

Differential Pressure Sensor

Differential pressure transmitter with 8 selectable ranges 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. Options available with LCD display.


Type Overview

Type	Measuring Range Pressure	Output Signal	Output Signal Active Pressure	Output signal active volumetric flow	Overpressure Limit	Display Type
22ADP-154	-	Modbus	DC 0...5 V, DC 0...10 V	DC 0...5 V, DC 0...10 V	40 kPa / 160 inch WC	-
22ADP-154L	-	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

Electrical data	Power Supply DC	15...24 V, $\pm 10\%$, 1.4 W
	Power Supply AC	24 V, $\pm 10\%$, 2 VA
	Electrical connection	Removable spring loaded terminal block max. 2.5 mm ²
	Cable entry	Cable gland M20 2 x Ø6 mm, with strain relief 2 x Ø6 mm
Functional data	Sensor Technology	Piezo measuring element
	Communicative control	Modbus RTU (Details see separate document "Sensor Modbus Register")
	Multirange	8 measuring ranges selectable
	Output signal active note	Output DC 0...5/10 V selectable with switch Voltage output: min. 10 kΩ load Current output: max. 500 Ω load
	Display	LCD, 29 x 35 mm with backlight Measured values: Pa, inchWC (configurable) Measured values volumetric flow: m ³ /h, cfm (configurable)
Media	Air	

Measuring data	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...2500	0...10	✓
		S1	0...2000	0...8	
		S2	0...1500	0...6	
		S3	0...1000	0...4	
		S4	0...500	0...2	
		S5	0...250	0...1	
		S6	0...100	0...0.4	
	S7	-100...100	-0.4...0.4		
	Accuracy pressure	deviation compared to the reference device measuring range ≤500 Pa: ±5 Pa measuring range >500 Pa: ±10 Pa			
Materials	Cable gland	PA6, black			
	Housing	Cover: Lexan, Belimo orange NCS S0580-Y6OR Bottom: Lexan, Belimo orange NCS S0580-Y6OR Seal: 0467 NBR70, black			
Safety data	Ambient humidity	Max. 95% r.h., non-condensing			
	Ambient temperature	-10...50 °C [15...120 °F]			
	Medium temperature	-10...50 °C [15...120 °F]			
	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.

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 human, 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
Automated Zero-Point calibration (Auto-Zero)

Transmitters equipped with the auto zero calibration are maintenance free.

The Auto-Zero calibration electronically adjusts the transmitter zero every 10 minutes. The function eliminates all output signal drift due to thermal, electronic or mechanical effects. The auto-zero adjustment takes approx. 4 seconds after which the device returns to its normal measuring mode. During the 4 second adjustment period, the output and display values will freeze to the latest measured value.

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 until the LED lights permanently
- Wait until the LED flashes again and reinstall the connection tubes to the pressure ports (note + and -)

Accessories
Scope of delivery

Mounting plate
 Dowel
 Screws
 Strain relief Ø6...8 mm
 Cable Gland Nut PG11, Ø6...10 mm

Optional Accessories
Description
Type

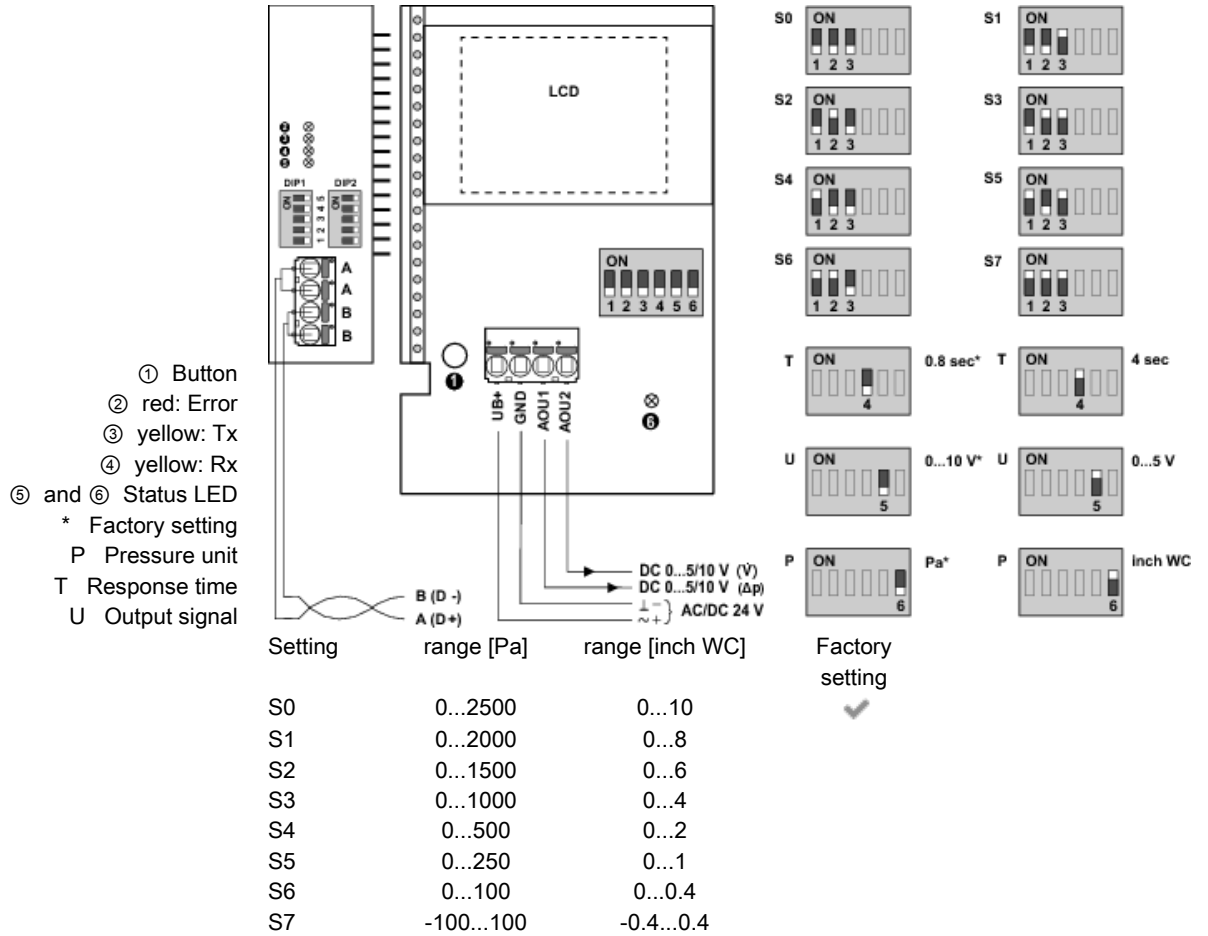
Duct connector (metal) 40 mm

A-22AP-A02

Duct connector (metal) 100 mm

A-22AP-A04

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.

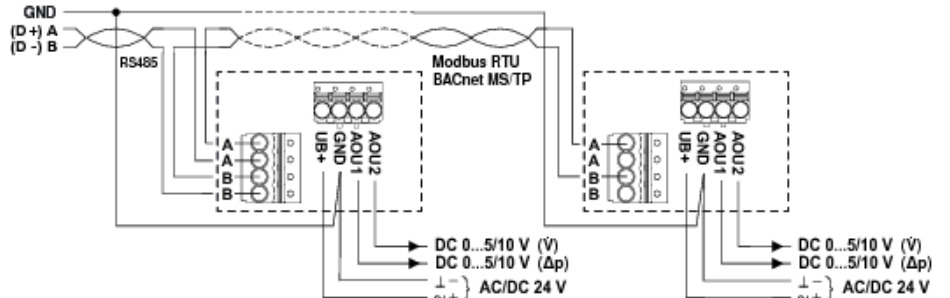


Parallel connection of other devices possible. Observe the performance data.

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

