Keystart 9620 Series - Engine and Generator Controls

Features

- Operator controlled start/stop
- Keyswitch operation
- Automatic fault shutdowns and alarm output
- Timed preheat output
- Overspeed shutdown, driven from magnetic pickup or generator AC

Keystart 9620 and 9621 control modules provide manual start/stop and automatic fault protection for generators, pumps and other engine-driven applications.

Operator control is by a 4 position keyswitch, with the key removable only in the Stop/Reset (O) position. Outputs allow control of engine fuel (energised to run), starter motor and preheat. The Keystart also has an alarm output for remote or audible warning of faults.

Indication of engine status and faults is by six LEDs and icons. Four switch inputs (closing to negative on fault) enable automatic shutdown on engine low oil pressure, high coolant temperature and auxiliary faults. Model 9621 has a fully adjustable engine overspeed shutdown feature, configurable for either generator AC or magnetic pickup speed signals. Charge alternator excitation and a charge fail warning LED are fitted as standard.

Electrical connection is by quick-connect, spring-clamp terminal blocks. A universal 7 to 30VDC power supply permits operation with 12 or 24VDC engine batteries, with engine crank-dip voltage protection fitted as standard.

Keystarts are front-of-panel mounted through a standard square cut-out, and secured at the rear with quick-fit clips. Epoxy-resin case encapsulation gives superior vibration/shock resistance and environmental protection.

Specifications

Power supply
Operating voltage, steady state: 7 to 30 VDC
Operating voltage, brown out / cranking: 5 VDC minimum
Current consumption: < 100mA

Inputs
Fault switch inputs: close to negative DC during fault
Generator AC input (model 9621 only):
70 – 270 VAC rms, <50 to >60 Hz nominal
Magnetic pickup input (model 9621 only):
3.5 – 21 VAC rms, <2000 to >6500 Hz nominal

Outputs (all ratings non-reactive)
Run (fuel): positive DC, NO relay contacts, 10A max @ 24VDC
Start (crank): positive DC, keyswitch contacts, 10A max @ 24VDC
Alarm: negative DC (open collector transistor), 300mA max
Speed calibration: to suit 0 – 1mA, 75 Ohm meter,
output = 0.75mA at rated engine speed

Adjustable settings
Preheat timer: 0 or 10 secs (links J1 and J4), default = 0 secs
Fault override timer: 2 to 20 secs (VR1), default = 10 secs
Overspeed trip level (model 9621 only): 100 to 130% (VR3) of nominal calibrated speed, default = 110% (of 50 or 60 Hz)

Physical
Case material: polycarbonate / polyester
Overall dimensions (w x h x d): 96 x 96x 95mm / 3.8 x 3.8 x 3.7 in.
Panel cut-out size: DIN 92 x 92mm / 3.6 x 3.6 in.
Weight: approx 300g / 0.7 lb
Operating temperature: –35 to +55 °C / –31 to +131 °F

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Front view and operation

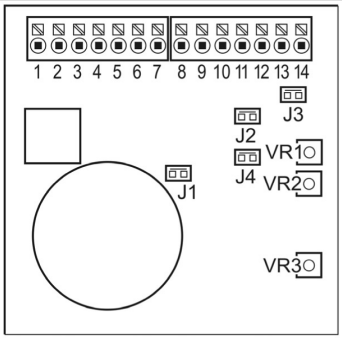
LED indication:-

- run (fuel) on - green
- preheat on - amber
- low oil pressure fault shutdown - red
- high engine temperature fault shutdown - red
- overspeed/aux 2 fault fault shutdown - red
- charge fail warning - red
- aux 1 fault shutdown - red

4 position keyswitch:

- ◯ **Off/Reset**. Removes power, stops the engine and resets any latched shutdown fault.
- | **Run.** Activates the Run output and (if enabled) the timed Preheat output. Once the engine is fully running, and after the 'override' time, Keystart immediately shuts down the engine on detection of a fault.
- || **Start/crank**. Maintains the Run output, and activates the Start (crank) output. Shutdown fault inputs are disabled and the fault override timer is reset. This position spring-returns to I (Run) on release.
- ||| **Auxiliary**. Keyswitch auxiliary output, positive DC.

Rear view, connection & settings



Connection:-

1 run (fuel) output: +DC, 10A
2 preheat output: +DC, 10A
3 start (crank) output: +DC, 10A
4 + DC power supply
5 charge fail (WL)
6 oil pressure fault input
7 aux. 1 fault input !
8 engine temp fault input
9 aux. 2 fault input
10 alarm output: –DC, 250mA
11 speed calibration output
12 – DC power supply

Speed input, model 9621 only:
links J2 and J3 ON:
13 L ┐ Generator AC,
14 N ┘ 70-270 VAC, 50/60Hz
links J2 and J3 OFF:
13 + ┐ magnetic pickup,
14 – ┘ 3.5-21 VAC, 2000-6500Hz

Configuration:-
Use a 3 mm/0.1 in. flat head screwdriver for potentiometers VR1–VR3

All models:-
J1 & J4: preheat output timing
- J1 ON: no preheat
- J1 OFF, J4 OFF: preheat 10 secs fixed, unaffected by crank
- J1 OFF, J4 ON: preheat 10 second max, cancelled by crank

VR1: Fault override, 2 - 20 secs, clockwise to increase.

Model 9621 only:-
J2 & J3: speed sensing source (pins 13 and 14):-
- both links ON for generator AC, 50/60Hz
- both links OFF for magnetic pickup, 2000 - 6500 Hz.

VR2: Speed calibration. Set J2 and J3 correctly, run engine to nominal speed, adjust VR2 to give (pin 11) calibration output of 0.75mA
VR3: Overspeed, 100 - 130% of VR2 setting, clockwise to increase

How to order

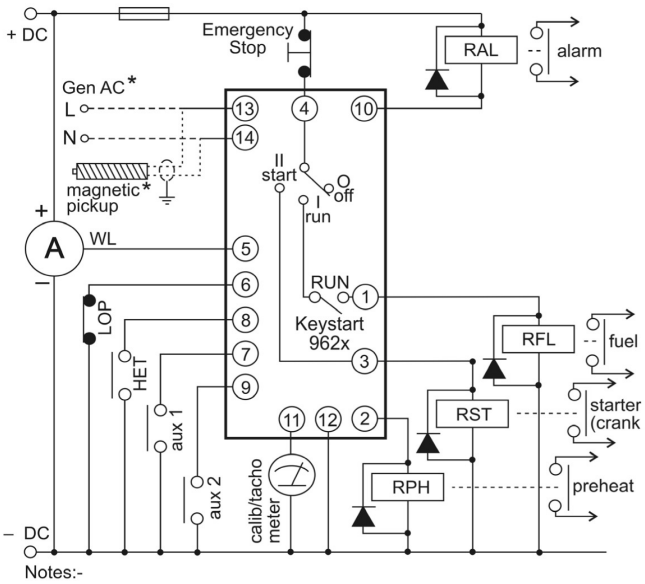
KEY9620 K2

Model:
KEY9620 Without overspeed protection
KEY9621 With overspeed protection, selectable AC generator or magnetic pickup sensing *

Keyswitch type:
K2 Type 2, rubberised

** factory default setting is for AC generator sensing, calibrated to either 50 or 60 Hz nominal. Non-standard (NS) settings/options are available to order.*

Typical connection



Notes:-
* Overspeed models 9621 only. Select generator AC or magnetic pickup speed sensing using links J2 & J3 (see rear view diagram). Factory default setting is for generator AC sensing.

Accessories/spares

Stock code	Description
41.70.0157	Spare mounting clips (pack of 4)
65.70.0256	Spare keyswitch (K2 type), includes key
00.00.3235	Spare key (K2 type)