

Keystart 9620/9621

Engine and Generator Controls



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

Description

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

Operator control is by a 3 position keyswitch, with the key removable only in the Stop/Reset (O) position. Outputs enable 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 allows 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.

Warranty

A two year limited warranty on materials and workmanship is given with this product. Full details are available at www.fwmurphy.co.uk/warranty


Product specifications

power supply:	
operating voltage:	7 – 30 VDC
steady state	7 – 30 VDC
brown out / cranking	5 VDC
current consumption	< 100mA
inputs:	
fault switch inputs:	close to negative DC during fault
–ve input defined as:	–1V to +1V w.r.t. –ve DC supply
speed sensing inputs:	(model 9621 only)
generator AC	70 – 270 VAC rms, <50 to >60 Hz. nominal
magnetic pickup	3.5 – 21 VAC rms, <2000 to >6500 Hz. nominal
outputs: (all ratings non-reactive)	
run (fuel), preheat	positive DC, NO relay contacts, 10 A max. @ 24 V DC
start (crank)	positive DC via keyswitch contacts, 10 A max. @ 24V DC
alarm	negative DC (open collector NPN transistor), 250mA max.
speed calibration	to suit 0 – 1 mA, 75 Ohm meter output = 0.75mA at rated engine speed
adjustable settings:	
preheat timer	0 or 10 secs (links J1 & J4), default = 0 secs
fault override timer	2 to 20 secs (VR1), default = 10 secs
overspeed trip level	100 to 130 % (VR3) of nominal speed calibration (VR2), default = 110% (of 50 or 60 Hz)
general:	
overall dimensions (w x h x d)	96 x 96 x 95 mm / 3.8 x 3.8 x 3.7 in.
panel cut-out size	DIN 92 x 92 mm / 3.6 x 3.6 in.
weight	approx. 300 g / 0.7 lb
operating temperature	–35°C to +55°C / –31°F to 131°F

Front view and operation

LED indication:-

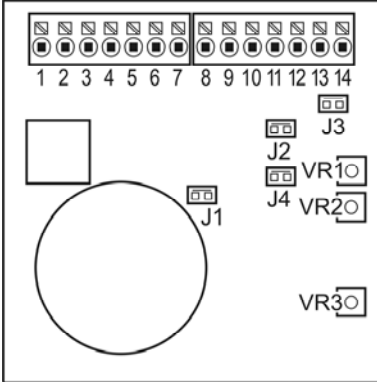
- run (fuel) on - green
- preheat on - amber
- low oil pressure fault shutdown - red
- high engine temperature fault shutdown - red
- overspeed/aux 2 fault shutdown - red
- charge fail warning - red
- aux 1 fault shutdown - red



3 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.

Rear view, connection and 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, 50/60Hz
- 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

Model:

KEY9620 Without overspeed protection

KEY9621 With overspeed protection, selectable AC generator or magnetic pickup sensing *

KEY9620 **K1**

Keyswitch type:

K1 Type 1, chrome bezel

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.

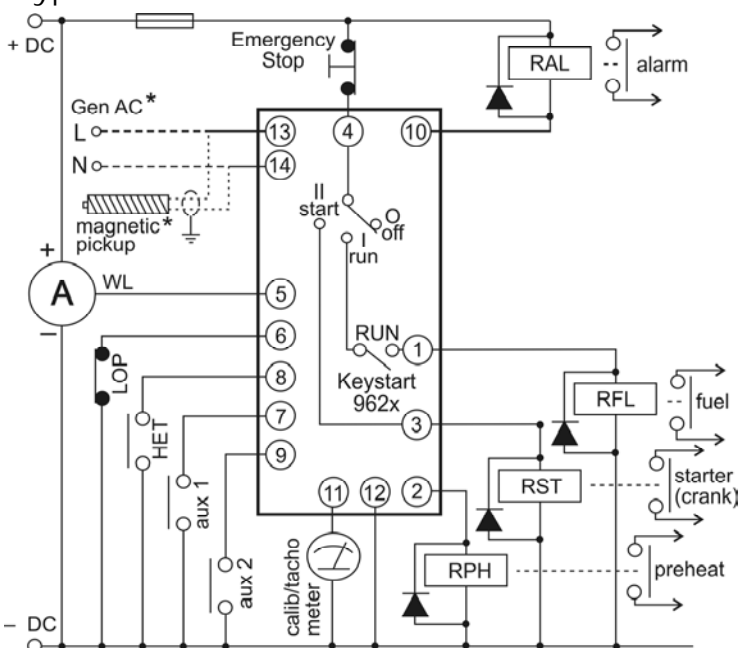
Accessories/spares

Document	Description
41.70.0157	Spare mounting clips (pack of 4)
76.70.0127	Spare keyswitch (K1 type), includes key
65.70.0256	Spare keyswitch (K2 type), includes key
00.00.3235	Spare key (K2 type)

Further information

Document	Description
00-02-0657	Keystart 9620 series installation instructions

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.

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