



SmartGen
ideas for power

CMM366-3G

CLOUD MONITORING COMMUNICATION MODULE

USER MANUAL



SMARTGEN (ZHENGZHOU) TECHNOLOGY CO., LTD.



Chinese trademark

SmartGen English trademark

SmartGen — make your generator *smart*

SmartGen Technology Co., Ltd.

No.28 Jinsuo Road

Zhengzhou

Henan Province

P. R. China

Tel: 0086-371-67988888/67981888

0086-371-67991553/67992951

0086-371-67981000(overseas)

Fax: 0086-371-67992952

Web: <http://www.smartgen.com.cn>

<http://www.smartgen.cn>

Email: sales@smartgen.cn

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Software Version

Date	Version	Note
2016-01-19	1.0	Original release.
2017-08-23	1.2	1. Changed SIM card installation steps; 2.Changed default address to "cm.smartgen.com.cn"; 3. Added SMS parameter settings; 4.Added more types of generator-set monitoring module; 5. Changed "ISOLATION" of the front foil.

CONTENT

1	OVERVIEW	4
2	PERFORMANCE AND CHARACTERISTICS	4
3	SPECIFICATION.....	5
4	PANEL AND TERMINAL DESCRIPTION.....	6
4.1	PANEL INDICATOR AND BUTTONS.....	6
4.2	GPRS	7
4.3	GPS.....	7
4.4	SIM INSTALLATION.....	7
4.5	RS485	8
4.6	RS232	8
4.7	LINK	8
4.8	USB HOST	9
4.9	USB DEVICE	9
4.10	TERMINAL.....	10
5	PROGRAMMABLE PARAMETERS	11
5.1	CONTENTS AND SCOPES OF PARAMETERS	11
5.2	PC CONFIGURATION INTERFACE.....	15
6	SMS FUNCTION AND REMOTE CONTROL.....	17
6.1	SMs SHORT MESSAGE ALARM	17
6.2	GSM SHORT MESSAGE REMOTE CONTROL.....	17
7	SYSTEM DIAGRAM.....	18
8	CASE DIMENSION AND INSTALLATION	19
9	FAULT FINDING.....	20

1 OVERVIEW

CMM366-3G Cloud Monitoring Communication Module is GPRS wireless network communication protocol switch module which can achieve genset (with SCI) connect to Internet. The module gains genset data via RS485 port, USB port, LINK port or RS232 port of genset controller modules of international first-class brands including SmartGen, DeepSea, ComAp, etc. Then the module transmits the data to corresponding cloud server via GPRS wireless network for achieving user's real-time monitoring to running status and searching of running records via APP (IOS or Android) and pc terminal devices.

CMM366-3G module has already integrated protocols of mainstream genset control module. It not only can achieve genset monitoring but also can insert some digital alarm input/output signal to achieve monitoring of generator room entrance guard, guard against theft and fire facilities.

This module, which has GPS locate function, can upload gained longitude, latitude and elevation to corresponding cloud server.

2 PERFORMANCE AND CHARACTERISTICS

- 1) Connect to cloud server via WCDMA 3G&GPRS 2G, one to one monitoring;
- 2) Multiple ports for communication with genset control module: RS485, RS232, LINK and USB (Host); can monitor great majority genset control modules of international first-class brands;
- 3) Widely power supply: DC (8~35)V, can direct use genset build-in battery;
- 4) With ARM-based 32-bit SCM, high integration of hardware and strong programming ability;
- 5) Include with GPS locate function to achieve gain location information and locate genset;
- 6) Take JSON network data communication protocol, upload real-time data variation and take compression algorithm to vastly reduce network flow at the same time;
- 7) Users can set up history data upload rest to upload monitoring data to server (history data can be analyzed);
- 8) When alarm occurs it can upload data to server immediately;
- 9) 2 auxiliary digital input ports which can receive external alarm signal;
- 10) 1 auxiliary relay output ports which can output various of alarm signal;
- 11) Power and multiple communication status indicators on front panel that working status is clear at a glance;
- 12) Lamp test function;
- 13) Parameter adjust function: users can adjust parameters via USB port;
- 14) Take standard π -type 35mm guide-rail installation or screw-fixed installation that the module can be installed in the genset control box;
- 15) Modular design, self extinguishing ABS plastic shell, light weight, compact structure with easy installation.

3 SPECIFICATION

Items	Contents
Operating Voltage	DC 8.0V~35.0V, continuous power supply.
Power Consumption	Standby: ≤2W Working: ≤5W
Auxiliary Input	Digital Input, connect (B-) is active.
Auxiliary Output	1A DC30V Volts free output
USB Host	A-type USB mother port
RS485	Seclusion type
RS232	General type
LINK	SmartGen exclusive port
USB Device	B-type USB mother port
GPRS Port	Standard SMA port (female), SMA port (male) for antenna.
GPS Port	Standard SMA port (female), SMA port (male) for antenna, active antenna.
Wireless Network	WCDMA 3G GPRS 2G
Case Dimensions	73mmx105mmx33mm
Working Conditions	Temperature: (-25~+70)°C Humidity: (20~93)%RH
Storage Condition	Temperature: (-25~+70)°C
Weight	0.15kg

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4 PANEL AND TERMINAL DESCRIPTION

4.1 PANEL INDICATOR AND BUTTONS



Icon	Note
POWER/ALARM	GreenLED Light: Power supply normal indicator RedLED Light: Common alarm indicator
RS485(Red)	Normally Extinguish: RS485 disabled Normally Light: Communication fail Blink: Communication normal
USB(Red)	Normally Extinguish: USB(Host) disabled Normally Light: Communication fail Blink: Communication normal
GPS(Red)	Normally Extinguish: GPS disabled Normally Light: GPS not gained satellite signal Blink: GPS gained satellite signal
LINK(Red)	Normally Extinguish: Disabled Normally Light: Communication fail Blink: Communication normal
RS232(Red)	Normally Extinguish: RS232 disabled Normally Light: Communication fail Blink: Communication normal
GPRS/3G(Red)	Extinguish: CMM366-3G login with server unsuccessfully Light: Login with server successfully Blink: Real-time communication normal

Lamp test/Rest:

Press this button for 1s, all the LEDs are illuminated; press for 10s, reset the module to default and all the LEDs blink for 3 times.

▲ NOTE: After reset the module, set up the parameters via PC software is recommended. Please operate cautiously.

4.2 GPRS

Connect GPRS antenna to GRPR/3G port.

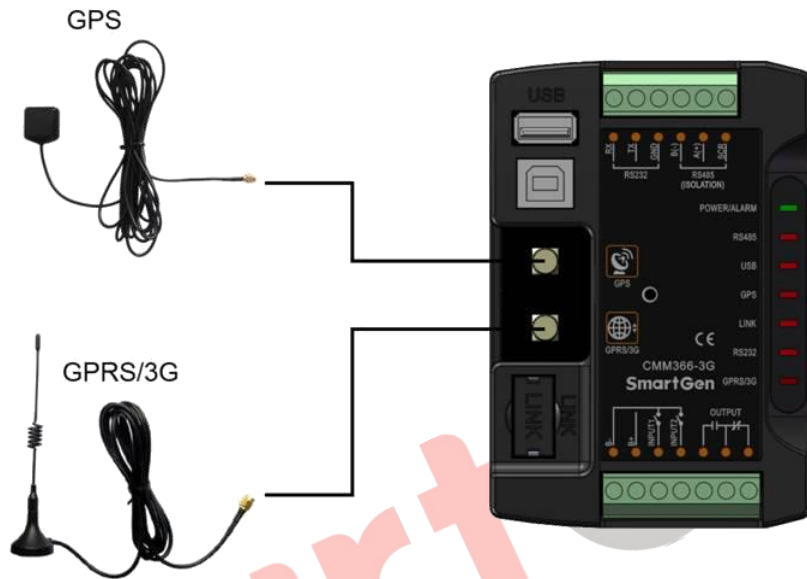
Antenna: 50Ω/SMA female.

4.3 GPS

GPS enabled, connect GPS antenna to CMM366-3G.

▲ NOTE: GPS antenna needs to be placed to open outdoors, otherwise location information may not accurate or cannot be gained.

Antenna: 50Ω/SMA female, active antenna.



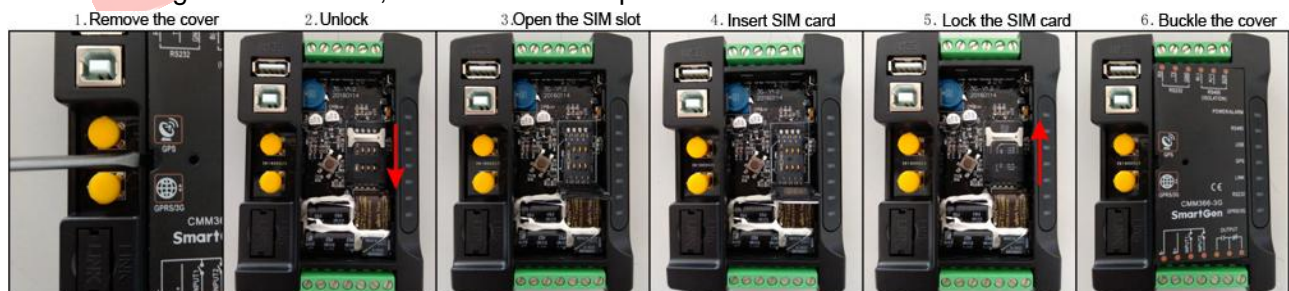
▲ NOTE: GPRS antenna and GPS antenna cannot be connected reversely.

4.4 SIM INSTALLATION

Insert 3G or 2G SIM card. CMM366-3G will connect to servers via GPRS network.

▲ NOTE: WCDMA 3G network, all 2G network are supported. Use standard SIM card (25mmX15mm); If GPS indicator and GPRS indicator blink in the same time, which means SIM card hasn't been inserted or bad contacts.

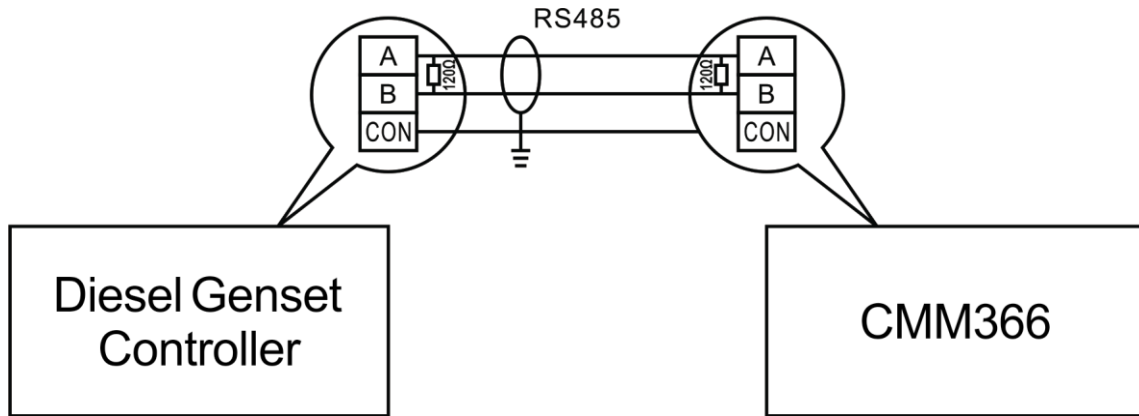
After removing the head cover, the installation steps are as below:



4.5 RS485

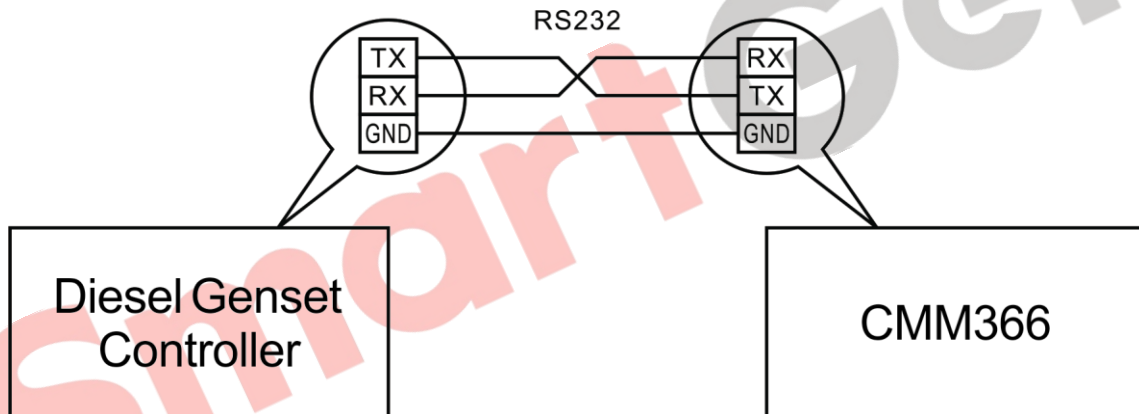
Receive genset data information by CMM366 RS485 port connecting with Genset Controller RS485 port.

If communication is abnormal, 120Ω terminal resistance is recommended. One end of shield wire hangs in the air and the other one connects with SCR.



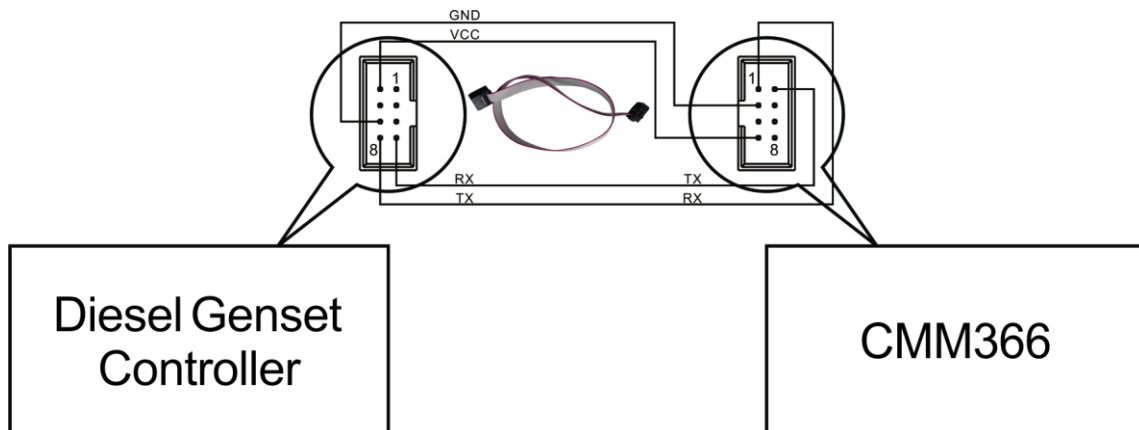
4.6 RS232

Receive genset data information by CMM366 RS232 port connecting with Genset Controller RS232 port.



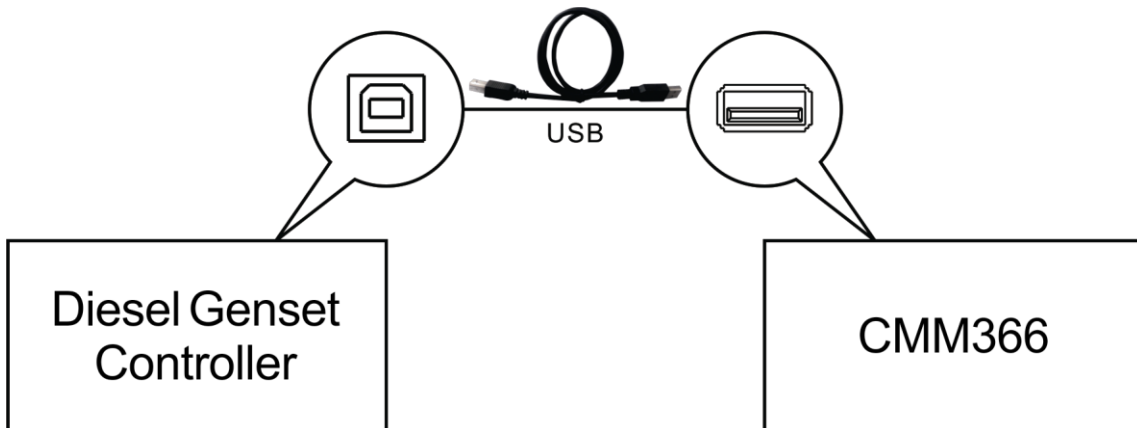
4.7 LINK

Receive genset data information by CMM366 LINK port connecting with Genset Controller LINK port.



4.8 USB HOST

Receive genset data information by CMM366 A-type USB mother port connecting with Genset Controller USB port.



4.9 USB DEVICE

Set up all the parameters and view CMM366-3G ID&Login password by CMM366 USB port connecting with PC USB port.



4.10 TERMINAL

No.	Function	Cable Size	Note
1	B-	1.0mm ²	Connected with negative of starter battery.
2	B+	1.0mm ²	Connected with positive of starter battery. 3A fuse is recommended.
3	Aux. Input 1	1.0mm ²	Active when connect to B-.
4	Aux. Input 2	1.0mm ²	Active when connect to B-.
5	Aux. Output	Normally Open	Normally open outputs, rated 1A DC30V
6		Common	
7		Normally Close	
8	RS485 B(-)	0.5mm ²	Impedance-120Ω shielding wire is recommended, its single-end earthed.
9	RS485 A(+)	0.5mm ²	
10	RS485 (SCR)	0.5mm ²	
11	RS232 RX	0.5mm ²	RS232
12	RS232 TX	0.5mm ²	
13	RS232 GND	0.5mm ²	

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5 PROGRAMMABLE PARAMETERS

5.1 CONTENTS AND SCOPES OF PARAMETERS

Form1

No.	Items	Parameters	Defaults	Description
Gateway				
1	Website	(0-65535)		20 Chinese characters, letters or numbers
2	URL	(0-65535)	cm.smartgen.com.cn	40 characters
3	Server Port	(0-65535)	81	
4	Password	(0-65535)	123456	16 characters
GPS				
1	GPS Enabled	(0-1)	0	0: Disabled 1: Manual Input
2	Longitude	(-180-180)°	0.000000	GPS location, altitude
3	Latitude	(-90-90)°	0.000000	
4	Altitude	(-9999.9-9999.9)	100.0	
GSM				
1	GSM Enabled	(0-1)	1	0:Disabled; 1:Enabled
2	GPRS Password	Reserved		
3	Message Center	Reserved		
4	PIN Enabled	(0-1)	0	
5	APN	(0-65535)	40 characters	
6	SMS Enabled	(0-1)	0	
7	SMS Alarm Language	(0-1)	0	
8	Telephone Number Setting	Max. 20 numbers		Phone number need to be added area code, such as China 86136666666666.
Cloud Server				
1	Auto Gain Comm. Port	(0-1)	1	0:Disabled; 1:Enabled
2	ID	(1-254)	1	Module ID
3	Communication Port	(0-4)	2	0:Disabled; 1:LINK; 2:RS485; 3:RS232; 4:USB
4	Baud Rate	(0-2)	0	0:9600bit/s; 1:19200bit/s 2: 115200 bit/s
5	Location Info	(0-1)	0	0: Manual input location info 1: Use GPS to gain location
6	Longitude	(-180-180)°	0.000000	Manually set module location and elevation.
7	Latitude	(-90-90)°	0.000000	



No.	Items	Parameters	Defaults	Description
8	Altitude	(-9999.9-9999.9)	100.0	
9	Type	(0-65535)	6000	See: Form4
10	Name	(0-65535)	Module Names(20 Chinese characters, letters or numbers)	
11	Debug Staff Name	20 Chinese characters, letters or numbers		
12	Telephone	20 Chinese characters, letters or numbers		
13	Installation Time	20 Chinese characters, letters or numbers		
14	History Data Rest	(0-3600)s	0	History data upload rest. Note: No upload when it is 0s
15	Time Zone	(-12-12)	8	Time Zone
16	Real-time Data Uploaded Interval	(1-20)s	5	Interval time of uploading data.
Module Configuration Info				
1	Type	(0-5)	1	0:AMF module 1:Single-unit self-starting module 2: Single-single parallel module 3:Mains-genset parallel module 4:Mains-bus parallel module 5:Bus-bus parallel module Note: The parameter will auto change according to genset type.
2	Rated Speed	(0-6000)r/min	1500	Rated Speed
3	AC Supply	(0-3)	0	0:3P4W;1:3P3W;2:2P3W;3:1P2W。
4	Rated Volt	(30-30000)V	230	Rated Volt
5	Rated Freq	(10-600)Hz	50	Rated Freq
6	Rated Current	(5-6000)A	500	Rated Current
7	Rated Power	(0-6000)kW	276	Rated Power
8	Custom Description 1	(0-65535)	Custom Description (20 Chinese characters, letters or numbers)	
9	Custom Description 2	(0-65535)	Custom Description (20 Chinese characters, letters or numbers)	
10	Custom Description 3	(0-65535)	Custom Description (20 Chinese characters, letters or numbers)	
11	Custom Description 4	(0-65535)	Custom Description (20 Chinese characters, letters or numbers)	
12	Custom Description 5	(0-65535)	Custom Description (20 Chinese characters, letters or numbers)	
Digital Input				
Digital Input 1				
1	Setting	(0-9)	0	Default: Not used
2	Type	(0-1)	0	0:Active when close 1:Active when open See: Form2
3	Delay	(0-20.0)	0.0	Action delay
Digital Input 2				



No.	Items	Parameters	Defaults	Description
3	Setting	(0-9)	1	Default: Lamp test
4	Type	(0-1)	0	0:Active when close 1:Active when open See: Form2
5	Delay	(0-20.0)	0.0	Action delay
Digital Output				
1	Setting	(0-14)	0	Default: Not used See: Form3

Form2

No.	Item	Description
0	Not Used	Not used.
1	Lamp Test	All the indicators are illuminated when input is active.
2	Remote Control Inhibited	Cloud start/stop control is prohibited when input is active.
3	Access Alarm Input	Access alarm is uploaded to server when input is active.
4	Fire Alarm Input	Fire alarm is uploaded to server when input is active.
5	Alarm Input	External alarm is uploaded to server when input is active.
6	Reserved	
7	Reserved	
8	Reserved	
9	Factory Test Mode	It is only used for factory hardware port test when active.

Form3

No.	Item	Description
0	Not used	Output port won't output when this item is selected.
1	Digital Input 1 Active	Output when auxiliary input 1 is active.
2	Digital Input 2 Active	Output when auxiliary input 2 is active.
3	RS485 Comm. Fail	RS485 communication fails.
4	Network Comm. Fail	Network communication fails.
5	LINK Comm. Fail	LINK communication fails.
6	RS232 Comm. Fail	RS232 communication fails.
7	Common Alarm	Output when there is an alarm.
8	Remote Control Output	Send remote control commands via cloud platform with fixed output delay 20s.
9	Reserved	
10	Reserved	
11	Reserved	
12	Reserved	
13	Reserved	
14	Reserved	

Form4

Manufacturers	Type	Note
SmartGen	HGM6110/HGM6110CAN	Single-unit self-starting module
	HGM6120/HGM6120CAN	AMF module
	HGM7x10	Single-unit self-starting module
	HGM7x20	AMF module
	HGM410	Single-unit self-starting module
	HGM420	AMF module
	HGM9120	AMF module
	HGM9210	Single-unit self-starting module
	HGM9220	AMF module
	HGM9310	Single-unit self-starting module
	HGM9320	AMF module
	HGM9410	Single-unit self-starting module
	HGM9420	AMF module
	HGM9510	Single-single parallel module
	HGM9520	Mains-genset parallel module
	HGM9530	Single-single parallel module
	HGM9540	Mains-genset parallel module
	HGM9560	Mains-bus parallel module
	HGM9580	Bus-bus parallel module
	HGM9610	Single-unit self-starting module
	HGM9620	AMF module
	HGM4010N	Single-unit self-starting module
	HGM4020N	AMF module
	HGM1790N	Single-unit self-starting module
	TC1.0	AMF module
	TC2.0	AMF module
	TC3.0	Single-single parallel module
	ALC708	Single-unit self-starting module
ZX9320	AMF module	
HSC940	Single-unit self-starting module	
DeepSea	DSE7110MKII	Single-unit self-starting module
	DSE7120MKII	AMF module
	DSE7210	Single-unit self-starting module
	DSE7220	AMF module
	DSE7310	Single-unit self-starting module
	DSE7320	AMF module
	DSE7410	Single-unit self-starting module
	DSE7420	AMF module
	DSE7450	Single-unit self-starting module
	DSE8610	Single-single parallel module
	DSE8620	Mains-genset parallel module
ComAp	MRS10 II	Single-unit self-starting module

Manufacturers	Type	Note
	MRS16 II	Single-unit self-starting module
	AMF25 II	AMF module
	IGNT	Single-single parallel module
	MINT	Single-single parallel module
	SPTM	Mains-genset parallel module
	MC-NT	Mains-bus parallel module
Harsen	GU620A	Single-unit self-starting module
	GU621A	AMF module
	GU630A	Single-unit self-starting module
	GU631A	AMF module
	GU620A-00	Single-unit self-starting module
	GU621A-00	AMF module
	GU630A-00	Single-unit self-starting module
	GU631A-00	AMF module
	GU320A	Single-unit self-starting module
	GU320B	Single-unit self-starting module

5.2 PC CONFIGURATION INTERFACE

The USB port of CMM366-3G communication module connects PC port to configure the parameters.

Gateway

Site Name	<input type="text"/>
Server Url	<input type="text" value="monitor.smartgen.com.cn"/>
Server Port	<input type="text" value="81"/> (0-65535)
Security Code	<input type="text" value="123456"/>

Gateway Configuration

Cloud Servers

Debugger Name	<input type="text"/>
Phone Number	<input type="text"/>
Installation Date	<input type="text"/>
Ethernet Set	Cloud
LINK Set	Modbus
Time Zone	(GMT+08:00) Beijing, Chongqing, Hong Kong, U
Historic upload interval	<input type="text" value="0"/> s <input type="range" value="0"/> (0-3600)s
Live Data upload interval	<input type="text" value="5"/> s <input type="range" value="5"/> (1-20)s

Module Name	Config	<input checked="" type="checkbox"/> Obtain Port automatically			Module	<input type="checkbox"/> Location Info		
		Port	Baud	ID		Longitude	Latitude	Altitude
	Config	RS485	9600		HGM6110	0.000000	0.000000	100.0

Cloud Server Configuration



Monitoring

Satellite Num.	0	Altitude	100
Longitude	113.571129	Hardware Ver.	V 1.2
Latitude	34.806438	Software Ver.	V 1.3
Input 1		Issue Date	2016-01-19
Input 2		Module Time	2016-01-27(3) 15:27:56
Output 1			
Module ID	<input type="text" value="3830333313334510900230035"/>	<input type="button" value="Print"/>	<input type="button" value="Print Preview"/>

Module Monitoring Interface



6 SMS FUNCTION AND REMOTE CONTROL

6.1 SMS SHORT MESSAGE ALARM

When controller detects alarm, it will send short message to phone automatically.

▲NOTE: SMS short message alarm function only suit for SmartGen HGM7000 series and HGM9000 series controllers.

▲NOTE: All alarms about shutdown, trip and stop and trip will be sent to the pre-set phone. Warnings are sent to the phone according to the pre-set.

6.2 GSM SHORT MESSAGE REMOTE CONTROL

Users send order message to the module, then controller will make actions according to this SMS order and pass back corresponding operations information. Controllers only execute the orders by pre-set.

SMS Orders List:

No.	SMS Orders	Pass Back Information	Description
1	SMS GENSET	GENSET ALARM	When genset is stopping alarm
		SYSTEM IN STOP MODE GENSET AT REST	At rest status in stop mode
		SYSTEM IN MANUAL MODE GENSET AT REST	At rest status in manual mode
		SYSTEM IN TEST MODE GENSET AT REST	At rest status in test mode
		SYSTEM IN AUTO MODE GENSET AT REST	At rest status in auto mode
		SYSTEM IN STOP MODE GENSET IS RUNNING	Running status in stop mode
		SYSTEM IN MANUAL MODE GENSET IS RUNNING	Running status in manual mode
		SYSTEM IN TEST MODE GENSET IS RUNNING	Running status in test mode
		SYSTEM IN AUTO MODE GENSET IS RUNNING	Running status in auto mode
2	SMS START	GENSET ALARM	Generator is shutdown alarm or trip alarm
		STOP MODE NOT START	Cannot start in stop mode
		SMS START OK	Start in manual/test mode
		AUTO MODE NOT START	Cannot start in auto mode
3	SMS STOP MODE	SMS STOP OK	Set as stop mode
4	SMS MANUAL MODE	SMS MANUAL MODE OK	Set as manual mode
5	SMS TEST MODE	SMS TEST MODE OK	Set as test mode

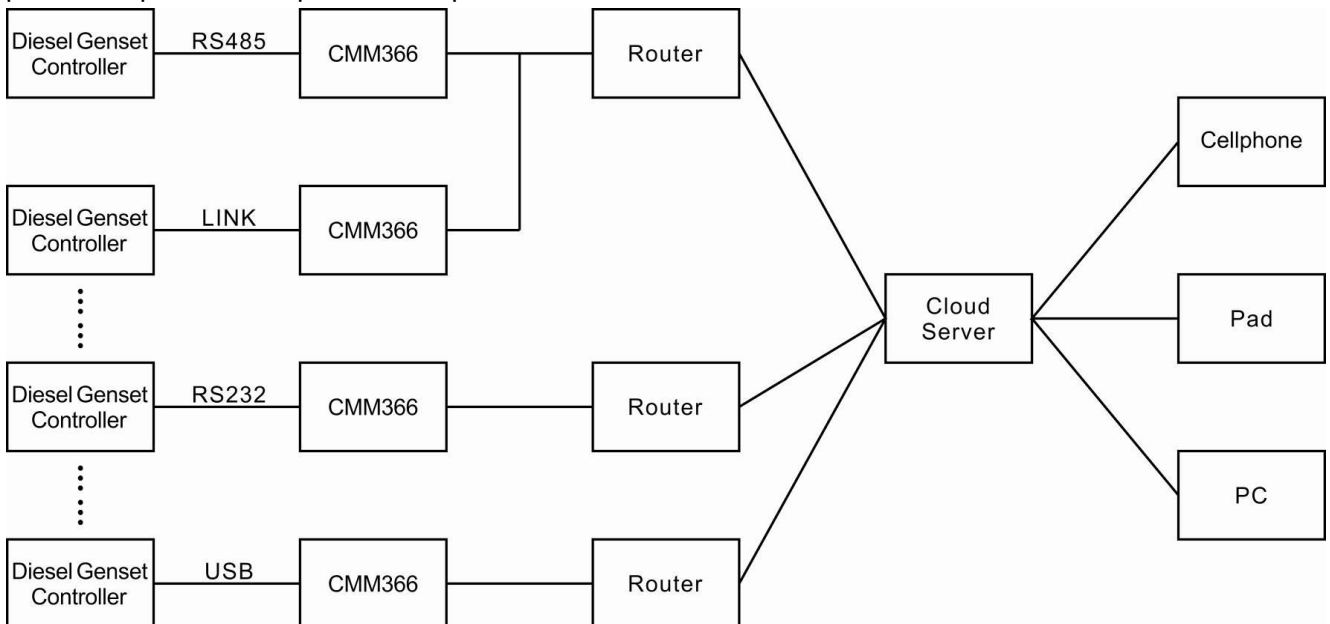
No.	SMS Orders	Pass Back Information	Description
6	SMS AUTO MODE	SMS AUTO MODE OK	Set as auto mode
7	SMS DETAIL	Pass back information can be set via controller software.	Gets details information of genset.

NOTE: When sending orders, users need to follow SMS orders in above form and all the letters must be capital.

NOTE: Pass back information from SMS DETAIL including: working mode, mains voltage, generator voltage, load current, mains frequency, generator frequency, active power, apparent power, power factor, battery voltage, D+ voltage, water temperature, oil pressure, oil level, engine speed, total running time, genset status, and alarm status.

7 SYSTEM DIAGRAM

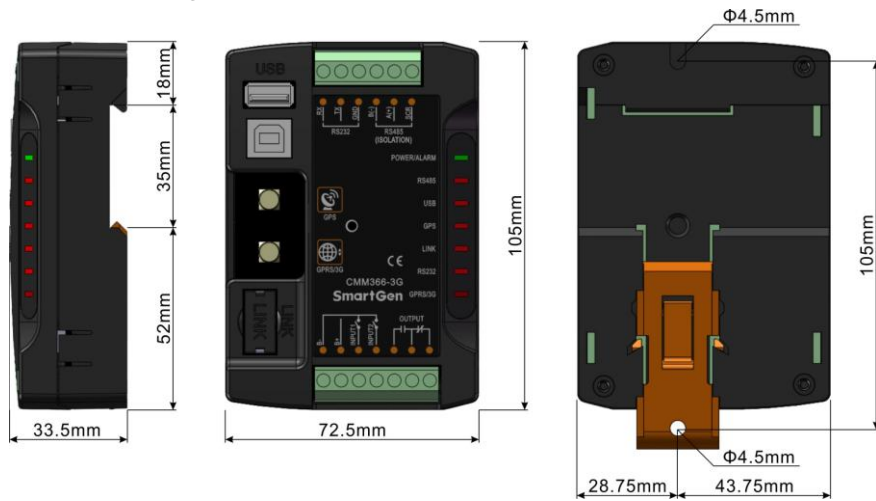
One CMM366-3G module connects with one genset monitor module. It can be connected via RS485 port, LINK port, RS232 port or USB port.



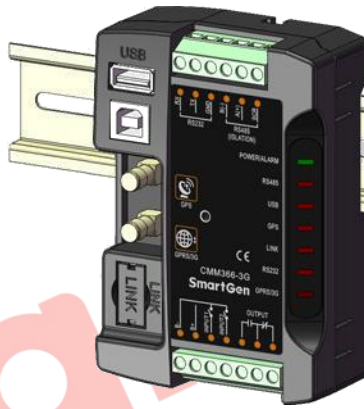
CMM366-3G System Diagram

8 CASE DIMENSION AND INSTALLATION

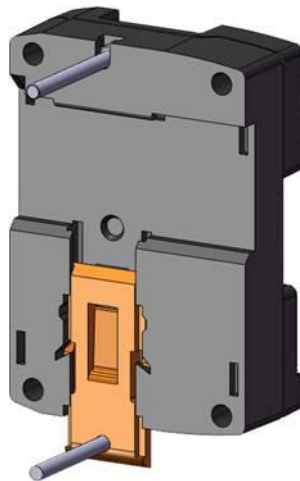
2 ways for installation: 35mm guide rail in box or screw (M4) installation as below:



CMM366-3G Case Dimension



CMM366-3G Guide Rail Installation



CMM366-3G Screw Installation

9 FAULT FINDING

Symptoms		Possible Solutions
Controller no response with power.		Check power voltage; Check controller connection wirings.
Network Indicator Not Light		Check SIM card is inserted or not; Check GPRS antenna is connected or not.
GPS Not Gained Location		Check GPS parameters are enabled or not; Check GPS antenna is connected or not and placed outdoor or not.
RS485 Abnormal	Communication	Check connections; Check RS485 port is enabled or not; Check settings of genset ID and baud rate are correct or not. Check RS485's connections of A and B is reverse connect or not.
RS232 Abnormal	Communication	Check connections; Check RS232 port is enabled or not; Check settings of genset ID and baud rate are correct or not.
LINK Abnormal	Communication	Check connections; Check LINK port is enabled or not; Check settings of genset ID and baud rate are correct or not.

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