

## Differential pressure sensor Air dual

Differential pressure transmitter with two independent measuring systems. With 8 selectable ranges each and Modbus functionality. For monitoring over-, under- or the differential pressure of air and other non-flammable and non-aggressive gases. Typical application in HVAC systems for monitoring air filters, fans V-belts as well as the use in pressure differential systems. IP65 / NEMA 4X rated enclosure.



## Type Overview

Type	Measuring range pressure [Pa]	Communication	Output signal active pressure	Output signal active volumetric flow	Burst pressure
22ADP-154D	-100...2500	Modbus RTU	0...5 V, 0...10 V	0...5 V, 0...10 V	40 kPa

## Technical Data

<b>Electrical data</b>	Nominal voltage	AC/DC 24 V			
	Nominal voltage range	AC 19...29 V / DC 15...35 V			
	Power consumption AC	2 VA			
	Power consumption DC	1.4 W			
	Electrical connection	Pluggable spring loaded terminal block max. 2.5 mm <sup>2</sup>			
	Cable entry	Cable gland with strain relief 2 x Ø6 mm			
<b>Functional data</b>	Sensor Technology	Piezo measuring element			
	Communicative control	Modbus RTU			
	Multirange	8 measuring ranges selectable			
	Voltage output	2x 0...5 V, 0...10 V, min. load 10 kΩ			
	Output signal active note	Output 0...5/10 V selectable with switch			
	Application	Air			
	Response time	Adjustable 0.8 s or 4.0 s			
<b>Measuring data</b>	Measuring values	Differential pressure			
	Measuring fluid	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				
Long-term stability	±2.5% FSO (Full Scale Output) / 4 yr.				
<b>Materials</b>	Cable gland	PA6, black			
	Housing	Cover: Lexan, orange Bottom: Lexan, orange Seal: 0467 NBR70, black UV resistant			

<b>Safety data</b>	Ambient humidity	Max. 95% r.H., non-condensing
	Ambient temperature	-10...50°C [15...120°F]
	Fluid 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
	Degree of protection IEC/EN	IP65
	Degree of protection NEMA/UL	NEMA 4X
Quality Standard	ISO 9001	

**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 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. 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**

Scope of delivery	Description	Type
	Duct connector kit, PVC tube 2 m, 2 connection elements (Plastic) for 22ADP-..	A-22AP-A08
	Mounting plate L housing	A-22D-A10
	Cable Gland with strain relief Ø6...8 mm	
	Dowel	
	Screws	

**Accessories**

Optional accessories	Description	Type
	Duct connector, Metal, L 40 mm, Tube connection 5 mm	A-22AP-A02
	Duct connector, Metal, L 100 mm, Tube connection 5 mm	A-22AP-A04
	Connection adapter, M20x1.5, for cable 1x6 mm, Multipack 10 pcs.	A-22G-A01.1
	Connection adapter, M20, for cable 2 x 6 mm, Multipack 10 pcs.	A-22G-A02.1

**Wiring diagram**

**Notes** Supply from isolating transformer.



The wiring of Modbus RTU (RS485) is to be carried out in accordance with applicable regulations (www.modbus.org). The device has switchable resistors for bus termination.

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

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 1

AOU2: differential pressure 2

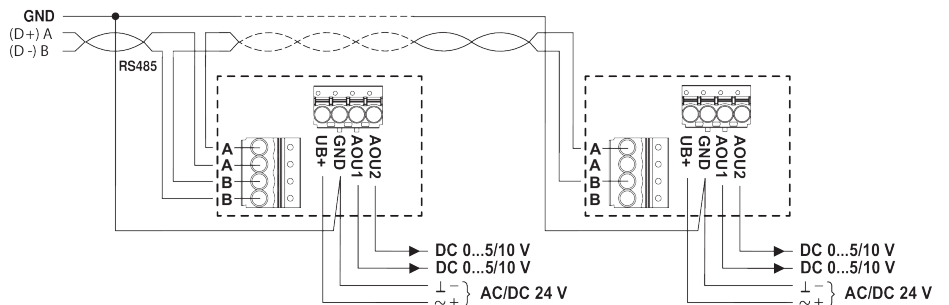
If required, the outputs AOU1 and AOU2 can be changed to volumetric flow via bus system.

The volumetric flow is calculated from the differential pressure, the k-factor and the height.

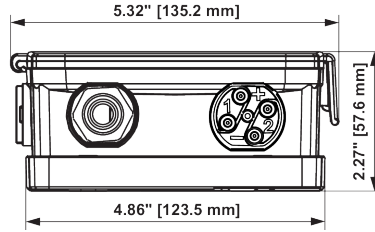
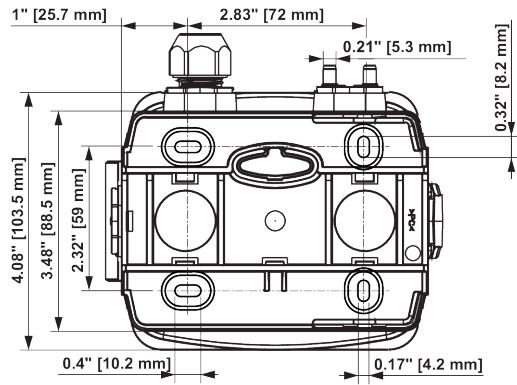
Factory setting for the k-factor is 1.00 and for the height 330 metres above sea level.

The values of the k-factor and the height can be changed via bus system.

**Wiring RS485 Modbus RTU**



**Dimensions**



Type	Weight
22ADP-154D	0.45 kg