

## Sub Miniature Pressure Sensor for Harsch Environment



### Features

- ➔ Available with 0,5-4,5Vdc output
- ➔ Operating from -40 to +140°C
- ➔ Ultra light sensor : 3 grams
- ➔ Large Bandwidth

### Applications

- ➔ Automotive - on vehicle
- ➔ Aerospace
- ➔ Military
- ➔ Motorsport

The PHE860 series is designed to operate in the harshest environments, including wide temperature operating temperature, mechanical shocks and vibrations. It is well adapted to embedded measurements, on vehicles, aircrafts, satellites, robots, missiles or on test benches for any equipment where space and mass are at a premium. With pressure ranges available from -1 up to 250 bar, its stainless steel construction makes it usable with most fluids used in industry, even corrosive ones. The PHE860 is manufactured with the ruggedized and proprietary sensitive elements and components developed by EFE. Its manufacturing process, including traceable controls and special burn-in, gives the best insurance of high performances and stability in the most challenging applications.

## Technical specifications

|                                          |                                                                                                                                                                    |
|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pressure ranges (FS)                     | -1/+4bar ; -1/+9bar ;<br>5bar ; 10bar ; 20bar ; 40bar ; 70bar ; 250bar ;<br>-14.5/+60PSI ; -14.5/+140PSI ;<br>70PSI ; 150PSI ; 300PSI ; 500PSI ; 1000PSI ; 3000PSI |
| Type                                     | Absolute ; Gage                                                                                                                                                    |
| Type (for ranges > 40 bar)               | Sealed Gage                                                                                                                                                        |
| Safe overload                            | 150% FS                                                                                                                                                            |
| Burst pressure                           | 300% FS                                                                                                                                                            |
| Power supply                             | 8 to 16Vdc                                                                                                                                                         |
| Consumption                              | < 10mA                                                                                                                                                             |
| Insulation                               | > 1000 MOhms under 50Vdc at ambient temperature                                                                                                                    |
| Output at -100%FS (only for $\pm$ range) | 0.5Vdc                                                                                                                                                             |
| Output at 0%FS (except ranges $\pm$ )    | 0.5Vdc                                                                                                                                                             |
| Output at 100%FS                         | 4.5Vdc                                                                                                                                                             |
| Zero and sensitivity settings tolerances | $\pm$ 50mV                                                                                                                                                         |

## Technical Specifications

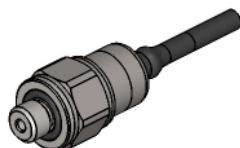
|                                            |                                                                                                                                          |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Non linearity and hysteresis combined      | ±0.25% FS typical (±0.35% FS max.)                                                                                                       |
| Non repeatability                          | ±0.02% FS typ.                                                                                                                           |
| Signal bandwidth                           | 1000Hz @ -3dB<br>Option : Special Adjustment up to 3000Hz @ -3dB                                                                         |
| Compensated temperature range              | -40 to +125°C<br>Option : -40 to +140°C                                                                                                  |
| Operating temperature range                | -40 to +140°C                                                                                                                            |
| Combined thermal zero & sensitivity shifts | ±0.02% FS/°C<br>Option : ±0.01% FS/°C                                                                                                    |
| Constant acceleration in linear vibrations | ± 0.02% FS/g (frequency 20-2000Hz, 50g max.)                                                                                             |
| Mechanical shock                           | 100g ½ sinus 1ms                                                                                                                         |
| Electrical protection                      | Not protected against polarity inversion                                                                                                 |
| EMC protection                             | Compliant to EN61000                                                                                                                     |
| Electrical connection                      | AWG32 4 wires Ø1.6mm Shielded Teflon Cable & Polyolefine Sleeve<br>Option : AWG32, 4 wires Ø1.6mm shielded Teflon cable and Viton sleeve |
| Mechanical connection                      | M5x0.8-6g male 4mm length                                                                                                                |
| Material(s) of wetted parts                | Stainless Steel 316L ; Stainless Steel 17-4PH ; Stainless steel 15-5PH                                                                   |
| Weight                                     | 3g without cable                                                                                                                         |
| Enclosure protection                       | IP65 for sealed gage version                                                                                                             |

## Codification

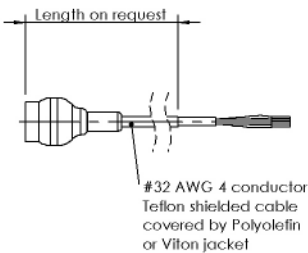
|                                                                 |       |   |   |       |    |    |       |   |   |   |   |  |
|-----------------------------------------------------------------|-------|---|---|-------|----|----|-------|---|---|---|---|--|
| Sub Miniature Pressure Sensor for Harsch Environment            | PHE86 | 7 | S | 10bar | G  | 27 | 17/1m | D | 3 | 1 | B |  |
| Output Signal                                                   |       |   |   |       |    |    |       |   |   |   |   |  |
| 0.5-4.5Vdc unregulated power supply                             |       | 7 |   |       |    |    |       |   |   |   |   |  |
| Material                                                        |       |   |   |       |    |    |       |   |   |   |   |  |
| Stainless Steels                                                |       |   | S |       |    |    |       |   |   |   |   |  |
| Range                                                           |       |   |   |       |    |    |       |   |   |   |   |  |
| Example                                                         |       |   |   | 10bar |    |    |       |   |   |   |   |  |
| Type                                                            |       |   |   |       |    |    |       |   |   |   |   |  |
| Gage                                                            |       |   |   |       | G  |    |       |   |   |   |   |  |
| Sealed Gage                                                     |       |   |   |       | SG |    |       |   |   |   |   |  |
| Mechanical connection                                           |       |   |   |       |    |    |       |   |   |   |   |  |
| M5x0.8-6g male 4mm length                                       |       |   |   |       |    | 27 |       |   |   |   |   |  |
| Electrical connection                                           |       |   |   |       |    |    |       |   |   |   |   |  |
| AWG32 4 wires Ø1.6mm Shielded Teflon Cable & Polyolefine Sleeve |       |   |   |       |    |    | 17/1m |   |   |   |   |  |
| AWG32, 4 wires Ø1.6mm shielded Teflon cable and Viton sleeve    |       |   |   |       |    |    | 18/1m |   |   |   |   |  |
| Compensated temperature range                                   |       |   |   |       |    |    |       |   |   |   |   |  |
| -40 to +125°C                                                   |       |   |   |       |    |    |       | D |   |   |   |  |
| -40 to +140°C                                                   |       |   |   |       |    |    |       | F |   |   |   |  |
| Non linearity and hysteresis combined                           |       |   |   |       |    |    |       |   |   |   |   |  |
| ±0.25% FS typical (±0.35% FS max.)                              |       |   |   |       |    |    |       |   | 3 |   |   |  |
| Combined thermal zero & sensitivity shifts                      |       |   |   |       |    |    |       |   |   |   |   |  |
| ±0.02% FS/°C                                                    |       |   |   |       |    |    |       |   |   | 1 |   |  |
| ±0.01% FS/°C                                                    |       |   |   |       |    |    |       |   |   | 2 |   |  |
| Options                                                         |       |   |   |       |    |    |       |   |   |   |   |  |
| Special Adjustment up to 3000Hz @ -3dB                          |       |   |   |       |    |    |       |   |   |   | B |  |



\* Option filetage allongé 10 mm  
10 mm lengthened thread option



DIMENSIONS : mm

|  | 4 CONDUCTOR TEFLON CABLE |           |  |
|----------------------------------------------------------------------------------|--------------------------|-----------|-------------------------------------------------------------------------------------|
|                                                                                  | VOLTAGE OUTPUT           | CONDUCTOR |                                                                                     |
|                                                                                  | + EXCITATION             | RED       |                                                                                     |
|                                                                                  | + SIGNAL                 | GREEN     |                                                                                     |
|                                                                                  | 0 VOLT                   | BLACK     |                                                                                     |
|                                                                                  | NC                       | WHITE     |                                                                                     |
|                                                                                  | SENSOR HOUSING           | SHIELD    |                                                                                     |

Agent :



E.F.E.

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