

ESI3 Engine Status Indicator

Installation and Operating Instructions

yi6222
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catalogue section 70

MURPHY

Please read the following information before installing. A visual inspection of this product for damage during shipping is recommended before installation. It is your responsibility to ensure that qualified mechanical and electrical technicians install this product. If in doubt, please contact your local Murphy representative.

WARNING

BEFORE BEGINNING INSTALLATION OF THIS MURPHY PRODUCT

- ✓ Disconnect all electrical power to the machine
- ✓ Make sure the machine cannot operate during installation
- ✓ Follow all safety warnings of the machine manufacturer
- ✓ Read and follow all installation instructions

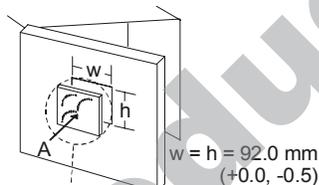
Description

The Murphy ESI3 provides 'at a glance' indication of engine oil pressure, coolant temperature and battery voltage in a compact and economical package. Three sets of moving point LEDs indicate whether the measured parameters are within limits (green LEDs) or out of limits (red LEDs).

The module is designed for use with engine mounted Murphy pressure and temperature senders (not supplied). Electrical connection of senders and power supply is via ¼ inch blade connectors at the rear.

The ultra-slim design is mounted in a 92mm square front of panel cut-out, and extends less than 20mm behind the panel front.

Panel Mounting



At the rear of the unit, remove the two mounting nuts and metal clamp.

From the front of the panel (A), insert the ESI3 into a pre-cut, DIN standard 92mm square aperture.

At the rear of the unit, fit the mounting clamp on to the two mounting studs (B), and screw on the two securing nuts (C). Before fully tightening the nuts and clamp, ensure that the module is squarely located in the aperture, and that the integral gasket makes a good seal with the panel front.

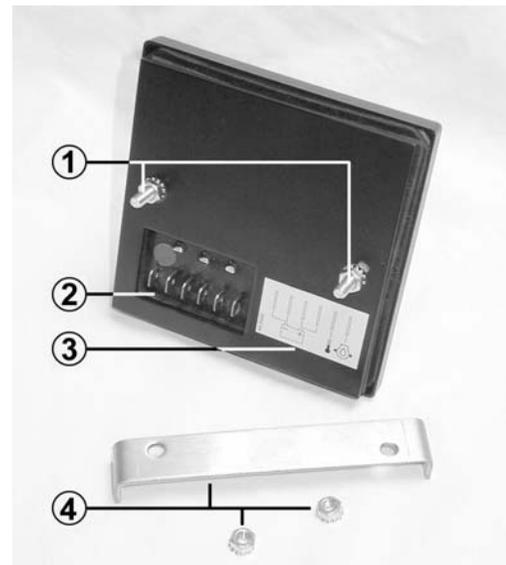
Familiarisation

Front facia



- ① Oil pressure indication
- ② Engine temperature indication
- ③ Battery voltage indication

Rear facia



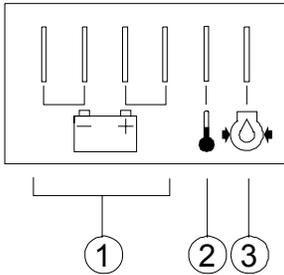
- ① Mounting studs
- ② Electrical connection: 6 x ¼ inch (6.3mm) blades
- ③ Connection label
- ④ Mounting bracket and nuts

Electrical Connection



WARNING: Ensure the DC power supply is isolated from panel wiring before connection or disconnection is made to the ESI3.

Electrical connection is via ¼ inch (6.3mm) blade terminals, as detailed on the rear facia label:-



① DC supply

These terminals are used a) to supply DC power to the unit and b) to monitor the battery voltage.

Four terminals are provided, two for battery positive and two for battery negative. Each pair of terminals is internally linked. Connect one terminal from each pair to the panel DC supply as labelled (positive or negative); the other terminal from each pair may be used as a power take-off for other equipment, e.g. the spare negative DC terminal may be used to connect the sender return wires (details below).

② Engine temperature input

③ Oil pressure input

These inputs are used with engine mounted Murphy pressure and temperature senders. Connect each sender between the input and battery negative. For greatest measurement accuracy, use two wire senders, with the negative (return) wire connected as close as possible to the ESI negative power terminal. One wire senders, with ground/earth return, are NOT recommended, since small amounts of signal noise on the ground connection can result in significant measurement inaccuracies.

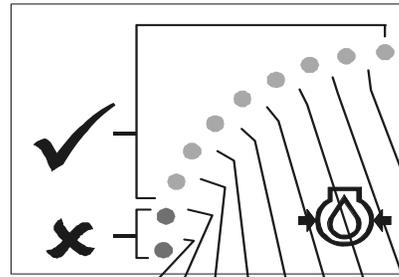
Note: poor electrical connection or wiring over larger distances (where wiring resistance is significant) will also affect in-service accuracy. Resistance versus temperature/pressure tables are given opposite for reference.

Operation

The ESI3 provides indication only of engine temperature, oil pressure and battery voltage. The unit does not feature any operator controls and does not provide automatic shutdown of the engine in the event of a fault.

The LED bar graphs may be interpreted as follows:-

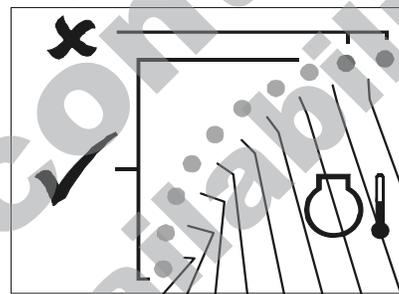
Oil pressure



ohms	184	170	143	124	109	88	70	55	40	26
PSI*	16.2	20	30	40	48	61	72	84	97	97+
Bar*	1.1	1.4	2.1	2.8	3.3	4.2	5.0	5.8	6.7	6.7+
kPa*	112	138	207	276	331	421	496	579	669	669+

* pressures above are theoretical values calculated from typical sender performance. ESI accuracy is ± 5.7 PSI at primary (fault) point (20PSI) and ± 15 PSI for the rest of the scale. Actual in-service accuracy will be affected by sender tolerance and connecting wire resistance.

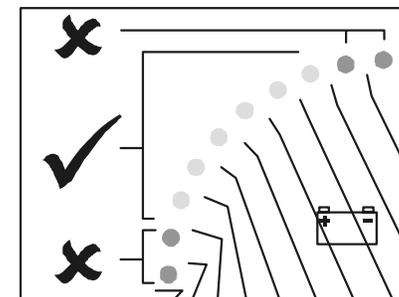
Engine temperature



ohms	389	339	294	252	213	177	144	112	83	57
°C*	65	69	73	77	82	88	95	98	113	120+
°F*	149	156	163	171	180	190	203	208	235	248+

* temperatures above are theoretical values calculated from typical sender performance. ESI accuracy is $\pm 4^\circ\text{C}$ at primary (fault) point (98°C) and $\pm 12^\circ\text{C}$ for the rest of the scale. Actual in-service accuracy will be affected by sender tolerance and connecting wire resistance.

DC/battery voltage



12V units	11.2	11.9	12.4	12.8	13.3	13.8	14.3	14.8	15.3	15.8
24V units	22.4	23.1	24.0	25.2	26.2	27.1	28.0	29.0	29.9	30.8

ESI accuracy is $\pm 0.3\text{V}$ for 12V units, $\pm 0.5\text{V}$ for 24V units.



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