

**Differential pressure sensor Water**

Active sensor (4...20 mA / 0...5 V / 0...10 V) for differential pressure measurement in HVAC systems. The sensor is suitable for water and water-glycol mixtures. IP65 / NEMA 4X rated housing and with LCD display.


**Type Overview**

Type	Measuring range [bar]	Output signal active pressure	Overpressure	Overpressure note	Burst pressure
22PDP-185	0...5	4...20 mA, 0...5 V, 0...10 V	10 bar	Single-sided	100 bar
22PDP-186	0...10	4...20 mA, 0...5 V, 0...10 V	20 bar	Single-sided	200 bar
22PDP-189	0...35	4...20 mA, 0...5 V, 0...10 V	70 bar	Single-sided	700 bar

**Technical data**

<b>Electrical data</b>	Nominal voltage	AC/DC 24 V				
	Nominal voltage range	AC 21.6...26.4 V / DC 21.6...26.4 V				
	Power consumption AC	3.1 VA				
	Power consumption DC	1.8 W				
	Electrical connection	Pluggable spring loaded terminal block max. 2.5 mm <sup>2</sup>				
	Cable entry	Cable gland with strain relief ø6...8 mm				
<b>Functional data</b>	Application	Water Water-glycol mixture				
	Multirange	4 measuring ranges selectable				
	Voltage output	1 x 0...5 V, 0...10 V, min. resistance 10 kΩ				
	Current output	1x 4...20 mA, max. resistance 500 Ω				
	Output signal active note	0...5/10 V or 4...20 mA output, selectable with switch				
	Mechanical connection	pressure connector: G 1/4"				
	Display	LCD, 16x38 mm Measured values pressure: bar				
Typical response time	<0.5 s					
<b>Measuring data</b>	Measured values	Differential pressure				
<b>Specification Pressure</b>	Measuring range pressure settings	Type	Range1	Range2	Range3	Range4
			[bar]	[bar]	[bar]	[bar]
		..-185	0...5	0...2.5	0...1	0...0.5
		..-186	0...10	0...5	0...2	0...1
		..-189	0...35	0...17.5	0...7	0...3.5
Factory setting: Range1						

**Technical data**

<b>Specification Pressure</b>	Accuracy	Range1: $\pm 1.0\%$ FS Range2: $\pm 0.5\%$ FS Range3: $\pm 0.4\%$ FS Range4: $\pm 0.4\%$ FS ...@ 22°C [72°F] $\pm 0.03\%$ FS / K for each pressure transmitter FS = full scale (FS always references the maximum sensor measuring range, independent of the selected measuring range)
	Long term stability	$\pm 0.25\%$ FS p.a. and per pressure transmitter
<b>Safety data</b>	Protection class IEC/EN	III, Safety Extra-Low Voltage (SELV)
	Power source UL	Class 2 Supply
	Degree of protection IEC/EN	IP65
	Degree of protection NEMA/UL	NEMA 4X
	Housing	UL Enclosure Type 4X
	EU Conformity	CE Marking
	Certification IEC/EN	IEC/EN 60730-1 and IEC/EN 60730-2-6
	Quality Standard	ISO 9001
	UL Approval	cULus acc. to UL60730-1/-2-6, CAN/CSA E60730-1/-2
	Type of action	Type 1
	Rated impulse voltage supply	0.8 kV
	Pollution degree	4
	Ambient humidity	Max. 95% RH, non-condensing
	Ambient temperature	0...50°C [32...122°F]
Fluid temperature	-40...105°C [-40...220°F] At a fluid temperature of $< 2^{\circ}\text{C}$ [ $< 36^{\circ}\text{F}$ ], frost protection must be guaranteed	
Storage temperature	-40...60°C [-40...140°F]	
<b>Materials</b>	Housing	Cover: PC, transparent Bottom: PC, orange Seal: NBR
	Cable gland	PA6, black
	Cable	PVC
	Fluid wetted parts	Stainless steel 17-4 PH

**Safety notes**


This device has been designed for use in stationary heating, ventilation and air-conditioning systems and must not be used outside the specified field of application. Unauthorised modifications are prohibited. The product must not be used in relation with any equipment that in case of a failure may threaten humans, animals or assets.

Ensure all power is disconnected before installing. Do not connect to live/operating equipment.

Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied with during installation.

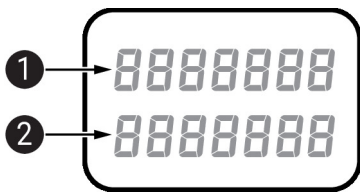
The device contains electrical and electronic components and must not be disposed of as household refuse. All locally valid regulations and requirements must be observed.

Remarks

**Manual zero-point calibration** In normal operation zero-point calibration should be executed every 12 months.  
 A sensor zeroing can be initiated by pressing and holding the internal ZERO switch for at least 3 seconds. If both pressure ports are close to zero pressure, the device will calibrate with a new zero point. The zeroing can also be initiated by pressing the optionally connected remote switch, and thus by holding the ZERO terminal low for 3 seconds.  
 Note: A zero point calibration can only be carried out under atmospheric pressure (HIGH and LOW connection).

Indicators and Operation

**Indicators** The display has 2 lines with 8 characters each.  
 The software version, model pressure range and output signal type are displayed during booting.  
 The display is menu-guided and used for programming during installation as well as for display of pressure read from sensors.  
 The menu allows to set parameters such as output signal, pressure range, pressure scale, pressure port, damping and backlight.  
 For a convenient reading of the display, an upright wall mounting of the sensor housing with the display at the top, electrical connections on the right and at the bottom is recommended.



- 1 Start and programming**
  - Line 1: Parameter
  - Line 2: Value
- 2 Operation**
  - Line 1: Differential pressure value
  - Line 2: Differential pressure unit

Parts included

Description	Type
Mounting plate L housing	A-22D-A10
Cable Gland with strain relief ø6...8 mm	
Dowels	
Screws	

Accessories

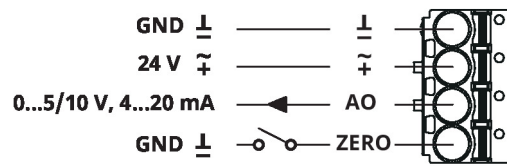
Optional accessories	Description	Type
	Reduction adapter, G 1/4" (internal thread) to G 1/2" (external thread)	A-22WP-A02
	Connection adapter flex conduit, M20x1.5, for cable gland 1x 6 mm, Multipack 10 pcs.	A-22G-A01.1

Wiring diagram

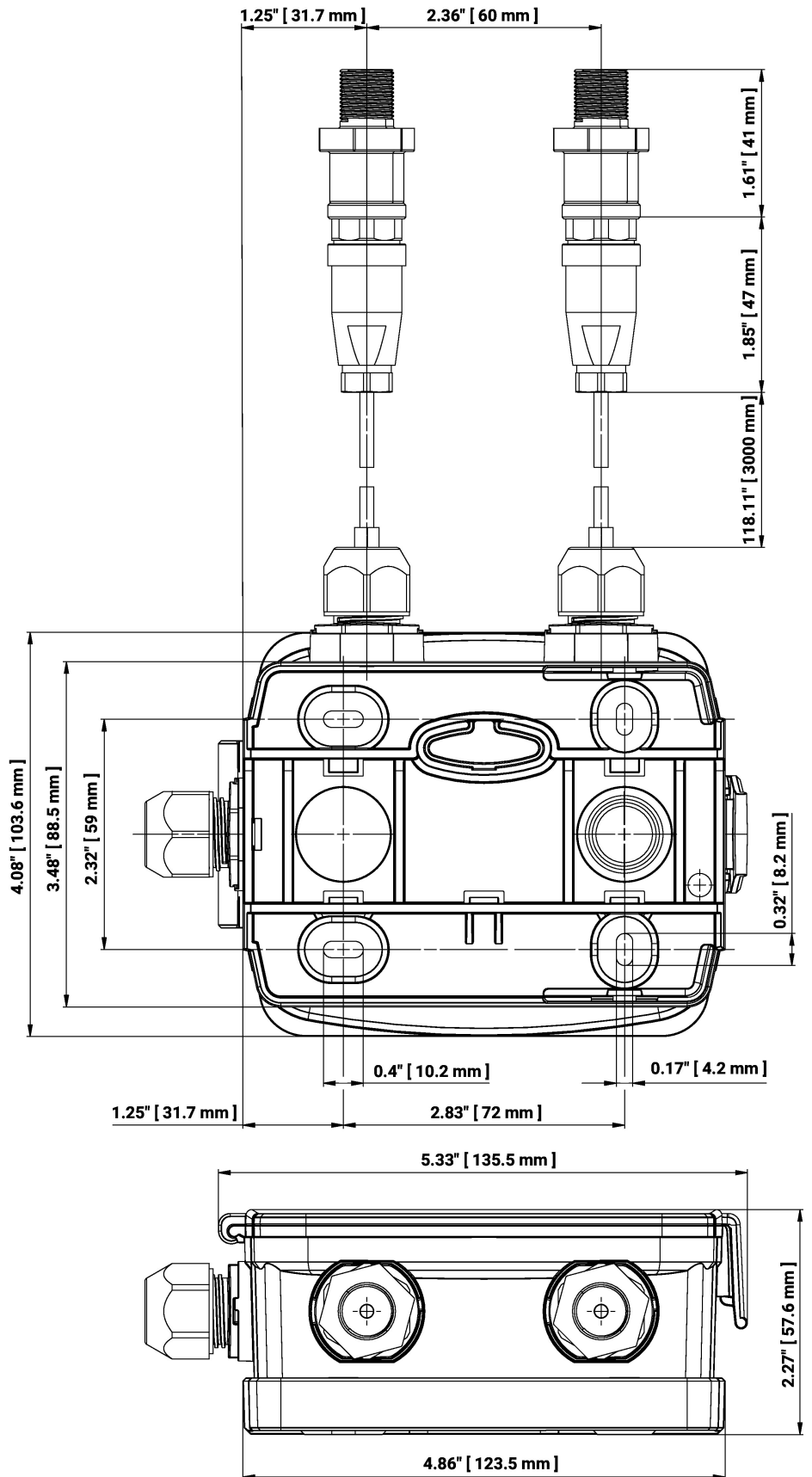


The external switch at terminal ZERO is optional. It can be used in case remote zeroing is required. Otherwise, ZERO terminal can be left open. Zeroing can be initialised by pressing the internal ZERO key in this case.  
 See also details under chapter manual zero-point calibration.

## Wiring diagram



Dimensions



**Dimensions**

22PDP-185	0.58 kg
22PDP-186	0.58 kg
22PDP-189	0.58 kg

**Further documentation**

- Installation instructions
- Operating instructions