SYSTEM QUICK INSTALLATION USER MANUAL

info@abyssbattery.com | www.abyssbattery.com

Introduction

Trolling motor system is a complete system solution tailored for fishing boats, adopting industry-leading technology and product units, including high protection system monitor, high-performance marine Li-FePO4 battery, Bi-directional DC/DC charger, MPPT solar charger, AC intelligent charger and specialized connection cables.

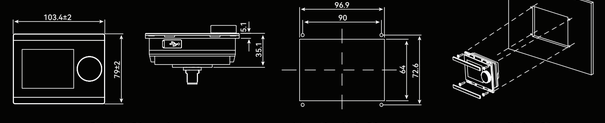
The system is equipped with CAN and Bluetooth module, supporting users to monitor system operation status through the monitor or mobile APP.

Product List

NO.	Item	24Vdc System	36Vdc System	Qty	Notes
1	Monitor	X3		1	
2	Lithium Battery	FM3	FN4	1	
3	Bi-directional DC/DC charger	MDX12-60	MDX13-60	1	
4	MPPT solar charger	MSC30M	MSC30N	1	Optional
5	AC/DC charger	BS2420	BS3615	1	Optional
6	Communication cable kit			1	
7	Power cable kit			1	

Installation

① Monitor

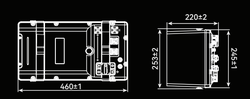


Product Dimensions | Mounting Hole Dimensions | Installation Diagram

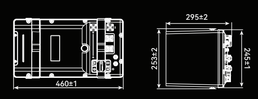
Steps:

1) Make a hole according to dimensions in the drawing to mount the monitor, and drill holes for screws.
2) Remove the decorative buckle strips on the upper and lower sides of the monitor, connect the communication cable on the back and tighten the nut on the plug.
3) Lock the monitor into the slot with M3*12 screws and press the decorative strips back on both sides.

② Lithium Battery

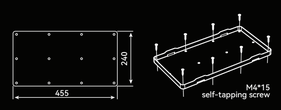


FM3 Product Dimensions

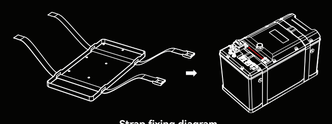


FN4 Product Dimensions

Model	FM3	FN4
Rated Capacity/Power	100Ah/2.56kWh	105Ah/4.03kWh
Charging Voltage	28.4VDC	42.6VDC
Maximum Charging Current	100A	100A
Maximum Discharge Current	100A	100A



Screw fixing diagram



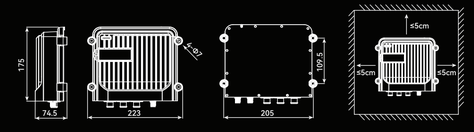
Strap fixing diagram

Steps:

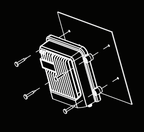
1) Use M4*15 screws to fix the tray as shown in diagram.
2) Thread the straps through under the tray, then place the trolling motor battery onto the tray, pull the straps tight and secure the battery by using the strap clips.

③ Bi-directional DC/DC charger

Model	MDX12-60	MDX13-60
LV Side Input Voltage Range (typ.)	10.5~16VDC	
Maximum LV Side Current (typ.)	60A (720W Max)	
Boost Charging Default Output Voltage	28.4VDC	42.6VDC
Buck Charging Default Output Voltage	13.2VDC (For AGM\GEL),13.8VDC (For LFP)	



Product Dimensions | Mounting Hole Dimensions | Minimum spacing requirement



Installation Diagram

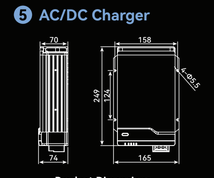
④ MPPT solar charger

Model	MSC30M	MSC30N
PV Input Voltage Range (typ.)	10.5~60VDC	
MPPT Voltage Range	15.0~60VDC	
Charge Voltage	28.4VDC	42.6VDC
Maximum Charging Power	840W@Vo=28VDC, PV≥19VDC	1260W@Vo=42VDC, PV≥19VDC

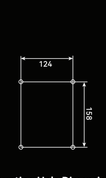
Steps:

1) To have maximum cooling effect, make sure the heat sink facing upward and is installed in well-ventilated space. The minimum spacing requirement for the product is as shown in the picture.
2) Use M6*40 self-tapping screws to fix the product.

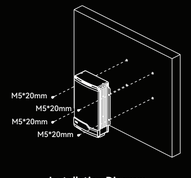
⑤ AC/DC Charger



Product Dimensions



Mounting Hole Dimensions



Installation Diagram

Model	BS2420	BS3615
AC Input Voltage Range	165~265VAC,50/60Hz	
Charge Voltage（LFP）	28.8VDC	43.2VDC
Charge Current	20A	15A

Steps:

1) To have maximum cooling effect, make sure the heat sink facing upward and is installed in well-ventilated space.
2) Use M5*20 self-tapping screws to fix the product.

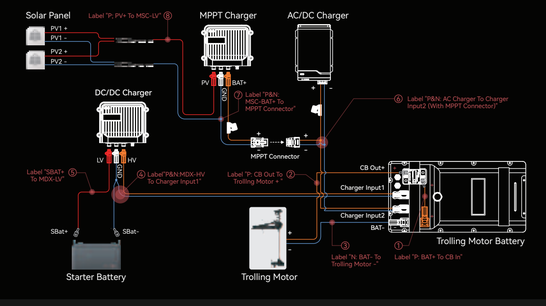
Power Cables Connection

CAUTION

Before connecting, please make sure that all external power inputs are disconnected and the products are turn off. When connecting, please make sure that all connector plugs and sockets are color-coordinated, all wiring is tight and reliable.

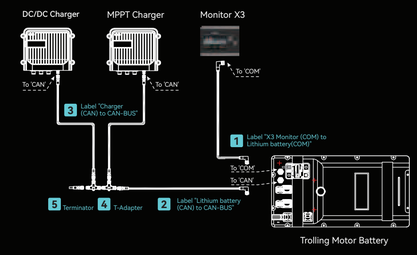
Please take the cable sets with corresponding label out from the Power Cable Kit and complete the wiring:

Power Cable Kit and Procedures	Include cables as
Power Cable Set: BAT To Trolling Motor	① ② ③
Power Cable Set: BAT To MDX To Charger Input1	④ ⑤
Power Cable Set: AC Charger to Charger Input2	⑥
Power Cable Set: MSC To MPPT Connector(Optional)	⑦ ⑧



Communication Cables Connection

Please take out the communication cables and connectors corresponding to the labels and complete the wiring:



System Operation

CAUTION

Before operation, please make sure all power cables and communication cables have been wired correctly, and the external power input meets the requirements.

① Lithium battery

Switch on battery: Press and hold the knob for 3s to turn on the trolling motor battery.
Switch off battery: Press hold the knob until the shutdown page pops up, and press hold for 3s as the progress bar shown, to switch off the trolling motor battery.

② Bi-directional DC/DC charger

Boost Charging Mode: When the outboard engine is on, the charger enters boost charging mode. The charger sends 12V power from the starter battery to charges the trolling motor battery (24V or 36V).

Buck Charging: When outboard engine is off, the charger switches to buck charging mode. The charger sends 24V or 36V power from the trolling motor battery to charge the 12V starter battery and to supply other 12Vdc DC loads at the same time.

③ MPPT solar charger

The MPPT charger starts charging when the PV input voltage meets the voltage condition (>15VDC).

④ AC/DC charger

The charger automatically starts and turns on charging when AC input voltage meets the input voltage conditions and automatically shuts down when disconnect AC input source.

User Interface

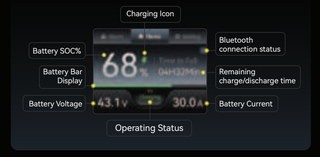
① X3 monitor

Note: The screen is not a touch screen and all operations are based on rotary switch.

- **Switch on battery**: press and hold the knob for 3s to turn on the trolling motor battery.
- **Select**: rotate the knob to choose between options.
- **Confirm**: short press the knob once to confirm your option.
- **Return**: switch to ⮌ sign and press the knob once to return to previous page, or quick press the knob twice to return to home page.
- **Switch off battery**: Press hold the knob until the shutdown page pops up, and press hold for 3s as the progress bar shown, to switch off the trolling motor battery.

② Mobile APP

Apple Store Download QR Code: **Google Play Download QR Code:**



Maintenance

- When the system is not in use for a long time, please disconnect the cable between starter battery and DC/DC charger, and switch off trolling motor battery, in order to avoid extra consumption of battery power when charger is in sleep mode.
- Regularly check connectors and cables for looseness or breakage in 1~3 months.
- Regularly check and clean the charger, lithium battery shell surface stains to ensure its performance is stable and reliable.
- For longer storage periods, to optimize battery storage and minimize self-consumption, consider the following recommendations:
  - 1) For up to 3 months: Adjust the State of Charge (SOC) to 20~30%.
  - 2) For over 3 months: It is recommended to perform a full battery maintenance cycle every 3 months: discharge to 0% SOC, then charge to 100% SOC, then discharge to 20~30% SOC.
    Repeat this process again when the battery hits 0% SOC in the next 3 months.

Troubleshooting

Code table

Product	Code	Alarm/Error information	Solutions
X3 Monitor	001	BMS: Low SOC alarm	The battery capacity is very low, please connect the charger immediately to charge the lithium battery.
Trolling motor battery (BMS)	101	High current discharging alarm	Check whether the discharge current of the lithium battery exceeds the rated discharge current. If it exceeds, turn off part of load.
	201	Over current discharging protection	
	102	High current charging alarm	1) Check whether the charging current of the charger matches the trolling motor battery.
	202	Over current charging protection	2) Check whether the charger is abnormal.
	103	Cell/Module low voltage alarm	The battery capacity is very low, please connect the charger immediately to charge the lithium battery.
	204	Cell/Module over-voltage protection	1) Check whether the charging voltage of the charger matches the trolling motor battery. 2) Check whether the charger is abnormal.
	206	Cell under temperature protection	Please check the ambient temperature of the battery installation location. If the FN4 installation location is lower than -30℃ (-22℉) or FM3 installation location is lower than -20℃ (-4℉), please connect the charger and increase the temperature of the lithium battery by heating the internal heating film of the trolling motor battery.
	208	Outside over voltage protection	1) Check whether the charging voltage of the charger matches the trolling motor battery. 2) Check whether the charger is abnormal.
	210	Battery pre-discharge time-out protection	Turn off part of the load before restarting the battery.
Bi-directional DC/DC Charger	301	Over voltage on LV side	1) Check if the wiring of the starter battery is wrong.
	401	High voltage on LV side	2) Check if the input range of starter battery is in the range of 10.5~16.0VDC.
	307	Heat sink temperature too high	Please check the ambient temperature of the charger installation location.
	407	Output overload alarm	Turn off part of the load then try again.
MPPT Solar Charger	501	High voltage on PV input	Check if the input range of PV is in the range of 10.5~60.0VDC.
	601	Over voltage on PV input	
	607	Heat sink temperature too high	Please check the ambient temperature of the charger installation location.
	507	Output overload alarm	Turn off part of the loads then try again.