

# Keystart 7210 & 9610 series

## Engine and Generator Controls

ys6378  
29th July 2005  
catalogue section 75



- **Manual start/stop**
- **Keyswitch operation**
- **Timed preheat output**
- **Automatic fault shutdowns**
- **Overspeed shutdown, magnetic pickup or generator AC driven**
- **72mm or 96mm DIN case**

### Description

Keystart 7210 and 9610 series controls provide manual start/stop and automatic fault protection for generators, pumps and other engine-driven applications. The units are available in two sizes: the 7210 series uses a DIN 72mm case (for 68 x 68mm panel cut-outs); 9610 series units have a DIN 96mm case (for 92 x 92 mm cut-outs).

Operator control is by a 3 position keyswitch on the front facia - see overleaf for operation details. The key is common to all Keystarts and removable only in the Stop/Reset (O) position. Outputs are provided for the control of engine fuel (energised to run), starter motor and preheat. The Keystart also has an alarm output for remote/audible warning of faults.

The front facia has six LED and pictograms for indication of engine status and faults - details overleaf. Fault shutdown switch inputs (closed to negative on fault) are provided for engine low oil pressure, high engine temperature and auxiliary/plant fault. Models 7211 and 9611 have a fully adjustable engine overspeed shutdown, driven by generator AC or magnetic pickup. Charge alternator excitation and a charge fail warning LED are fitted as standard.

Electrical connection is by spring-clamp terminal blocks at the rear. The Keystart has a universal 7 to 30VDC power supply, allowing operation with 12 or 24VDC engine batteries. Engine cranking brown-out protection is fitted as standard.

### 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](http://www.fwmurphy.co.uk/warranty)

### Product specifications

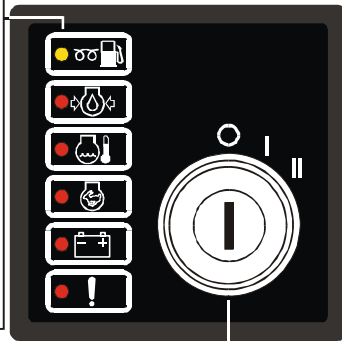
<b>power supply:</b>	
operating voltage:	7 – 30 VDC
steady state	7 – 30 VDC
brown out / cranking	5 VDC
current consumption	< 100mA
<b>inputs:</b>	
fault switch inputs:	close to negative DC during fault
–ve input defined as:	–1V to +1V w.r.t. – ve DC supply
speed sensing inputs:-	
generator AC	70 – 270 VAC rms, < 50 to > 60 Hz., default setting: 50Hz
mag pickup/transducer	10 – 60 VAC peak, < 2000 to > 6500 Hz. default setting: 3000Hz
<b>outputs:</b>	
<i>(all ratings non-reactive)</i>	
run, preheat	positive DC, switched NO relay contact, 7210 series: 1 A max. @ 24V DC 9610 series: 16 A max. @ 24 V DC
start (crank)	positive DC via keyswitch contacts, 16 A max. @ 24V DC
alarm (fault)	negative DC (open collector NPN transistor), 100mA max.
calibration/tacho	to suit 0 – 1 mA, 75 Ohm meter output = 0.75mA at rated engine speed
<b>adjustable settings:</b>	
preheat timer	0 to 20 secs, default setting 0 secs
fault override timer	2 to 20 secs, default setting 10 secs
overspeed trip level	100 to 130 % of calibrated speed, default setting 110%
<b>general:</b>	
overall dimensions (w x h x d)	72 x 72 x 100 mm (7210 series) 96 x 96 x 131 mm (9610 series)
panel cut-out size	DIN 68 x 68 mm (7210 series) DIN 92 x 92 mm (9610 series)
weight	approx 300 g
operating ambient temperature	–10°C to +55°C

**MURPHY**

## Front facia and operation

### LED indication:-

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



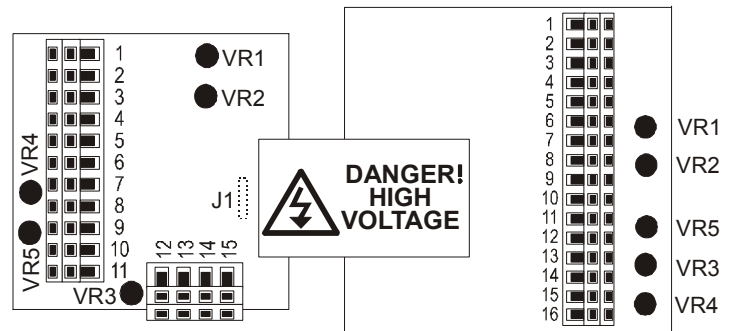
### 3 position keyswitch:

- **Off/Reset.** Removes power, stops the engine and resets any latched shutdown fault.
- | **Run.** Activates the timed Preheat output (if enabled), followed by activation of the Fuel relay. The fault 'override' timer begins as soon as the Run relay activates. Once the engine is fully running, Keystart monitors for faults and shuts down the engine if a fault is detected.
- || **Start/crank.** Maintains the FUEL output, and activates the START output. Shutdown fault inputs are disabled and the fault override timer is reset. This position spring-returns to I (Run) on release.

## Rear facia, connection and settings

721x series

961x series



### Connection:-

- |                                |   |
|--------------------------------|---|
| 1 Alarm output: -ve DC         | 9 Engine temp fault input   |
| 2 Fuel output: +ve DC          | 10 Charge fail (WL)   |
| 3 Preheat output: +ve DC       | 11 Tacho/calibration output +ve                                       |
| 4 Start (crank) output: +ve DC | 12 Tacho/calibration output -ve                                       |
| 5 +ve DC power supply          | 13 L Gen. AC (7211/9611 only)   |
| 6 -ve DC power supply/pickup   | 14 N 70 - 270 VAC, 50/60Hz  |
| 7 Plant fail 1 input           | 15 Plant fail 2 input (7210/9610) or<br>Mag. pickup input (7211/9611) |
| 8 Oil pressure fault input     | 16 Aux (run) input: +ve DC (961x only)                                |

### Adjustment (use a 3mm flat head screwdriver)

#### All units:-

- VR1: Preheat, 0 - 20 secs, clockwise to increase.
- VR2: Fault override, 2 - 20 secs, clockwise to increase.

#### Overspeed (7211/9611) units only:-

- VR3: Overspeed, 100 - 130% of VR4/5, clockwise to increase.
- VR4: Generator AC Speed calibration. Set link J1. Run engine.
- VR5: Mag. pickup Adjust pot. to give tacho output of 0.75mA.

## How to order

### Stock code Model / description

76.70.1166	KEY7210, 72mm Keystart, no overspeed
76.70.1167	KEY7211, 72mm Keystart, AC/MPU overspeed*
76.70.1168	KEY9610, 96mm Keystart, no overspeed
76.70.1169	KEY9611, 96mm Keystart, AC/MPU overspeed*

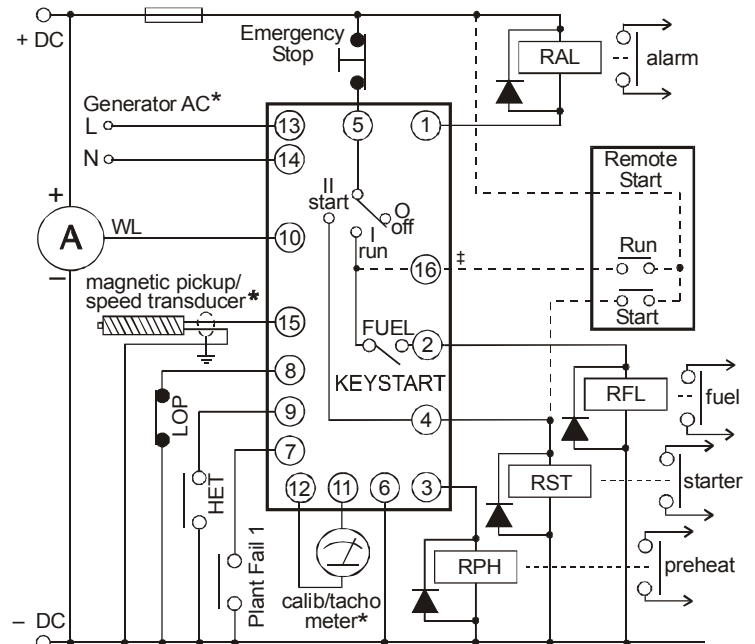
\* Note: stock units are set to AC sensing, nominal 50Hz. To select magnetic pickup sensing, adjust internal circuit board link J1.

## Further information

### Document Description

yi6379	Keystart 7210/9610 installation instructions
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## Typical connection



### Notes:-

- \* Overspeed models 7211/9611 only. Selection of generator AC or magnetic pickup speed sensing is by internal circuit board link J1. Stock units are set for generator AC sensing, 50Hz nominal. On non-overspeed models, pin 15 is 'plant fail 2' switch input, with connection as pin 7.
- ‡ Pin 16 (remote run input) available only on models 9610/9611.



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