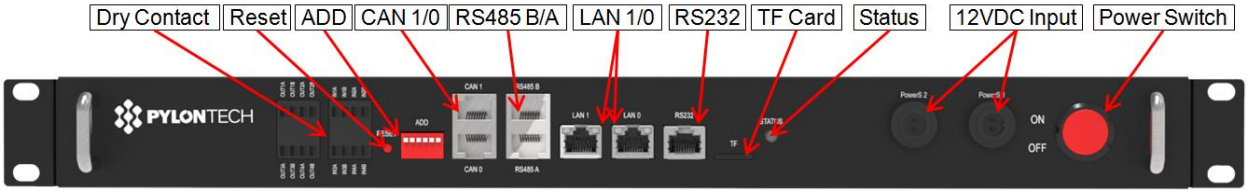
2.2.4 3rd Level Control Module (MBMS)

MBMS is the controller for multiple battery piles in parallel connection.

If the power supply is 220Vac, an adaptor (220Vac to 12Vdc) will be provided.

Serial Number	Product Model	MBMS1000
1	Operating voltage range	12 Vdc
2	Communication interface	CAN*2/RS485*2/Ethernet*2
3	Output dry contact interface	4 groups
4	Input dry contact interface	2 groups
5	System Consumption	2W
6	Size	442*190*44mm
7	Protection degree	IP20
8	Weight (kg)	5
9	Working temperature	
10	Storage temperature	



12VDC Input

Take 12VDC power from outside (from control module or AC/DC adaptor).

Dry Contact Terminal

Dry Contact Terminal: provided 4 ways input and 4 ways output dry contact signal.

Reset **Reset**

Reset Button: Long press this button to restart the battery system.

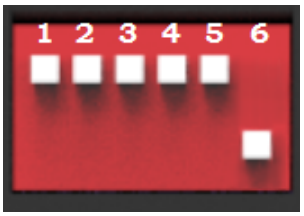
ADD **ADD**

Under CAN Communication Mode between MBMS and BMS (battery string qty. ⩽6 set)

The MBMS's ADD Switch shall set as "1000X_1X_0" with 1st bit at '1' always. The last 2 bits are terminal resistances;

X_1 address should correspond with CAN1 port connection, X_0 address should correspond with CAN0 port connection.

When the external communication is via CANBUS, and if this equipment requires terminal resistance, then X_0/X_1 should be set to "1". If this equipment not require terminal resistance, then X_0/X_1 should be set to "0"; If there are multiple external devices communicate with MBMS via CANBUS, then the X_0/X_1 shall follow varying external device requirement.



The BMS's first five bits must set in below <**BMS's Address Configure Table**>. The last (farthest position) BMS's terminal resistance must set in "1" (X=1), and other BMS's terminal resistance must set in "0".

The address is configured follow ASCII code: ("X" is terminal resistance).

BMS's Address Configure Table:

Battery String	Address Bit
1	10000X
2	01000X
3	11000X
4	00100X
5	10100X
6	01100X

CAN 1/0 **CAN**

CAN Communication Terminal: (RJ45 port) follow CAN protocol, for communication between battery system and PCS.

RS485 B/A **RS485**

RS485 Communication Terminal: (RJ45 port) follow RS485 protocol, for communication between battery system and PCS.

RS232 **RS232**

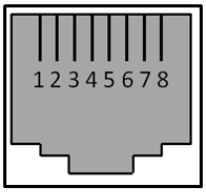
Console Communication Terminal: (RJ45 port) follow RS232 protocol, for manufacturer or professional engineer to debug or service.

Link Port **Link Port**

Link Port Communication Terminal: (RJ45 port) follow RS485 protocol, for communication between multiple serial battery modules and control module.

Definition of RJ45 Port Pin

No.	CAN	RS485	RS232 Pin	Link Port Pin
1	---	---	---	---
2	GND	---	---	GND
3	---	---	TX	---
4	CANH	---	---	CANH
5	CANL	---	---	CANL
6	---	GND	RX	---
7	---	RS485A	---	---
8	---	RS485B	GND	---



RJ45 Port

RJ45 Plug

Status

Status light: to show the battery module's status (RUN●, Protection●).

LED Status Indicators

✧ Battery capacity indicator: 4 green lamps, each light represent 25% capacity.

LED Indicators Instructions

Battery Statues	Protection / Alarm / Normal	RUN	PRC	Capacity SOC				Descriptions
		●	●	●	●	●	●	
Shut Down		Off	Off	Off	Off	Off	Off	All off
Sleep	Normal	Flash1		Off	Off	Off	Off	
	Alarm			Off	Off	Off	Off	
Standby	Normal	Flash1	Off	Off	Off	Off	Off	Indicates Standby
Charge	Normal	Light	Off	The highest capacity indicator LED flashes (flash 2), others lighting				
	Alarm	Off	Off					
	Protection	Off	Light	Off	Off	Off	Off	Stop charging, ALM lighting
Discharge	Normal	Flash3	Off	Indicate based on capacity				
	Protection	Off	Light	Off	Off	Off	Off	Stop discharging, ALM lighting

Note: The flashing instructions, flash 1 - light 0.25s / off 3.75 seconds; flash 2 - 0.5s light / 0.5s off; flash 3 - 0.5s light / 1.5s off.

Power Switch

Turn ON/OFF the MBMS power, and ON/OFF the power output of external power of control modules.