

## SECTION 70 ELECTRIC GAGES

95090	<b>Electric Gages</b> EG SERIES – Electric Gage and Swichgage® Instrument . . . . .	287
0910469	<b>Annunciators</b> Four-Function Tattletale® Annunciator . . . . .	291

美国Murphy摩菲经销商  
联系我们：

信德迈科技(北京)有限公司 CNMEC Technology  
地址:北京朝阳区望京街10号望京SOHO-T1-C座2115室  
邮编：100102  
Tel:010-8428 2935 , 8428 3983 ; 8428 9077  
Fax:010-8428 8762 13910962635  
<http://www.cnmec.com>  
[email:sales@cnmec.biz](mailto:sales@cnmec.biz)



THIS PAGE INTENTIONALLY LEFT BLANK.

# EG Series – Electric Gage and Swichgage® Instrument



## Features

- EG Air Core movement design
- Technological improvements in lighting, accuracy in reading and wiring installation
- 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 Swichgage Instrument

The **EGS21 Series Swichgage 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 Swichgage instrument.

## Specifications

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

**NOTE:** EG21 Series gage and EGS21 Series Swichgage instrument **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.**

**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 instrument 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 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>) 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.

## 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)

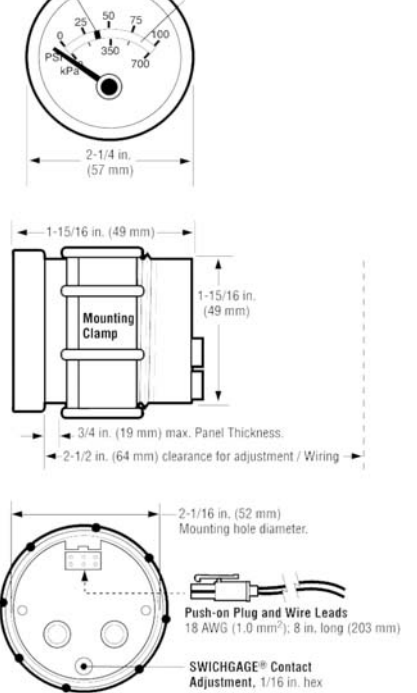
FUEL LEVEL	Empty — 1/4 — 1/2 — 3/4 — Full
------------	--------------------------------

AMMETER	60 — 0 — 60 amps (internal shunt)*
---------	------------------------------------

VOLTMETER	12 VDC: 8 — 18 Volts
	24 VDC: 16 — 36 Volts

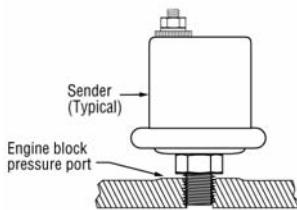
**IMPORTANT:** EG21 Series gage and EGS21 Series Switchgag Movement and Illumination require 12 VDC to function. For 24 volts systems, voltage converters are built into the electrical wire / connector assembly and supplied with the instrument. Specify voltage when ordering.

SWICHGAGE Adjustable Contact Indicator  
Reflective Mirror Band



## Electric Gage Senders

### Pressure



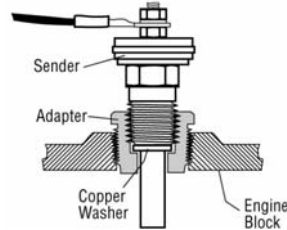
- **ESP:** 1-wire-to-ground sender \*
- **ES2P:** 2-wire ungrounded sender \*
- **ESDP:** 2-wire ungrounded sender, drives 2 gages \*
- **ESPM:** 1-wire-to-ground sender † ‡
- **ES2PM:** 2-wire ungrounded sender † ‡

\* Thru 100 psi (689 kPa) [6.89 bar].

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

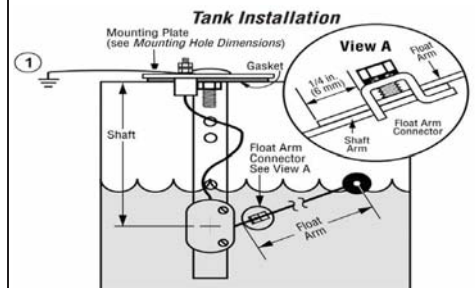
‡ Mounting off-equipment recommended.

### Temperature



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

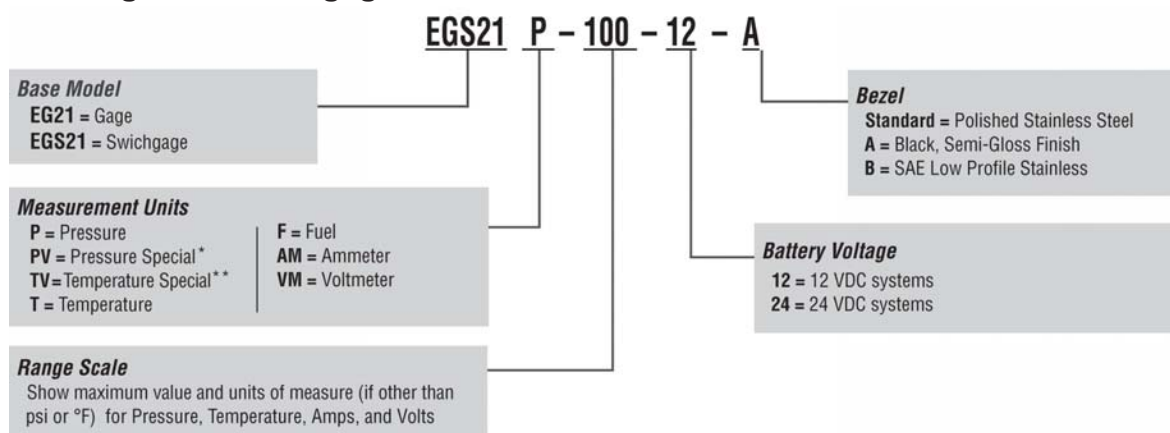
### Fuel



- **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 Switchgage Instrument



**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.

\*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.

5	PRESSURE/ VACUUM
10	TEMPERATURE
15	FLUID LEVEL
20	VIBRATION, TIME & OVERSPEED
25	MAGNETIC SWITCHES & ANNUNCIATORS
30	ENGINE PANELS
40	ENGINE & MOTOR CONTROLS
50	COMPRESSOR CONTROLS & PANELS
55	VALVES
70	ELECTRIC GAGES
75	GEN-SET CONTROLS
78	MURPHYLINK™ J1939

## 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>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

## 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
EG21P / T / F	05004506	05006166 (05004546) <sup>6)</sup>	05006167(05004547) <sup>6)</sup>
EGS21P / T / F	05004507	05006168 (05004548) <sup>6)</sup>	05006169(05004549) <sup>6)</sup>
EG21AM	05004505	05006170 (05004550) <sup>6)</sup>	05006171(05004551) <sup>6)</sup>
EGS21AM	05004504	05006172 (05004552) <sup>6)</sup>	—
EG21VM	05004508	05004508	—
EGS21VM	05004504	05004504	—

- 1) Thru 100 psi (689 kPa) [6.89 bar].
- 2) Ranges above 100 psi (689 kPa) [6.89 bar].
- 3) Mounting off-equipment recommended.
- 4) Straight threads, for use with adapter nut.
- 5) Separate adapter nut not required.
- 6) For gages with date code R1 (January 1996) or earlier (Q12, Q11, etc.) specify part number shown in parenthesis.

**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>

# Four-Function Tattletale® Annunciator - EN204 Series

5 PRESSURE/  
VACUUM  
10 TEMPERATURE  
15 FLUID LEVEL  
20 VIBRATION,  
TIME &  
OVERSPEED  
25 MAGNETIC  
SWITCHES &  
ANNUNCIATORS  
30 ENGINE  
PANELS  
40 ENGINE &  
MOTOR  
CONTROLS  
50 COMPRESSOR  
CONTROLS &  
PANELS  
55 VALVES  
70 ELECTRIC  
GAGES  
75 GEN-SET  
CONTROLS  
78 MURPHYLINK™  
J1939



## Features

- Designed for use with electric Switchgauge instruments or normally open, close to negative contacts
- LED Annunciation for low oil pressure, high water temperature, loss of battery voltage, and low fuel level or glow plug.
- Output may be used for tripping an Electromagnetic Control Switch for engine shutdown
- Developed with the same leading edge technology as our EGS Series Electric Switchgauge.

## Electric Switchgauge Instrument

The **EN204 Series Tattletale Annunciator** works with other engine components to clearly indicate critical engine operating conditions. The four bright LEDs on the face of the annunciator indicate the cause of an alarm or shutdown condition.

Two EN204 models are available. Each shows the standard critical engine operating parameters—oil pressure, coolant temperature, and battery voltage. Model EN204-S-12 also includes an indicator for low fuel level. Model EN204-SG-12 substitutes the fuel level indicator with a glow plug indicator for those engines that use a glow plug for easier starting.

The EN204 Annunciators are used in conjunction with Murphy Electric Switchgauge instrument or other normally open switches that close to

ground when a fault condition occurs. As an example, in a system with a Murphy EGS21P-100 Oil Pressure Switchgauge instrument, the Switchgauge closes to ground when the oil pressure drops below a pre-determined set point. This will energize the Oil Pressure LED on the EN204 to highlight a low oil pressure failure.

A very important feature of the EN204 is the ability to interface with Murphy 518PH or the 760A Electromagnetic Switches to perform automatic engine shutdown when fault conditions occur. The EN204 can also be used with other Murphy visual and audible alarms (STAS series remote alarm, SAH audible alarm, and the TL7 visual alarm) for remote annunciation and equipment shutdown.

## Specifications

### Operating Voltage:

12 VDC (10 V min. - 16 V max.).

**Current:** 0.020 A to 0.025 A per LED.

**Output:** Sink 0.275 A.

### Output Saturation Voltage:

.7-1.1 V @ 25°C.

### Case and Screw-on Mounting Clamp:

Polyester (PBT).

**Bezel:** Bright stainless steel.

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

**Dial:** Black background and white markings with four (4) Red LED indicators.

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

### Operating Temperature:

-40 to 185°F (-40 to +85°C).

### Storage Temperature:

-76 to 185°F (-60 to 85°C).

**Shipping Weight:** 0.5 lb. (226 g).

**Shipping Dimensions:** 8 x 4 x 4-1/2 in. (203 x 102 x 114 mm).

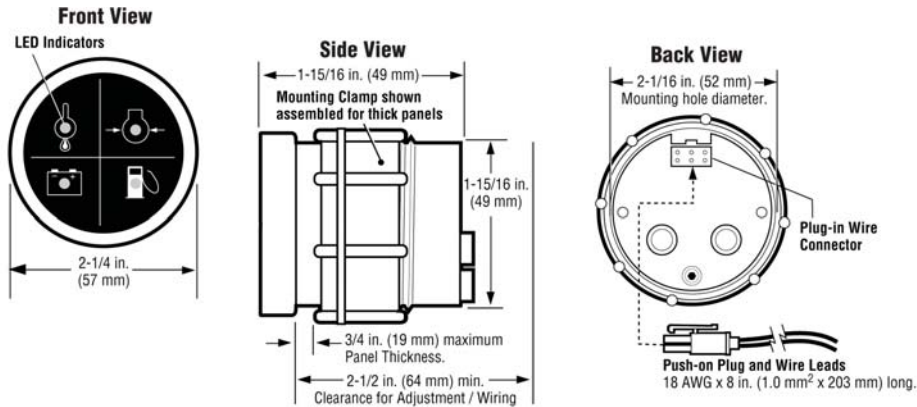
## Basic Models

The following two basic models are offered:

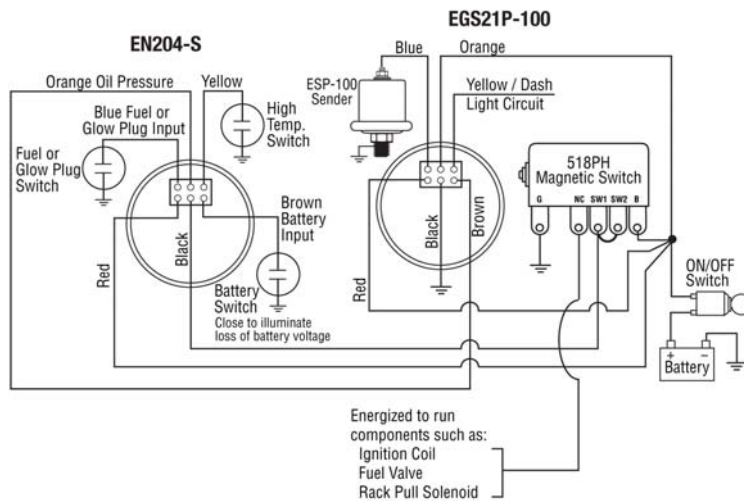
EN204-S-12		EN204-SG-12	
Monitored Functions	Action	Monitored Functions	Action
Oil Pressure	Indicate and Switched	Oil Pressure	Indicate and Switched
Coolant Temperature	Indicate and Switched	Coolant Temperature	Indicate and Switched
Battery Voltage	Indicate	Battery Voltage	Indicate
Fuel Level	Indicate and Switched	Glow Plug Energized	Indicate

The **Switched** functions listed are able to sink a current up to 0.275 amps and may be used to activate the electromechanical control switches or other devices.

## Dimensions



## EN204-S Typical Wiring Diagram



**Note:** Use of the **black wire** on the **EN204-S** and the **518PH Magnetic Switch** (as shown in the diagram) is required for engine shutdown.  
For LED annunciation only, **black wire** is not used.

## How to Order

EN204-S-12 and switch

Four-LED Tattletale annunciator including Fuel Level LED indicator.

EN204-SG-12

Four-LED Tattletale annunciator including Glow Plug LED indicator.

**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>