CANstart™ 9631/9632

Engine and Generator Controls

Features

- Keyswitch start/stop operation
- SAE J1939 CANbus compatible
- Drives electric panel gauges: oil pressure, engine temp, tacho
- Display of ECU transmitted faults
- Adjustable overspeed shutdown
- Auxiliary fault shutdown inputs

CANstart™ 9631 and 9632 modules provide operator start/stop control, panel gauge driving, fault indication and auxiliary shutdown protection for ECU-controlled, CANbus SAE J1939 compatible engines. These compact controllers can be used with generators, pumps and other engine-driven applications.

Operator control is through a 4 position keyswitch. The key is common to all CANstarts and is removable only in the Stop/Reset (O) position. Six LEDs and icons indicate engine/ECU status and faults. Two of these LEDs, with associated inputs, provide for auxiliary fault shutdown and charge alternator fail/excitation.

CANstart™ has two protected (positive DC) FET outputs for the control of ECU 'engine run' and starter motor. Three additional outputs drive analogue panel gauges (Murphy, VDO or Datcon), based on ECU-transmitted data for engine speed, oil pressure and coolant temperature.

All units include adjustable engine overspeed protection: model 9631 provides automatic overspeed shutdown for variable speed applications; model 9632 is configured for fixed-speed 1500/1800 RPM genset use.

DIP switches at the rear allow setup of control and gauge output options. Electrical connection is by spring-clamp terminals, including a universal 8 to 32 VDC power supply for operation with 12 or 24 VDC engine batteries. Engine cranking supply brown-out protection is fitted as standard.

CANstart™ is 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: 8 to 32 VDC
Operating voltage, brown out / cranking: 5 VDC minimum
Current consumption: < 100mA

Inputs
CANbus:
SAE J1939 protocol, switchable 120 Ohm terminating resistor
Auxiliary shutdown (x2): close to negative DC during fault

Outputs (all ratings non-reactive)
Run (ECU), start (crank):
positive DC (protected FET), 6A max @ 32 VDC
Alarm:
negative DC (open collector transistor), 250mA max @ 32 VDC
Oil pressure gauge:
suitable for Murphy, VDO 5 or 10 Bar, Datcon 7 or 10 Bar

Outputs (cont.)
Engine temperature gauge: suitable for Murphy, VDO or Datcon
Tachometer: for use with charge alternator driven tachometers

Adjustable settings
Model 9631 (variable speed engines)
Overspeed level: 1250 – 2800 RPM (50 RPM increments), or 'off'
Model 9632 (fixed speed engines/gensets)
Nominal speed: 1500 or 1800 RPM
Overspeed level: 1 – 15% of nominal speed (1% increments), or 'off'

Physical
Electromagnetic compatibility: 2004/108/EC
Case material: polycarbonate / polyester
Overall dimensions (w x h x d): 96 x 96x 131mm / 3.8 x 3.8 x 5.2 in.
Panel cut-out size: DIN 92 x 92mm / 3.6 x 3.6 in.
Weight: approx 240g / 0.6 lb
Operating temperature: –20 to +75 °C / –4 to +167 °F

Warranty - A limited warranty on materials and workmanship is given with this FW Murphy product. A copy of the warranty may be viewed or printed by going to www.fwmurphy.co.uk/warranty

Front view and operation

LED indication
☼ flashing ☀ constant

Green. ECU status:
☼ CAN inactive ☀ CAN active.

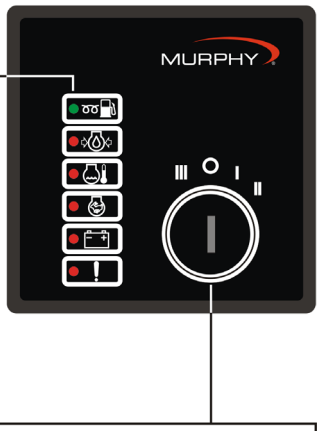
Red. Oil pressure fault:
☼ warning ☀ shutdown.

Red. Coolant temperature fault:
☼ warning ☀ shutdown.

Red. Engine speed fault:
☀ overspeed shutdown.

Red. ☀ Charge fail warning.

Red. ECU/auxiliary fault:
☀ ECU shutdown fault.
☼ (50/50 on/off) ECU warning fault.
☼ (1 on pulse) aux. 1 shutdown.
☼ (2 on pulses) aux. 2 shutdown.



4 position keyswitch:

◯ **Off/Reset**. Removes power, de-activates the Run (ECU) output and resets any latched overspeed or aux input fault.

| **Run.** Activates the Run (ECU) output (green LED flashes) and waits for ECU to respond (green LED constant). The CANstart inputs and J1939 CANbus are then monitored for faults, with warning/shutdown LED indication as detailed above.

|| **Start/crank**. Maintains the Run output and activates the Start (crank) output. This position spring-returns to I (Run) on release.

||| **Auxiliary**. Keyswitch auxiliary output, positive DC

How to order

CST9631 K2

Model:
CST9631 For variable speed engines, overspeed setting range 1250-2800 RPM *
CST9632 For fixed speed engines/gensets, overspeed setting range 100-115% of 1500/1800 RPM*

Keyswitch type:
K2 Type 2, rubberised

* *Default overspeed settings are:-*
CST9631: 1250 RPM
CST9632: 110% of 1500 or 1800 RPM (please specify).
Non-standard (NS) settings/options are available to order.

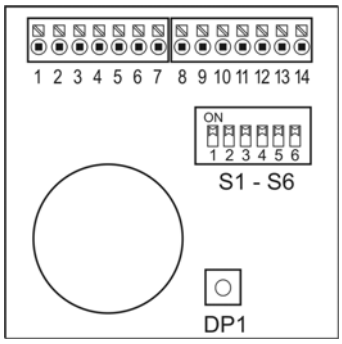
Accessories

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)
Various	EG/EGS series Electric Gage & Swichgage®
Various	ATA/ATHA series tachometers & tachourmeters

Further information

Document	Description
00-02-0664	CANstart 9631/9632 installation instructions

Rear view, connection & settings



Connection

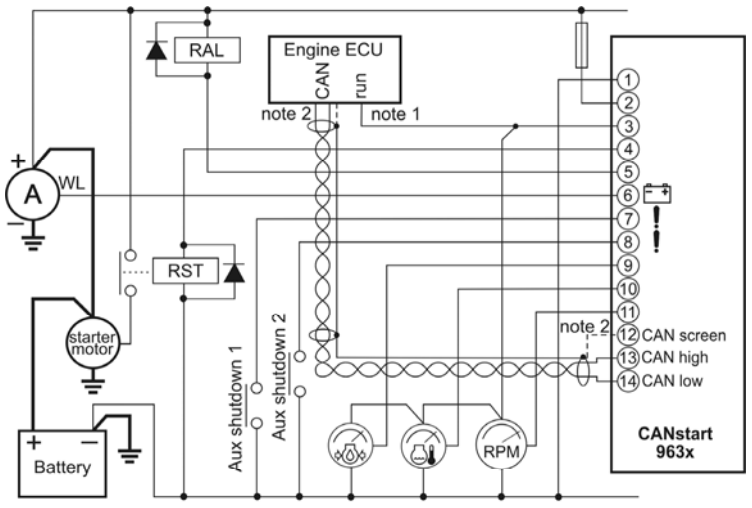
1 – DC power supply
2 + DC power supply
3 run (ECU) output, + DC, 6A max
4 start (crank) output, + DC, 6A max
5 alarm output, – DC, 250mA max
6 charge fail (alternator WL)
7 aux 1 input, – DC to activate
8 aux 2 input, – DC to activate
9 oil pressure gauge output
10 coolant temp gauge output
11 tachometer output
12 CAN screen
13 CAN high
14 CAN low

S1 – S5 DIP switch settings
Note: switch S6 reserved for future use.

switch position ▲ *on (up)* ▼ *off (down)* S1	S2	S3	S4	S5	*options (* default settings)*
▲	▲	▲			Murphy temp. and pressure gauges *
▼	▲	▲			Datcon temp. and 0 – 7 bar pressure gauges
▼	▲	▼			Datcon temp. and 0 – 10 bar pressure
▲	▼	▲			VDO temp. and 0 – 5 bar pressure gauges
▲	▼	▼			VDO temp. and 0 – 10 bar pressure gauges
			▲		CAN 120 Ohm terminating resistor in circuit *
			▼		CAN 120 Ohm terminating resistor removed
				▲	Sets speed nominal or range for DP1 below:
				▼	see installation instructions for full details.

DP1 digital potentiometer setting (with S5 above)
Overspeed shutdown set point: see installation instructions for details.

Typical connection



Notes:-
1. Wiring shown for ECU with close to positive to run input.
An additional interposing fuse or relay may be required between pin 3 and ECU: check engine documentation for ECU 'run' input requirements.
2. ECU CANbus screen is typically earthed/grounded at one end only.
Check engine & ECU documentation for details