

Differential Pressure Sensor (Air)

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 and Auto-Zero function.


Type Overview

| Type | Measuring Range Pressure | Output Signal | Output Signal Active Pressure | Output signal active volumetric flow | Overpressure Limit | Display Type | Additional Features |
|------------|--------------------------|---------------|-------------------------------|--------------------------------------|-------------------------|--------------|---------------------|
| 22ADP-55Q | - | Modbus | DC 0...5 V, DC 0...10 V | DC 0...5 V, DC 0...10 V | 40 kPa / 160 inch WC | - | - |
| 22ADP-55QA | - | Modbus | DC 0...5 V, DC 0...10 V | DC 0...5 V, DC 0...10 V | 40 kPa / 160 inch WC | - | auto zero |
| 22ADP-55QB | - | Modbus | DC 0...5 V, DC 0...10 V | DC 0...5 V, DC 0...10 V | 40 kPa / 160 inch WC | LCD | auto zero |
| 22ADP-55QL | - | 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 mm ²] |
| | Cable Entry | cable gland M20 2 x Ø6 mm, with strain relief 2 x Ø6 mm, 1/2" 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: 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...250 | 0...1 | ✓ |
| | | S1 | 0...100 | 0...0.4 | |
| | | S2 | 0...50 | 0...0.2 | |
| | | S3 | 0...25 | 0...0.1 | |
| | | S4 | -25...25 | -0.1...0.1 | |
| | | S5 | -50...50 | -0.2...0.2 | |
| | | S6 | -100...100 | -0.4...0.4 | |
| | S7 | -150...150 | -0.6...0.6 | | |
| | Accuracy Pressure | ±0.004 inch WC (±1 Pa) @ range <1 inch WC (250 Pa) | | | |
| Materials | Cable Gland | PA6, black | | | |
| | Housing | cover: lexan, Belimo orange NCS S0580-Y6OR | | | |
| | | base: lexan, Belimo orange NCS S0580-Y6OR seal: 0467 NBR70, black | | | |
| Safety Data | 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

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 S1 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 to 8 mm
- cable gland nut conduit 1/2" NPT, 2 x Ø6 mm
- cable gland nut PG11, Ø6 to 10 mm
- cable gland nut conduit 1/2" NPT

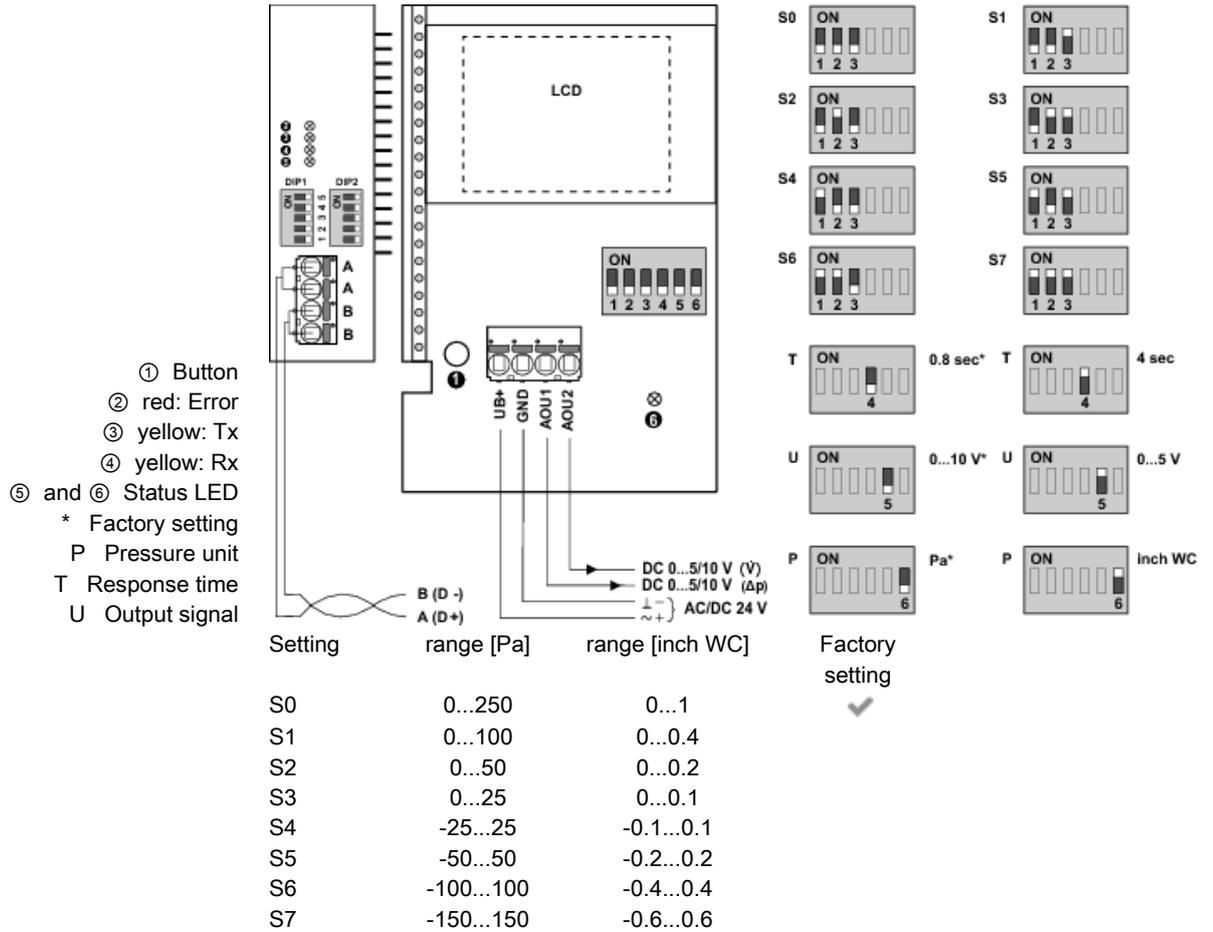
Optional Accessories

Description

Type

- | | |
|-------------------------------------|------------|
| metal duct connectors 1.57" [40 mm] | A-22AP-A01 |
| metal duct connectors 4" [100 mm] | A-22AP-A03 |

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.

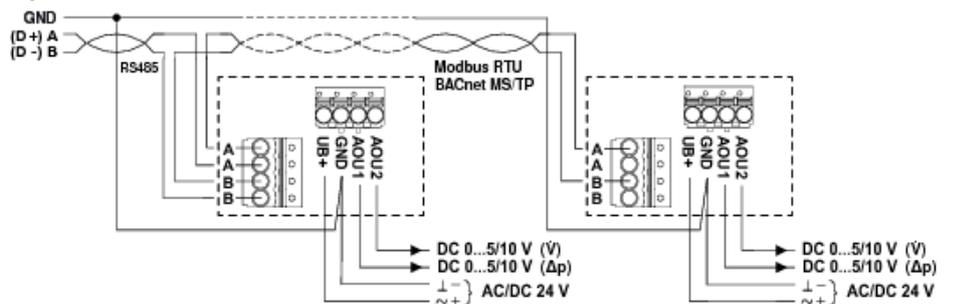


Parallel power connection of additional actuators is possible. Observe the transformer size and performance data.

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

