Differential Pressure Sensor (Air)

Differential pressure transmitter with 8 selectable ranges and 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.

5 YEAR WARRANTY

Modbus

Type Overview

Type	Measuring range rel. pressure	Output signal	Output signal active pressure	Output signal active volumetric flow	Overpressure range	Display type
22ADP-554	-	Modbus	DC 0...5 V, DC 0...10 V	DC 0...5 V, DC 0...10 V	40 kPa / 160 inch WC	-
22ADP-554L	-	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, ±10%, 1.4 W
	Power supply AC	24 V, ±10%, 2 VA
	Electrical connection	removable spring loaded terminal block max. 11 GA [2.5 mm²]
	Cable entry	Cable gland with strain relief 2 x Ø6 mm (1/2" NPT conduit adapter included)
Functional Data	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: m³/h, cfm (configurable)
	Media	air

Measuring Data	Measuring 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	measuring range ≤2 inch WC (500 Pa): ±0.02 inch WC (±5 Pa) measuring range >2 inch WC (500 Pa): ±0.04 inch WC (±10 Pa)		
Materials	Cable gland	PA6, black		
	Housing	cover: lexan, orange base: lexan, orange seal: 0467 NBR70, black		
Safety Data	Ambient humidity	max. 95% RH non-condensing		
	Ambient temperature	15...120 °F [-10...50 °C]		
	Medium temperature	15...120 °F [-10...50 °C]		
	Protection class IEC/EN	III safety extra-low voltage (selv)		
	Protection class UL	UL Class 2 Supply		
	EU Conformity	CE-Kennzeichnung		
	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		

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

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 -)

Scope of delivery

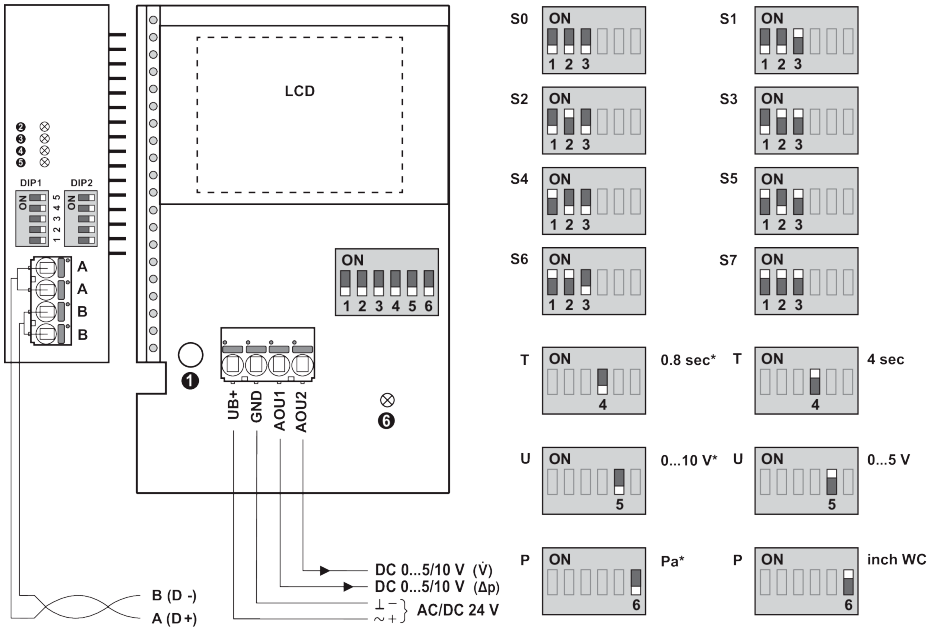
mounting plate
dowel
screws
strain relief Ø6 to 8 mm
1/2" NPT conduit adapter, 2 x Ø6 mm
cable gland nut PG11, Ø6 to 10 mm
1/2" NPT conduit adapter

Accessories

Optional accessories

Description	Type
Duct connector (metal) 1.57" [40 mm]	A-22AP-A01
Duct connector (metal) 4" [100 mm]	A-22AP-A03

Wiring Diagram



① Button
② red: Error
③ yellow: Tx
④ yellow: Rx
⑤ and ⑥ Status LED
* Factory setting
P Pressure unit
T Response time
U Output signal

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	

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

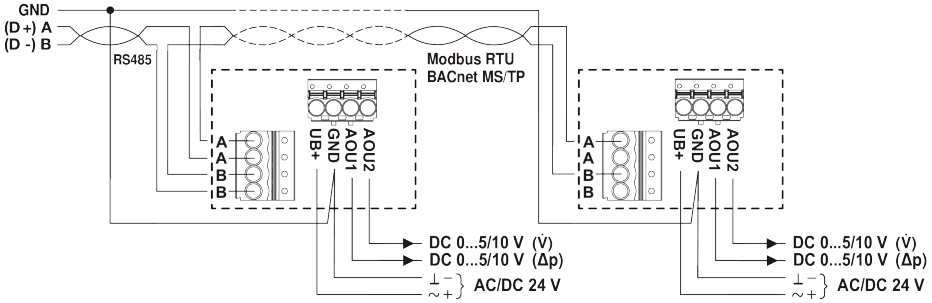
Connection via safety isolating transformer.

Parallel power connection of additional 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.

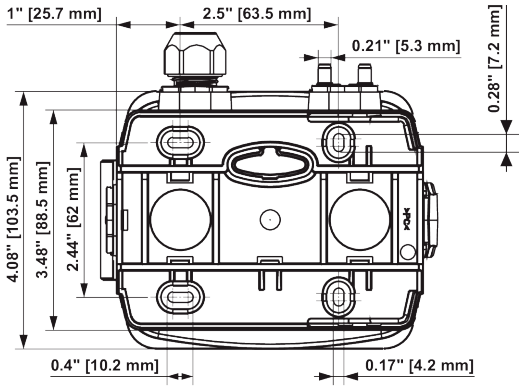
Modbus / BACnet: Supply and communication are not galvanically isolated. Connect earth signal of the devices with one another.

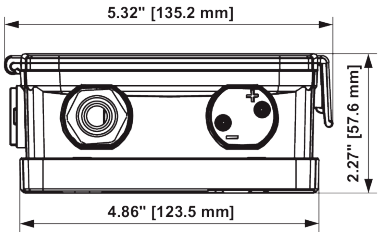
Wiring RS485 (Modbus RTU & BACnet MS/TP)



Dimensions

Dimensions





Type	Probe length	Weight
22ADP-554	-	0.63 lb [0.29 kg]
22ADP-554L	-	0.66 lb [0.30 kg]