

**Differential Pressure Sensor (Air)**

Differential pressure transmitter with 8 selectable ranges 0 to 5/10 V, 4 to 20 mA outputs and Modbus functionality. NEMA 4X / IP65 rated enclosure. For monitoring the differential pressure of air and other non-flammable and non-aggressive gases. Monitoring air filters, fans, industrial cooling air cycles, control of air and fire dampers.


**Type Overview**

Type	Measuring Range Pressure	Output Signal	Output Signal Active Pressure	Output signal active volumetric flow	Overpressure Limit	Display Type
22ADP-156	-	Modbus	DC 0...5 V, DC 0...10 V	DC 0...5 V, DC 0...10 V	40 kPa / 160 inch WC	-
22ADP-156L	-	Modbus	DC 0...5 V, DC 0...10 V	DC 0...5 V, DC 0...10 V	40 kPa / 160 inch WC	LCD

**Technical Data**

<b>Electrical Data</b>	Power Supply DC	15...24 V, ±10%, 1.4 W
	Power Supply AC	24 V, ±10%, 2 VA
	Electrical Connection	removable spring loaded terminal block max. 11 GA [2.5 mm <sup>2</sup> ]
	Cable Entry	cable gland M20 2 x Ø6 mm, with strain relief 2 x Ø6 mm, 1/2" conduit adapter included
<b>Functional Data</b>	Sensor Technology	piezo measuring element
	Communicative Control	Modbus RTU (for details see separate document "Sensor Modbus Register")
	Multirange	8 fields selectable
	Output Signal Active Note	output DC 0 to 5/10 V selectable with switch voltage output: min. 10 kΩ load current output: max. 500 Ω load
Display	LCD, 1.14" x 1.38" [29 x 35 mm] with backlight measured values: Pa, inchWC (configurable) measured values volumetric flow: m <sup>3</sup> /h, cfm (configurable)	
Media	air	

<b>Measuring Data</b>	Measured Values	differential pressure			
	Measuring media	air and non-aggressive gases			
	Measuring range settings pressure	Setting	range [Pa]	range [inch WC]	Factory setting
		S0	0...7000	0...28	✓
		S1	0...5000	0...20	
		S2	0...4000	0...16	
		S3	0...3000	0...12	
		S4	0...2500	0...10	
		S5	0...2000	0...8	
		S6	0...1500	0...6	
	S7	0...1000	0...4		
	Accuracy Pressure	deviation compared to the reference device measuring range ≤8 inch WC (2000 Pa): ±0.04 inch WC (±10 Pa) measuring range >8 inch WC (2000 Pa): ±0.1 inch WC (±25 Pa)			
<b>Materials</b>	Cable Gland	PA6, black			
	Housing	cover: lexan, Belimo orange NCS S0580-Y6OR			
		base: lexan, Belimo orange NCS S0580-Y6OR seal: 0467 NBR70, black			
<b>Safety Data</b>	Ambient Humidity	max. 95% RH non-condensing			
	Ambient Temperature	15°F to 120°F [-10°C to 50°C]			
	Medium Temperature	15°F to 120°F [-10°C to 50°C]			
	Protection Class IEC/EN	III safety extra-low voltage (selv)			
	Protection Class UL	UL Class 2 Supply			
	EU Conformity	CE Marking			
	Certification IEC/EN	IEC/EN 60730-1 and IEC/EN 60730-2-6			
	Certification UL	cULus acc. to UL60730-1A/-2-6, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC and 2006/95/EC, NEMA 4X, IP65, UL Enclosure Type 4X			
	Degree of Protection IEC/EN	IP65			
	Degree of Protection NEMA/ UL	NEMA 4X			
	Quality Standard	ISO 9001			
	Weight	0.29 lbs			

**Safety Notes**


The installation and assembly of electrical equipment should only be performed by authorized personnel.

The product should only be used for the intended application. Unauthorized modifications are prohibited! The product must not be used in relation with any equipment that in case of a failure may threaten, directly or indirectly, human health or life or result in danger to human beings, animals or assets. Ensure all power is disconnected before installing. Do not connect to live/operating equipment.

Please comply with

- Local laws, health & safety regulations, technical standards and regulations
- Condition of the device at the time of installation, to ensure safe installation
- This data sheet and installation manual

Remarks

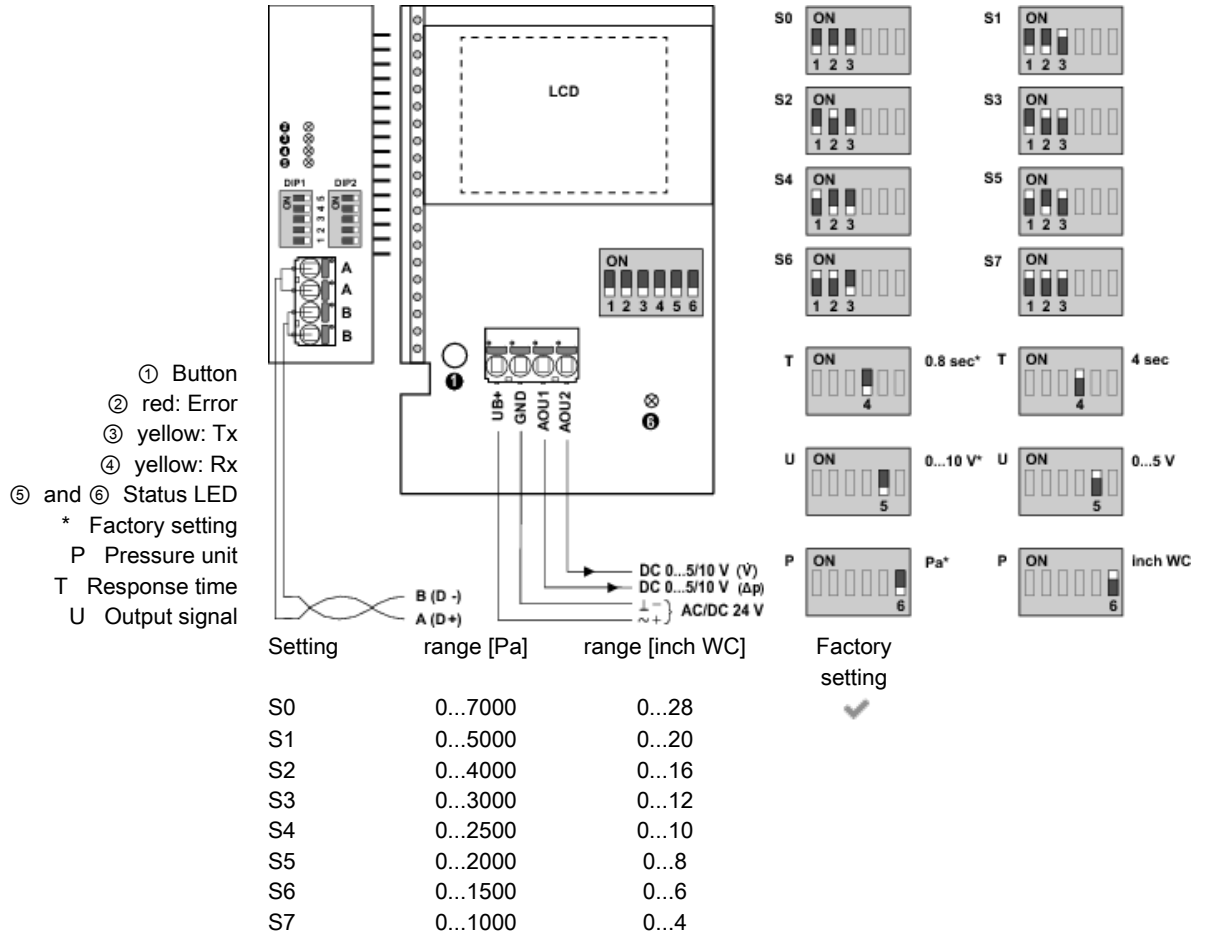
**Manual Zero-Point Calibration** In normal operation zero-point calibration should be executed every 12 months.  
 Attention! For executing zero point calibration the power supply must be connected one hour before.

- Release both connection tubes from the pressure terminals + and -
- Press the button S1 until the LED lights permanently
- Wait until the LED flashes again and reinstall the connection tubes to the pressure ports (note + and -)

Accessories

<b>Scope of Delivery</b>	mounting plate dowel screws strain relief Ø6 to 8 mm cable gland nut PG11, Ø6 to 10 mm							
<b>Optional Accessories</b>	<table border="0"> <thead> <tr> <th style="text-align: left;"><b>Description</b></th> <th style="text-align: left;"><b>Type</b></th> </tr> </thead> <tbody> <tr> <td>Metal Duct Connectors 1.57" [40 mm]</td> <td>A-22AP-A02</td> </tr> <tr> <td>Metal Duct Connectors 4" [100 mm]</td> <td>A-22AP-A04</td> </tr> </tbody> </table>	<b>Description</b>	<b>Type</b>	Metal Duct Connectors 1.57" [40 mm]	A-22AP-A02	Metal Duct Connectors 4" [100 mm]	A-22AP-A04	
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Wiring Diagram



Detailed documentation

The separate document Sensor Modbus-Register informs about Modbus register, addressing, parity and bus termination (DIP1: address, DIP2: baud rate, parity, bus termination)

In addition to the information on the bus, the following analog outputs are available:

AOU1: differential pressure

AOU2: volumetric flow

The volumetric flow is calculated from the differential pressure, the k-factor and the height. Factory setting for the k-factor is 1.00 and for the height 330 metres above sea level.

The values of the k-factor and the height can be changed via Modbus or BACnet.

Notes Wiring RS485

Connection via safety isolating transformer.

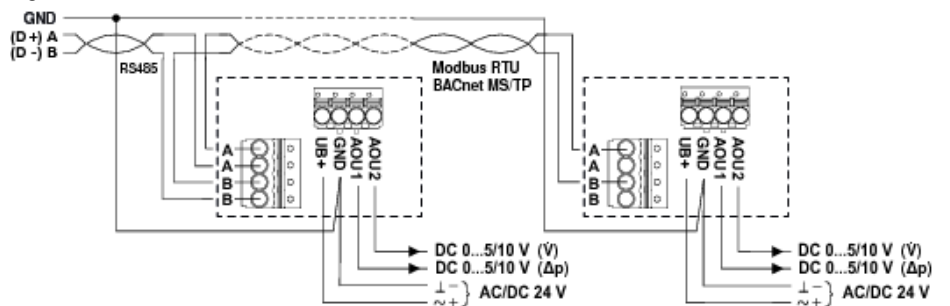


Parallel power connection of additional actuators is possible. Observe the transformer size and performance data.

The wiring of the line for BACnet MS/TP / Modbus RTU is to be carried out in accordance with applicable RS485 regulations.

Modbus / BACnet: Supply and communication are not galvanically isolated. Connect earth signal of the devices with one another.

Wiring RS485 (Modbus RTU & BACnet MS/TP)



## Dimensions

