	Battery polarity reverse indicator: the LED lights when the battery polarities are reversed. (detail description see Sec. 5.1)
6	IN :	PoE Input Jack: the lower RJ45 jack, used for PoE input. Allowed input voltage 18~57V
7	OUT :	PoE Output Jack: the upper RJ45 jack, used for PoE output; Output voltage depends on what model you selected.
8	Fuse	Fuse: for output over current protection, limiting the battery output current <= 10A. (If solar panel or PoE source is installed before the battery, and if the polarities of battery are reversed, then the fuse will be burnt.)
9	SOL :	Solar Panel Terminal: used to connect the solar panel.
10	BAT :	Battery terminal: used to connect the battery. **NOTE: ALWAYS CONNECT THIS TERMINAL FIRST AND DISCONNECT LAST.**
11	LOA :	Load Terminal: for wire size up to 12AWG, the output voltage is the same as battery voltage.

Operation Guide

NOTICE:

1. Connect the battery to the BAT terminal. Make sure the polarities are correctly connected. Sequentially connect the solar panel to SOL terminal and connect POE source to PoE input (lower) jack. (If solar panel or PoE source is installed before the battery, and if the polarities of the battery be reversed, then the fuse will be burnt.)

2. Make sure the battery is properly connected to the unit. If no battery is connected, then the voltage at BAT terminal will be about 13.4V ± 0.2V

3. The solar panel cannot be used stand alone without battery connected.

4. When a solar panel and PoE input are connected to the charger, solar panel is always the main power source of the charger.

5. When charge from solar panel, as the battery full, the CHA light will start flash.

6. When charge only from PoE, as the battery full, the CHA light will be turn off, if the CHA is always flash, that means the drawing wattage over the input source. Make sure the PoE source must over 30W.

7. The model is not a valid PoE PD, it only work with passive PoE input on spare pairs.

8. When battery connect to BAT terminal and with valid voltage, then the LOA indicator will always light on even no load connected.

9. The V- of PoE input, Solar input, and battery(-) are not the same grounding, must be properly isolated. (don't connect them together).

▪Electrical specifications

1.0 INPUT

1.1 Input Source types:
A. Solar Panel
B. PoE (passive)

1.2 Input Voltage:
A. Solar Panel: 18V~25Vmax (or instead by DC14.4V connect front panel terminal)
B. PoE: 18V~57V (30W min.)

2.0 OUTPUT

Model	MS-5012C-12	MS-5012C-18	MS-5012C-24	MS-5012C-48	MS-5012C-48D
Output 1 (at rear terminal)	12V/1.5A (as Bat. Volt.)	12V/1.5A (as Bat. Volt.)	12V/1.5A (as Bat. Volt.)	12V/1.5A (as Bat. Volt.)	12V/1.5A (as Bat. Volt.)
Output 2 (at upper RJ45)	12V/1.0A (as Bat. Volt.)	18V/1.67A (regulated)	24V/1.25A (regulated)	48V/0.625A (regulated)	48V/0.35A (regulated)

3.0 Battery Charge Types:

A. Solar Panel: charge current depends on the solar panel, 10A max.
B. POE: fixed current, 2.0A max

4.0 Battery Types: 12V Lead Acid Battery

5.0 Protection:

5.1 Battery Polarity Reverse Protection:
If only battery connected to terminal, when the battery polarities were reversed, the model will stop output and REV indicator light on.

When the battery be removed and re-connected to terminal, the function will be disable, if there is PoE power sources connected, when the battery polarities reversed, the fuse will be burnt.

5.2 Battery Over Discharge Protection:
Cuts off the load when the battery voltage is lower than 11V ± 0.3V, and auto recover when the battery voltage returns to 12 V ± 0.3V

5.3 Battery Over Charge Protection:

Fuse control, over 10A, the fuse will be burnt.

5.4 Solar Panel Polarity Reverse Protection:
When solar panel polarities be reversed, the charger stop output, it won't damage the charger or end device

5.5 Solar Panel Over Charge Protection:
When charge current over 10A, the fuse will be burnt.

5.6 Output Short Circuit Protection:
When the rear output terminal or PoE output be short circuit, protection (PPTC) be active, the product stop output, it'll auto-recover when the short load removed from the terminal.

5.7 Battery Output Current Limit:
The fuse will be burnt when battery output current over 10A

5.8 Load Output Voltage Limit:
The output voltage on the rear terminal normally is the same as battery. If the battery failed, then the voltage is limited at 18V ± 1V

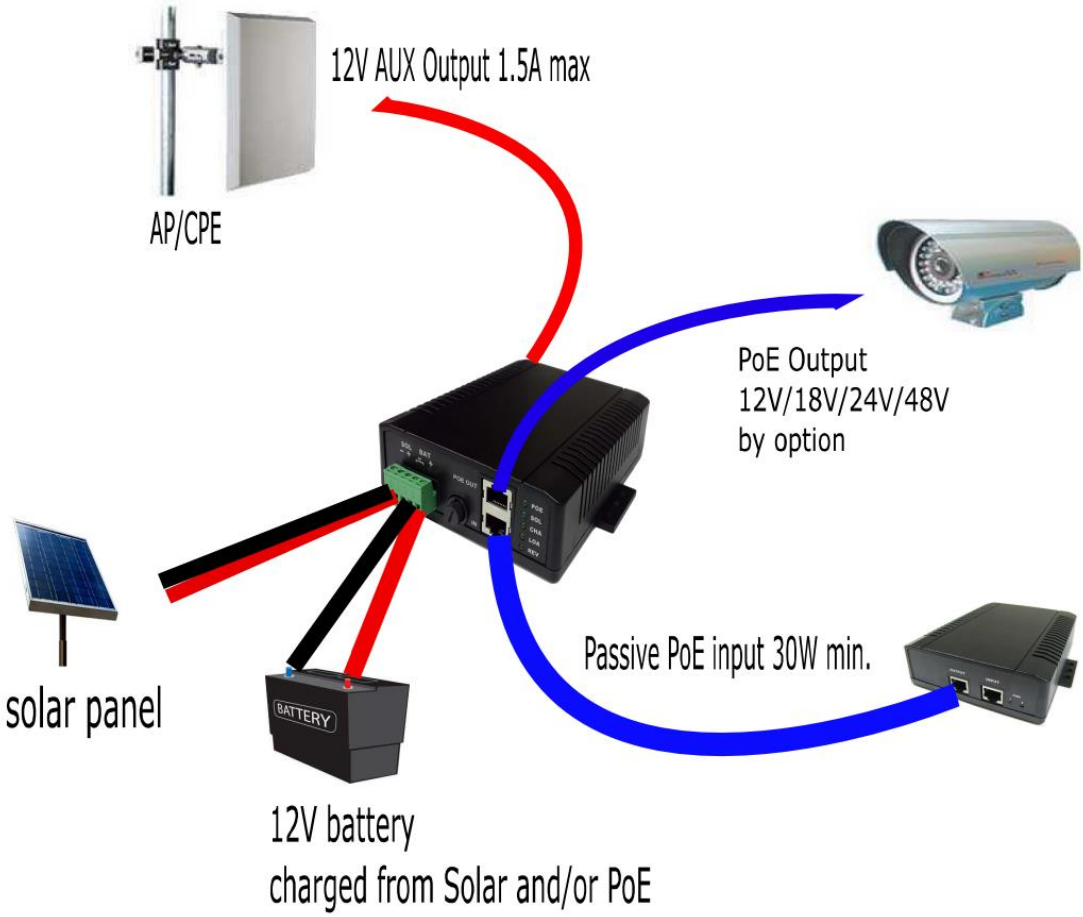
5.9 POE Charge Voltage :
Float = 13.4V ± 0.2V Equalize = 14.2V ± 0.2V
SOLAR Charge Voltage :
Charge Voltage = 14.4 V ± 0.2V

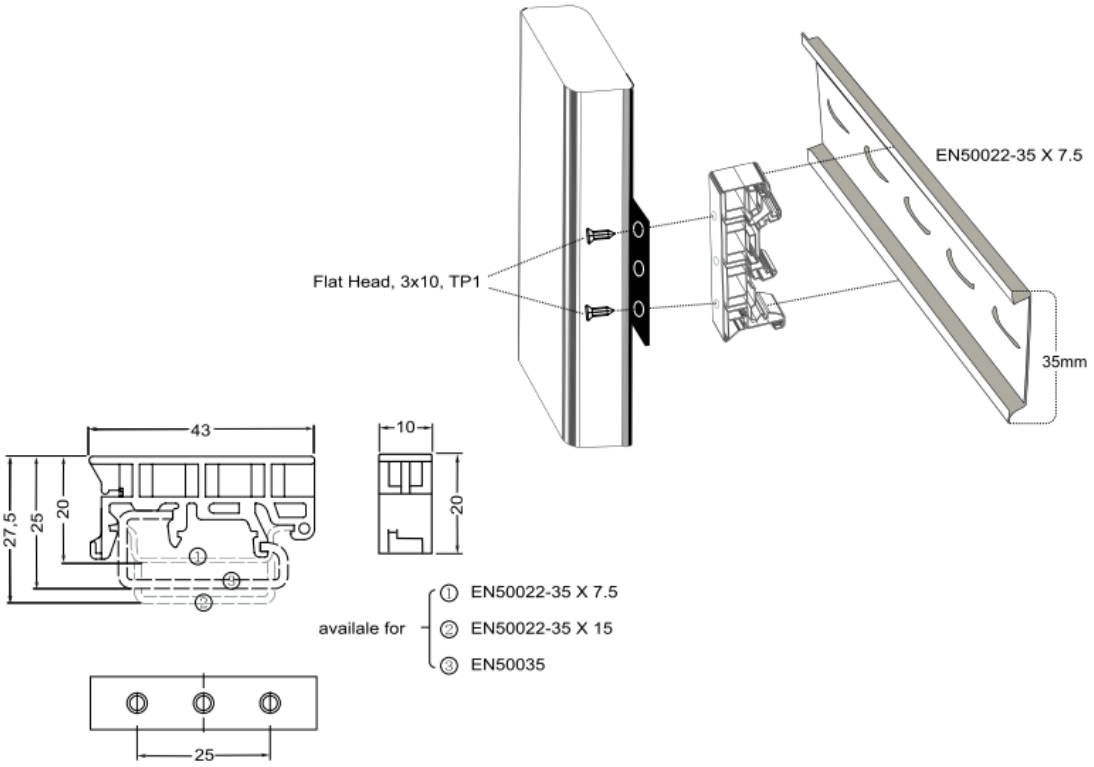
6. GENERAL DESCRIPTION

6.1 Operation Temperature:	-20 - +60 Degree
6.2 Storage Temperature:	-40 - +85 Degree
6.3 Operation Humidity:	5% - 90%
6.4 Cooling:	Free air cooling
6.5 SIZE	150*118*40mm (L*W*H)

7. RJ45 Connected and pin out: (10/100M)

RJ-45 Input (Data & Power)			RJ-45 Output (Data & Power)	
Pin	Symbol	Description	Symbol	Description
1	RX+	Data Receive	RX+	Data Receive
2	RX-	Data Receive	RX-	Data Receive
3	TX+	Data Transmit	TX+	Data Transmit
4	(-Vdc)_return +	Feeding power(+)	(-Vdc)_return +	Feeding power(+)
5	(-Vdc)_return +	Feeding power(+)	(-Vdc)_return +	Feeding power(+)
6	TX-	Data Transmit	TX-	Data Transmit
7	-Vdc	Feeding power(-)	-Vdc	Feeding power(-)
8	-Vdc	Feeding power(-)	-Vdc	Feeding power(-)


12V AUX Output 1.5A max
AP/CPE
PoE Output
12V/18V/24V/48V
by option
Passive PoE input 30W min.
solar panel
BATTERY
12V battery
charged from Solar and/or PoE


EN50022-35 X 7.5
Flat Head, 3x10, TP1
35mm
43
10
27.5
25
20
20
availale for
① EN50022-35 X 7.5
② EN50022-35 X 15
③ EN50035
25