

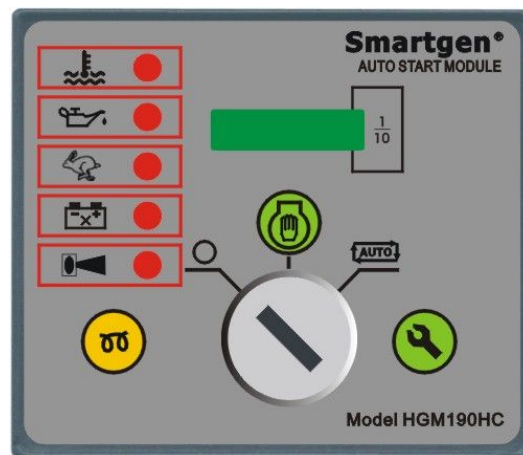
Smartgen®

Genset units & ATS control

HGM190/190HC

AUTO START MODULE

OPERATING MANUAL



SMARTGEN ELECTRONICS

History

Version	Date	Content
1.0	2007-11-18	Original release.

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1. DESCRIPTION

The Model HGM190hc is an **Automatic Engine Control Module**. The module is used to automatically start and stop the engine, indicating the operational status and fault conditions, automatically shutting down the engine and indicating the engine failure by LED on the front panel.

2. SPECIFICATION

DC Supply:

8 to 35 V Continuous.

Speed Sensor Input Range:

1 – 70V (p-p)

Speed Sensor Input Frequency:

500Hz -10kHz.

Start Output:

Relay 1A plant battery positive B+ terminal

Fuel Output:

Relay 1A plant battery positive B+ terminal

Pre-heat Output:

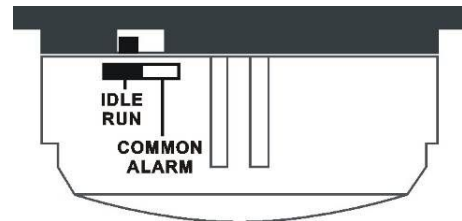
Relay 1A plant battery positive B+ terminal

Stop Output:

Relay 1A plant battery positive B+ terminal

Configure Output:

Relay 1A plant battery positive B+ terminal



This output can configure Alarm output or Idle output by the code switch on the under side.

Operating Temperature Range:



-30 to +70°C

3. OPERATION

If you use hgm190 for the first time, configure is necessary. If you want to configure the module, please look [Configuration](#).


Operation of the module is via a three position key switch mounted on the front panel with OFF (O), START (S) and AUTO (A) positions. In the 'O' position the output are de-energized.

Manual Operation:

1. Select manual run ()
2. Depress pre-heat button for required length of time
3. Press START () to crank engine

Once the Start button is pressed and maintained, the engine fuel system is energized. The 'Crank' output is then energized and the starter motor operated, disengaging automatically when the engine fires or when the 'Start' button is released. The protection hold-off timer is then initiated.

Automatic Operation:

1. Select AUTO ()
2. When **Remote Start** is active, the generator will automatic start.

Operation of any of the following alarms (which are close on fault) will cause the run output to de-energize:

- . **Low Oil Pressure**
- . **High Engine Temperature**
- . **Auxiliary Shutdown**
- . **Over speed**

This will remove the fuel supply from the engine and bring it to rest. Each alarm has its own LED indicator and once activated no further alarm conditions will be accepted. The alarm output and relevant LED will remain active until the unit is reset by turning the switch to the 'O' position.

4. OVER SPEED PROTECTION


Over speed protection is derived from magnetic pickup sensor. Over 114% of rated speed will shutdown the engine.



During engine cranking and for a short time afterwards the **protection hold-off timer** (*10 seconds*) is active and the relevant alarm inputs are inhibited. This enables the engine to start and achieve normal running conditions. Once the timer has expired the inputs are enabled providing normal protection from the module.


























































5. CHARGE FAILURE WARNING






Charge Failure warning is also provided by monitoring the WL terminal on the charge alternator. This operates on a similar principal to the warning lamp fitted in a motor vehicle, should the output fail the charge fail LED will illuminate. The module will also provide the alternator excitation current via this connection.














6. CONFIGURATION

6.1 Turn the position key to the 'O' position, press the set button () over 5 seconds, configuration mode(idle time, Start succeed speed) will is selected.

6.2 The Pre-Heat button() can be used to select the item. The set button () will allow the user to change the value of the function.

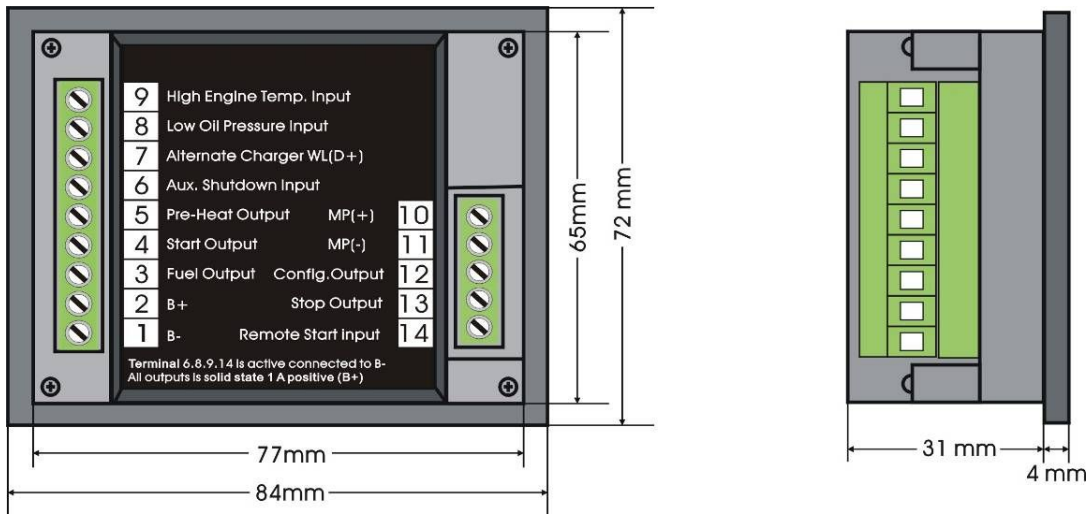
Function						Value
idle time						5 Seconds
						10 Seconds(<i>Default</i>)
						15 Seconds
						20 Seconds
						30 Seconds
						60 Seconds
						120 Seconds
						180 Seconds
Start succeed speed (percent of rated speed)						12% (<i>Default</i>)
						18%
						24%
						30%
						36%
						12%
						12%
						12%

6.3 Turn the position key to the '' position, press the set button() over 5 seconds, configuration mode(rated speed) will be selected. now The Pre-Heat button() can be used to Pre-Heat output, The Start button() can be used to start engine, when the engine achieve rated speed, press the set button() to save rated speed .

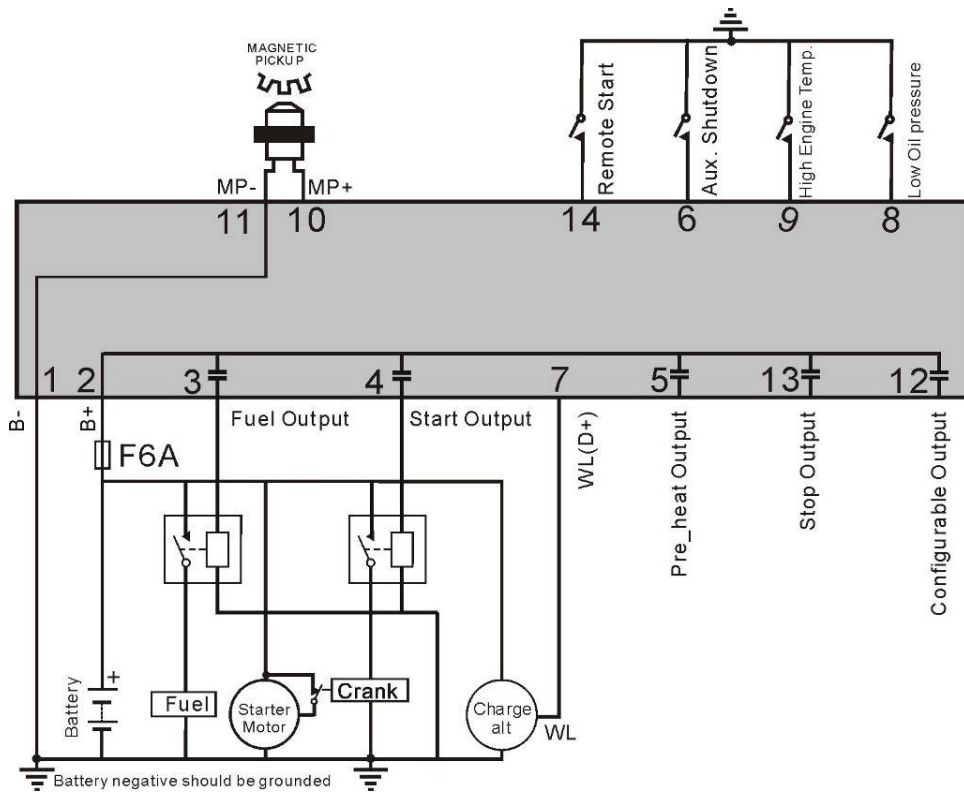
Function						Value
rated speed						Set fail
						Set succeed

6.4 Turn the position key to the 'O' position, quit configuration mode and engine will stop.

7. CASE DIMENSIONS(PANEL CUTOUT IS 78*66MM)



8. TYPICAL CONNECTIONS



9. INSTALLATION

Front panel mounting via suitable cutout. Retaining clips supplied. Cable connections via plug type terminals