

# EG SERIES

## Electric Gage and SWITCHGAGE®

*Leading Edge SELECTRONIC®  
Technology In The Murphy  
Quality Tradition*



pressure temperature fuel level amps volts  
volts amps fuel level temperature pressure  
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## LEADING EDGE SELECTRONIC® TECHNOLOGY

The **EG21 Series Electric Gage** and the **EGS21 Series SWICHGAGE®** take the electric gage to new heights with proven state of the art technology and reliability. Utilizing our proven EG Air Core movement design, the EG21 Series offers technological improvements in overall operation, lighting, accuracy in reading, wiring and installation. The EG21 Series give you assurance of highest reliability and service.

These rugged gages are environmentally sealed and exceed the rigid SAE J1810 standard for reliable operation under tough off-road and power unit environments. Corrosion-resistant materials are used throughout, making the EG21 highly desirable for marine and other environmentally sensitive applications. Soft,

non-glare dial and pointer illumination is provided by a "cold light" LED and when powered the white lettering and clear pointer become soft red. Mirror band eliminates parallax reading error when the pointer and its reflection are aligned.

### Electric SWICHGAGE®

The **EGS21 Series SWICHGAGE®** 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 SWICHGAGE®.

## SPECIFICATIONS

**Power Input:** For Gage, SWICHGAGE® and Sender: 12 VDC; 24 or 32 VDC when specified (see below for 32 VDC limitations).



**NOTE:** EG21 Series gage and EGS21 Series SWICHGAGE® MOVEMENT and ILLUMINATION require 12 VDC to function. For 24 or 32 volt systems, voltage converters are built into the electrical wire/connector assembly **and supplied with instrument. Specify voltage when ordering.**

### Ranges:

Pressure:	80	(552 kPa)	[5.52 bar]
	100	(689 kPa)	[6.89 bar]
	200	(1.38 MPa)	[13.80 bar]
	300	(2.07 MPa)	[20.70 bar]
	400	(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		
Ammeter:	60 — 0 — 60 amps (internal shunt)*		
	100 — 0 — 100 amps (internal shunt)*		
Voltmeter:	12 VDC: 8 — 18 Volts *		
	24 VDC: 16 — 36 Volts *		

\* EGS21AM Ammeter SWICHGAGE®, EG21VM Voltmeter gage and EGS21VM Voltmeter SWICHGAGE® are for 12 VDC and 24 VDC **ONLY**.

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

**Bezel:** Polished 316 stainless steel bezel is supplied as standard; Available in black. SAE style optional.

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

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

**Dial:** Black background and white markings; behind dial lighting (white marking becomes red when illuminated); dual scale with mirror band to reduce parallax reading errors.

**SWICHGAGE® Sensor:** PowerHall® Effect; outputs ground signal (sinking output) rated: 300 mA continuous (EGS21 Series only). 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)

**SWICHGAGE® 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>) x 8 in. (203 mm) length.

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

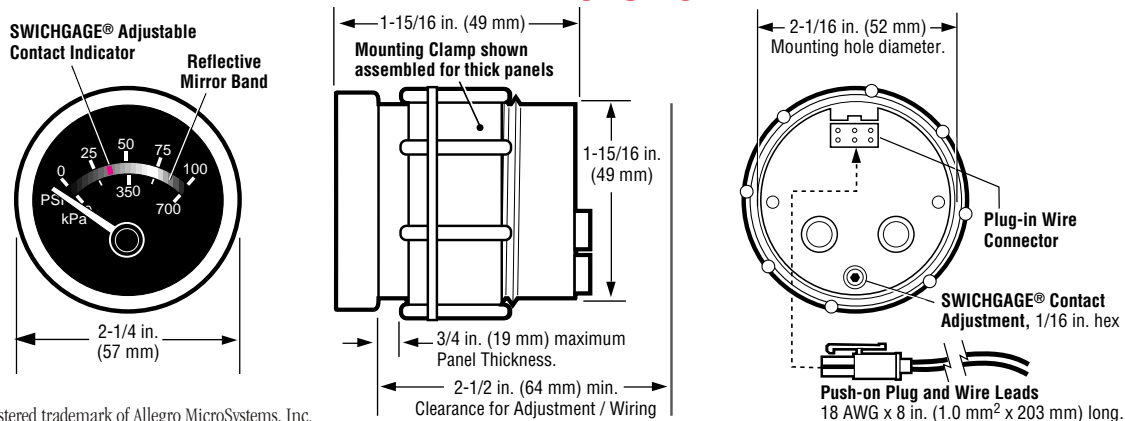
**Storage Temperature:** -77 to 185°F (-60 to 85°C).

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

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

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

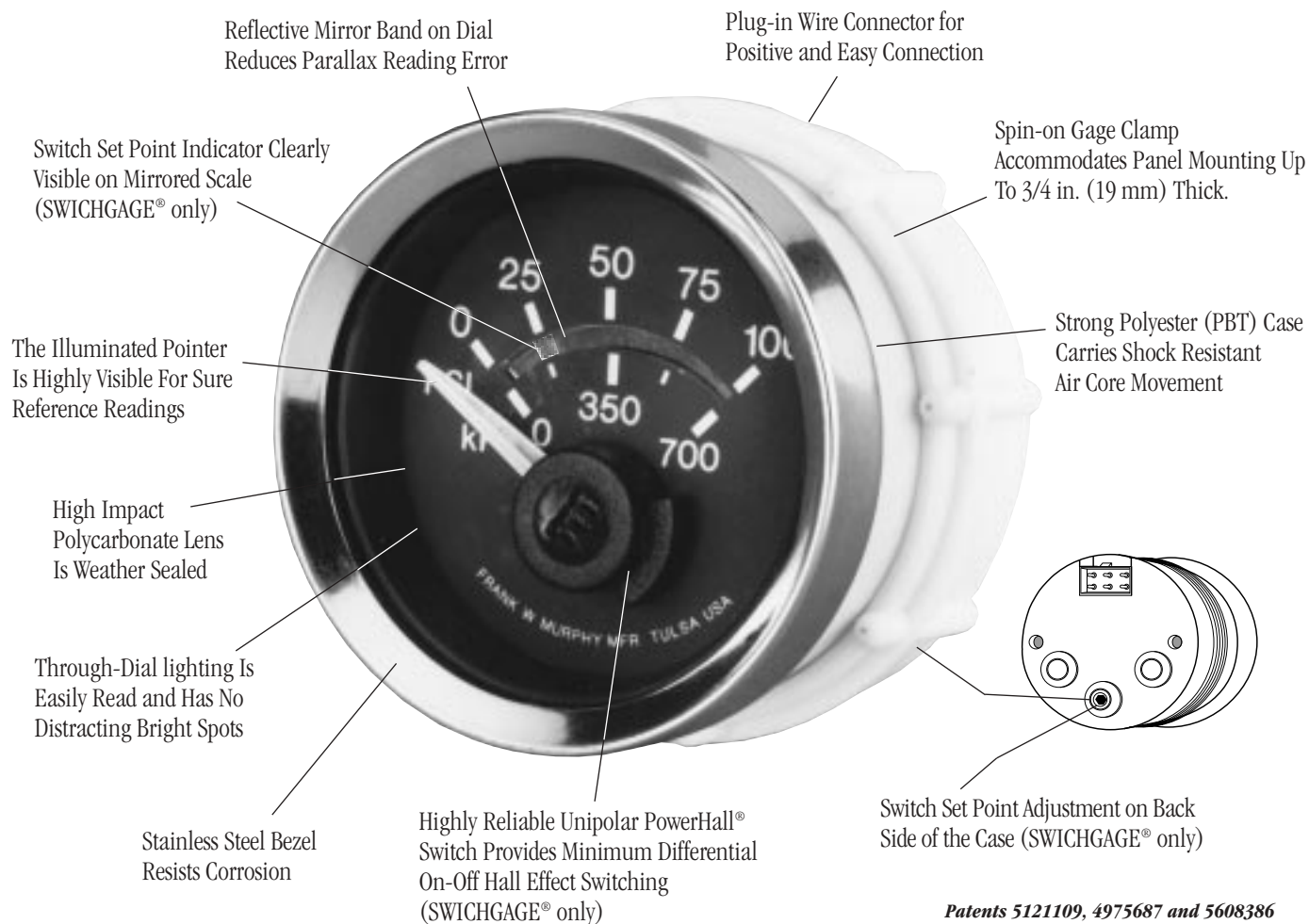
## DIMENSIONS



PowerHall® is a registered trademark of Allegro MicroSystems, Inc.

## FEATURES

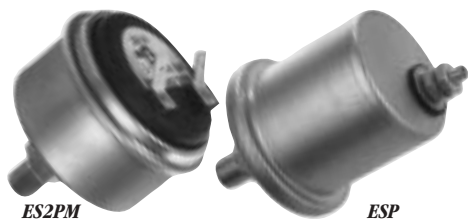
**NOTE:** The features below apply to both the EG21 Series Gage and EGS21 Series SWITCHGAGE® unless indicated.



*Patents 5121109, 4975687 and 5608386*

## SENDERS

### Pressure



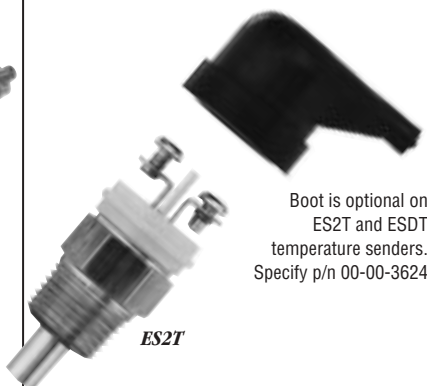
- **ESP:** 1-wire-to-ground sender †
- **ES2P:** 2-wire ungrounded sender †
- **ESDP:** 2-wire ungrounded sender,  
drives 2 gages †
- **ESPM:** 1-wire-to-ground sender †† \*\*
- **ES2PM:** 2-wire ungrounded sender †† \*\*

† Thru 100 psi (689 kPa) [6.89 bar].

†† Ranges above 100 psi (689 kPa) [6.89 bar].

\*\* Mounting off-equipment recommended.

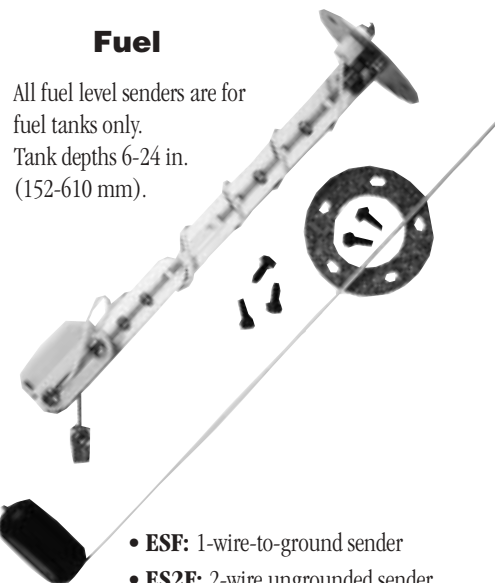
### Temperature



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

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

### Fuel




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

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

## HOW TO ORDER

### EG Series Gage and SWICHGAGE®

 **NOTE:** EG21 and EGS21 Series are designed for use with 12 volt systems. For 24 or 32 volt systems, voltage reducing resistors are included in the wire/connector assembly. No designator required for **Standard** configurations.

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

**EG21** = Gage  
**EGS21** = SWICHGAGE®

#### Base Model

**P** = Pressure  
**PV** = Pressure Special<sup>1)</sup>  
**TV** = Temperature Special<sup>2)</sup>  
**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

**NOTE:** EGS21AM Ammeter SWICHGAGE®, EG21VM Voltmeter gage and EGS21VM Voltmeter SWICHGAGE® **NOT** available for 32 VDC systems.

**12** = 12 VDC  
**24** = 24 VDC  
**32** = 32 VDC

**NOTE:** The **EG21PV-80-12, 24 or 32-A** is designed to read senders with a resistance curve of 9.5 to 182Ω, which are commonly supplied as standard senders on Deutz and VW Engines.

The **EG21TV-300-12, 24 or 32-A** is designed to read senders with a resistance curve of 240 to 18Ω, which are commonly supplied as standard senders on Deutz and VW Engines.

## EG Series 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>3)</sup>  
**PM** = Pressure<sup>4)</sup> & <sup>5)</sup>  
**T** = Temperature  
**F** = Fuel

#### Range/Scale

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

#### Thread Sizes

(temperature senders only)

**X** = 5/8-18 UNF<sup>6)</sup>  
**1/8** = 1/8-27 NPT<sup>7)</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>7)</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

## 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	32 VDC
<b>EG21P / T / F</b>	05004506	05006166 (05004546) <sup>8)</sup>	05006167 (05004547) <sup>8)</sup>
<b>EGS21P / T / F</b>	05004507	05006168 (05004548) <sup>8)</sup>	05006169 (05004549) <sup>8)</sup>
<b>EG21AM</b>	05004505	05006170 (05004550) <sup>8)</sup>	05006171 (05004551) <sup>8)</sup>
<b>EGS21AM</b>	05004504	05006172 (05004552) <sup>8)</sup>	—
<b>EG21VM</b>	05004508	05004508	—
<b>EGS21VM</b>	05004504	05004504	—

## Warranty

A two year warranty on materials and workmanship is given with these products. Details are available on request and are packed with each unit.

<sup>1)</sup> ONLY Available as EG21PV-80-\_\_\_\_-A

<sup>2)</sup> ONLY Available as EG21TV-300-\_\_\_\_-A

<sup>3)</sup> Thru 100 psi (689 kPa) [6.89 bar].

<sup>4)</sup> Ranges above 100 psi (689 kPa) [6.89 bar].

<sup>5)</sup> Mounting off-equipment recommended.

<sup>6)</sup> Straight threads, for use with adapter nut.

<sup>7)</sup> Separate adapter nut not required.

<sup>8)</sup> For gages with date code R1 (January 1996) or earlier (Q12, Q11, etc.) specify part number shown in parenthesis.



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