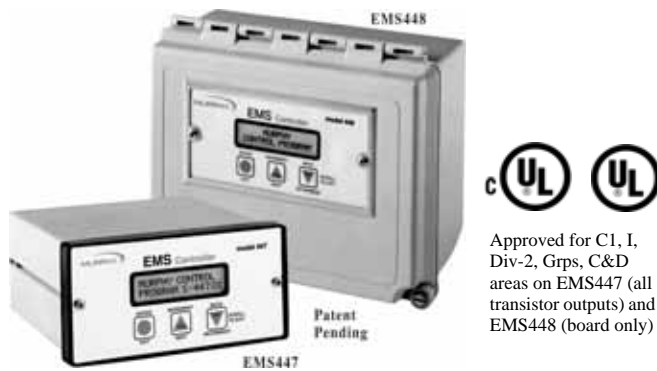


Electronic Monitoring Systems EMS447 / EMS448 Controllers



Approved for C1, I, Div-2, Grps, C&D areas on EMS447 (all transistor outputs) and EMS448 (board only)

Features

- Full Equipment Protection¹
- Field Adjustable Parameters¹
- First-Out Shutdowns and/or Alarms¹
- Shutdown History File¹
- Service Reminders¹
- Back Lit LCD or VFD Alphanumeric Display Patent
- 1/4 DIN or NEMA 4X Enclosed Models

¹ Program specific

The EMS447 and EMS448 Electronic Monitoring Systems/Controllers are micro-processor based for monitoring and control of equipment functions. The basic EMS system is programmed for a typical industrial engine power unit. Custom programming is available to adapt the EMS to a wide variety of engine and equipment requirements.

Basic programs provide auto-start/manual start and first-out shutdown for engine functions such as pressure, temperature, level and overspeed. Necessary time delays for start up lockout are included.

Operating data is displayed on a 32 character back lit alphanumeric liquid crystal display.

The EMS operating parameters are configured through a simple three-button interface. Access to the system memory is controlled by entry codes.

A password-protected program uses built-in memory to display the alarm/shutdown history, including a display of the last ten shutdowns, when and why they occurred and displays all of the engine operating conditions at time of last shutdown.

Basic Program Features

An on-board hourmeter keeps a log of equipment running hours and alerts you when to change oil, filters and perform other routine service.

Ramp Oil Pressure monitoring protects equipment at both high rated speed and low idle speed. For instance, based on engine manufacturer's requirement, shutdown could occur at 30 lb. (207 kPa) pressure at 1800 RPM or at 5 lb. (34 kPa) at 600 RPM or any shutdown point in between.

Basic Models

EMS448 has an extruded aluminum enclosure suitable for panel mounting. Wiring is via optional wiring harness. Relay boards are available for additional relay contact capability. Refer to "Accessories" on the back page.

EMS448 has a NEMA 4X type enclosure. Wiring is connected directly to the relay board terminal block located within the enclosure. Relay board for additional relay contact capability is available. See "Optional Accessories" on reverse side.

Applications

- Industrial Engines
- Compressors
- Generators
- Trucks
- Construction Equipment
- Pumps

Specifications

Input Voltage: 10 to 28 VDC.

Operating Temperature: -4 to 149°F (-20 to 65°C).

Storage Temperature: -4 to 149°F (-20 to 65°C).

Display: Alphanumeric: 2-line, 32 character backlit LCD (standard); VFD optional.

Relative Humidity: 95%RH @ 140°F (60°C).

Communications: RS485 port, standard.

Sensor Inputs:

- **Digital:** 3-optically-isolated inputs, (positive voltage or ground) such as from Murphy SWITCHGAGE[®] instruments.^{2,3}
- **Analog:** Up to 8 inputs—accepts a variety of resistive sending units, such as from Murphy electric gage senders.

NOTE: When resistive sending units are reused, one input will be designated for battery voltage sensing. Thus one 2-wire sender is strongly recommended. Special order analog inputs available (4-20 mA or 0-5 VDC).

- **Frequency:** 1 optically-isolated input for speed reference, such as MP3298 magnetic sensor.

EMS447 Outputs:

- 3-Transistor digital: 125 mA sinking.⁵
- 3-Relay: SPST 3A @ 30VDC N.O. connected to battery positive⁴.
- **S449-4 Relay Board (optional)**⁴: 2-Transistor digital: 125 mA sinking.
4-Relay: 2-SPST, 5A @ 30 VDC, 250 VAC, 1/10 hp @ 120 VAC;⁵ 2-DPDT, 2A @ 220 VDC, 250 VAC.⁶
- **S449-2 Relay Board (optional)**⁴: 6-Dry Relay: 4 SPST, 5A @ 30 VDC, 250 VAC, 1/10 hp @ 120 VAC;⁵ 2 DPDT, 2A @ 220 VDC, 250 VAC.⁶

EMS448 Outputs:

- 2-Transistor digital: 125 mA sinking.
- 4-Relay: 2-SPST, 5A @ 30 VDC, 250 VAC⁴, 1/10 hp @ 120 VAC;⁵ 2-DPDT, 2A @ 220 VDC, 250 VAC.⁶
- **S449-1 Relay Board (optional)**⁴: 6-Dry Relay: 4 SPST, 5A @ 30 VDC, 250 VAC, 1/10 hp @ 120 VAC;⁵ 2 DPDT, 2A @ 220 VDC, 250 VAC.⁶

Shipping Weights and Dimensions

EMS447: 2-1/4 lb (1 kg); 9-1/4 x 8-1/4 x 5-1/4 in. (235 x 210 x 133 mm).

² One additional input can be ordered and traded for one transistor output.

³ Isolate the internal circuitry of the Murphy EMS from the sensor input circuitry to help avoid electrical noise and damage.

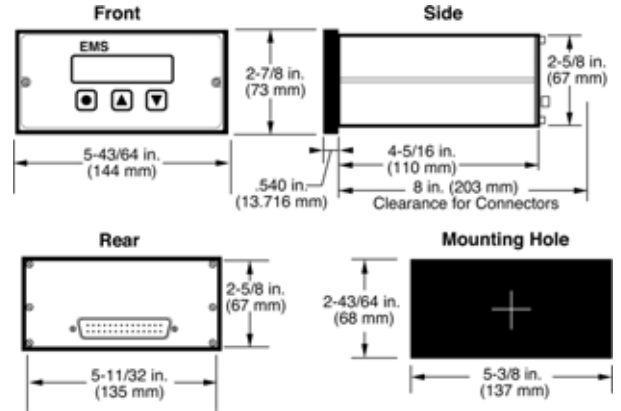
⁴ Not Class I, Division 2 approved.

⁵ One additional output can be ordered and traded for one digital input.

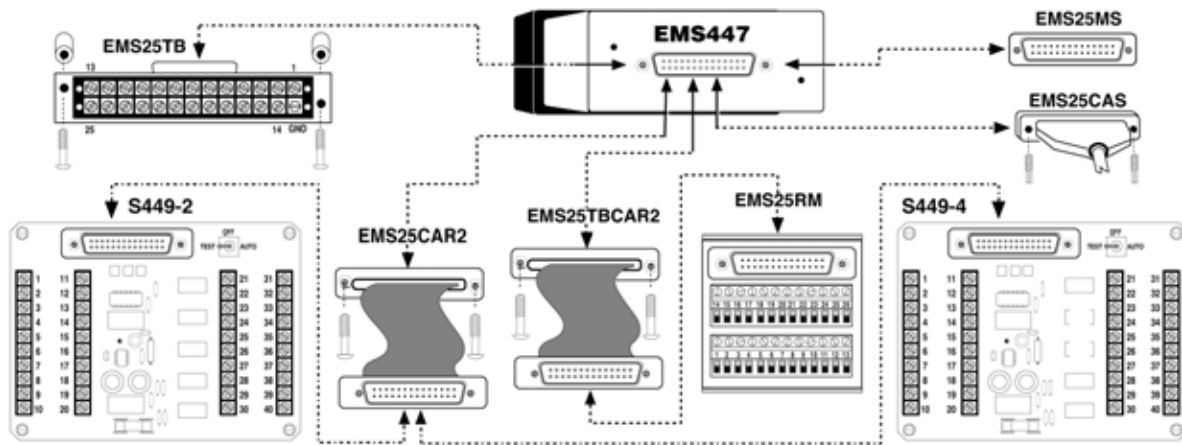
⁶ One DPDT pole has common connected to battery +. N.O. available fused and unfused.

EMS448: 3-1/2 lb (1.5 kg); 12-1/4 x 7-1/4 x 5-3/4 in. (311 x 184 x 146 mm).

EMS447 Model

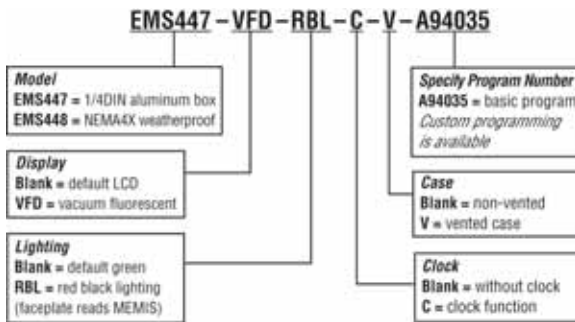


EMS447 Optional Wiring Harness and Relay Boards



How to Order

To order the EMS use the model number designation diagram below.



Accessories Required to complete the installation

- EMS25TB = Plug-in terminal block assembly
- EMS25RM = Rail mount DIN type terminal block
- ⁷EMS25CAR2 = Ribbon cable with 2 male D-subminiature connectors
- ⁷EMS25CAS = Male connector with 9 ft. (2.74 m) long color coded cable
- EMS25MS = Solder type male D-subminiature connector
- S449-1 = Relay board instead of S449-3 relay board.
- S449-2 = Relay board (EMS447 only)
- S449-4 = Relay board (EMS447 only)

⁷ Standard length ribbon cable is 2 ft. (610 mm). Specify in feet for other lengths.
 Example: EMS25CAR4 (for 4 feet long).

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 <http://www.fwmurphy.com/warranty>