SmartGen

MAKING CONTROL SMARTER

HMC9800RM

REMOTE MONITORING CONTROLLER

USER MANUAL

郑州众智科技股份有限公司

SMARTGEN(ZHENGZHOU)TECHNOLOGY CO.,LTD.

SmartGen Registered trademark
No. 28 Xuemei Street, Zhengzhou, Henan, China
Tel: +86-371-67988888/67981888/67992951
+86-371-67981000 (overseas)
Fax: +86-371-67992952
Web: www.smartgen.com.cn
www.smartgen.cn
Email: sales@smartgen.cn

Table 1 Version History

Date	Version	Content
2018-09-20	1.0	Original release
2023-12-21	1.1	1. Modify terminal description error in the Table 6. 2. Update company logo and address information.

CONTENT

1 OVERVIEW

HMC9800RM is a remote monitoring module for HMC4000 engine controller, which is used for remote monitoring system of single unit to achieve remote start/stop marine engine, data measurement, alarms display and etc. functions via RS485 port. Meters on the module can automatically synchronize the name and alarm threshold set by the HMC4000 controller, and each meter can set different ranges and data sources.

2 PERFORMANCE AND CHARACTERISTICS

Main features are as follows:

- 8-inch LCD with 800*600 resolution;
- Each meter's data source, range and resolution can be defined by users;
- Each meter's alarms display area can automatically synchronize alarm threshold set by the HMC4000 controller;
- Each meter's name can automatically synchronize sensor name set by the HMC4000 controller;
- Enable CANBUS communication and RS485 communication;
- With LCD brightness (5 levels) adjusting function, it is convenient to use in different occasion;
- This module must be used together with host controller;
- Widely power supply range (18~35) VDC to meet requirement of different power voltages;
- Modular design, embedded installation way; compact structure with easy mounting.

3 SPECIFICATION

Table 2 Technical Parameters

Items	Content
Working Voltage	DC18.0V to DC35.0V, uninterrupted power supply.
Overall Power Consumption	<8W
RS485 Baud Rate	9600bps
LCD Brightness	5 levels can be adjusted
Case Dimension	262mm x 180mm x 58mm
Panel Cutout	243mm x 148mm
Working Temperature	(-25~+70)°C
Working Humidity	(20~93)%RH
Storage Temperature	(-25~+70)°C
Weight	0.95kg

4 OPERATION

4.1 KEYS FUNCTION DESCRIPTION

Table 3 Key Function Description

Icons	Function	Description
	Stop	Stop running engine in remote control mode; Controller will show confirm stop information after it is pressed, if confirmed, controller will stop the engine.
	Start	Start engine in remote control mode; Controller will show confirm start information after it is pressed, if confirmed, controller will start the engine.
	Lamp Test	After pressing it, LCD highlighted with blue and all LEDs on the front panel are illuminated.
	Dimmer +	Press and hold it can brighten the LCD, 5 levels can be adjusted.
	Dimmer -	Press and hold it can darken the LCD, 5 levels can be adjusted.
	Set	Press it to enter password page (parameters can be set after entering the correct password).

4.2 LCD DISPLAY

4.2.1 NO POWER DATA DISPLAY

All data displayed on HMC9800RM are real-time collected from HMC4000 via RS485 port. Specific display screen is as below,

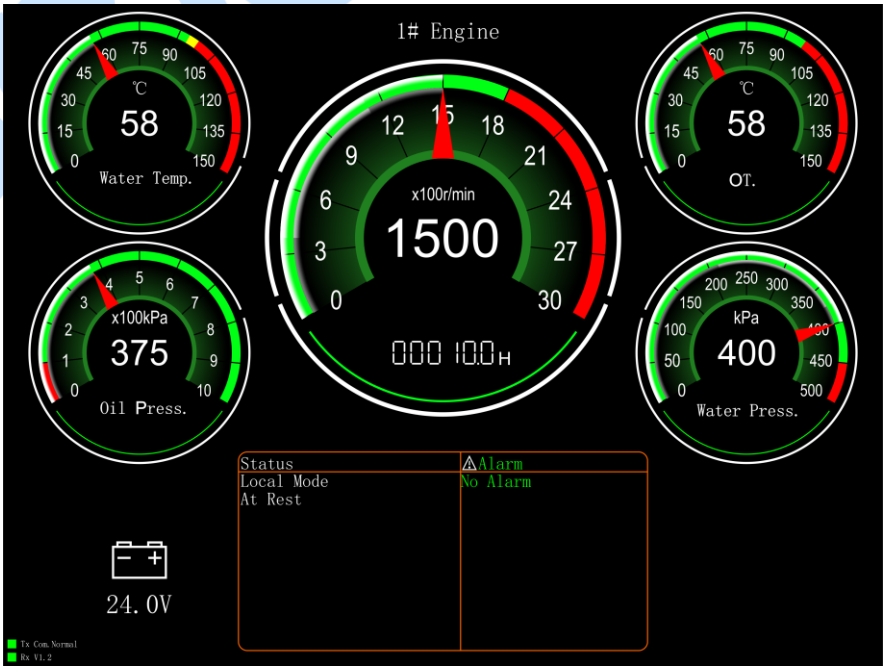

Fig.1 No Power Data Display Drawing

a) Meter: it consists of 5 meters, and each meter's data source, range, and resolution can be

configured. Each meter's name and alarm threshold display area (red and yellow color areas) will change with the settings of the HMC4000 controller.

For example, water temperature meter shows as below,

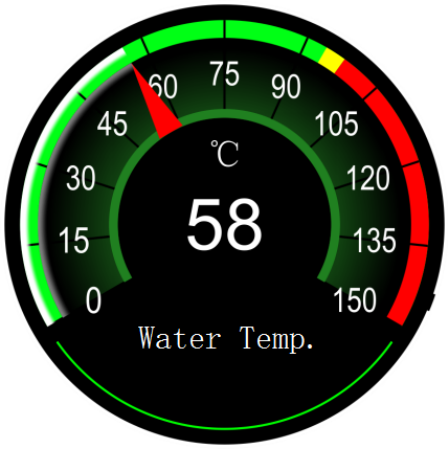

Fig.2 Water Temperature Meter Display Drawing

Data of this meter comes from sensor 1 data, name is water temperature. Display resolution is 1; alarm limit is 98℃; stop limit is 100℃.

b) Status: engine status and controller mode are real-time displayed on this module.

c) Alarm: if no alarms occur, icon shows as white color; if warning alarms occur, both icon and alarm information display as yellow color; if shutdown alarms occur, both icon and alarm information display as red color.

d) Communication indication: when the communication is normal, the TX icon and the RX icon flash alternately for 500ms; when the communication fails, the RX icon is grayed out and does not flash. The communication status is displayed as a communication failure.

4.2.2 POWER DATA DISPLAY

All data displayed on HMC9800RM are real-time collected from HMC4000 via RS485 port. Specific display screen is as below,

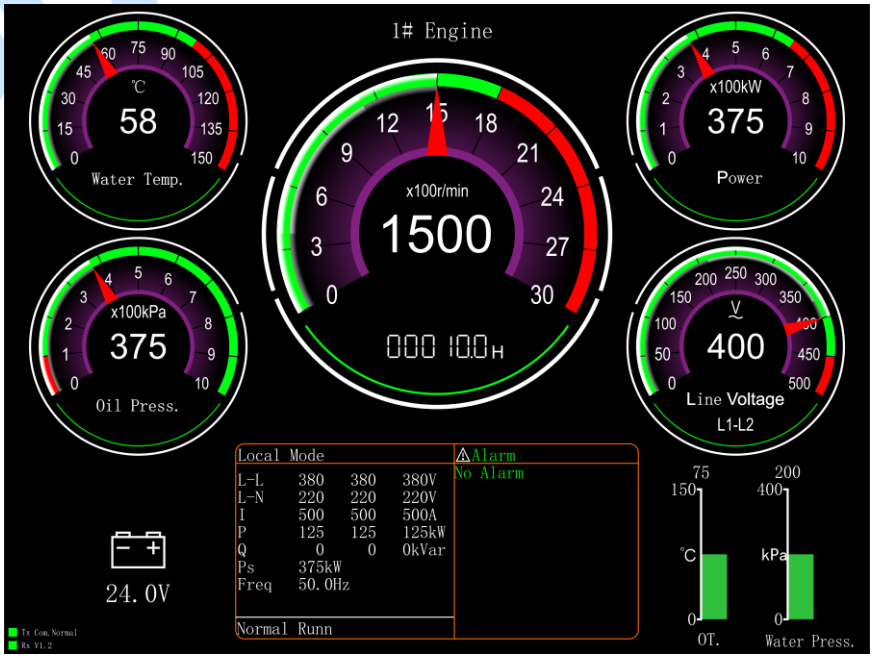

Fig.3 Power Data Display Drawing

a) Battery: If any meter's data comes from battery voltage, icon of battery on the left bottom will disappear automatically; otherwise, battery voltage will display on the left bottom.
b) Two columnar data sources can be selected from sensors 1-4 and the range is also selectable. It automatically disappears when it is not used.

5 OPERATION

5.1 REMOTE START/STOP OPERATION

Press "Remote Mode" button on HMC4000 panel, controller enters remote mode. Users can remotely start/stop engine via HMC9800RM controller after remote mode is active.

1) Remote Start

Press  of HMC9800RM, confirm information will display on LCD of the controller. After it is confirmed, controller initiates start command and countdown information of start pre-heat delay, safety on time, start idle delay, warming up time and etc. will display on LCD of the controller (different engine configuration with different display content);

2) Remote Stop

Press  of HMC9800RM, confirm information will display on LCD of the controller. After it is confirmed, controller initiates stop command and countdown information of cooling delay, stop idle delay, ETS delay, wait for stop time and etc. will display on LCD of the controller (different engine configuration with different display content);

NOTE: If alarms occur during start/stop process, alarms information will synchronously display on the LCD of HMC9800RM.

5.2 PARAMETER CONFIGURATION

Display of 5 meters and 2 columnar tables can be configured by controller, details of parameter configuration are as below,

Table 4 Parameter Configuration List

No.	Parameter Name		Range	Default	Remark
1.	Meter 1 Set	Data Sources	0-31	2: Sensor1 Data	Data source please to see Table 5
2.		Meter Range	15-3000	150	
3.		Resolution	1-100	1	
4.	Meter 2 Set	Data Sources	0-31	3: Sensor 2 Data	Data source please to see Table 5
5.		Meter Range	15-3000	1000	
6.		Resolution	1-100	100	
7.	Meter 3 Set	Data Sources	Fixed as speed	Fixed as speed	
8.		Meter Range	15-3000	3000	
9.		Resolution	1-100	100	
10.	Meter 4 Set	Data Sources	0-31	4: Sensor 3 Data	Data source please to see Table 5
11.		Meter Range	15-3000	150	

No.	Parameter Name		Range	Default	Remark
12.		Resolution	1-100	1	
13.	Meter 5 Set	Data Sources	0-31	5: Sensor 4 Data	Data source please to see Table 5
14.		Meter Range	15-3000	1000	
15.		Resolution	1-100	100	
16.	Meter 6 Set	Data Sources	0-4	0: Not Used	Selectable data source range of meter 6 is sensor 1~ sensor 4.
17.		Meter Range	15-3000	1000	
18.	Meter 7 Set	Data Sources	0-4	0: Not Used	Selectable data source range of meter 7 is sensor 1~ sensor 4.
19.		Meter Range	15-3000	1000	
20.	Meter Color		0~2 0: Green 1: Brown Red 2: Purple	0: Green	This parameter can change display colors of the meter. It is active after re-power up.
21.	Genset No. Set		1-9	1	This parameter can configure which engine will be monitored. Main screen will display related unit number according to the setting.

Table 5 Data Source List

No.	Data Source	Remark
	Reserved	
	Reserved	
	Sensor 1 Data	
	Sensor 2 Data	
	Sensor 3 Data	
	Sensor 4 Data	
	Battery Voltage	
	Fuel Pressure (ECU)	
	Reserved	
	Reserved	
	Generator UA	
	Generator UB	
	Generator UC	
	Generator UAB	
	Generator UBC	
	Generator UCA	
	Frequency	
	A Phase Current	
	B Phase Current	
	C Phase Current	
	Reserved	

No.	Data Source	Remark
	Reserved	
	Reserved	
	Total Active Power	
	Reserved	
	Reserved	
	Reserved	
	Reserved	
	Reserved	
	Reserved	
	Reserved	
	Reserved	

6 WIRING CONNECTION

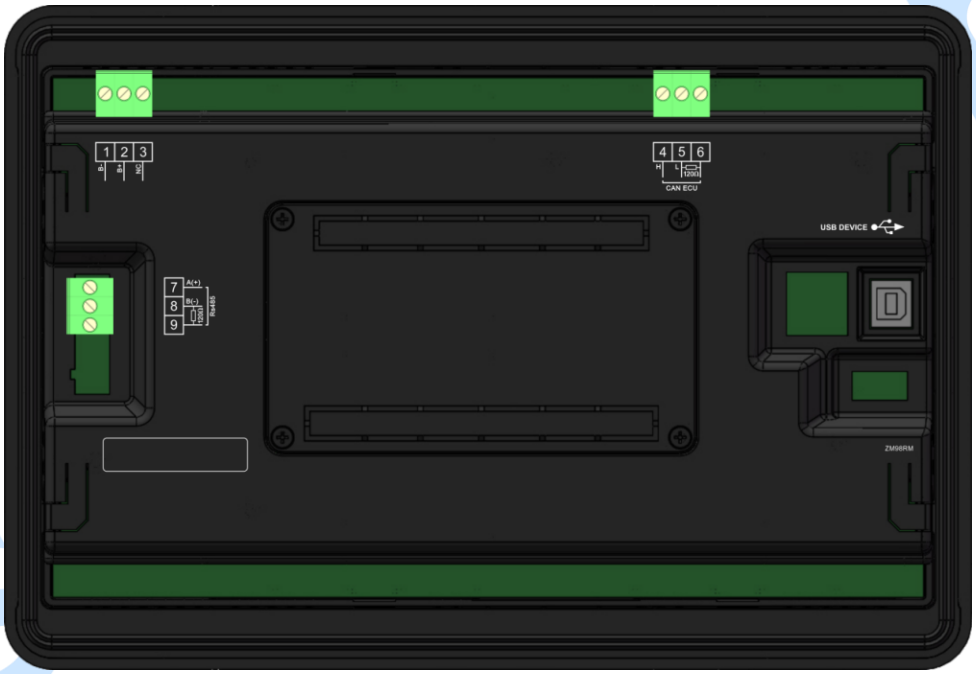

Fig.4 HMC9800RM Terminals Drawing

Table 6 Terminals Wiring Connection Description

No.	Function	Cable	Remark
1	B-	1.0mm^2	Negative of DC power supply input
2	B+	1.0mm^2	Positive of DC power supply input
3	NC		Not connected
4	CAN(H)	0.5mm^2	It is CANBUS port which communicates with host controller; impedance-120Ω shielding wire is recommended with its single-end earthed.
5	CAN(L)		
6	120Ω		
7	RS485(A+)	0.5mm^2	It is 485 port which communicates with host controller; impedance-120Ω shielding wire is recommended with its single-end earthed.
8	RS485(B-)		
9	120Ω		
	USB	It is port to configure parameters.	

7 TYPICAL APPLICATION

HMC9800RM communicates with HMC4000 via RS485 port. HMC4000RM must be selected enabled on HMC4000 before communication. Details application is as below,

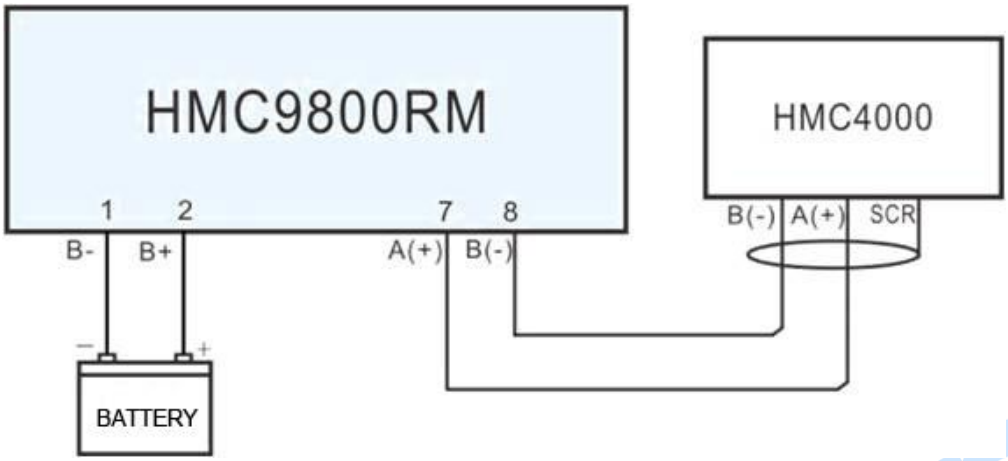

Fig.5 HMC9800RM Typical Application Diagram

8 OVERALL AND INSTALLATION DIMENSIONS

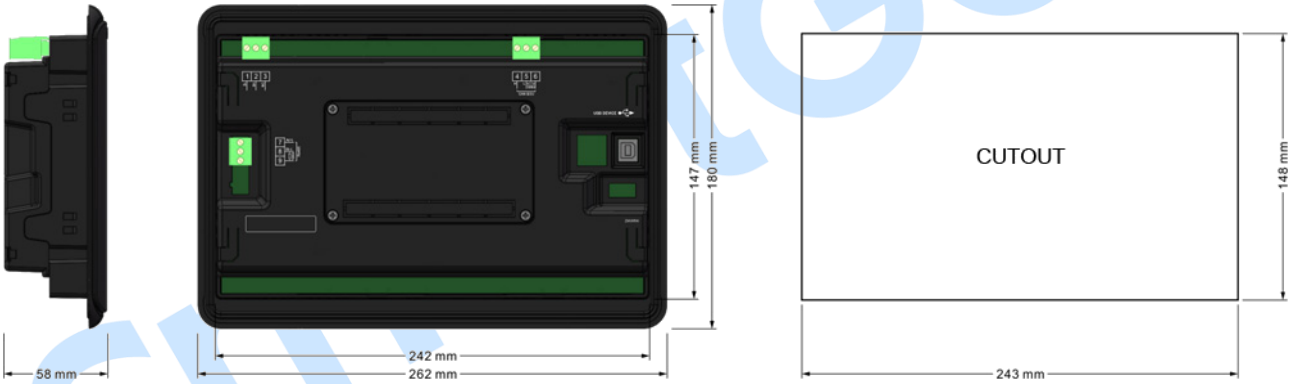

Fig.6 Overall Dimensions

9 TROBLESHOOTING

Table 7 Troubleshooting

Problem	Possible Solution
Controller no response with power	Check controller connection wirings.
Communication failure	Check RS485 connection wirings.
Big error of meter data display	Check corresponding meter settings.