



# Deep Sea Electronics Plc

## 500 Series CONTROL MODULES

### MODEL 521 AUTOMATIC START MODULE

#### DESCRIPTION

The Model 521 is an **Automatic Engine Control Module**, which has been designed to allow the OEM to meet most of the industry's complex specifications. 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 a flashing LED and other simultaneous faults by a steady LED on the front panel. Selected operational sequences, timers and alarms can be altered by the customer. Alterations to the system are made by using either the 807 hand held calibration unit or a PC and the 808 interface. This also provides the operator with real time diagnostic facilities to monitor the operation of the system either locally or remotely. Remote PC controlled engine starting and stopping is also featured.

Operation of the module is via a three position rotary switch (key-switch option available) mounted on the front panel with STOP, AUTO and MANUAL positions.

Microprocessor control allows for **enhanced operation**, the module features a comprehensive list of timers and pre-configured sequences. This allows complex specifications to be easily met. Configurable expansion facilities are also provided for.

**Relay outputs** are provided for Fuel Solenoid Output, Start Output and three configurable outputs. Normally the relays are configured as pre-heat, load transfer and alarm outputs. However the relay function is configurable to activate on a range of 32 different functions, conditions or alarms. The relays supply positive plant supply out.

**Configurable inputs** are available for Low Oil Pressure, High Engine Temperature and Remote Start. This allows the module to function with N/O or N/C switches. Four fully configurable auxiliary inputs are provided to give protection expansion. These can be selected to be indication, warning or shutdown inputs either immediate or held off during start up. Uncommitted LED's allow annunciation.

**Multiple alarm channels** are provided to monitor the following:- Under/Overspeed, Charge Fail, Emergency Stop, Low oil pressure, High engine temperature, Fail to Start, Fail to stop, Loss of speed sensing and programmable inputs as selected. First up alarm is indicated by a flashing LED. Subsequent simultaneous alarms are displayed by a steady LED.

The 500 series modules have been designed for front panel mounting. The module is fitted into the cut-out with the fixing clips removed. These are then fitted from the rear. Connection is via locking plug and socket connectors.

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#### SPECIFICATION



**DC Supply:**

8 to 35 V Continuous.

**Cranking Dropouts:**

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

**Max. Operating Current:**

290 mA at 12 V. 210 mA at 24 V.

**Max. Standby Current:**

50 mA at 12 V. 30 mA at 24 V.

**Alternator Input Range:**

15 - 300 V ac RMS

**Alternator Input Frequency:**

50 - 60 Hz at rated engine speed.

**Magnetic Input Range:**

0.5 V to +/- 70 V (Clamped by transient suppressors)

**Magnetic Input Frequency:** 10Hz to 10,000 Hz

**Start Relay Output:**

16 Amp DC at supply voltage.

**Fuel Relay Output:**

16 Amp DC at supply voltage.

**Auxiliary Relay Outputs:**

5 Amp DC at supply voltage.

**Dimensions:**

96 X 96X 140.5 (Excluding Key-switch)

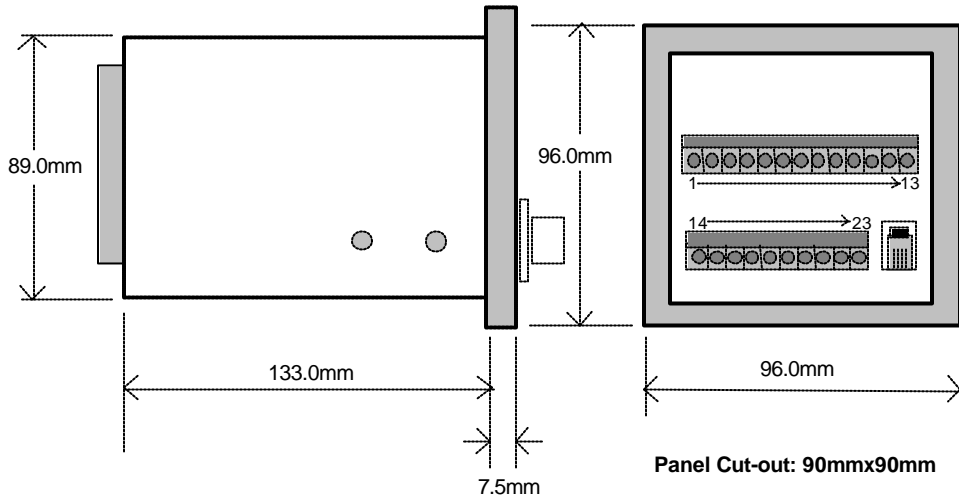
**Charge Fail / Excitation Range:**

0 V to 35 V

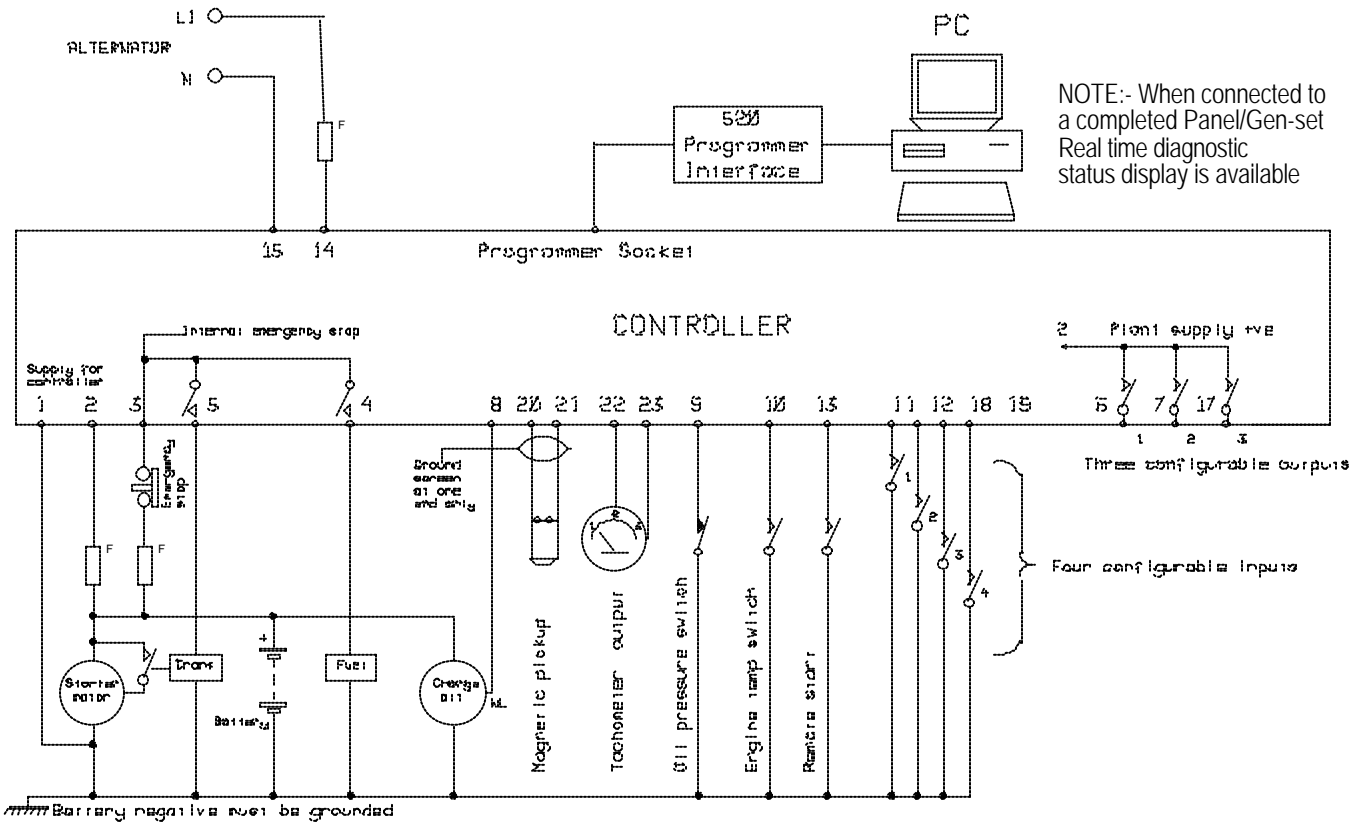
**Operating Temperature Range:**

-30 to +70°C

## CASE DIMENSIONS



## TYPICAL CONNECTIONS



### Environmental Testing Standards

#### Electromagnetic Compatibility:

BS EN 50081-2 EMC Emission Standard for the Industrial Environment

BS EN 50082-2 EMC Immunity Standard for the Industrial Environment

**Vibration:** BS EN 60068-2-6 Ten sweeps (up & back down) at 1 octave/minute in each of three major axes

5Hz to 8Hz @ +/-7.5mm constant displacement

8Hz to 500Hz @ 2gn constant acceleration

**Cold Temperature:** BS EN 60068-2-1 to -30°C

**Hot Temperature:** BS EN 60068-2-2 to 70°C

**Humidity:** BS 2011 part 2.1 93% RH @ 40°C for 48 hrs

**Shock:** BS EN 60068-2-27 Three half sine shocks in each of three major axes 15gn amplitude, 11ms duration

**Electrical Safety:** BS EN 60950 Safety of information technology equipment, including electrical business equipment

Deep Sea Electronics Plc

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