

# HGM160 CONTROLLER

## DESCRIPTION

The Model 160 is an **Manual Engine Control Module**. The module is used to manual 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.

## OPERATION

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

### Manual Operation:

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

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.

## Over speed Protection

Over speed protection is derived from the generator Hz output. The over frequency circuit monitors the generator Hz output and will shut down the engine immediately if a pre-set frequency level is exceeded. This trip level is selected by a switch for either 50Hz or 60Hz nominal operation (57Hz or 68Hz trip respectively).



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.

## 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.

## SPECIFICATION

### DC Supply:

8 to 35 V Continuous.

### Alternator Input Range:

15 - 275 V AC RMS

### Alternator Input Frequency:

50 - 60 Hz at rated engine speed.

(Minimum 75V AC)

Over speed: nominal frequency +14% (+24% Overshoot)

### Start Output:

Solid State 200mA negative grounding terminal

### Fuel Output:

Solid State 200mA negative grounding terminal

### Pre-heat Output:

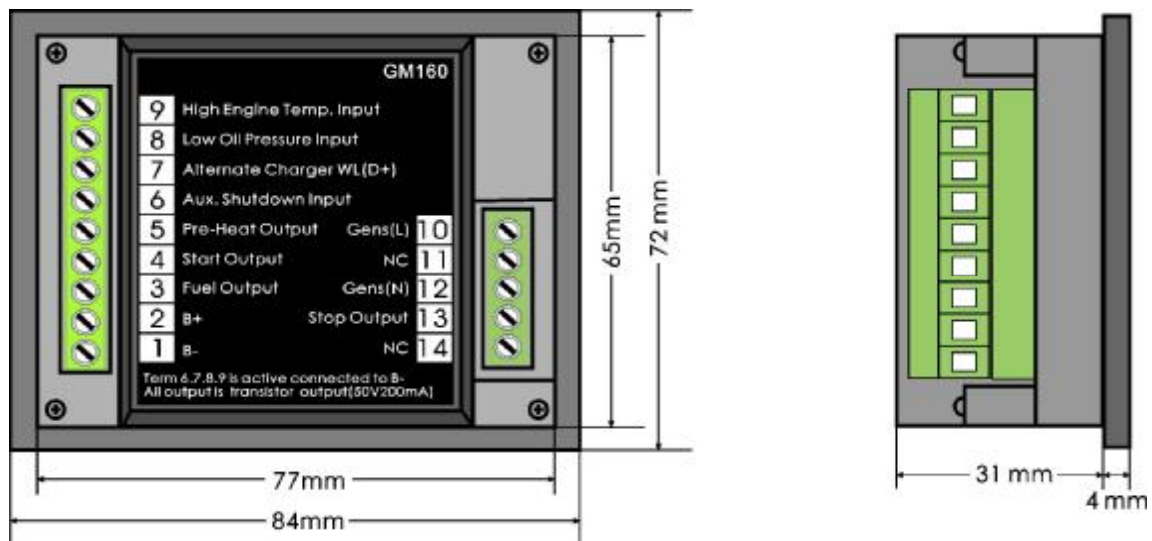
Solid State 200mA negative grounding terminal

### Operating Temperature Range:

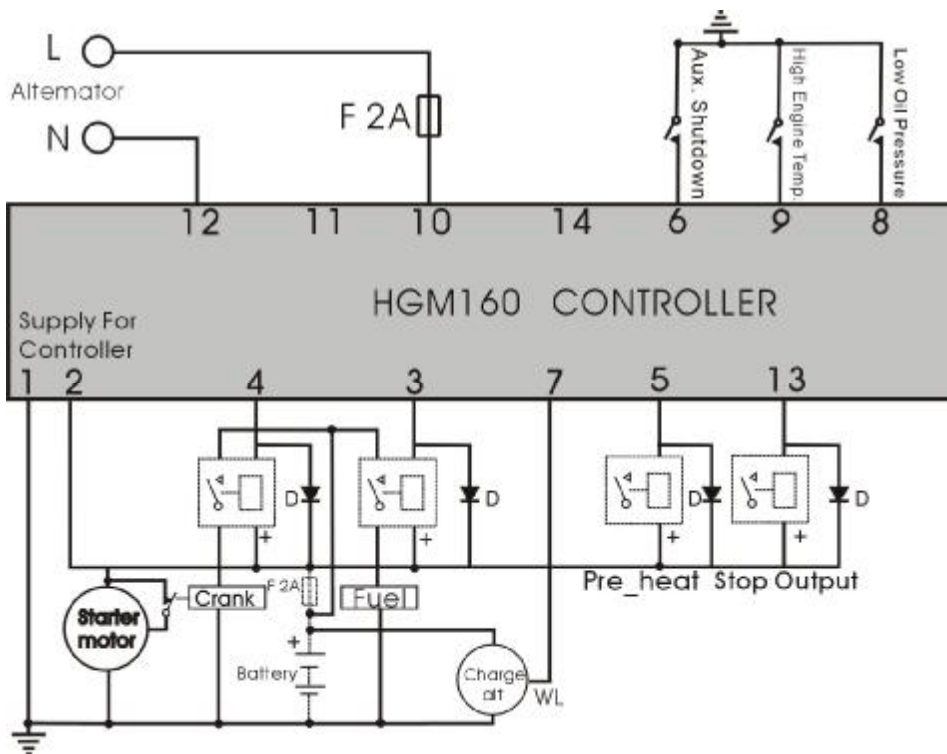
-30 to +70°C

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## CASE DIMENSIONS



## TYPICAL CONNECTIONS



### Installation:

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

### Calibration:

50/60Hz Speed setting switch accessible from the side of module.