



FEATURES

- **Micro-processor based design**
- **Automatic Engine Starting and Stopping with three start attempts and automatic crank disconnect**
- **Integral mains (utility) monitoring and load switching control.**
- **Suitable for Single or three phase systems**
- **Automatic Shutdown on fault condition**
- **High visibility LED indicators for Low Oil Pressure, High Engine Temp, Overspeed, Underspeed, fail to start, charge fail and two auxiliary LEDs**
- **Configurable via front panel**
- **Simple pushbutton controlled operation**
- **Configurable Digital Inputs**
- **Configurable Solid State Outputs**
- **Configurable Timer Settings**
- **Solid State Fuel and Crank outputs**
- **Load switch output capability**
- **External Remote Start input**
- **LED Alarm indication**
- **Integral tamperproof engine hours run counter**
- **Start Delay Timer**
- **Stop Delay Timer**
- **Energise to Stop timer**
- **Pre-heat Timer**
- **Over Speed Shutdown**
- **Optional Underspeed Protection**
- **Low Oil Pressure Shutdown**
- **High Engine Temp Shutdown**
- **Optional Crank Disconnect from Oil Pressure**

DESCRIPTION

The 4120 is an Automatic Mains Failure module with generator monitoring, protection and start facilities combining an integral LCD tamperproof engine hours run counter. It utilises advanced surface mount construction techniques to provide a compact yet highly specified module.

Operation of the module is via three pushbuttons mounted on the front panel with STOP, MANUAL and AUTO positions. Selection of the 'Auto' mode is confirmed by LED indicator, and monitors the incoming mains supply (3 phase or single phase). Should the incoming AC mains supply fall below a configurable pre-set limit (180V default), the generator will be started, and load transferred to the genset.

When the AC mains supply returns to within limits, the module will wait for a configurable, pre-set stabilisation period, and then transfer load back to the mains. The engine will be instructed to stop after a cool-down period.

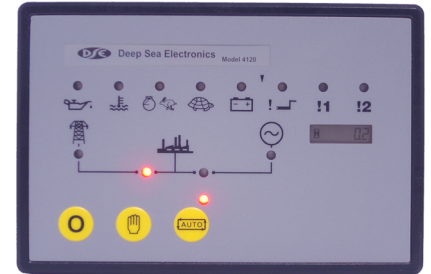
The module's microprocessor provides a comprehensive list of timers and functions, and access to the settings is via a small Configuration Switch on the rear of the module. Parameter settings can be adjusted using the front panel pushbuttons once in Configuration Mode. Issues such as environmental compliance and EMC have been carefully engineered into the design. Advanced features such as Protected Solid State Outputs mean that there are no moving parts or contacts to burn out.

OPERATION

Stop mode - This is used to stop the engine when it is running and to cancel 'Auto' mode. It is also used to reset any Shutdown alarm conditions.

Manual mode - This is used to manually start and run the engine. It can be stopped by pressing the Stop button.

Auto mode - This selects the automatic mode of operation, in which the module will await a mains failure. Once detected, the module will initiate its pre-configured start sequence, observing the Start Delay Timer before starting the engine. When the mains supply returns, the module will initiate its pre-configured stopping sequence.



SPECIFICATION

DC Supply:

8V to 35V Continuous.

Cranking Dropouts:

Able to survive 0V for 50 mS, providing supply was at least 10V before dropout and supply recovers to 5V. This is achieved without the need for internal batteries.

Max. Current:

170mA (12V), 280mA (24V)

Typical Current

35mA (12V and 24V)

Alternator Input Range:

75V (ph-N) to 277V (ph-N) 3 Phase 4 wire AC (+20%)

Alternator Input Frequency:

50Hz - 60Hz at rated engine speed (Minimum: 75V AC Ph-N) (Crank Disconnect from 15V Ph-N @ 20Hz) Overspeed +14% (+24% overshoot) Underspeed -20%

Start & Fuel Outputs:

1.2 Amp DC at supply voltage. Switches to battery negative when active.

Auxiliary Outputs:

1.2 Amp DC at supply voltage. Switches to battery negative when active.

Dimensions:

171mm x 115mm x 49mm (6¾" x 4½" x 2")

Charge Fail:

12V = 8V CF 24V = 16V CF

Operating Temperature Range:

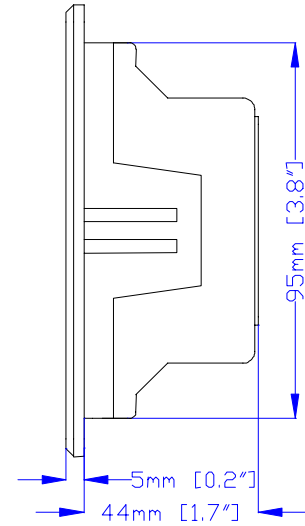
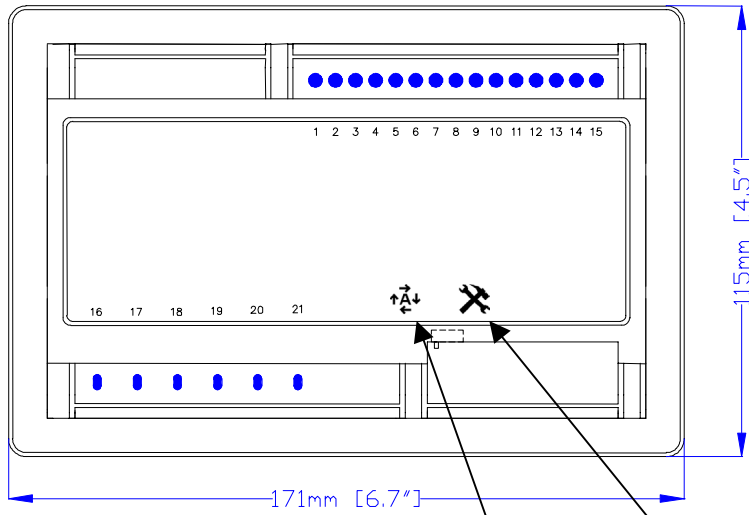
-30°C to +70°C

Engine hours run counter:

Tamperproof, LCD
0 - 99,999.9 hours

The 4100 series modules have been designed for front panel mounting. The module is fitted into the cutout, and is held with clips.

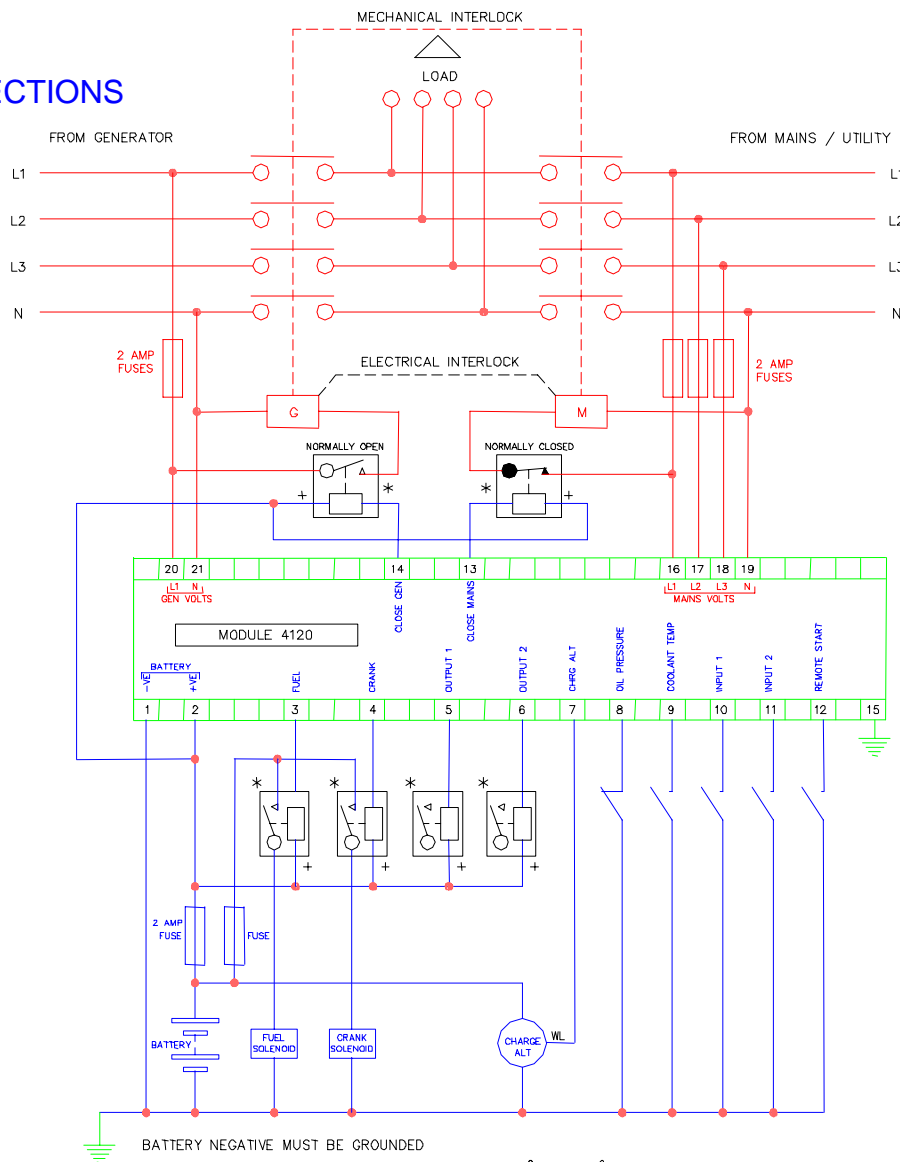
DIMENSIONS



Configure mode selector switch position : Normal mode Configure mode

Panel Cut Out :
154mm x 98mm (6.1 x 3.9")

TYPICAL CONNECTIONS



BATTERY NEGATIVE MUST BE GROUNDED
 TERMINALS SUITABLE FOR 22-16 AWG (0.6mm² - 1.3mm²) FIELD WIRING
 TIGHTENING TORQUE = 0.8Nm (7lb-in)
 * NOTE. ALL THE OUTPUTS ARE SOLID STATE AND ARE NEGATIVE SWITCHING

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