PURSUIT OF PERFECTION

MCK

User Manual

TBB Power CO.,ltd.
www.tbbpower.com

1. Overview

The MCK is a device which allows user to remotely monitor and control TBB's inverters. The user can learn below information from MCK's display:

- Battery voltage, current and SOC
- Inverter load percentage
- AC input/output voltage, current, frequency, power

In the meantime, simple configurations can be done through MCK as well

- Charging voltage and current
- AC output voltage and frequency
- AC input current rating

The MCK can be used with multiple series of inverter, including model CK3.0L, CK2.0L, CK3.0L-LV , CK2.0L-LV and CG3.0S which mainly for mobile application; as well as with CK-II series, Apollo Maxx series, CS8.0S series, RiiO Sun series and RiiO series which mainly for independent power application.

2. Installation and connection

2.1 Installation

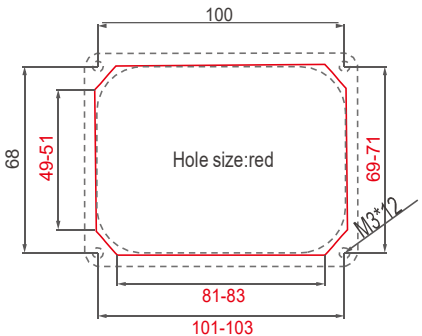

Fig.1 Installation dimension of MCK (Unit:mm)

Installation step:
1) Cut holes on mounting surface following the cut-out dimension in red in Fig.1
2) Place the MCK in position properly and fix the MCK by 4pcs M3*12 screws

2.2 Connection

Use the cable provided by TBB Power to connect MCK with inverter, the connector is RJ45. The cable is available in 5, 10, 15, 20, 25 or 30 meters.

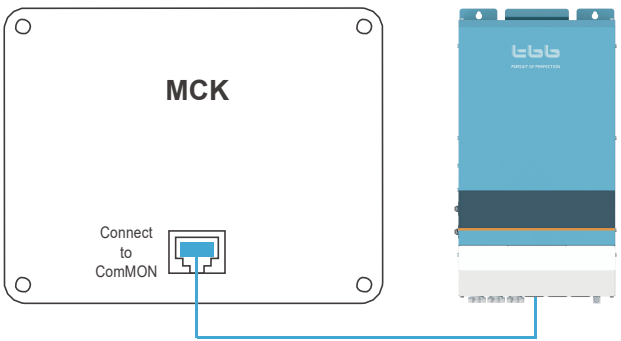

Fig.2 Connect MCK and inverter by the cable provided by TBB

The RJ45 connector at bi-directional inverter is defined as "ComMON".

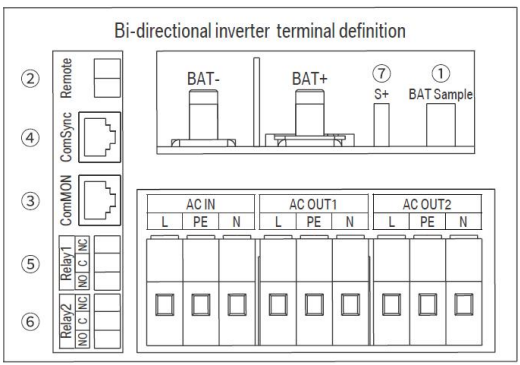

Fig.3 The RJ45 connector of CK series

3. Display information

Fig. 4 Display and buttons 01MCK

Table 1 Display and buttons of MCK

①	Solar	To indicate solar charger is charging
②	Invert	To indicate inverter is working
③	Bypass	To indicate Grid or generator is presenting
④	Charge	To indicate the inverter charger is charging. It's solid ON when inverter charger is at Absorption charging stage; and it's flashing when inverter charger is at Floating charging stage
⑤	Overload alarm	To indicate when inverter is overloaded
⑥	Battery low voltage alarm	To indicate when battery reach under-voltage
⑦	Over-temperature alarm	To indicate when inverter is over-temperature
⑧	Load percentage	To indicate the percentage of actual load power against rated power of inverter installed
⑨	Inverter ON/OFF switch	To turn the inverter ON or OFF
⑩	Scroll up or Return button	To scroll up to last item. Or, as function of exit Configuration with long press of 3secs
⑪	Value information area	LCD displaying value
⑫	Scroll down or Confirm button	To scroll down to next item. Or, as function of confirmation of your selection and configuration, with long press for 3secs
⑬	Mute button	To mute or unmute the alarm
⑭	Battery SOC	To indicate battery state of charge

Use the scroll up or scroll down button to switch display information among Battery, AC Output, AC Input and Solar for multiple parameters listed in following sheet.

The information of Solar is available only the bi-directional inverter with built-in MPPT charger controller such as Apollo Maxx, CG3.0S, RiiO Sun etc.


100%
75%
50%
25%
0
LOAD
Battery
12.7
V
100%
80%
60%
40%
20%
BATTERY
Short press these two buttons to switch display information

Table 2 Display information in value area

Display information		Item
Battery	V	Battery voltage
	A	Battery current
AC Output	kW	AC output power
	Hz	AC output frequency
	V	AC output voltage
	A	AC output current
AC Input	kW	AC output power
	Hz	AC output frequency
	V	AC output voltage
	A	AC output current
Solar	kW	PV power
	V	PV voltage

4. Configuration

Following parameters can be configured via MCK

Table 3 Configuration items and setting value of MCK

Display information		Configuration item	Default setting and setting step
Battery	V	Absorption voltage	Step:0.1V, Default:14.1V
	A	Floating voltage	Step:0.1V, Default:13.6V
	kW	Max. charge current	Step:5A, Default:30A
AC Output	Hz	Output voltage	Step:10V, Default:230V
	V	Output frequency	Default:50/60Hz
AC Input	A	AC input rating	Step:1A, Default:32A
Buzzer	Alarms	Buzzer ON or OFF	Default: ON/OFF

Step1. To enter into the configuration, Press Scroll down/Confirm button for 2secs.

Step2. Then you can use scroll up or scroll down button to choose the parameter you want to change.

Step3. Long press the Scroll down / Confirm button for 2secs to trigger on the configuration, the number/icon will flash.

Step4. Use Scroll up or Scroll down button to change the value.

Step5. Afterwards, long press the Scroll down / Confirm button for 2secs to confirm the configuration. The two bars (load ratio and battery soc) will flash indicating the configuration is in process.

Step6. After you have done all configuration you need, please press Scroll up/Return button for 2secs to exist configuration.

Configuration item and setting value can be found as below Table 2

5. Error and Warning Code

Upon any error happened, MCK will display corresponding error code. Please find following chart the definition for each code.

Table 4 Error code list

Error Type	Error Code	Display	Description
Inverter error code	E01	U_Bus_OV	DC bus over-voltage
	E02	U_Bus_LV	DC bus under-voltage
	E03	U_Bus_HW_Pro	DC bus hardware under-voltage
	E04	PSU_Fault	Auxiliary power error
	E05	T_HS_OT	Heat sink over-temperature
	E06	T_TX_OT	Transformer over-temperature
	E07	Sam_HD_Fault	Sampling fault
	E08	EEPROM_Fail	EEPROM fault
	E09	Output_ShortCut	Output short circuit
	E10	Output_OverLoad	Output over-load
	E11	CoolSys_Err	Cool system failed
	E12	U_BAT_Low_Deep	Battery deep discharge
	E13	U_INV_LV	Inverter output under-voltage
	E14	Instant_OC_Soft	Inverter output instant over-current
	E15	EPO	E-stop
	E16	Rly_Err	Relay error

Error Type	Error Code	Display	Description
MPPT charger controller error code	E21	U_Bus_OV	DC bus over-voltage
	E22	U_Bat_OV	Battery over-voltage
	E23	U_Bus_OV_HD	Battery over-voltage (Hardware)
	E24	Buck_ShortCut	Buck short circuit
	E25	I_Buck1_OC	Buck1 over-current
	E26	I_Buck2_OC	Buck2 over-current
	E27	T_Board_OT	Control board over-temperature
	E28	T_HS_OT	Heat sink over-temperature
	E29	PSU_LV	Auxiliary power under-voltage
	E30	PSU_LV_HD	Auxiliary power under-voltage (Hardware)
	E31	Sam_HD_Fault	Sampling error
	E32	EEPROM_Fail	EEPROM error
	E33	EPO	E-stop

Table 5 Warning code list

Warning type	Warning Code	Display	Description
Inverter warning code	E41	U_BAT_OV	Battery over-voltage warning
	E42	U_BAT_LV	Battery under-voltage warning
	E43	U_BAT_LV_Fault	Battery under-voltage protection
	E44	OverLoad	Over-load
	E45	NTC_HS_Fault	Heat sink NTC failed
	E46	NTC_TX_Fault	Transformer NTC failed
	E47	T_BAT_OT	Battery over-temperature
	E48	Fan_Fault	Fan error
	E49	ParConnect_Err	Parallel connection error
	E50	ParComm_Err	Parallel CAN communication error
	E51	Par_ID_Conflict	Parallel ID conflict
	E52	Par_ParaSet_Conflict	Parallel parameter setting conflict
	E53	Par_SyncTimeOut_Err	Parallel synchronization timeout
	E54	ModeSet_Mismatch	Working mode setting mismatched
	E55	Par_OutputCircuit_Err	Parallel output circuit error
	E56	Comm_HMI_Err	Communication with display error

Warning type	Warning Code	Display	Description
AC input warning code	E61	ACin_OV	AC input over-voltage
	E62	ACin_LV	AC input under-voltage
	E63	ACin_OF	AC input over-frequency
	E64	ACin_LF	AC input under-frequency
	E65	ACin_PhaseErr	AC input phase error
	E66	U_Neu_2_GND_Err	AC input voltage between Neutral and Ground error
MPPT charger controller warning code	E71	U_BAT_OV	Battery over-voltage warning
	E72	U_BAT_LV	Battery under-voltage warning
	E73	CUR_Limit	MPPT current limit warning
	E74	BAT_UnConnect	Battery disconnected warning
	E75	NTC_HS_Fault	Heat sink NTC failed
	E76	T_BAT_OT	Battery over-temperature
	E77	Fan_Fault	Fan error
	E78	TypeSet_Mismatch	Model setting mismatched
	E79	Comm_Sys_Err	Communication with LCD error
	E80	Comm_HMI_Err	Communication with display error
	E81	Par_ID_Conflict	Parallel ID conflict
	E82	ParConnect_Err	Parallel connection error
	E83	Vbat_LV_Protect	Battery under-voltage protection
	E84	NTC_Board_Fault	NTC board failed

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