HMC6000RM/HMC6000RMD

REMOTE MONITORING CONTROLLER

USER MANUAL

HMC6000RM
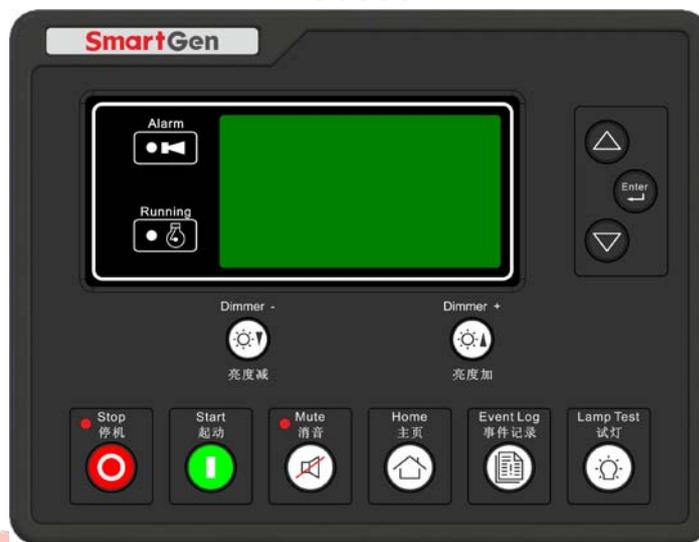
HMC6000RMD
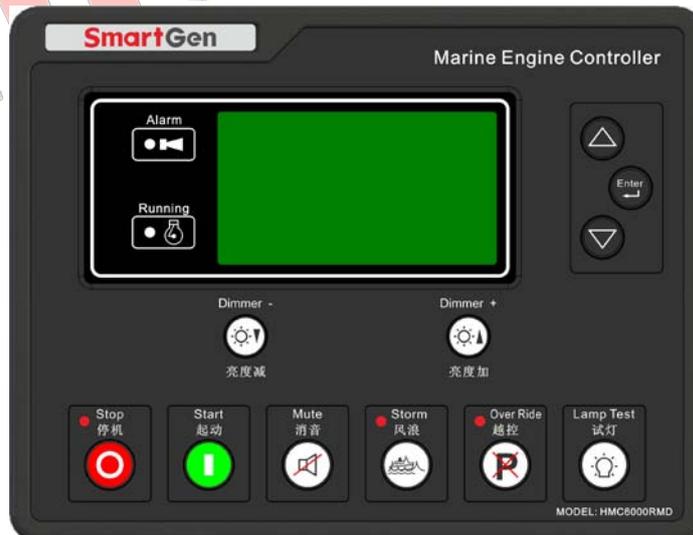
SMARTGEN (ZHENGZHOU) TECHNOLOGY CO.,LTD.

Chinese trademark

English trademark

Smartgen — make your generator *smart*

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Version history

Date	Version	Content
2015-11-16	1.0	Original release
2016-07-05	1.1	Add HMC6000RMD type.
2017-02-18	1.2	Modify working voltage range in the table of technical parameters

Clarification of notation used within this publication.

Sign	Instruction
⚠NOTE	Highlights an essential element of a procedure to ensure correctness.

CONTENT

1 OVERVIEW

HMC6000RM/RMD controller integrates digitization, intelligentization and network technology which are used for remote monitoring system of single unit to achieve automatic start/stop, data measure, alarm protection and record checking. It fit with 132*64 liquid display, optional Chinese/English languages interface, and it is reliable and easy to use.

2 PERFORMANCE AND CHARACTERISTICS

➢ 32-bit ARM micro-processor, 132*64 liquid display, optional Chinese/English interface, push-button operation;

➢ Connect to HMC6000A/EG/ED module via CANBUS port to achieve remote start/stop control;

➢ With monitor mode which can achieve check data only but not control the engine.

➢ Modular design, self extinguishing ABS plastic enclosure and embedded installation way; small size and compact structure with easy mounting.

3 TECHNICAL PARAMETERS

Parameter	Details
Working Voltage	DC8.0V to DC35.0V, uninterrupted power supply.
Power Consumption	<3W (Standby mode: ≤2W)
Case Dimension	197 mm x 152 mm x 47 mm
Panel Cutout	186mm x 141mm
Working Conditions	Temperature: (-25~70)ºC; Humidity: (20~93)%RH
Storage Conditions	Temperature: (-25~70)ºC
Protection Level	IP55 Gasket
Insulation Intensity	Apply AC2.2kV voltage between high voltage terminal and low voltage terminal; The leakage current is not more than 3mA within 1min.
Weight	0.45kg

4 INTERFACE

4.1 MAIN INTERFACE

All data of HMC6000RM/ HMC6000RMD are read from local controller HMC6000A/HMC6000EG/HMC6000ED via CANBUS. Specific display content stays the same with local controller.

4.2 INFORMATION INTERFACE

After pressing Enter for 3s, the controller will enter into select interface of parameter setting and controller information.	Return Parameter Setting Controller Information	After selected controller information, press Enter to enter into controller information interface.
First Panel	Controller Information Software Version 2.0 Release Date 2016-02-10 2015.05.15（5）09:30:10	This panel will display software version, hardware version and controller time. Press ⬇ to enter into second panel.
Second Panel	O:S F S H A 1 2 3 4 5 ∤∤∤∤∤∤∤∤∤∤ 6 7 8 9 10 11 12 ∤∤∤∤∤ ∤ ∤ Standby	This panel will display output port status, and genset status. Press ⬇ to enter into third panel.
Third Panel	I: E S S 1 2 0 F 3 4 5 ∤∤∤∤∤∤∤∤∤∤ 6 ∤ Standby	This panel will display input port status, and genset status. Press ⬇ to enter into first panel.

5 OPERATION

5.1 PUSHBUTTONS DESCRIPTION

Button	Function	Description
(Stop icon)	Stop	Stop running generator in remote mode.
(Start icon)	Start	Start genset in remote mode.
(Mute icon)	Mute	Alarm sound off.
(Dimmer+ icon)	Dimmer+	Adjust backlight brighter, 6 kinds of lamp brightness levels
(Dimmer- icon)	Dimmer-	Adjust backlight darker, 6 kinds of lamp brightness levels
(Lamp Test icon)	Lamp Test	Press this button will test panel LED indicators and display screen.
(Home icon)	Home	Return to the main screen.
(Alarm icon)	Alarm History Shortcut	Turn to the alarm history page.
(Storm icon)	Storm	Storm Mode is active after pressing the button and LED is illuminated. When active, any shutdown alarms won't alert except for emergency stop. HMC6000RM doesn't have this button.
(Override icon)	Override	Override Mode is active after pressing the button and LED is illuminated. When active, any shutdown alarms won't alert except for emergency stop and over speed. HMC6000RM doesn't have this button.
(Up icon)	Up/Increase	1. Screen scroll. 2. Up cursor and increase value in setting menu.
(Down icon)	Down/Decrease	1. Screen scroll. 2. Down cursor and decrease value in setting menu.
(Enter icon)	Set/Confirm	1. Pressing and holding for more than 3 seconds entry the parameter configuration menu; 2. In settings menu confirms the set value.

5.2 CONTROLLER PANEL

HMC6000RM Front Panel

HMC6000RMD Front Panel
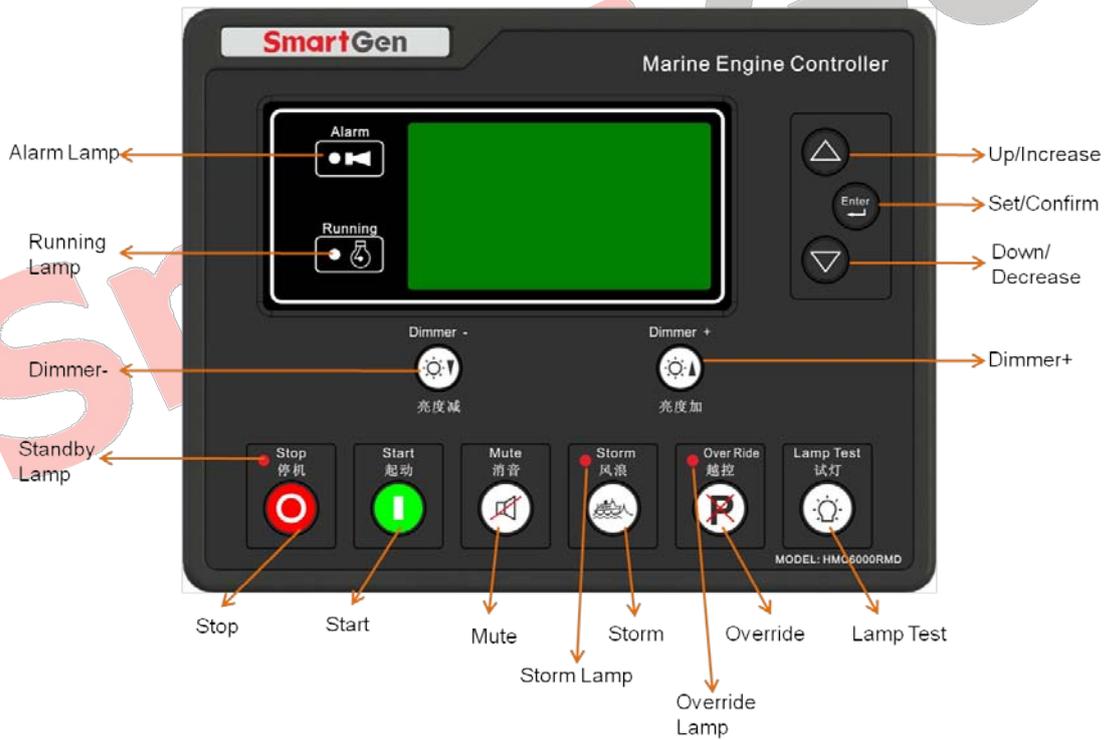
5.3 REMOTE START/STOP OPERATION

Configure any auxiliary input port of HMC6000A as remote start input. Remote start/stop can be done via remote controller when remote mode is active.

Pressing "Remote" button of HMC6000EG/ED can enter remote mode. Remote start/stop can be done via remote controller when remote mode is active.

Remote Start Sequence:

1) When "Remote Start" is active, "Start Delay" timer is initiated;

2) "Start Delay" countdown will be displayed on LCD;

3) When start delay is over, preheat relay energizes (if configured), "preheat delay XX s" information will be displayed on LCD;

4) After the above delay, the Fuel Relay is energized, and then one second later, the Start Relay is engaged. The engine is cranked for a pre-set time. If the engine fails to fire during this cranking attempt then the fuel relay and start relay are disengaged for the pre-set rest period; "crank rest time" begins and wait for the next crank attempt;

5) Should this start sequence continue beyond the set number of attempts, the start sequence will be terminated, the first line of LCD display will be highlighted with black and 'Fail to Start fault' will be displayed.;

6) In case of successful crank attempt, the "Safety On" timer is activated. As soon as this delay is over, "start idle" delay is initiated (if configured);

7) After the start idle, if the Rotate Speed, Temperature, Oil Pressure of controller are regular, the generator will enter into Normal Running status directly.

Remote Stop Sequence:

1) When the "Remote Stop" or "Stop Input" signal is effective, the Stop Delay is initiated.

2) Once this "stop delay" has expired, the "Stop Idle" is initiated. During "Stop Idle" Delay (if configured), idle relay is energized.

3) Once this "Stop Idle" has expired, the "ETS Solenoid Hold" begins. ETS relay is energized while fuel relay is de-energized.

4) Once this "ETS Solenoid Hold" has expired, the "Fail to Stop Delay" begins. Complete stop is detected automatically.

5) Generator is placed into its standby mode after its complete stop. Otherwise, fail to stop alarm is initiated and the corresponding alarm information is displayed on LCD (If generator is stop successfully after "fail to stop" alarm has initiated, "After stop" delay will be initiated).

6 PARAMETER SETTING

Enter into operating mode setting while pressing the button (Enter) for 3 seconds after the controller started.

2 Operating modes: 0: Monitoring and controlling mode: When HMC6000A/ED/EG is in remote mode, the controller can achieve either remote monitoring data and records or remote start/stop.

1: Monitoring mode: When HMC6000A/ED/EG is in remote mode, the controller can achieve remote monitoring data and records but not remote start/stop.

⚠**Note:** HMC6000RM/RMD can auto-identify main controller type, language setting and CANBUS baud rate.

7 BACK PANEL

HMC6000RM/RMD controller back panel layout:

Description of terminal connection:

Icon	No.	Function	Cable Size	Description
(battery icon)	1.	DC input B-	2.5mm^2	DC power supply negative input. Connected with negative of starter battery.
	2.	DC input B+	2.5mm^2	DC power supply positive input. Connected with positive of starter battery.
	3.	NC		Not connected.
CANBUS (EXPANSION)	4.	CANL	0.5mm^2	Used for connect to HMC6000A/EG/ED local monitor and control module. Using 120Ω shielding wire whose single end earthed is recommended.
	5.	CANH	0.5mm^2	
	6.	SCR	0.5mm^2	
LINK				Used for software update.

8 CANBUS (EXPANSION) BUS COMMUNICATION

HMC6000A/ED/EG can be connected to achieve remote monitoring and controlling via EXPANSION port, which can connect at most 16 HMC6000RMs via only 1 EXPANSION port to achieve monitoring and controlling simultaneously in several places.

HMC6000RM application map:
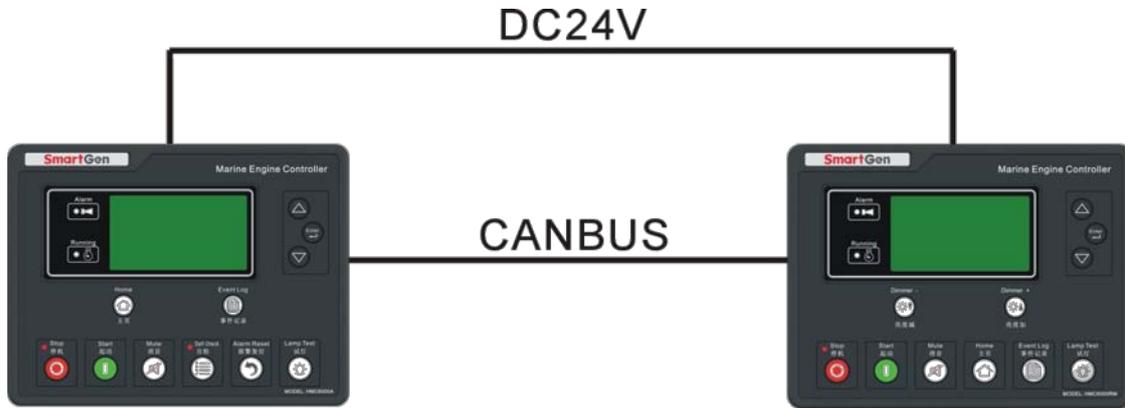
HMC6000RMD application map:
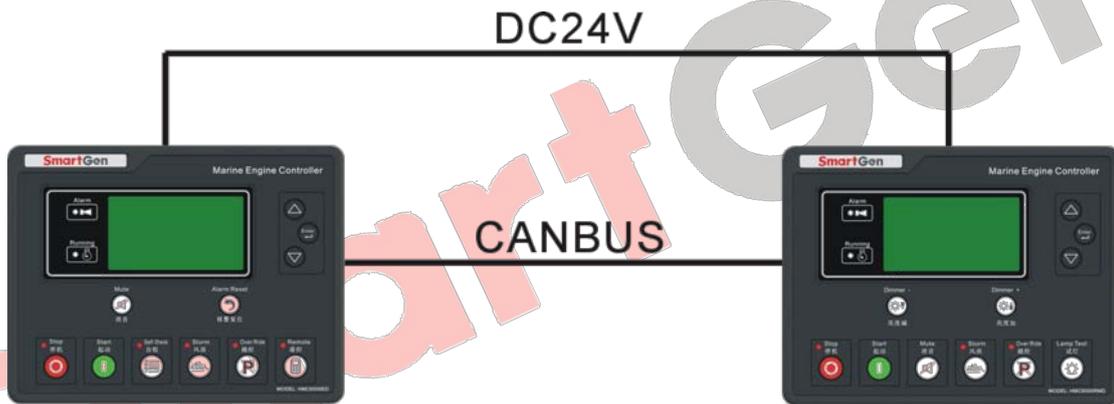
Note: Remote control module can only be used in remote mode of the engine; in local mode the stop and start buttons cannot work.

9 INSTALLATION

9.1 FIXING CLIPS

Controller is panel built-in design; it is fixed by clips when installed.

1) Withdraw the fixing clip screw (turn anticlockwise) until it reaches proper position.
2) Pull the fixing clip backwards (towards the back of the module) ensuring two clips are inside their allotted slots.
3) Turn the fixing clip screws clockwise until they are fixed on the panel.

⚠NOTE: Care should be taken not to over tighten the screws of fixing clips.

9.2 OVERALL DIMENSIONS AND CUTOUT
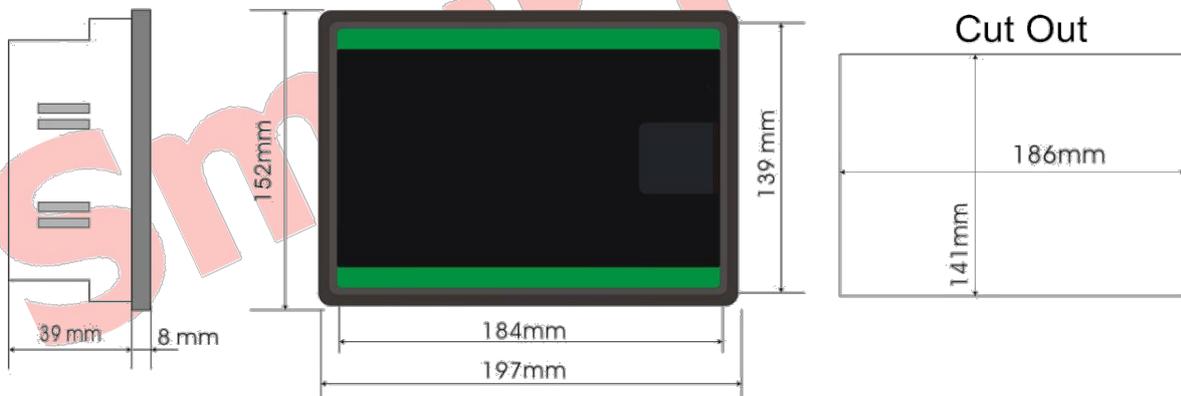
10 TROBLESHOOTING

Problem	Possible Solution
Controller no response with power.	Check starting batteries; Check controller connection wirings; Check DC fuse.
CANBUS communication failure	Check wiring; Check if CANBUS CANH and CANL wires are connected in the opposite way; Check if CANBUS CANH and CANL wires at both ends are connected in the opposite way; Putting a 120Ω resistance between CANBUS CANH and CANL is recommended.