

# MANGO POWER M

## Troubleshooting Guide

# 1 Troubleshooting and Maintenance

## 1.1 Regular Maintenance

### Maintenance of inverters

- Inspect inverters every 6 or 12 months for any signs of damage in cables, fixings, terminals, and the general inverter device.
- Inspect inverters every 6 months for anomalies in operation, heat, or noise parameters.
- Inspect inverters every 6 months to ensure that the radiator of the inverters is not covered by anything. If it is, stop the inverter and clean its radiator.

### Battery maintenance

- Do dust cleaning and battery performance checks every month to ensure the operability of the product.
- Scrapped products should be recycled immediately by the specified qualified vendor instead of being discarded at will and risking safety hazards or severe environmental contamination.
- Batteries in long-term storage should be charged to 50% - 60% SoC every 6 months.

## 1.2 M Battery Troubleshooting

If the M Battery displays any warnings or faults, users can perform troubleshooting based on the states of indicator lamps and the buzzer.

### 1.2.1 Notes on indicator lamps:

Status	Normal/Alarm/Protection	ON/OFF	RUN	ALM	SoC indicator LED						Remarks	
		•	•	•	•	•	•	•	•	•		
Shutdown	Sleep	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	All off
Standby	Normal	On	Flash 1	Off	Based on SoC indication						Standby state	
	Alarm	On	Flash 1	Flash 3							Module LV	
Charging	Normal	On	On	Off	Based on SoC indication (max. SoC indication LED Flash 2)						LED flashes (Flash 2) on max. SoC. ALM doesn't flash on overcharge alarm	
	Alarm	On	On	Flash 3								
	Overcharge protection	On	On	Off	On	On	On	On	On	On	No grid power, indicator lamp toggled to standby state	
	Temperature/ overcurrent/ failure protection	On	Off	On	Off	Off	Off	Off	Off	Off	Stop charging	
Discharging	Normal	On	Flash 3	Off	Based on SoC indication							
	Alarm	On	Flash 3	Flash 3								
	Undervoltage protection	On	Off	Off	Off	Off	Off	Off	Off	Off	Stop discharging	
	Temperature, over current, short circuit, reverse connection, failure protection	On	Off	On	Off	Off	Off	Off	Off	Off	Stop discharging	
Failure		Off	Off	Off	Off	Off	Off	Off	Off	Off	Stop charging/discharging	

### Notes on LED flashes

Way of flashes	On	Off
Flash 1	0.25s	3.75s
Flash 2	0.5s	0.5s
Flash 3	0.5s	1.5s

### 1.2.2 Troubleshooting

Serial No.	Fault Phenomenon	Analysis of Causes	Solutions
1	No DC output after startup	Over-discharge protection due to low battery voltage	Carry out charging
2	No working of the indicating lamp after startup	BMS is in dormant state	Restart using the Reset Switch
3	Indicating insufficient electric quantity	Too low charging voltage	Adjust the floating charge voltage of the switching power supply to the required parameters
4	Short power supply time	The battery pack is not full charged	Check the charging voltage, current and other parameters of the switching power supply
5	Unstable output voltage after startup	BMS is interrupted	Restart using the Reset Switch
6	Communication failure	Problems in communication line	Check the address setting of the address switch, ports and lines

**Note:**

- The buzzer is designed to be enabled or disabled through the primary computer. It is disabled by default on shipment.
- In case of a fault, the buzzer will sound for 0.25s in every 1s. In case of a protection notice, it buzzes for 0.25s in every 2s (excluding overvoltage protection). In case of an alarm, it buzzes for 0.25s in every 3s (excluding overvoltage protection).

Notes on reset button (RST): When BMS is in sleep mode, press and hold the button for 3 - 6s, the guard is then





- activated and the LED indicator lamps will light up for 0.5s in sequence from "RUN". When BMS is active, press and hold the button for 3 - 6s, the guard will then sleep and the LED indicator lamps will light up for 0.5s in sequence from Min. SoC. When BMS is in sleep mode, press and hold the button for 6 - 10s, the guard is then reset and all the LED indicator lamps will light up simultaneously for 1.5s.

Upon resetting, the BMS still reserves the parameters and functions set by the primary computer. If you wish to restore the original parameters, you can do it through the "Restore defaults" option on the primary computer. However, the operation records and stored data (e.g. SoC, cycles, protection records, etc.) will remain unchanged.

## 1.3 Troubleshooting According to the M Smart Screen

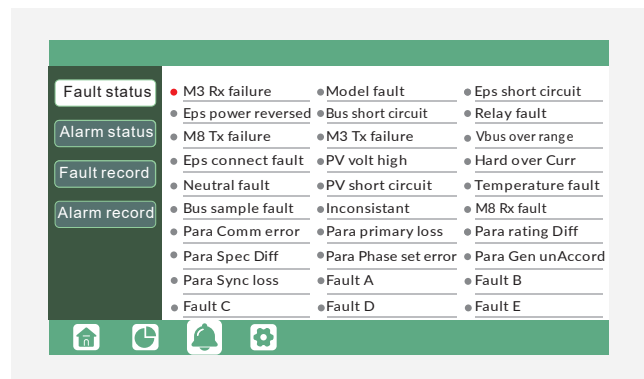
If the M Hybrid Inverter displays any warnings or faults, users can perform troubleshooting based on the state of the LEDs and the alarm/fault info on the Smart Screen.

### 1.3.1 States Indicated by the M Hybrid Inverter LEDs

LED	Indication	Remarks	Suggestions
Green LED	On 	Normal	
	Flash 	Firmware is upgrading	Wait for the upgrade to finish
Yellow LED	On 	Warning. The inverter is working	Troubleshooting required
Red LED	On 	Fault. The inverter stopped working	Troubleshooting required

### 1.3.2 Faults Display on the M Smart Screen

If the dot on the left of a fault entry is red, it means this fault is current. If the dot is gray, it means that this fault doesn't exist anymore.



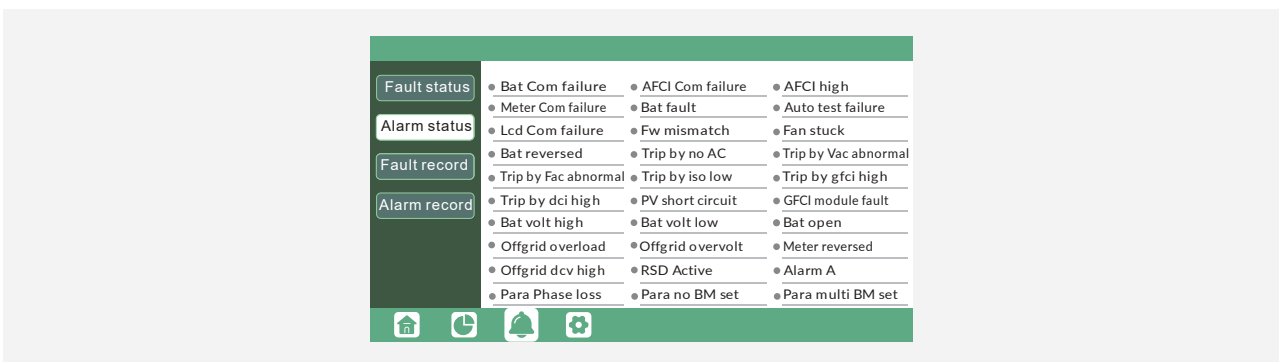
Common faults and corresponding solutions are as follows:

Fault	Meaning	Troubleshooting
M3 Rx failure	M3 microprocessor fails to receive data from DSP	Restart inverter, if the error still exists, contact your supplier.
Model fault	Incorrect model value	
BACKUP short circuit	Inverter detected short-circuit on BACKUP output terminals	1. Check if the L1, L2 and N wires are connected correctly at inverter BACKUP LOAD output port; 2. Disconnect the LOAD breaker to see if fault remains. If fault persists, contact your supplier.
BACKUP power reversed	Inverter detected power flowing into BACKUP port	Restart inverter, if the error still exists, contact your supplier.
Bus short circuit	DC Bus is short circuited	
Relay fault	Relay abnormal	
M8 Tx failure	DSP fails to receive data from M8 microprocessor	
M3 Tx failure	DSP fails to receive data from M3 microprocessor	

Vbus over range	DC Bus voltage too high	Please check if the PV string voltage is within the inverter specification. If string voltage is within range and this fault still appears, contact your supplier.
BACKUP connect fault	BACKUP LOAD port and grid port are connected mixed up	Check if the wires on the BACKUP LOAD port and grid port are connected correctly. If the error still exists, contact your supplier.
PV volt high	PV voltage is too high	Please check if the PV string voltage is within the inverter specification. If string voltage is within range and this fault still appears, contact your supplier.
Hard over curr	Hardware level over current protection triggered	Restart inverter. If the error still exists, contact your supplier.
Neutral fault	Voltage between N and PE is greater than 30V	Check if the neutral wire is connected correctly
PV short circuit	Short circuit detected on PV input	Disconnect all PV strings from the inverter. If the error persists, contact your supplier.
Temperature fault	Heat sink temperature too high	Install the inverter in a place with good ventilation and no direct sunlight. If the installation site is okay, please check if the NTC connector inside the inverter is loose.
Bus sample fault	Inverter detected DC bus voltage lower than PV input voltage	Restart inverter. If the error still exists, contact your supplier.
Inconsistent	Sampled grid voltage values of DSP and M8 microprocessor are inconsistent	
M8 Rx fault	M8 microprocessor fails to receive data from DSP	
Para Comm error	Parallel communication abnormal	1.Please check if the connection of the parallel cable is loose and connect it correctly 2.Please check and make sure the PIN status of CAN communication cable from the first to the end inverter is correct.
Para "master" loss	No "master" in the Parallel system	1.If a "master" has been configured in the system, the fault will be automatically removed after the "master" works. If so, you can ignore it. 2.If a "master" has not been configured in the system, and there are only "slaves" in the system, please set the "master" first. Note: For single unit running systems, the role of the inverter should be set as "1 phase master"
Para rating Diff	Rated power of parallel inverters are inconsistent	Please confirm that the rated power of all inverters are the same or contact servicing to confirm.
Para Phase set error	Incorrect setting of phase in parallel	Please confirm that the wiring of the parallel system is correct first. In this case, connect each inverter to the grid. The system will automatically detect the phase sequence and the fault will be automatically resolved.
Para Gen un Accord	Inconsistent generator connect in parallel	Some inverters are connected to generators, some are not. please confirm that all inverters in parallel are connected to generators together or none of them are connected to generators
Para sync loss	Parallel inverter fault	Restart inverters. If the error still exists, contact your supplier.

### 1.3.3 Alarms Displayed on the M Smart Screen

If the dot on the left of a fault entry is yellow, it means this fault is current. If the dot is gray, it means this fault doesn't exist anymore.



- Inspect inverters every 6 months for anomalies in operation, heat, or noise parameters.
- Inspect inverters every 6 months to ensure that the radiator of the inverters is not covered by anything. If it is, stop the inverter and clean its radiator.

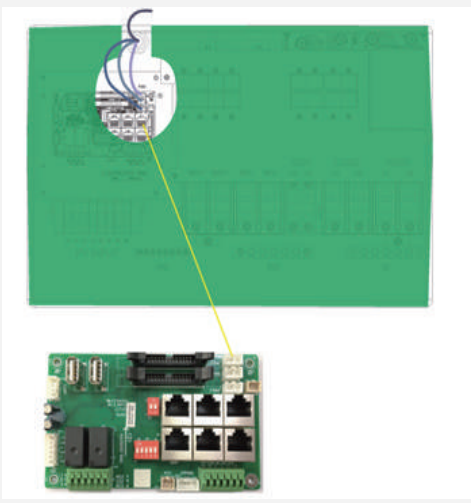
Meanings of faults and corresponding solutions are as follows:

Alarm	Meaning	Troubleshooting
Bat com failure	Inverter fails to communicate with battery	Check if the communication cable is correctly installed and if you have chosen the correct battery brand on the M Smart Screen. If all is correct but this error persists, please contact your supplier.
AFCI com failure	Inverter fails to communicate with AFCI module	Restart inverter. If the error persists, contact your supplier.
AFCI high	PV arc fault is detected	Check each PV string for correct open circuit voltage and short circuit current. If the PV strings are in good condition, please clear the fault on the M Smart Screen.
Meter com failure	PV arc fault is detected	1. Check if the communication cable is connected correctly and in good condition. 2. Restart inverter. If the fault persists, contact your supplier
Bat Fault	Inverter fails to communicate with the meter	1. Check the battery communication cable for the correct pinout on both the inverter and battery. 2. Check if you have chosen an incorrect battery brand. 3. Check if there is a fault on the battery's indicator. If there is a fault, please contact your battery supplier.
Auto test failure	Auto test failed	Only applied to Italian model
LCD com failure	M Smart Screen fails to communicate with M3 microprocessor	Restart inverter. If fault still exists, contact your supplier.
Fwm mismatch	Firmware version mismatch between the microprocessors	
Fan stuck	Cooling fan(s) are stuck	
Trip by gfci high	Inverter detected leakage current on AC side	1. Check if there is a ground fault on the grid and load side. 2. Restart inverter. If the fault remains, contact your supplier.
Trip by dci high	Inverter detected high DC injection current on grid port	Restart inverter. If the fault remains, contact your supplier.
PV short circuit	Inverter detected short circuited PV input	1. Check if each PV string is connected correctly. 2. Restart inverter. If the fault remains, contact your supplier.
GFCI module fault	GFCI module is abnormal	Restart inverter. If fault still exists, contact your supplier
Bat volt high	Battery voltage too high	Check if battery voltage exceeds 59.9V, battery voltage should be within inverter specifications.
Bat volt low	Battery voltage too low	Check if the battery voltage is under 40V, battery voltage should be within inverter specifications.
Bat open	Battery is disconnected from inverter	Check battery breaker or battery fuse.
Off grid overload	Overload on BACKUP LOAD port	Check if load power on the inverter EPS port is within inverter specifications.
Off grid overvoltage	BACKUP voltage is too high	Restart inverter. If fault still exists, contact your supplier
Meter reversed	Meter is connected reversely	Check if the meter communication cable is connected correctly on the inverter and meter side.
Off grid dcv high	High DC voltage component on EPS output when running off-grid	Restart inverter. If fault still exists, contact your supplier.
RSD Active	Rapid shutdown activated	Check if the RSD switch is pressed.

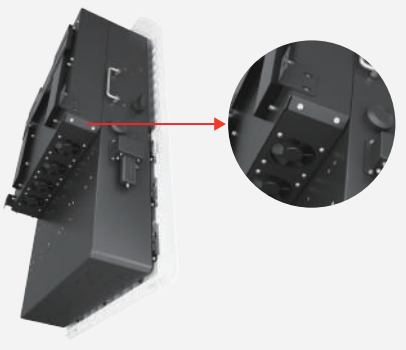
Para phase loss	Phase loss in parallel system	Please confirm that the wiring of the inverter is correct. If the primary is set to 3 Phase primary, the number of parallel inverters needs to be $\geq 3$ . (And the grid input of each inverter should be connected with Grid L1, L2, L3 rightly). If the primary is set to 2x 208 primary, the number of parallel inverters needs to be $\geq 2$ . (And the grid input of each inverter should be connected with Grid L1, L2, L3 rightly)
Para no BM set	primary isn't set in the parallel system	Please set one of the inverters in the parallel system as the primary.
Para multi BM set	Multiple primary have been set in the parallel system	There are at least two inverters set as primary in the parallel system, please keep one primary and the other set as secondary

## 1.4 Replacement of Inverter Fan

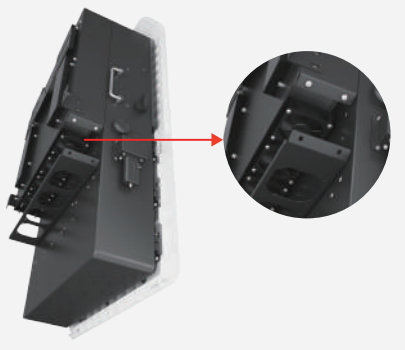
We recommend checking and cleaning the fan every 6 months. If the fan is problematic, replace it as illustrated below. Shut down all systems and wait 5 minutes before dismantling the inverter.



- a. Open wiring cover
- b. Pull out the fan wires
- c. Loosen and remove screws



- d. Remove fasteners of the fan



- e. Loosen waterproof connector
- f. Remove and replace the fan
- g. With a new fan installed, follow the steps above backwards

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