Features

Automatic shutdown on fault condition

Alarm and status information

Auxiliary shutdown input

Provides charge alternator excitation current

Over speed protection options with tachometer metering output

Optional tamper-proof elapsed time meter

Optional stop button

Straightforward installation

Monitors

Low oil pressure

High engine temperature

Battery charging

Over speed (optional)

Controls

Engine fuel supply

Starter motor

Preheating

External alarm horn

KEY-START

Manual Engine Start Unit with Protection

The KEY-START manual engine start units are designed to control the engine via a three position key switch on the front panel. The unit is used to start and stop the engine, and provides automatic shut down on detection of a fault condition. LEDs provide automatic indication of fault conditions and engine failure, giving true first up fault annunication. Available with overspeed protection, a built-in running hours display and stop button.

Operation

The KEY-START unit is operated via a three position key switch mounted on the front panel, with OFF (O), RUN (I) and START (II) positions. In the OFF position the DC supply is removed from the unit, and the fuel and crank relay outputs are de-energised. When the switch is turned to RUN, the unit is powered up, the fuel relay is energised and the engine's fuel system is activated. Moving the switch to the START position and holding it against the spring return energises the crank relay output and activates the starter motor. Once the engine has started, the switch should be released and allowed to return to the RUN position.

LED Indicators and Alarms

The KEY-START units offer fault condition annunciation and alarms for low oil pressure, high engine temperature, charge alternator failure, auxiliary shutdown and optional over speed detection. Identification of a fault will cause the fuel relay to de-energise, thus safely shutting down the engine whilst energising the horn relay to activate the alarm.

Each alarm condition has its own dedicated LED indicator. If an alarm condition is activated, further fault conditions cannot be accepted or displayed. Alarms are simply de-activated and reset by returning the key switch to the OFF position.

Failure Indicators	Status Indicators
Low Oil Pressure	Protection On
High Engine Temperature	Preheat On
Over Speed (Optional)	
Auxiliary Shutdown	
Charge Alternator Failure	

Protection On Function

To allow the oil pressure to stabilise, alarms are inhibited when the engine is starting. The charge alternator starts battery charging, and the engine speed is stabilised after any initial overshoot. Normal protection is enabled after a time delay.

Over Speed Protection Options

To suit requirements, the KEY-START unit offers over speed protection options, which will also provide a tachometer metering output 0/1mA proportional to the RPM. Depending on the over speed protection option selected, the speed protection signal can either be derived from the generator voltage, or the engine magnetic pickup. Tachometer calibration and overspeed shutdown settings are adjustable on the rear panel.

Elapsed Time Meter Option

KEY-START can be supplied with a built-in elapsed time meter to record the number of engine running hours, useful for engine maintenance planning. The high visibility 7-digit electro-mechanical counter is tamper proof, non-resettable, and can be read without battery voltage applied.

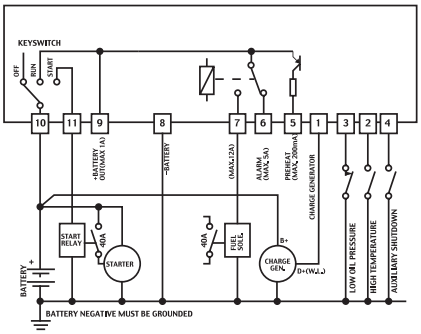
Stop Button Option

Products can be supplied with a front panel mounted Stop button, provided for energise to stop applications. When the stop button is pressed, the stop relay output energises for a period of 20 seconds.

KEY-START Generator Set Controllers

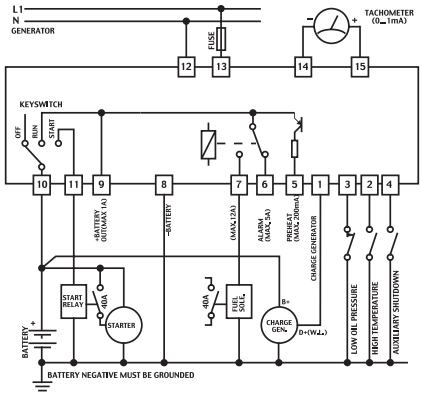
Connections

KEY-START



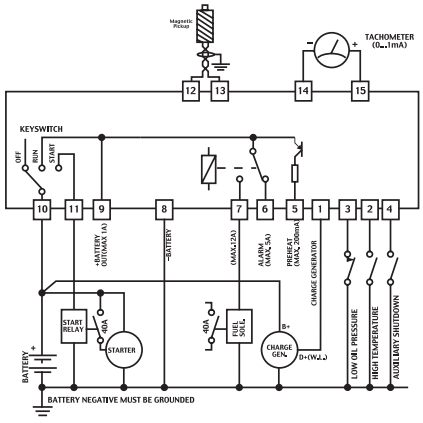
KEY-START-ALT

Speed Sensing from Generator Voltage



KEY-START-MAG

Speed Sensing from Magnetic Pickup



Specification

DC Supply Range:	8 to 32V DC
Cranking Dropouts:	DC supply can be 0V for 100ms
Generator Voltage Input:	30 to 350 V L-N AC RMS
Generator Speed Measurement:	From generator output or magnetic pickup
Generator Frequency Input:	10 to 110 Hz
Magnetic Pickup Input Range:	3 to 35V peak continuously
Magnetic Pickup Input Frequency:	35 Hz to 10kHz
Start Relay Output:	12 Amp DC at supply voltage
Fuel Relay Output:	12 Amp DC at supply voltage
Alarm Relay Output:	5 Amp DC at supply voltage
Preheat Relay Output:	200mA DC transistor output
Tachometer Analogue Output:	0 to 1 mA DC
Alarm Duration:	Continuous
Preheat Duration:	10 seconds
Protection Delay:	20 seconds
Generator Over Speed Shutdown Setting:	10 – 110 Hz selectable via rear panel trimmer
Analogue Calibration:	Adjustment via rear panel trimmer
Indicator Display:	Annunciators
Operating Temperature:	-25 to +70°C
Storage Temperature:	-40 to +85°C
Mounting Installation:	Front panel mounted with rear retaining clips
Wiring Connections:	Two part removable connectors
Dimensions:	72mm high x 72mm wide x 107mm deep (excl. 13mm clips)
Panel Cut Out:	69mm high x 69mm wide
Compliant With:	Low Voltage Directive and Electromagnetic Compatibility Directive
Weight:	0.4Kg approx
IP Protection:	IP30 at front, IP20 at rear
Hour Meter (ETM Option)	7 digit electro mechanical converter 0 to 999999.9 hours

Product Codes

KEY-START	KEY-START Unit
KEY-START-ALT	-"- With Overspeed Sensing From Generator Voltage
KEY-START-MAG	-"- With Overspeed Sensing From Magnetic Pickup
KEY-START-ETM	KEY-START Unit With Elapsed Time Meter
KEY-START-ETM-ALT	-"- With Overspeed Sensing From Generator Voltage
KEY-START-ETM- MAG	-"- With Overspeed Sensing From Magnetic Pickup
KEY-START-STOP	KEY-START Unit With Stop Button
KEY-START-STOP-ALT	-"- With Overspeed Sensing From Generator Voltage
KEY-START-STOP-MAG	-"- With Overspeed Sensing From Magnetic Pickup
KEY-START-ETM-STOP	KEY-START Unit With Elapsed Time Meter & Stop Button
KEY-START-ETM-STOP-A	-"- With Overspeed Sensing From Generator Voltage
KEY-START-ETM-STOP-M	-"- With Overspeed Sensing From Magnetic Pickup
SPARE-KEY-KS	Spare Keys (x2)

Dimensions