

Keystart 9000/9600 series

Engine and Generator Controls

ms6302
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catalogue section 75



Description

The industry standard for over 10 years, the Keystart range provides manual control of engine start/stop with automatic fault detection, display and shutdown protection. The Keystart finds application in a range of engine-driven equipment, including standby generators and pumps.

Key features

- 72 x 72mm or 96 x 96 mm DIN standard, front-of-panel mounted case
- Keyswitch operation for enhanced security
- Configurable fault inputs: open or closed, positive or negative
- Switchable 12 or 24 V DC power supply
- Options for overspeed protection (magnetic pickup or AC alternator driven), preheat and auxiliary control.

Operation

The Keystart is powered from the engine battery pack: a switch at the rear allows for 12V or 24V operation. Engine cranking brown-out protection is fitted as standard. Operator control is via a 3 or 4 position keyswitch on the front facia. The key is common to all Keystarts and is removable only in the Stop/Reset (O) position. Control of the engine fuel and starter circuits is by 16 Amp rated positive DC outputs.

The front facia also features five LED pictograms for the indication of engine faults (see overleaf). Fault shutdown switch inputs are provided for engine low oil pressure, high engine temperature and auxiliary/plant fail. Engine overspeed shutdown (magnetic pickup or AC driven) is available as an option. A shutdown 'alarm' output, charge alternator excitation and charge fail warning LED are fitted as standard.

Electrical connection is via ¼" blade terminals at the rear.

Warranty

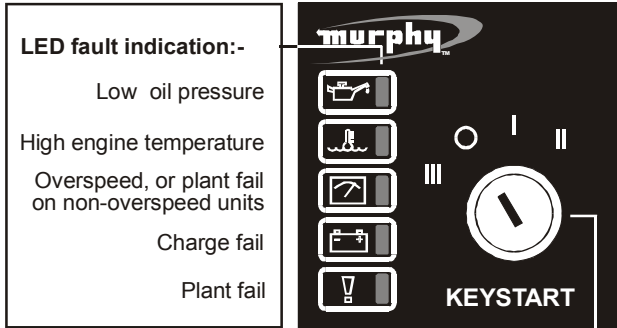
A two year limited warranty on materials and workmanship is given with this Murphy product. Details are available on request and are packed with each unit.

- **Manual start/stop**
- **Automatic fault shutdown**
- **Keyswitch operation**
- **72mm and 96mm DIN cut-out mounting**
- **Configurable fault inputs**

Product specifications

Power supply:	
operating voltage:	(12V setting) (24V setting)
steady state	9 – 20 V DC 18 – 33 V DC
brown out / cranking current consumption	<= 5V for 2 secs <= 10V for 2 secs < 150mA
Inputs:	
fault switch inputs:	selectable: open or closed, +ve or –ve
+ve input defined as:	80% to 100% of +ve DC supply
–ve input defined as:	–1V to +2V w.r.t. –ve DC supply
speed sensing inputs:- magnetic pickup generator AC	10 – 60 VAC peak, < 2300 to > 3400 Hz. 90 – 350 VAC rms, < 50 to > 60 Hz.
Outputs: (all ratings non-reactive)	
run relay output	volt free SPCO relay contacts, 16 A max. @ 24V DC
start output	positive DC (via keyswitch), 16 A max. @ 24V DC
preheat/Auxiliary output	positive DC (via keyswitch), 15 A max. @ 24V DC
alarm output	negative DC (semiconductor), 300mA @ 33 VDC max.
tachometer / calibration	to suit 0 – 1 mA fsd, 75 Ohm meter output = 0.75mA at rated engine speed
Adjustable settings:	
fault override timer	< 10 to > 30 secs.
overspeed trip level	< 100 to > 130 % of calibrated speed
General:	
overall dimensions (w x h x d)	9000 series: 72 x 72 x 130mm 9600 series: 96 X 96 X 130mm
panel cut-out size	9000 series: DIN 68 x 68 mm 9600 series: DIN 92 x 92 mm
weight	approx. 350 – 450 g
operating ambient temperature	–10°C to +55°C
vibration	1G, 50 Hz to 5 kHz.
chemical/fire	case: glass filled Noryl, self extinguishing, non-dripping. facia: polycarbonate

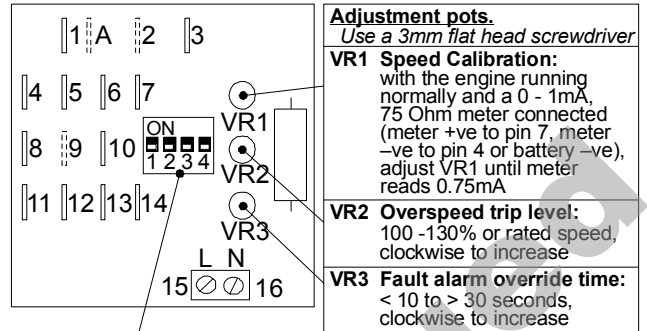
Front facia



3 or 4 position keyswitch:

- I Off/Reset.** Removes power, stopping the engine and resetting any latched shutdown fault.
- II Run.** Energises the RUN relay (turning on the engine fuel or ignition). The fault override timer begins as soon as the key is turned (or spring returned) to this position. Once the engine is fully running, Keystart monitors for faults and shuts down the engine if a fault is detected.
- III Start/crank.** Maintains the RUN output, and activates the START output. Shutdown fault inputs are disabled. This position spring-returns to I (run) on release.
- ||| Aux/Preheat ('A' option only)** Provides a switched positive DC output (pin 2), used for a preheat or auxiliary control circuit.

Rear facia



Adjustment pots.

Use a 3mm flat head screwdriver

- VR1 Speed Calibration:** with the engine running normally and a 0 - 1mA, 75 Ohm meter connected (meter +ve to pin 7, meter -ve to pin 4 or battery -ve), adjust VR1 until meter reads 0.75mA
- VR2 Overspeed trip level:** 100 -130% or rated speed, clockwise to increase
- VR3 Fault alarm override time:** < 10 to > 30 seconds, clockwise to increase

Switch settings:		S2 S3		S4	
S1 Not used	S2, S3 Input fault state	S4 Power supply voltage			
	Closed to negative	24 V DC operation			
	Closed to positive	12 V DC operation			
	Open from negative				
	Open from positive				

- 1 Positive DC power supply
- A Auxiliary input, positive DC ('A' option only)
- 2 Auxiliary/preheat output ('A' option only)
- 3 Starter/crank output, positive DC, 16 A max.
- 4 Negative DC power supply
- 5 Low oil pressure fault (switch) input
- 6 Alarm output: negative DC (semiconductor), 300mA max.
- 7 Tachometer output: 0 - 1mA into 75 Ohms (overspeed units only)
- 8 High engine temperature fault (switch) input
- 9 Plant fail 1 (switch) input (non-overspeed units), or Magnetic pickup input (MPU overspeed units), or Not used (AC alternator overspeed units)
- 10 Plant Fail 2 (switch) input
- 11 NO
- 12 CO
- 13 NC
- 14 Charge fail input/charge alternator excitation output
- 15 Live Generator AC, 90 - 350 V
- 16 Neutral (AC alternator overspeed units only)

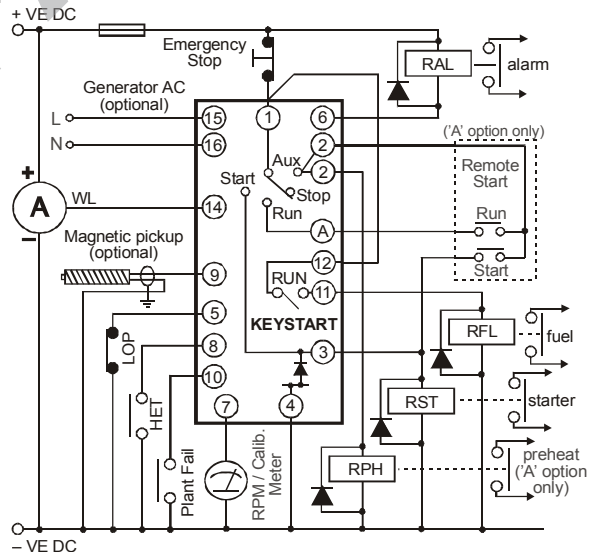
How to order

Stock Code	Model / Description
76.70.0057	KEY9000, 72mm, no overspeed
76.70.0067	KEY9000A, as above plus aux/preheat
76.70.0058	KEY9001, 72mm, magnetic pickup overspeed
76.70.0052	KEY9001A, as above plus aux/preheat
76.70.0033	KEY9002, 72mm, AC generator overspeed
76.70.0066	KEY9002A, as above plus aux/preheat
76.70.0138	KEY9600, 96mm, no overspeed
76.70.0140	KEY9600A, as above plus aux/preheat
76.70.0141	KEY9601, 96mm, magnetic pickup overspeed
76.70.0231	KEY9601A, as above plus aux/preheat
76.70.0040	KEY9602, 96mm, AC generator overspeed
76.70.0143	KEY9602A, as above plus aux/preheat

Accessories:-

76.70.0125	KEY/KEYA, spare keys (1 pair), pre July 2004
76.70.0341	KEY/KEYB, spare keys (1 pair), post July 2004
76.70.0124	Spare fixing clamps (1 pair)

Typical connection



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UK - ISO9001:2000 FM 29422