

# Electric Gage and Swichgage® Instruments

**MURPHY**  
*reliable innovation*



Sharper Accuracy  
Higher Durability  
Advanced Technology

# Sharper Accuracy. Higher Durability. Advanced Technology.

The EG21 Series Electric Gage and the EGS21 Series Switchgage instrument take the electric gage to new heights with proven state of the art technology and reliability.

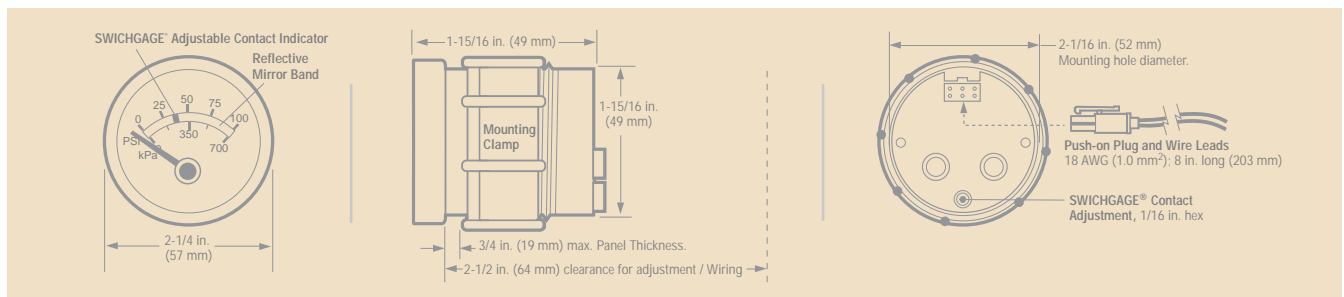


- ▼ EG Air Core movement design
- ▼ Technological improvements in lighting, accuracy in reading and wiring installation
- ▼ Assurance of highest reliability and service
- ▼ Environmentally sealed design
- ▼ Exceeds the rigid SAE J1810 standard
- ▼ Corrosion-resistant materials.
- ▼ Desirable for marine and other environmentally sensitive applications
- ▼ Soft, non-glare dial and pointer illumination by "cold light" LED.

## Electric Switchgage instrument

The EGS21 Series Switchgage instrument has all of the features of the EG21 Series Gage plus an adjustable set point PowerHall® Effect switch output for operating alarms or equipment shutdown. The trip point is adjustable over 90% of the scale and has a set point indicator visible from the gage face. Now you can have both, the ease of electric gage installation and the reliable switching of Murphy's famous Switchgage instrument.

## Dimensions



## Specifications

**Power Input, all models and sender:** 12 VDC or 24 VDC.

**Case:** Polyester (PBT), impact and weather resistant with screw-on mounting clamp.

**Bezel:** Polished 316 stainless steel standard; available in black. SAE style optional.

**Lens:** Clear Polycarbonate and UV stabilized.

**Air Core Movement:** Silicon dampened pointer.

**Dial:** Black with white markings; back-lite (marking becomes red when illuminated); dual scale with mirror band to reduce parallax reading errors.

**Switchgage instrument Sensor:** PowerHall® Effect; outputs ground signal (sinking output) rated: 300 mA continuous (EGS21 models). Pressure, Fuel, Volts set on decreasing scale. Temperature and Amps set on increasing scale. Output saturation voltage (voltage drop across switch): 1.3-2.3 Volts @ 25°C (may require some conditioning to work with logic inputs)

**Switchgage instrument Set Point Indicator:** Visible on mirror band (scale); adjustable from the back of the unit (1/16 in. hex type wrench).

**Wiring:** Plug connector with wire leads, 18 AWG (1.0 mm<sup>2</sup>), 8 in. (203 mm) long.

**Operating Temperature:** -40 to 185°F (-40 to +85°C).

**Storage Temperature:** -77 to 185°F (-60 to 85°C).

**Over Voltage (Gage Movement):** Withstands 200% of nominal system voltage for 5 min. Meets SAE J1810.

**Reversed Polarity (Gage Movement):** Withstands reversed battery terminal polarity indefinitely within operating temperatures.

**Environment and Test:** Meets SAE J1810 standards.



## Ranges

PRESSURE	80 psi	(552 kPa)	[5.52 bar]
	100 psi	(689 kPa)	[6.89 bar]
	200 psi	(1.38 MPa)	[13.80 bar]
	300 psi	(2.07 MPa)	[20.70 bar]
	400 psi	(2.76 MPa)	[27.60 bar]

TEMPERATURE	250°F	(121°C)
	300°F	(149°C)

FUEL LEVEL	Empty — 1/4 — 1/2 — 3/4 — Full
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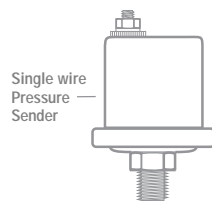
AMMETER	60 — 0 — 60 amps (internal shunt)*
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VOLTMETER	12 VDC: 8 — 18 Volts
	24 VDC: 16 — 36 Volts

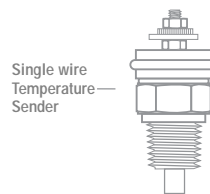


**IMPORTANT:** EG21 Series gage and EGS21 Series Switchgage Movement and Illumination require 12 VDC to function. For 24 volts systems, voltage converters are built into the electrical wire / connector assembly and supplied with the instrument, Specify voltage when ordering.

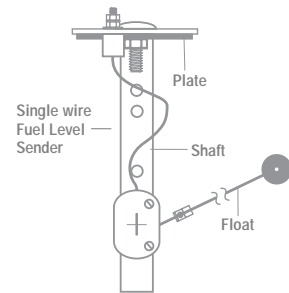
## Electric Gage Senders



Single wire  
Pressure  
Sender



Single wire  
Temperature—  
Sender



Single wire  
Fuel Level  
Sender

### PRESSURE

- ▼ ESP: 1-wire-to-ground sender†
- ▼ ES2P: 2-wire ungrounded sender†
- ▼ ESDP: 2-wire ungrounded sender, it drives 2 gages†

### TEMPERATURE

- ▼ EST: 1-wire-to-ground sender
- ▼ ES2T: 2-wire ungrounded sender
- ▼ ESDT: 2-wire ungrounded sender, it drives 2 gages.

### FUEL LEVEL

- ▼ ESF: 1-wire-to-ground sender
- ▼ ES2F: 2-wire ungrounded sender
- ▼ ESDF: 2-wire ungrounded sender, it drives 2 gages.

† Thru 100 psi (689 kPa) [6.89 bar].

# How to Order EG Series Gage and Switchgage Instruments



**IMPORTANT:** EG21 Series gage and EGS21 Series Switchgage Movement and Illumination require 12 VDC to function. For 24 volts systems, voltage converters are built into the electrical wire / connector assembly and supplied with the instrument. Specify voltage when ordering. No designator is required for standard configurations.

**EGS21 P - 100 - 12 - A**

## Base Model

EG21 = Gage  
EGS21 = Switchgage

## Measurement Units

P = Pressure  
PV = Pressure Special\*  
TV = Temperature Special\*\*  
T = Temperature

F = Fuel  
AM = Ammeter  
VM = Voltmeter

## Range Scale

Show maximum value and units of measure (if other than psi or °F) for Pressure, Temperature, Amps, and Volts

## Bezel

Standard = Polished Stainless Steel  
A = Black, Semi-Gloss Finish  
B = SAE Low Profile Stainless

## Battery Voltage

12 = 12 VDC systems  
24 = 24 VDC systems

\*Available only as EG21PV-80-12 or -24-A. This model is designed to read senders with resistance curve of 9.5 to 182 ohms, which are commonly supplied as standard senders.

\*\*Available only as EG21TV-300-12 or -24-A. This model is designed to read senders with resistance curve of 240 to 18 ohms, which are commonly supplied as standard senders.

## How to Order EG Senders

**ES 2 T - 250/300 - 1/4**

## Sender Type

Blank = 1-wire  
2 = 2-wire  
D = 2-wire, dual

## Process to be Measured

P = Pressure<sup>1)</sup>  
PM = Pressure<sup>2) & 3)</sup>  
T = Temperature  
F = Fuel

## Range/Scale

Show maximum value and units of measure (if other than psi or °F) for Pressure, Temperature, Amps, Volts.

## Thread Sizes

(for temperature senders)

X = 5/8-18 UNF<sup>4)</sup>  
1/8 = 1/8-27 NPT<sup>5)</sup>  
1/4 = 1/4-18 NPT  
3/8 = 3/8-18 NPT  
3/8B = 3/8-19 BSPT  
1/2 = 1/2-14 NPT<sup>5)</sup>  
1/2B = 1/2-14 BSPT  
5/8 = 5/8-18 UNF  
3/4 = 3/4-14 NPT  
7/8 = 7/8-9 UNC  
M14 = 14 mm x 1.5  
M16 = 16 mm x 1.5  
M18 = 18 mm x 1.5  
M20 = 20 mm x 1.5  
M22 = 22 mm x 1.5  
M24 = 24 mm x 1.5

<sup>1)</sup> Thru 100 psi (689 kPa) [6.89 bar].

<sup>2)</sup> Ranges above 100 psi (689 kPa) [6.89 bar].

<sup>3)</sup> Mounting off-equipment recommended.

<sup>4)</sup> Straight threads, for use with adapter nut.

<sup>5)</sup> Separate adapter nut not required.

**NOTE:** Boot is optional on ES2T and ESDT temperature senders. Specify p/n 00-00-3624.

Fuel level senders are for fuel tanks only. Tank depths 6-24 in. (152-610 mm).

## How to Order Accessories and Replacement Parts

### Off-Equipment Mounting Kit

This kit allows off-equipment mounting of the ESPM, ES2PM and ESDPM pressure senders. Recommended for protection from damaging vibration. Customer supplies hose and fittings. Specify part number 30-00-0213 when ordering.

### Wire/Connector Assembly

Listed below are replacement part numbers for all wire/connector assemblies. Voltage converter included for 24 and 32 volt. Specify part number when ordering.

	12 VDC	24 VDC
EG21P/T/F	05004506	05006166 (05004546)
EGS21P/T/F	05004507	05006168 (05004548)
EG21AM	05004505	05006170 (05004550)
EGS21AM	05004504	05006172 (05004552)
EG21VM	05004508	05004508
EGS21VM	05004504	05004504

### LOW VOLUME CONFIGURATIONS NOTE:

Low volume configurations may require minimum purchase quantities.



**CAUTION:** Certain danger to human safety and to equipment may occur if some equipment is stopped without pre-warning. It is recommended that monitored functions be limited to alarm-only or alarm before shutdown.

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