BELIMO

Technical data sheet 22ADP-154K

Differential pressure sensor Air dual with two additional inputs

Differential pressure transmitter with two independent measuring systems. With 8 selectable ranges each and Modbus funtionality. Two additional inputs are available to which a potential-free contact or an NTC10k resistance sensor can be connected. The values at the additional inputs can be read out via Modbus. 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.

5 YEAR WARRANTY

Modbus

Type Overview

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

Technical Data

Electrical data	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^2
	Cable entry	Cable gland with strain relief 2 x Ø6 mm
Functional data	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
	Display	LCD, 29x35 mm with backlight Measured values pressure: Pa, inchWC (parametrisable) Measured values volumetric flow: m^3/h, cfm (parametrisable)
	Application	Air
	Response time	Adjustable 0.8 s or 4.0 s
	Notes	Additional inputs Two inputs (IN1 and IN2) for connecting a potential-free contact or an NTC10k resistance sensor (beta value sensor adjustable via Modbus register).
Measuring data	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.			

Materials

Cable gland	PA6, black
Housing	Cover: Lexan, orange Bottom: Lexan, orange Seal: 0467 NBR70, black UV resistant

Safety data

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

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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

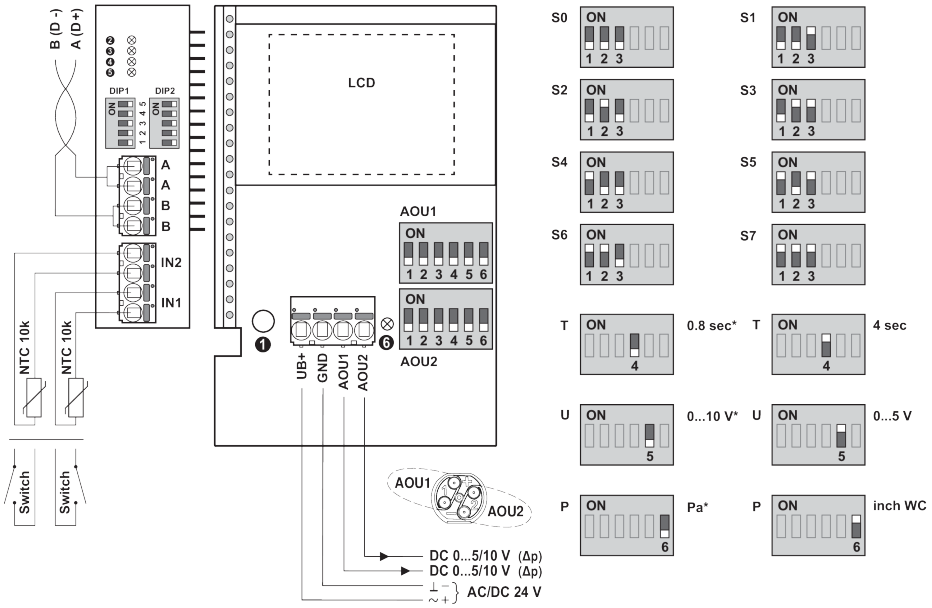
Wiring diagram

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.

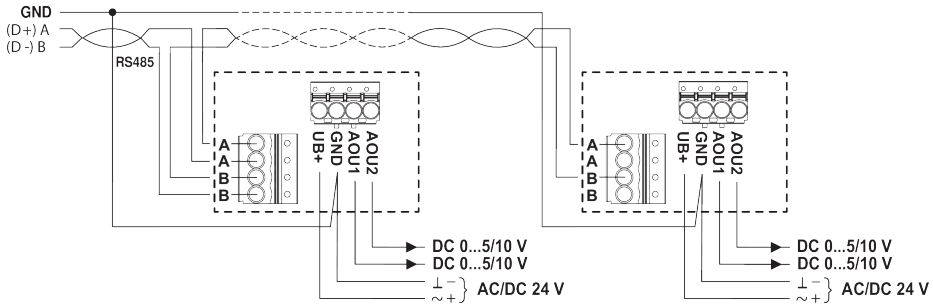
The volumetric flow is calculated from the differential pressure, the k-factor and the height.

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

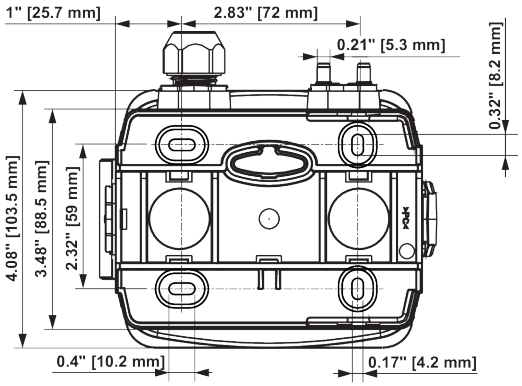
The values of the k-factor and the height can be changed via bus system.

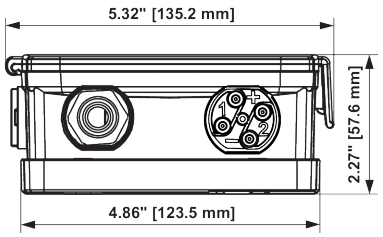
The inputs IN1 and IN2 are read out via bus system, further information in the bus system document.

Wiring RS485 Modbus RTU



Dimensions





Type	Weight
22ADP-154K	0.50 kg