

Differential pressure sensor Air

Differential pressure transmitter with 8 selectable ranges and outputs 0...5 V, 0...10 V or 4...20 mA. For monitoring 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. Options available with LCD display, auto-zero feature. IP65 / NEMA 4X rated enclosure.



Type Overview

| Type | Measuring range pressure [Pa] | Output signal active pressure | Burst pressure | Display type | Additional features |
|------------|-------------------------------|-------------------------------|----------------|--------------|---------------------|
| 22ADP-186 | 0...7000 | 0...5 V, 0...10 V, 4...20 mA | 40 kPa | - | - |
| 22ADP-186A | 0...7000 | 0...5 V, 0...10 V, 4...20 mA | 40 kPa | - | Auto-Zero |
| 22ADP-186B | 0...7000 | 0...5 V, 0...10 V, 4...20 mA | 40 kPa | LCD | Auto-Zero |
| 22ADP-186L | 0...7000 | 0...5 V, 0...10 V, 4...20 mA | 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 | 4.3 VA |
| | Power consumption DC | 2.3 W |
| | Electrical connection | Pluggable spring loaded terminal block max. 2.5 mm ² |
| | Cable entry | Cable gland with strain relief ø6...8 mm |
| Functional data | Sensor Technology | Piezo measuring element |
| | Application | Air |
| | Multirange | 8 measuring ranges selectable |
| | Voltage output | 1 x 0...5 V, 0...10 V, min. resistance 10 kΩ |
| | Current output | 1x 4...20 mA, max. resistance 500 Ω |
| | Output signal active note | Output 0...5/10 V selectable with switch |
| | Display | LCD, 29x35 mm with backlight Measured values: Pa, inch WC (parametrisable) |
| Response time | Adjustable 0.8 s or 4.0 s | |
| Measuring data | Measured values | Differential pressure Volumetric flow (with A-22G-A05) |
| | Measuring fluid | Air and non-aggressive gases |

Technical data

| Measuring data | Measuring range pressure settings | Setting | Range [Pa] | Range [inch WC] | Factory setting |
|--------------------|-----------------------------------|--|------------|-----------------|-----------------|
| | | S0 | 0...7000 | 0...28 | ✓ |
| | | S1 | 0...5000 | 0...20 | |
| | | S2 | 0...4000 | 0...16 | |
| | | S3 | 0...3000 | 0...12 | |
| | | S4 | 0...2500 | 0...10 | |
| | | S5 | 0...2000 | 0...8 | |
| | | S6 | 0...1500 | 0...6 | |
| | | S7 | 0...1000 | 0...4 | |
| | Accuracy pressure | Deviation compared to the reference device measuring range ≤2000 Pa: ±10 Pa measuring range >2000 Pa: ±25 Pa | | | |
| | Long-term stability | ±2.5% FSO (Full Scale Output) / 4 yr. | | | |
| Materials | Cable gland | PA6, black | | | |
| | Housing | Cover: PC, orange Bottom: PC, orange Seal: NBR70, black UV resistant | | | |
| Safety data | Protection class IEC/EN | III, Safety Extra-Low Voltage (SELV) | | | |
| | Power source UL | Class 2 Supply | | | |
| | Degree of protection IEC/EN | IP65 | | | |
| | Degree of protection NEMA/UL | NEMA 4X | | | |
| | Enclosure | UL Enclosure Type 4X | | | |
| | EU Conformity | CE Marking | | | |
| | Certification IEC/EN | IEC/EN 60730-1 and IEC/EN 60730-2-6 | | | |
| | Quality Standard | ISO 9001 | | | |
| | UL Approval | cULus acc. to UL60730-1A/-2-6, CAN/CSA E60730-1 | | | |
| | Type of action | Type 1 | | | |
| | Rated impulse voltage supply | 0.8 kV | | | |
| | Installation method | Independently mounted control | | | |
| | Pollution degree | 3 | | | |
| | Ambient humidity | Max. 95% RH, non-condensing | | | |
| | Ambient temperature | -10...50°C [15...122°F] | | | |
| Fluid temperature | -10...50°C [15...122°F] | | | | |

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 with 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

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

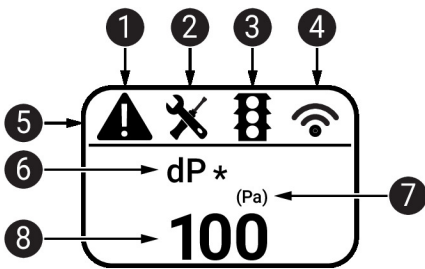
In normal operation zero-point calibration should be executed every 12 months.
 Attention! For executing zero-point calibration, the power supply must be connected one hour before.

- Release both tube connectors from the pressure ports + and -
- Press the button "Manual zero-point calibration" until the LED lights permanently
- Wait until the LED flashes again and reinstall the tube connectors to the pressure ports (note + and -)

Indicators and Operation

Indicators

Depending on the device and the number of measured values, the display automatically scales. Parameters, such as the fading in/out of measured values, brightness and traffic light function, are changed via the app or bus system. During the boot process, the software and hardware versions are displayed.



- 1 Fault / sensor failure
- 2 Service / visual inspection due
- 3 TLF (traffic light function) active (thresholds for display colour changes)
- 4 Radio active (not available)
- 5 Status bar
- 6 Measured value (* appears when TLF function is activated for this value)
- 7 Unit of measure
- 8 Measured value

Parts included

| Description | Type |
|--|------------|
| Mounting plate L housing | A-22D-A10 |
| Duct connector kit, PVC tube 2 m, 2 connection elements (Plastic) for 22ADP-.. | A-22AP-A08 |
| Dowels | |
| Screws | |

Accessories

| Optional accessories | Description | Type |
|----------------------|---|-------------|
| | Pitot tube, Metal, L 40 mm, Tube connection 5 mm | A-22AP-A02 |
| | Pitot tube, Metal, L 100 mm, Tube connection 5 mm | A-22AP-A04 |
| | Connection adapter flex conduit, M20x1.5, for cable gland 1 x 6 mm, Multipack 10 pcs. | A-22G-A01.1 |

Accessories

| Tools | Description | Type |
|-------|---|----------------------------------|
| | Belimo Duct Sensor Assistant App | Belimo Duct Sensor Assistant App |
| | Bluetooth dongle for Belimo Duct Sensor Assistant App * Bluetooth dongle A-22G-A05 | A-22G-A05 |
| | Certified and available in North America, European Union, EFTA States and UK. | |

Service

Tools connection This sensor can be operated and parametrised using the Belimo Duct Sensor Assistant App. When using the Belimo Duct Sensor Assistant App, the bluetooth dongle is required to enable communication between the app and the Belimo sensor.

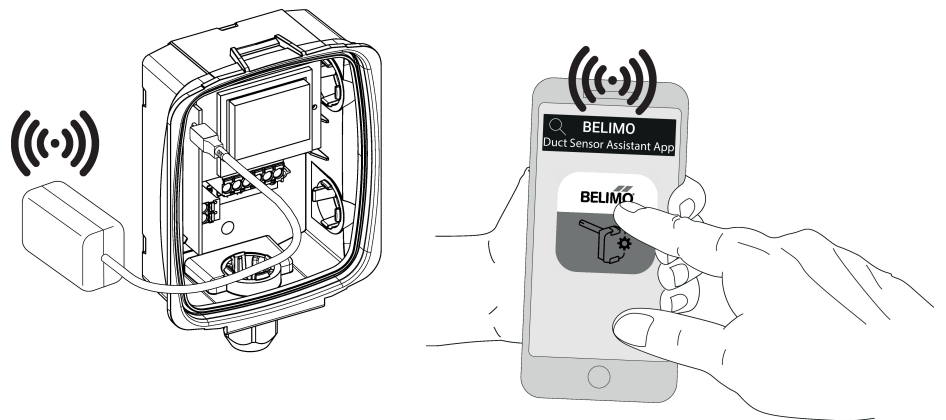
For the standard operation and parametrisation of the sensor the bluetooth dongle and the Belimo Duct Sensor Assistant App are not needed. The sensor will arrive pre-configured with the factory default settings shown above.

Requirement:

- Bluetooth dongle (Belimo Part No: A-22G-A05)
- Bluetooth-capable smartphone
- Belimo Duct Sensor Assistant App (Google Play & Apple App Store)

Procedure:

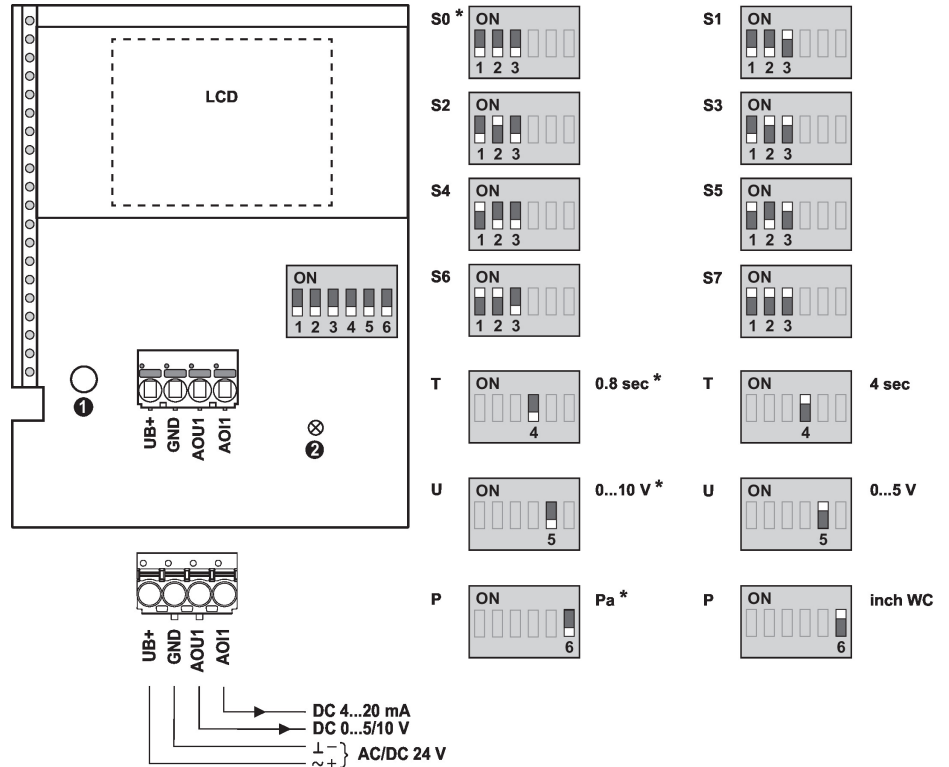
- Plug the Bluetooth dongle into the sensor via the Micro-USB connector or by means of the interface PCB
- Connect Bluetooth-capable smartphone with Bluetooth dongle
- Select parametrisation in the Belimo Duct Sensor Assistant App


Wiring diagram

Notes When switching from 0...10 V to 0...5 V output voltage also the current will be adjusted from 4...20 mA to 4...12 mA.



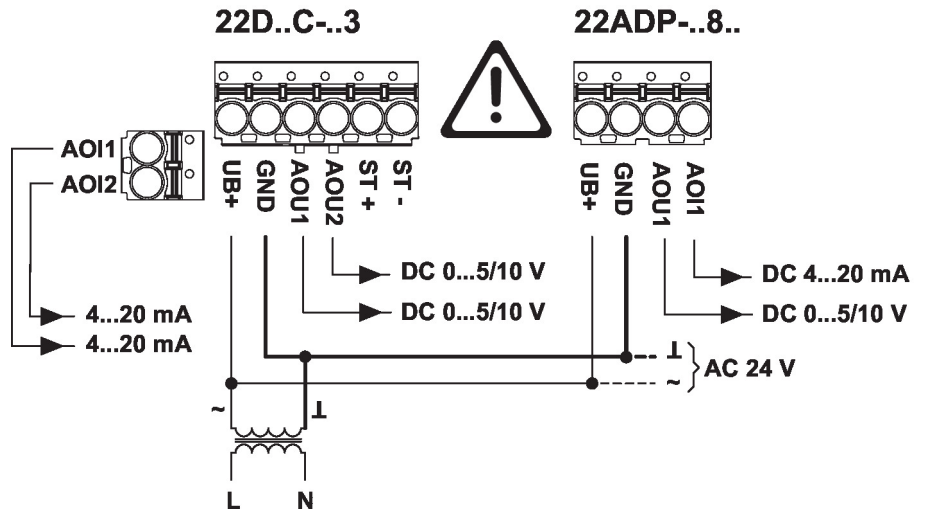
Wiring diagram



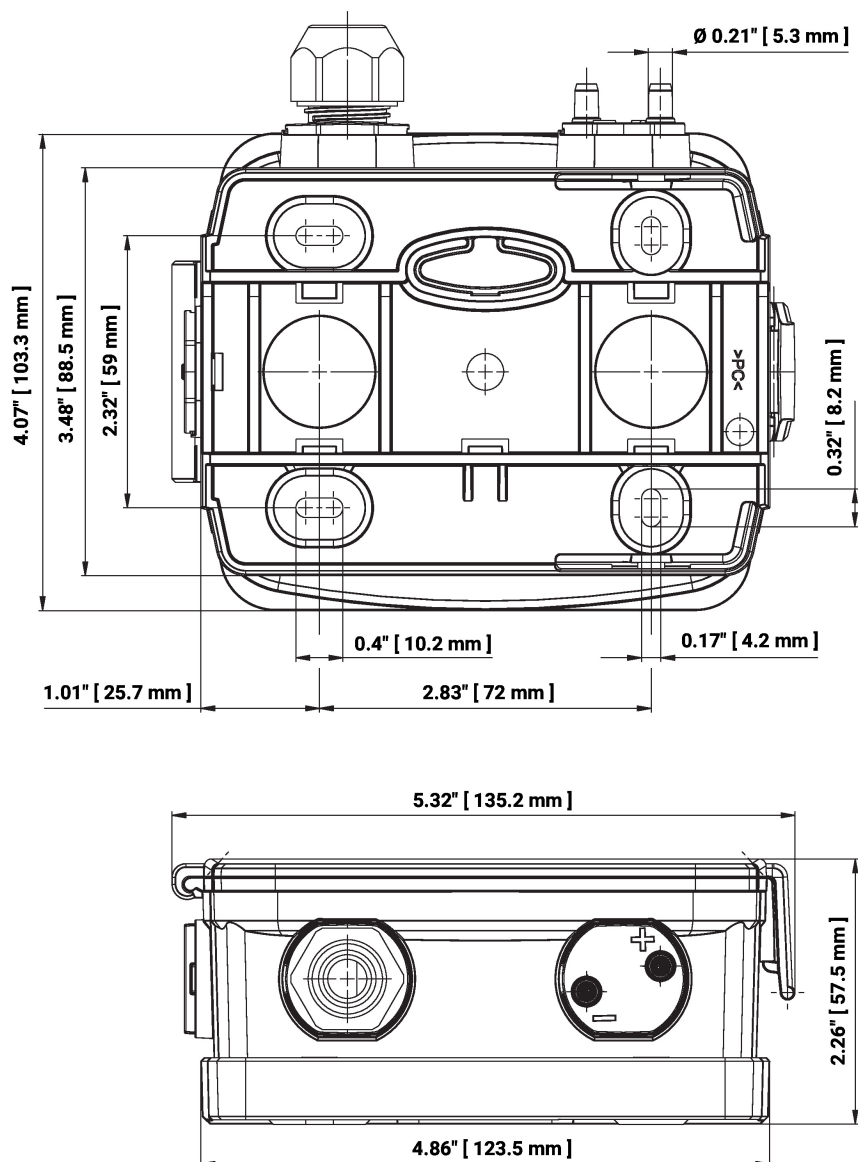
Wiring note power supply AC

For the sensor to function properly, polarity must be observed with a DC supply as well as an AC supply.

If the AC supply is connected incorrectly, i.e. if the wires are reversed, this can lead to the destruction of the sensor.



Dimensions



Type

22ADP-186

22ADP-186A

22ADP-186B

22ADP-186L

Weight

0.38 kg

0.38 kg

0.41 kg

0.40 kg

Further documentation

- Installation instructions