

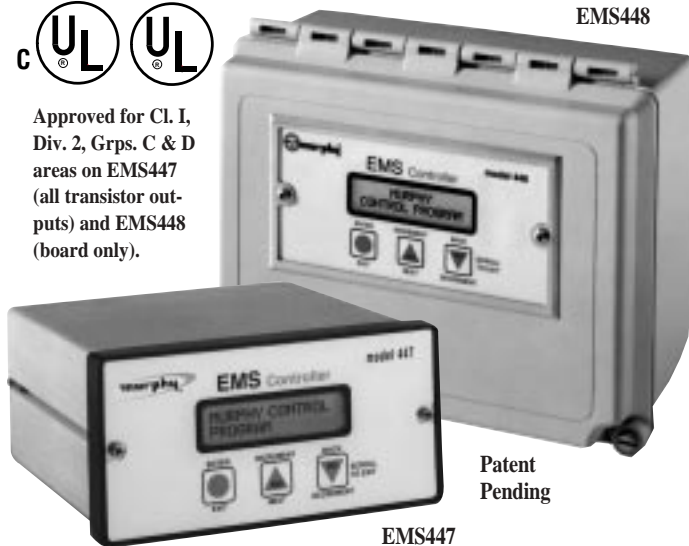
Electronic Monitoring Systems

EMS-92199B
Revised 05-03
Catalog Section 40
(00-02-0101)

FWMurphy



Approved for Cl. I,
Div. 2, Grps. C & D
areas on EMS447
(all transistor out-
puts) and EMS448
(board only).



EMS448

Patent
Pending

EMS447

EMS447 / EMS448 Controllers

- Full Equipment Protection⁽¹⁾
- Field Adjustable Parameters⁽¹⁾
- First-Out Shutdowns and/or Alarms⁽¹⁾
- Shutdown History File⁽¹⁾
- Service Reminders⁽¹⁾
- Back Lit LCD or VFD Alphanumeric Display
- 1/4 DIN or NEMA 4X Enclosed Models

Description

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 SWITCH-GAGE® 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 used, one input will be designated for battery voltage sensing. The use of 2-wire type senders 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.⁽⁴⁾
- 3-Relay: SPST 3A @ 30VDC N.O. connected to battery positive*.
- **S449-4 Relay Board (optional)*:**
 - 2-Transistor digital: 125 mA sinking.
 - 4-Relay: 2-SPST, 5A @ 30 VDC, 250 VAC, 1/10 hp @ 120 VAC;⁽⁴⁾
 - 2-DPDT, 2A @ 220 VDC, 250 VAC.⁽⁵⁾
- **S449-2 Relay Board (optional)*:**
 - 6-Dry Relay: 4 SPST, 5A @ 30 VDC, 250 VAC, 1/10 hp @ 120 VAC;⁽⁴⁾
 - 2 DPDT, 2A @ 220 VDC, 250 VAC.⁽⁵⁾

EMS448 Outputs:

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

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).

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).

⁽¹⁾ Program specific.

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

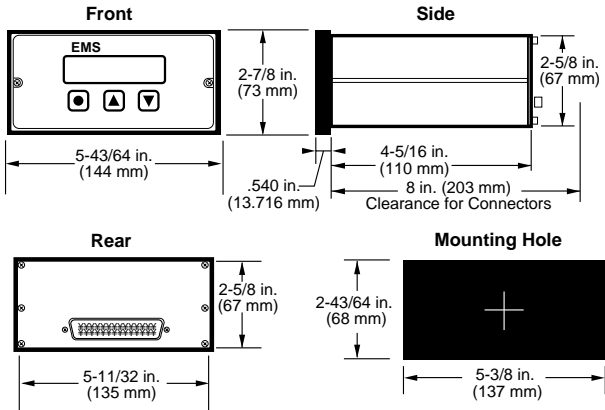
⁽³⁾ Isolates the internal circuitry of the Murphy EMS from the sensor input circuitry to help avoid electrical noise and damage.

⁽⁴⁾ One additional output can be ordered and traded for one digital input.

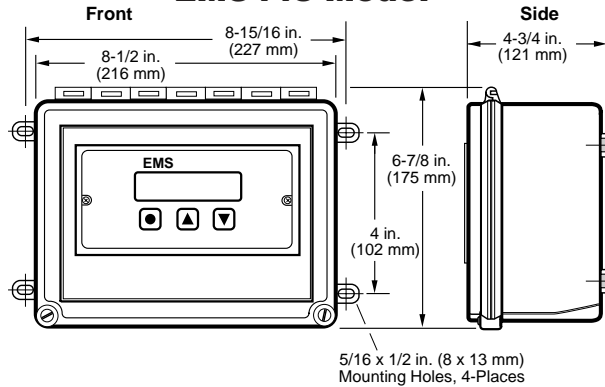
⁽⁵⁾ One DPDT pole has common connected to battery+. N.O. available fused and unfused.

*Not Class I, Division 2 approved.

EMS447 Model



EMS448 Model



How to Order

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

EMS447 - VFD - RBL - C - V - A94035

Model
 EMS447 = 1/4DIN aluminum box
 EMS448 = NEMA4X weatherproof

Display
 Blank = default LCD
 VFD = vacuum fluorescent

Lighting
 Blank = default green
 RBL = red black lighting
 (faceplate reads MEMIS)

Specify Program Number
 A94035 = basic program
 Custom programming is available

Case
 Blank = non-vented
 V = vented case

Clock
 Blank = without clock
 C = clock function

Accessories

Required to complete the installation

- EMS25TB = Plug-in terminal block assembly
- EMS25RM = Rail mount DIN type terminal block
- † EMS25CAR2 = Ribbon cable with 2 male D-subminiature connectors
- † EMS25CAS = 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)

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

EMS447 Optional Wiring Harness and Relay Boards

