Supplement to: EMS-94072N
EMS-94132N

EMS-03059N
Effective 06-03
Section 40
(00-02-0541)

EMS447 Engine Monitoring System
Instruction Supplement for 2003 and Later Versions

MURPHY®

Removing the Circuit Board

Should it becomes necessary to identify your circuit board configuration, remove the EMS447 circuit board from its case following these steps:

1. Undo the connector and the screws (on the back of the case).
2. Undo the two Phillips (cross) type screws, on the face plate.
3. Gently, pull the circuit board and face plate together out of the EMS447 case. The EMS447 circuit board configuration designation is controlled by several factors: (see the call-outs on picture below) The Program Chip is labeled with your Program Number, Version, Date and Checksum.

LK1 Information (Input/Output Configuration)

(On previous model LK1 had an "In" position and an "Out" position).
LK 1 determines your input/output configuration (see Link 1 call-out below). When installed, it enables a 4th digital input and disables the 7th digital output. When removed, it disables the 4th digital input and enables the 7th digital output (see page 6 on EMS-94072N literature or see page 7 on EMS-94132N).

LK2 Information Configuring Analog Inputs 0 to 7

LK2 is used to configure analog inputs 0 through 7 for a particular program. The choices are: resistive* type sender / digital, 4 to 20 mA or 0-5 VDC. The following is based on orienting the board with the DB25 connector on the bottom. Putting the shunt across the top and middle pins, configures the analog input for either a resistive type sender or a ground only digital. Across the middle and bottom pins configures the analog for a 4-20 mA. Leaving the shunt off, configures the analog for a 0-5 VDC signal.

Analog 0 has choices: Battery Monitor/ digital/ 4-20 mA /0-5 VDC.

To display battery VDC, or if the program uses a resistive type sender on any of the analogs, such as a Murphy ES2P, ES2T, or ES2F, analog 0 becomes not available and must have the shunt in the sender/digital position. Use only two wire senders and run both wires back to the EMS447, one to ground and one to the input. The EMS447 program used must support the way the analogs are configured.
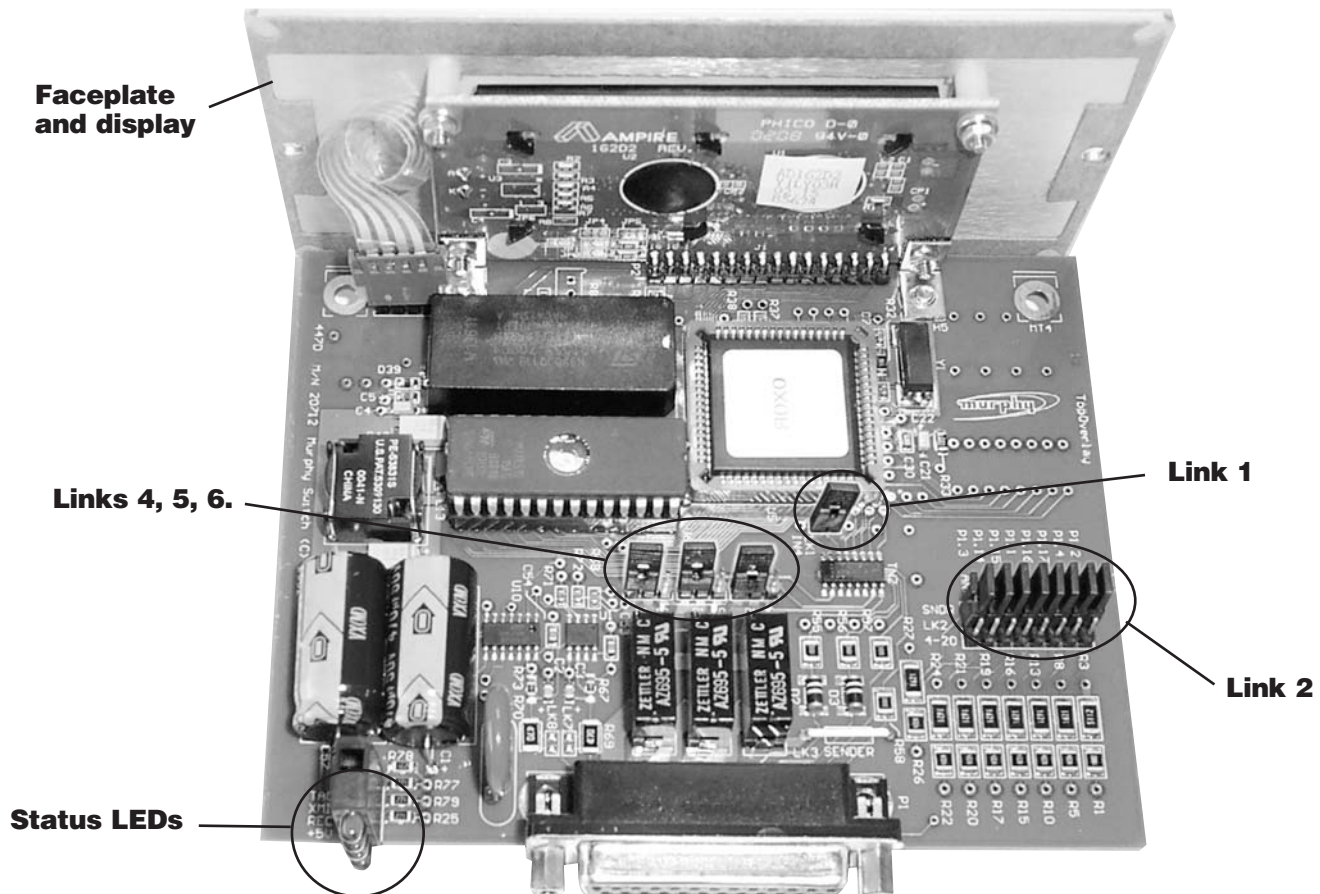
LK4 to LK6 Information Configuring Relay and Transistor Outputs *(New on this model)*

LK4, LK5, LK6 These links are used to configure the first three outputs to be either relay switched battery plus OR sink to ground transistor type. Each output can be selected independent of the others. With the board oriented with the LED's to the left and the DB25 Connector toward you, placing the shunt on the left two pins configures the output as a relay. Placing the shunt on the two right pins configures the output as a transistor. There is an R and a T silk-screened on the board to help. LK4 configures Output 1, LK5 configures Output 2, and LK6 configures Output 3.
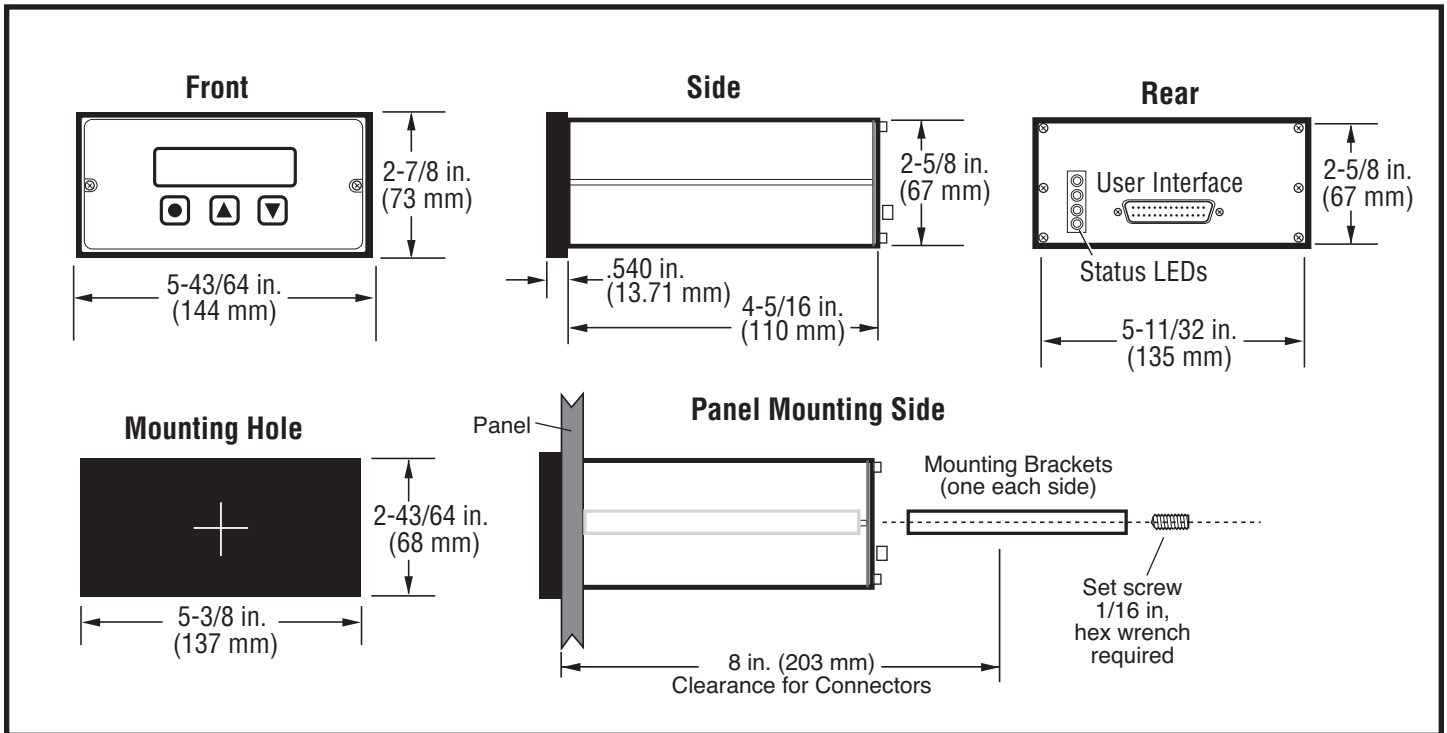
Status LED Description

The Universal EMS447 controller has new status LED's that show the following from top to bottom:

1. Tachometer Signal Strength. The brighter the LED the stronger the frequency signal.
2. RS485 Transmit. The LED lights each time a data packet is transmitted.
3. RS485 Receive. The LED lights each time a data packet is received.
4. Power OK. This light lights if the internal power supply is working properly.

Faceplate and display

Links 4, 5, 6.

Link 1

Link 2

Status LEDs

EMS447 Engine Monitoring System
Installation and Mounting Dimensions for EMS447
Manufactured After May 2003 (Date code X5 or later.)

Front

2-7/8 in.
(73 mm)

5-43/64 in.
(144 mm)

Side

2-5/8 in.
(67 mm)

.540 in.
(13.71 mm)

4-5/16 in.
(110 mm)

Rear

User Interface

Status LEDs

2-5/8 in.
(67 mm)

5-11/32 in.
(135 mm)

Mounting Hole

2-43/64 in.
(68 mm)

5-3/8 in.
(137 mm)

Panel Mounting Side

Panel

Mounting Brackets
(one each side)

Set screw
1/16 in,
hex wrench
required

8 in. (203 mm)
Clearance for Connectors

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.com/support/warranty.htm

In order to consistently bring you the highest quality, full featured products, we reserve the right to change our specifications and designs at any time.

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