

EE610

Low Differential Pressure Sensor

The EE610 is dedicated for the highly accurate measurement of low differential pressure in applications like clean rooms, hospitals, laboratories, isolation chambers or in the pharmaceutical industry. It is suitable for air as well as all non-flammable and non-aggressive gases.

Measurement Performance

The EE610 offers ± 0.5 Pa accuracy over the entire measurement range. For the versions with analogue outputs, the measuring ranges ± 25 / ± 50 / ± 100 Pa and 0...100 Pa (± 0.1 / ± 0.2 / ± 0.4 and 0...0.4 inch water column) are selectable with DIP switches. The piezo-resistive, no flow-through pressure sensing element stands for outstanding long term stability.

Analogue and Digital Outputs

The measured data is available on the analogue voltage and current outputs or on the RS485 interface with Modbus RTU or BACnet MS/TP protocol.

Functional and Robust

The IP65 / NEMA 4 enclosure minimizes installation costs. External mounting holes allow installation with closed cover, the electronics are thus protected against construction site damage and pollution.

Configurable and Adjustable

The setup and adjustment can be easily performed with DIP-switches and push buttons on the electronics board (EE610 with analogue outputs) or with an optional adapter and the free EE-PCS configuration software (EE610 with RS485 interface). The setup includes bidirectional or unidirectional pressure range, output signal, response time, display units and backlight. A zero and span point adjustment can be easily performed with push buttons on the electronics board.



Features

Accuracy ± 0.5 Pa
Multi-range (analogue outputs)

- » ± 25 / ± 50 / ± 100 Pa
- » 0...100 Pa

Knockout for $\frac{1}{2}$ " conduit fitting (US)

Service interface for configuration (RS485 version)

- » Status LED

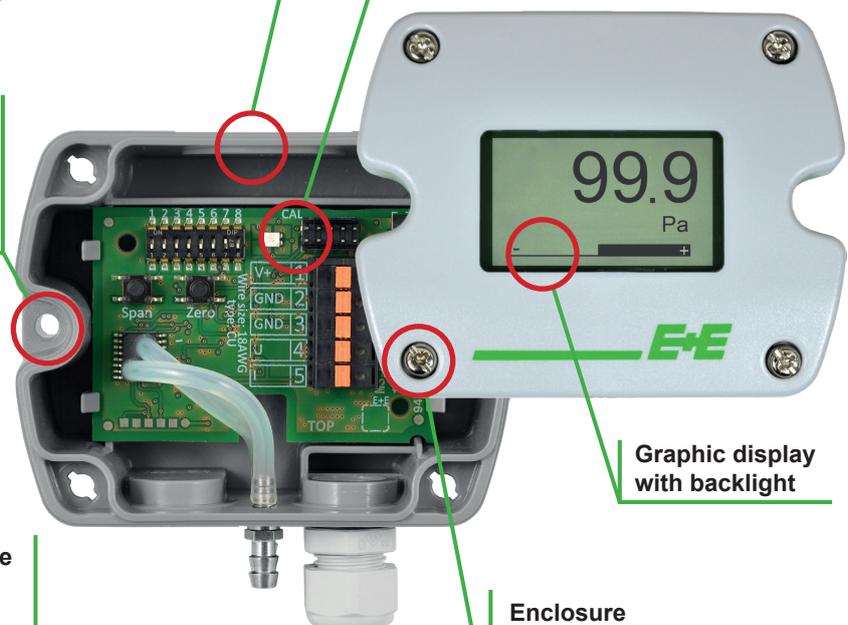
External mounting holes

- » Mounting with closed cover
- » Electronics protected against construction site pollution
- » Easy and fast mounting

Test report according to DIN EN 10204-2.2

User configurable and adjustable

- » Pressure range
- » Output signal
- » Response time
- » Display units and backlight
- » Zero and span point adjustment

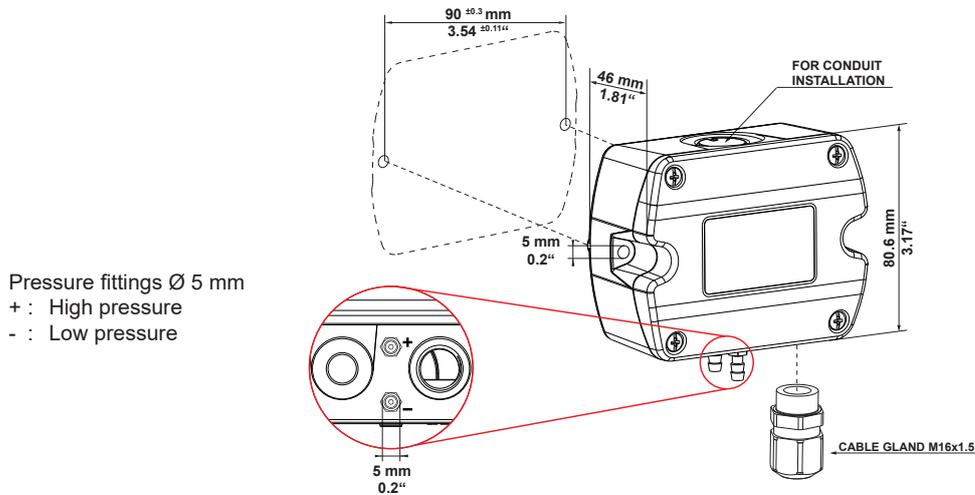


Graphic display with backlight

Enclosure

- » IP65 / NEMA 4 protection class
- » Bayonet screws - open/closed with a $\frac{1}{4}$ rotation

Dimensions in mm (inch)



Technical Data

Measured Value

Differential Pressure (Δp)

Measurement principle	piezoresistive, no flow-through		
Accuracy at 20 °C (68 °F), typ. (incl. hysteresis, non-linearity and repeatability)	$\pm 0.5 \text{ Pa} \pm 0.5 \% \text{ FS}$	FS = full scale (100 Pa)	
Response time t_{90}	50 ms / 500 ms / 2 s / 4 s selectable with DIP switches ¹⁾		
Analogue outputs	selectable in the range from 0.5 to 30 s using EE-PCS ²⁾		
RS485			
Temperature dependency, typ.	0.03 Pa / K		
Long-term stability	< 0.5 Pa / year		
Overload limits	$\pm 7000 \text{ Pa}$ ($\pm 28 \text{ inch WC}$)		

Outputs

Analogue outputs ³⁾ <i>selectable with DIP switches¹⁾</i>	0-5 V or 0-10 V and 0-20 mA or 4-20 mA (3-wire)	$-1 \text{ mA} < I_L < 1 \text{ mA}$	I_L = load current
Measurement range <i>selectable with DIP switches¹⁾</i>	$\pm 25 / \pm 50 / \pm 100 \text{ Pa}$ ($\pm 0.1 / \pm 0.2 / \pm 0.4 \text{ inch WC}$)	$R_L \leq 500 \text{ Ohm}$	R_L = load resistor
Digital interface	RS485 (EE610 = 1/2 unit load)		
Protocol	Modbus RTU or BACnet MS/TP		

WC = water column

General

Power supply	15-35 V DC or 24 V AC $\pm 20 \%$		
Current consumption, typ. at 0 Pa / 24 V DC			
without display	Analogue outputs	RS485	
with display and backlight	23 mA	8 mA	
with display and backlight	49 mA	29 mA	
Display	graphic, with backlight		
Display units	Pa, mbar, inch WC, mm H ₂ O		
Analogue outputs	selectable with DIP switches ¹⁾		
RS485	configurable using EE-PCS ²⁾		
Connection			
Analogue outputs	spring terminals, max. 1.5 mm ² (AWG16)		
RS485	screw terminals, max. 2.5 mm ² (AWG14)		

1) Factory setup analogue outputs: measurement range $\pm 100 \text{ Pa}$; response time t_{90} : 50 ms; display unit: Pa; display backlight: on; analogue outputs: 0-10 V and 4-20 mA. Other ranges upon request.

2) Factory setup RS485: response time t_{90} : 500 ms; display unit: Pa; display backlight: on

3) Voltage and current output signals available simultaneously at the spring loaded terminals.

Housing material	polycarbonate, UL94V-0 (with display UL94HB) approved	
Protection class	IP65 / NEMA 4	
Cable gland	M16 x 1.5	
Electromagnetic compatibility	DIN EN 61326-1 DIN EN 61326-2-3	
Humidity range	0...95 % RH (non condensing)	
Temperature ranges	operation: -20...60 °C (-4...140 °F) storage: -40...70 °C (-40...158 °F)	



Accessories (see data sheet "Accessories")

Pressure connection set (included in the scope of supply)	HA011304
USB configuration adapter	HA011066
E+E Product Configuration Software (Download: www.epluse.com/Configurator)	EE-PCS

Ordering Guide

		EE610-		
Hardware	Measuring range ¹⁾	± 100 Pa (± 1 mbar, ± 0.4 inch WC, ± 10.2 mm H ₂ O)		
	Output	analogue (voltage and current outputs) RS485 interface		
	Display	with display without display		
Setup RS485	Protocol	Modbus RTU ²⁾ BACnet MS/TP ³⁾		
	Baud rate	9600		P1
		19200		P3
		38400		BD5
		57600 ⁴⁾		BD6
76800 ⁴⁾		BD7		
		BD8		
		BD9		

- 1) Measuring ranges ± 25 / ± 50 / ± 100 Pa and 0...100 Pa selectable by DIP switches for analogue outputs
 2) Factory setting: Even Parity, Stopbits 1; Modbus Map and communication setting: See User Guide and Modbus Application Note at www.epluse.com/ee610.
 3) Factory setting: No Parity, Stopbits 1; Product Implementation Conformance Statement (PICS) available at www.epluse.com/ee610.
 4) Only for BACnet MS/TP

Order Examples

EE610-HV51A7

Measuring range: ± 100 Pa (± 1 mbar, ± 0.4 inch WC, ± 10.2 mm H₂O)
 Output: analogue (voltage and current outputs)
 Display: without display

EE610-HV51A7D2

Measuring range: ± 100 Pa (± 1 mbar, ± 0.4 inch WC, ± 10.2 mm H₂O)
 Output: analogue (voltage and current outputs)
 Display: with display