

# HK INSTRUMENTS

USER-FRIENDLY MEASURING DEVICES

# PRODUCT CATALOGUE

EN





HK Instruments ..... 4  
 Values, vision, mission ..... 6  
 OEM ..... 7  
 References ..... 8

Join our HK Instruments Family of Distributors ..... 10  
 Applications ..... 12  
 Accessories ..... 100  
 Terms and conditions ..... 103

## PRODUCT PORTFOLIO



### DIFFERENTIAL PRESSURE TRANSMITTERS

**DPT-R8** 8-range differential pressure transmitter ..... 20  
**DPT-PRIIA** High accuracy differential pressure transmitter ..... 22  
**DPT-PRIIA-MOD** High accuracy differential pressure transmitter with Modbus communication ..... 24  
**DPT-MOD** Differential pressure transmitter with air flow measurement and Modbus communication ..... 26  
**DPT-IO-MOD** Differential pressure transmitter with Input terminal and Modbus communication ..... 28  
**DPT-CR-MOD** Differential pressure transmitter for cleanroom monitoring ..... 30  
**DPT-DUAL-MOD** Differential pressure transmitter with two pressure sensors and Modbus communication ..... 32  
**DPT-DUAL-MOD-AHU** Differential pressure transmitter for air handling units ..... 34  
**DPT-DUAL** Differential pressure transmitter with two pressure sensors ..... 36  
**DPT-2W** Differential pressure transmitter with 2-wire configuration ..... 38  
**DPI** Electronic differential pressure switch and transmitter ..... 40



### AIR FLOW AND VELOCITY TRANSMITTERS

**DPT-FLOW** Flow transmitter for HVAC systems ..... 46  
**FLOXACT™** Averaging multi-point pitot tube for flow measurements ..... 48  
**DPT-FLOW-BATT** Battery powered differential pressure and air flow meter ..... 50  
**AVT** Air velocity and temperature transmitter with relay output ..... 52



### PRESSURE AND FLOW CONTROLLERS

**DPT-CTRL** PID controllers with differential pressure or air flow transmitter ..... 56  
**DPT-CTRL-MOD** PID controllers with differential pressure or air flow transmitter and Modbus communication ..... 58



### AIR QUALITY (CO<sub>2</sub>, RH, T, VOC, PM, CO)

**SIRO** Indoor air quality transmitter ..... 62  
**SIRO-MOD** Indoor air quality transmitter with Modbus communication ..... 64  
**CDT2000** Wall mount CO<sub>2</sub> and temperature transmitter ..... 66  
**CDT2000 DUCT** CO<sub>2</sub> and temperature transmitter for duct ..... 68  
**RHT DUCT** Humidity (rH) and temperature transmitter for duct ..... 70  
**KLU 100** Outdoor humidity transmitter ..... 72  
**HML** Carbon monoxide transmitter ..... 74



### PRESSURE TRANSMITTERS FOR LIQUIDS

**PTL-HEAT** Pressure transmitter for liquids in heating systems ..... 76  
**PTL-COOL** Pressure transmitter for liquids in cooling systems ..... 76  
**DPTL** Differential pressure transmitter for liquids ..... 76



### PASSIVE TEMPERATURE SENSORS

**TEK** Duct temperature sensor ..... 80  
**TEHR** Room temperature sensor ..... 80  
**TEKY6S** Cable temperature sensor ..... 82  
**TEU** Outside air temperature sensor ..... 82  
**PTE-OI** Outside air temperature and illuminance sensor ..... 82  
**TEAT** Immersion sensor ..... 84  
**TENA** Fast response immersion sensor ..... 84  
**TEPK** Surface sensor ..... 86  
**TEV** Frost guard sensor ..... 86



### AIR PRESSURE GAUGES & MANOMETERS

**DPG** Differential pressure gauge ..... 88  
**MM** Liquid column manometer with leakage protection system ..... 90  
**MMU** U-tube manometer ..... 90  
**YM-3** Overpressure meter for shelters ..... 92



### PRESSURE SWITCHES

**MM** Mechanical differential pressure switch ..... 94



### FILTER ALERTS (DISPLAY + RELAY)

**MM/PS** Combination of liquid column manometer and differential pressure switch ..... 96  
**DPG/PS** Combination of differential pressure gauge and differential pressure switch ..... 96



### MICROMANOMETER

**PHM-V1** Handheld micromanometer for measuring air pressure and air flow ..... 98

# HIGH-QUALITY MEASURING DEVICES FOR CLEAN INDOOR AIR

HK Instruments is a Finnish company that helps its customers to keep the quality of indoor air and the functionality of buildings high, resulting in wellbeing and energy savings. We design highly accurate and easy-to-use measuring devices for HVAC applications in ventilation and building automation systems.

Having lived in the clean Finnish climate, we know what it is like to breathe in good-quality fresh air. This is why we have been leading the way, in Finland and abroad, for 35 years, allowing everyone to enjoy good-quality indoor air.

Our advanced measuring devices produce highly accurate real-time information about indoor air to the building management system. This leads to high functionality of the building, which supports the wellbeing of people while keeping energy costs down. Our products are known for their ease of use. Applications for our devices range from highly demanding laboratory conditions to regular residential buildings.

We understand that there are different needs in different parts of the world and in different applications. This is why we work with you to customize our solutions for your needs. Using the information our devices produce, we help you to make smart decisions to support the wellbeing of your people and the functionality of your building. Our decades of experience and our broad product range allow us to offer our services to market areas at highly different levels of development.

WE SPEND NEARLY 90 % OF OUR TIME INDOORS. THE QUALITY OF INDOOR AIR IS NOT INSIGNIFICANT. CLEAN INDOOR AIR THAT MAINTAINS WELLBEING IS ONE OF THE PRECONDITIONS FOR LIFE. THE CORRECT KIND OF INDOOR AIR MAINTAINS HEALTH, ENERGY LEVELS AND COMFORT. GOOD INDOOR AIR QUALITY SAVES COSTS IN HEALTHCARE AND BUILDING MAINTENANCE.



# VALUES

FAMILY | FRIENDSHIP | BASIC NEEDS OF PEOPLE

We respect Family and Friendship. Every person sharing our journey is welcomed to our HK Instruments Family. We care about people's wellbeing – including their right to breathe clean air.



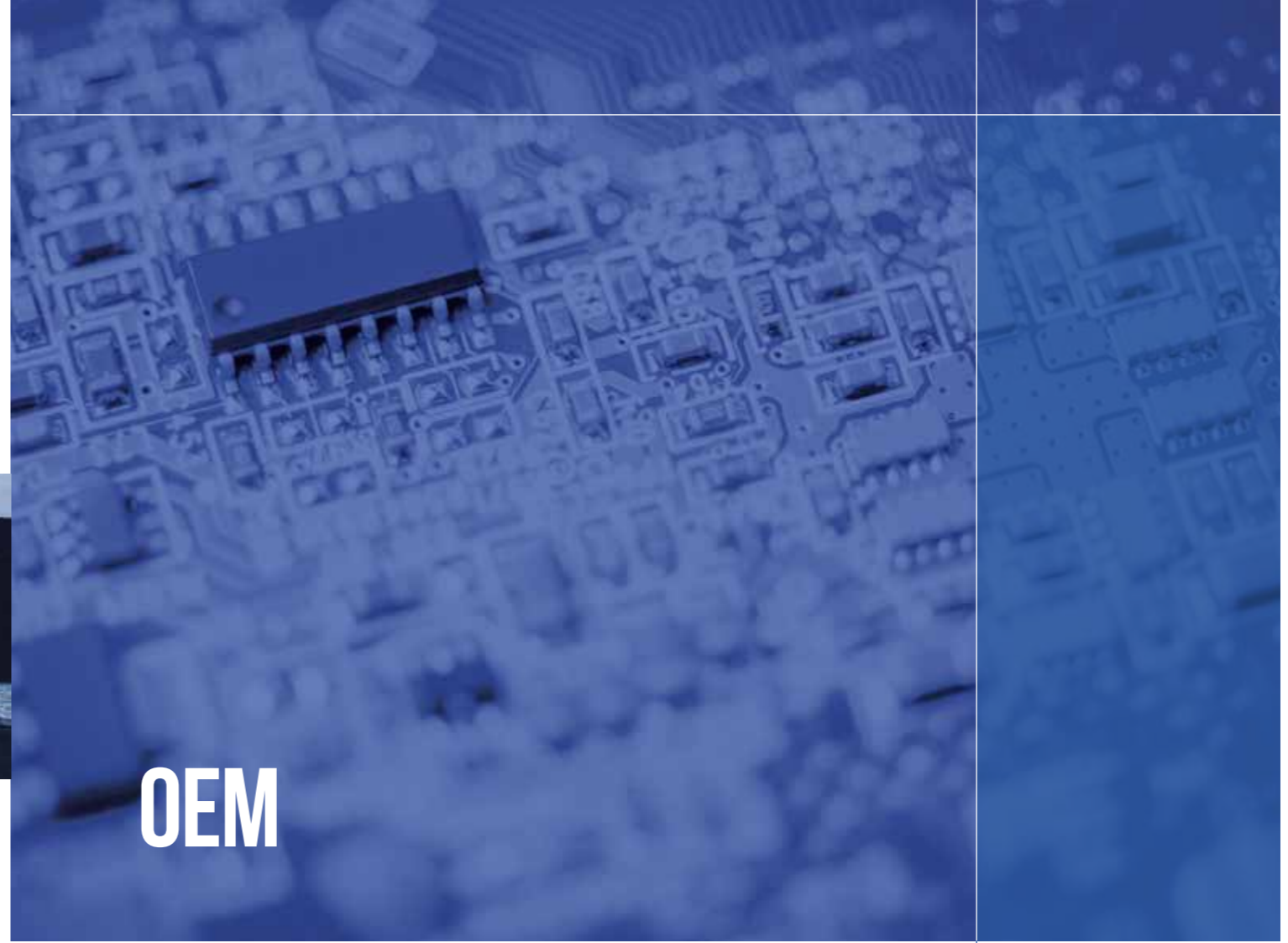
# VISION

To deliver the best user and customer experience in HVAC and building automation.



# MISSION

Our mission is to provide clean indoor air and energy savings by manufacturing user-friendly measuring devices for HVAC.



# OEM

Many of our customers are OEMs, in particular companies manufacturing air handling units. They need solutions tailored to their individual needs. We excel at unique, customer-focused implementations.

HK Instruments has cooperated closely with OEMs for 35 years. We have gained broad and varied experience in unique device solutions, and we have always found a functional solution for the customer's specific needs. Our expert team is attuned to your needs and knows how to meet them. We stand out from the competition by being flexible and efficient. We stay on schedule and within budget – while also listening to our customer's needs at all times. Our OEM customers are actively involved throughout the manufacturing process, as we are convinced that continuous interaction produces the best results.

We are always open to new challenges and opportunities and would like to hear from you. We will find a solution that meets your and your company's needs.



## HK INSTRUMENTS' DEVICES AS A PART OF THE HVAC AUTOMATION SYSTEM IN HOSPITAL NOVA

The Nova hospital complex inaugurated at the beginning of 2021 in Jyväskylä is the largest public investment ever made in Central Finland. The total cost of the hospital was 554 million euros, and its surface area 106 000 m<sup>2</sup>. The hospital consists of four parts divided into separate functions: hot hospital, elective hospital, patient room wards and hospital support functions.

The hospital's building automation system is very impressive with 50 000 measuring points and about 200 km of different pipelines. A whole floor of one building is almost completely dedicated to AHUs: there are about 200 of them in 13 different engine rooms. The air handling units are located vertically in the middle of the building so that they serve optimally both upper and lower floor functions.

HK Instruments' measuring devices are a part of the automation system that enables easily controllable demand-controlled ventilation for the different functions of the hospital. For example, the 24 operating theatres equipped with the latest state-of-the-art technology have high criteria for controlling the indoor climate conditions. The conditions required in the operating theatre are selected for each operation, and the system adjusts the required cleanliness, temperature and air volume accordingly. As part of the system, HK Instruments' high-quality differential pressure and air flow transmitters ensure precise control of the ventilation, thus ensuring patient safety and energy efficiency.

“ AS PART OF THE SYSTEM, HK INSTRUMENTS' HIGH-QUALITY DIFFERENTIAL PRESSURE AND AIR FLOW TRANSMITTERS ENSURE PRECISE CONTROL OF THE VENTILATION, THUS ENSURING PATIENT SAFETY AND ENERGY EFFICIENCY. ”

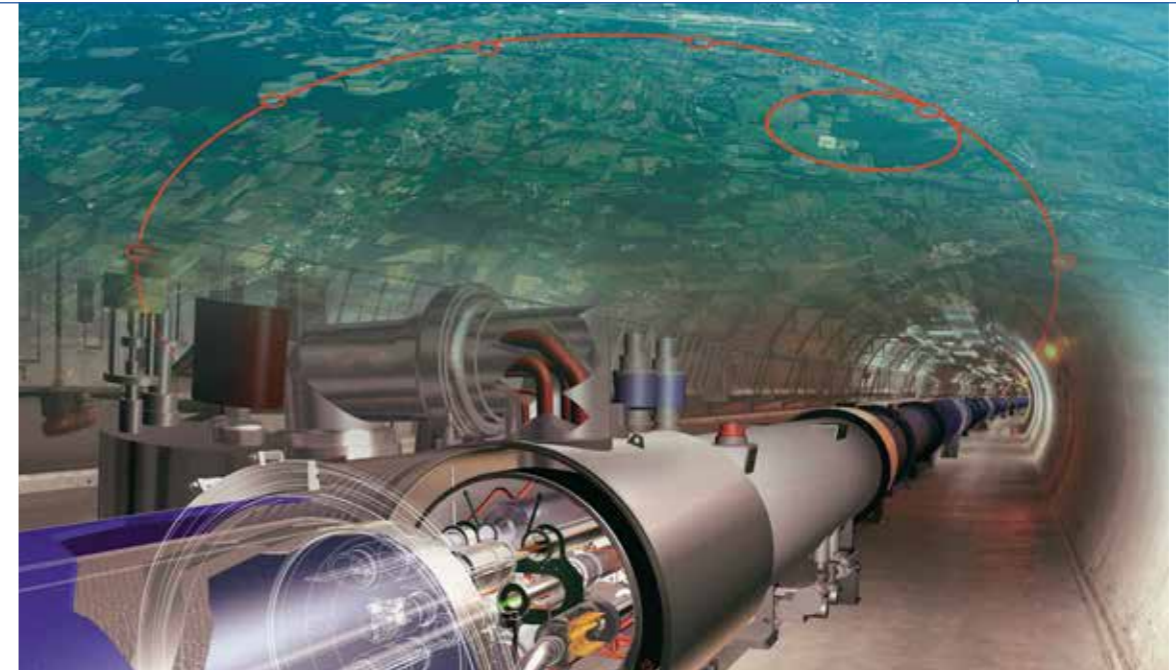


Image: CERN

## HK INSTRUMENTS EXPERTISE IN CERN

CERN, the European Laboratory for Particle Physics, is carrying out a large project to monitor and regulate the air conditioning inside the LHC (Large Hadron Collider), the particle accelerator that led to the discovery of the Higgs Boson. For the differential pressure measurements, CERN has selected the DPT250-R8 sensor from HK Instruments to meet the Organization's stringent requirements in terms of accuracy, reliability and ease of integration. A total of 50 DPT transmitters have been installed in the underground areas such as experimental caverns, across galleries and pressurized modules. In addition, air quality transmitters of type CDT2000 are used for the control of air conditioning in control rooms of the LHC experiments.

CERN HAS SELECTED THE DPT250-R8 SENSOR FROM HK INSTRUMENTS TO MEET THE ORGANIZATION'S STRINGENT REQUIREMENTS IN TERMS OF ACCURACY.

# JOIN OUR HK INSTRUMENTS FAMILY OF DISTRIBUTORS

We are constantly looking for new distributors to join our HK Instruments family. Our distributors are long-term partners, and we put in work to nurture a relationship built on trust, service and true friendship. In our 35 years' experience, this has been the key to our company's steady growth and strength. Through our success, we've been able to continually develop and create outstanding products for HVAC and building automation.

## 1. SALES SUPPORT

We will provide you with an HK Instruments account manager dedicated to assist you with any questions you may have, for example choosing the suitable products for your customers.

## 2. LEAD GENERATION

We understand the importance of more leads for your business to grow. We are skilled in developing a sales pipeline and will offer you valuable leads to utilize in networking and sales.

## 3. MARKETING SUPPORT

Building your brand equity will help us both win. HK Instruments is a well-known and trusted brand in Europe, and we are generous in sharing our brand equity with your business. You will receive access to our extensive

media library, where you will find all marketing support materials ready to use. This includes catalogues in several languages, posters, photos, images, presentations etc.

## 4. TECHNICAL SUPPORT

We guarantee friendly and professional technical support between the hours of 8 a.m. and 4 p.m. GMT+2. We are here to help you.

## 5. FREE SALES AND TECHNICAL TRAINING

We offer our distributors sales and technical training free of charge. In some cases, we can provide you with personal technical training in Finland or in your premises. Contact your personal account manager for more information.

## 6. NFR SAMPLES

We are happy to send you Not for Resale (NFR) samples of HK Instruments products for use in testing, demonstrations and training.

## 7. SHARING BEST PRACTICES

We encourage you to share your success stories and feedback with our community. Connect with us and your fellow HK Instrument partners around the world.

## 8. PAYMENT TERMS

In some cases, we can offer you exclusive longer payment terms. We will always evaluate these cases individually and offer these terms solely to companies of solid credit standing and financial strength.

## 9. IMMEDIATE REPLACEMENT

In some cases, we offer immediate replacement of the products for our long standing partners, within our 5-year warranty period. No waiting for repair – instead, you will be instantly sent a fully functional product after sending us the defective piece.

## 10. PROJECT PRICING OPTION

When you are competing against a strong offer from a competitor for a substantial project, you can always ask for a project price.

## MOST IMPORTANTLY, WE OFFER PRODUCTS THAT SELL.

In the HVAC and building automation industry, HK Instruments is known for:

- constant product development efforts to meet the highest standards of the HVAC industry
- competitive pricing and high quality products
- high-end Finnish design and quality

- 5-year warranty
- customized OEM products and private labeling
- its strong Nordic brand that is trusted globally by a wide scope of OEMs, system integrators, distributors and well-know multinational corporations
- 35 years of experience in manufacturing measuring devices for HVAC and building automation.

Contact our export sales managers for a chat and let's discuss more opportunities!

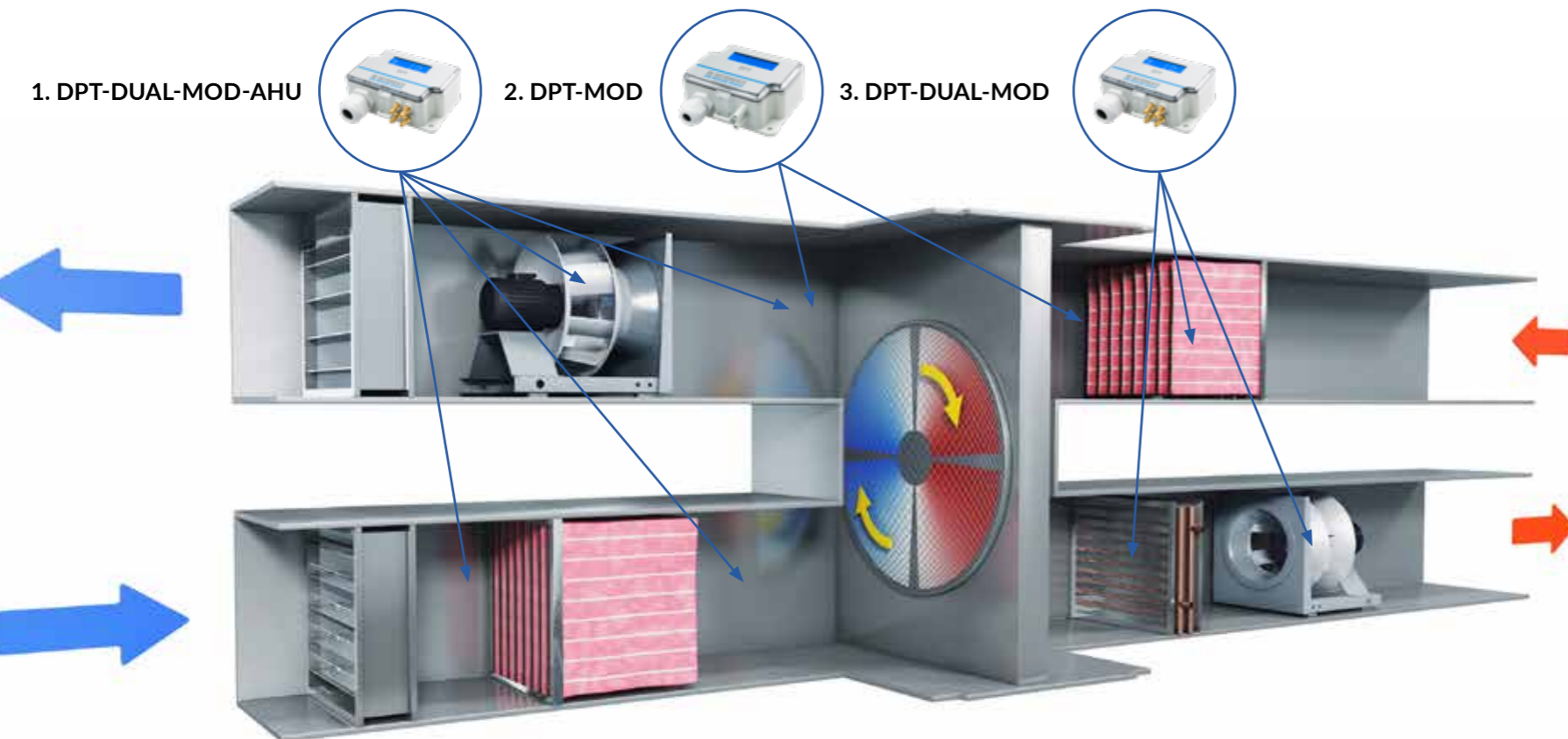
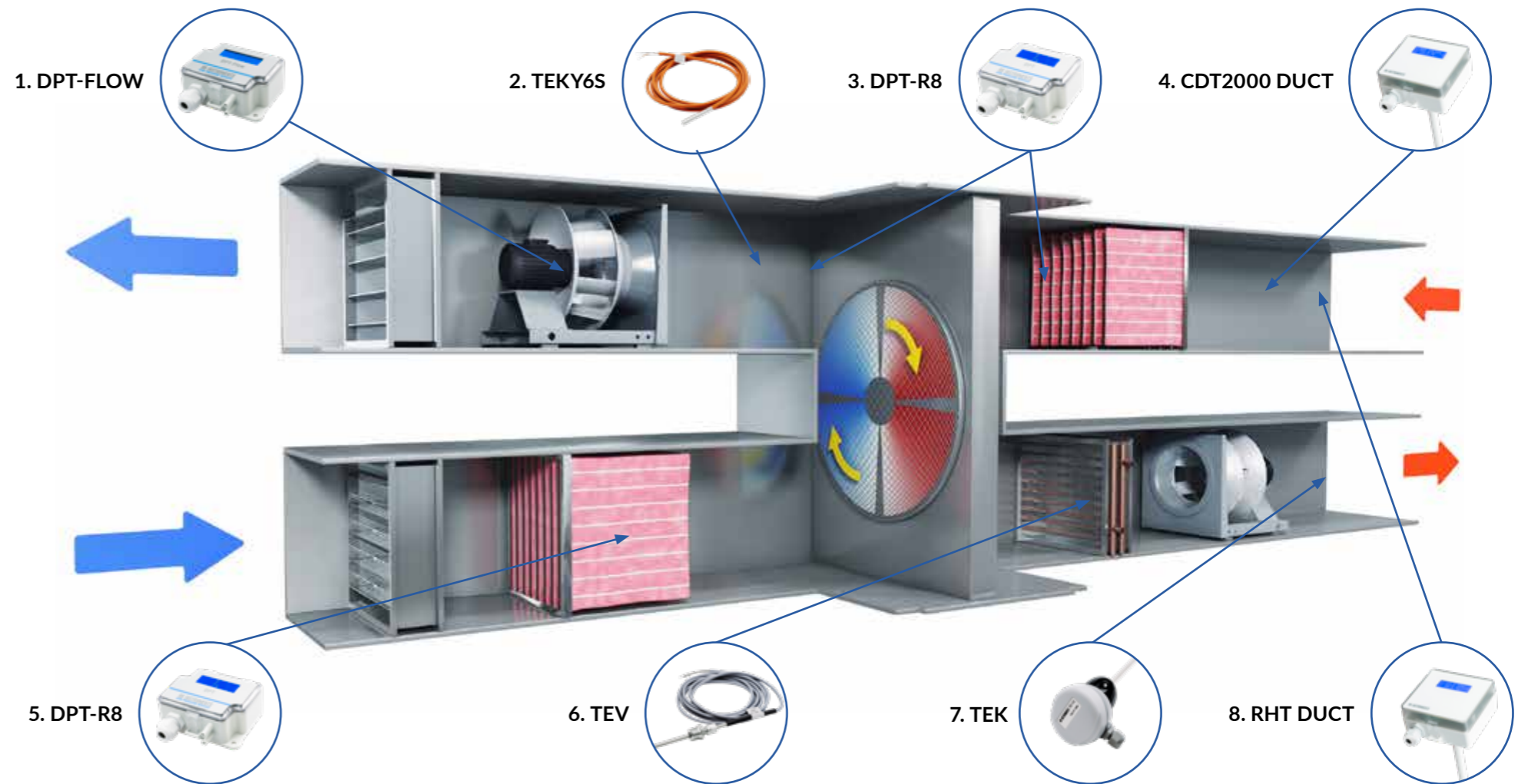
# APPLICATIONS

## AIR HANDLING UNITS (AHU) — MEASUREMENTS AND CONTROLS

### TRADITIONAL SOLUTION

Air handling units are used in nearly all new and renovated buildings to ensure high-quality indoor air. In addition to providing clean indoor air, HK Instruments' easy-to-use devices enable cost-efficiency and effortless installation and monitoring of air handling units. In comparison with analogue devices, modern Modbus devices require less wiring, which reduces the cost of cabling work. Designed specifically for AHUs, the DPT-Dual-MOD-AHU combination is the only one of its kind on the market.

DPT-Flow (1) enables accurate air volume flow adjustment and control for supply and extracted air. DPT-R8 (3,5) monitors filter cleanliness and frosting in the heat recovery unit. The CDT (4), RHT (8) and temperature sensors (2,6,7) ensure demand-controlled ventilation.



### MODBUS SOLUTION

Our main products are also available with Modbus communication. When using a bus solution, you need less wires in cables and fewer input points in the controller. As a result, you will save in costs of the devices and installation.

DPT-Dual-MOD combines two differential pressure transmitters into one device. When using the Input terminal, temperature transmitters can be replaced with temperature sensors. This makes it possible to measure four different types of data.

With the Modbus solution, you only need 4 wires as opposed to 23 wires when using the traditional solution.

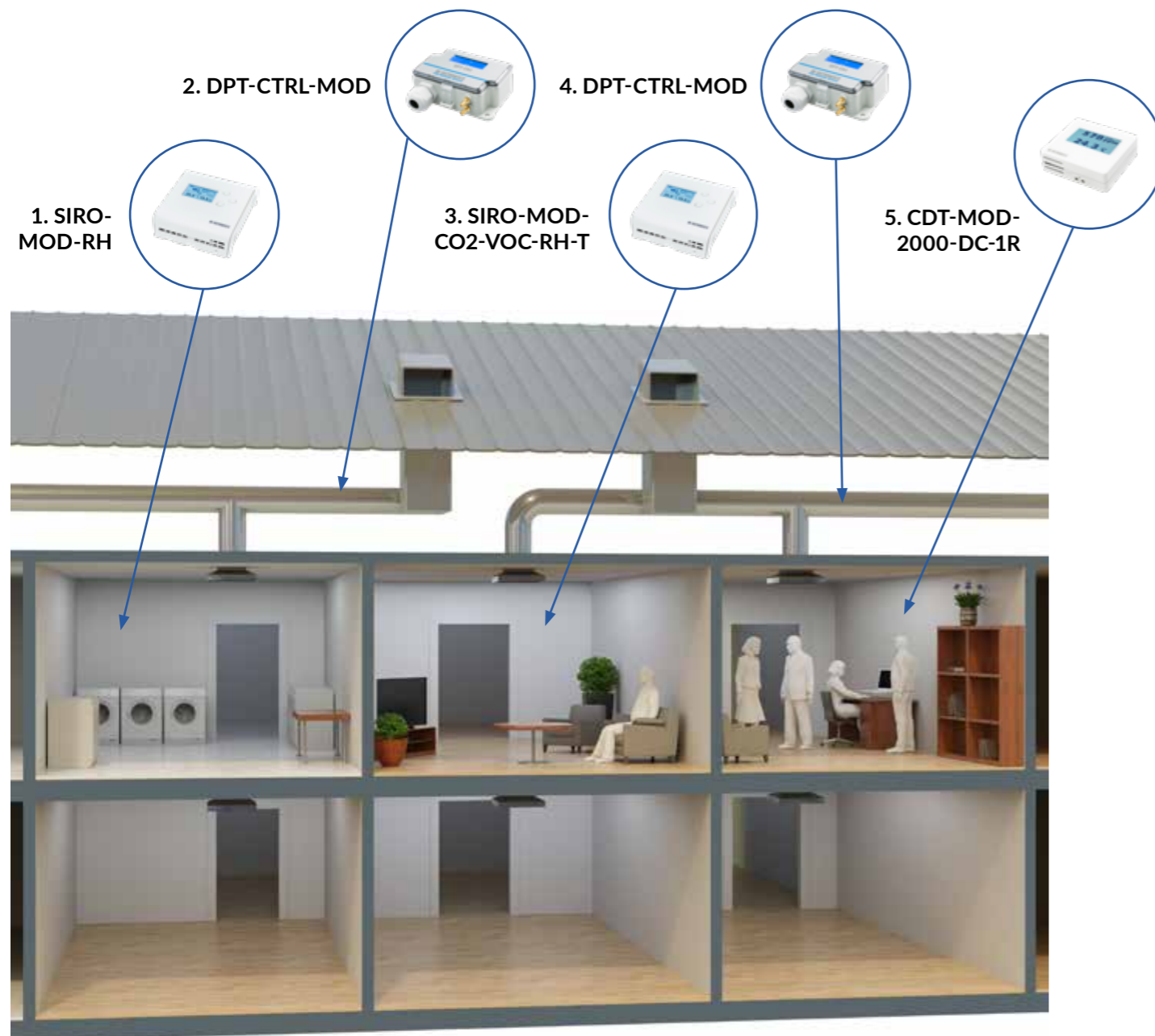
In the Modbus solution, DPT-Dual-MOD-AHU (1) monitors and controls air volumes. It also functions as a filter alert, replacing two separate measuring devices: air flow transmitter and differential pressure transmitter. DPT-Dual-MOD (3) is the right choice when you want to monitor and control duct pressure instead of air volumes. Two temperature sensors are connected to both DPT-Dual-MOD models. These sensors are essential for the functioning of the air handling unit. DPT-MOD (2) prevents frosting in the heat recovery unit.



## ROOF EXTRACTION UNIT

In apartment buildings, roof extraction units are often necessary to ensure clean, high-quality indoor air. Ventilation in apartment buildings is often set at a default level, even though the load varies. This results in a significant loss of energy. Ventilation applications in apartment buildings are easy to implement by using HK Instruments' measurement devices. Our cost-efficient solutions do not necessarily need to be supported by an expensive building automation system.

DPT-Ctrl-MOD (2) keeps the air volume in the laundry facility at the desired standard value by controlling the EC exhaust fan. Siro-MOD-rH (1) monitors the air humidity and causes DPT-Ctrl-MOD to increase capacity when the air humidity increases. Siro-MOD-CO2-VOC-rH-T (3) and CDT-MOD-2000-DC-1R (5) monitor the air quality in apartments, and DPT-Ctrl-MOD (4) actively adjusts the exhaust fan. When the time extension mode of the CDT-MOD-2000-DC-1R is activated, the DPT-Ctrl-MOD receives the information via its binary input and boosts ventilation. All devices communicate seamlessly with the building management system through the Modbus interface.

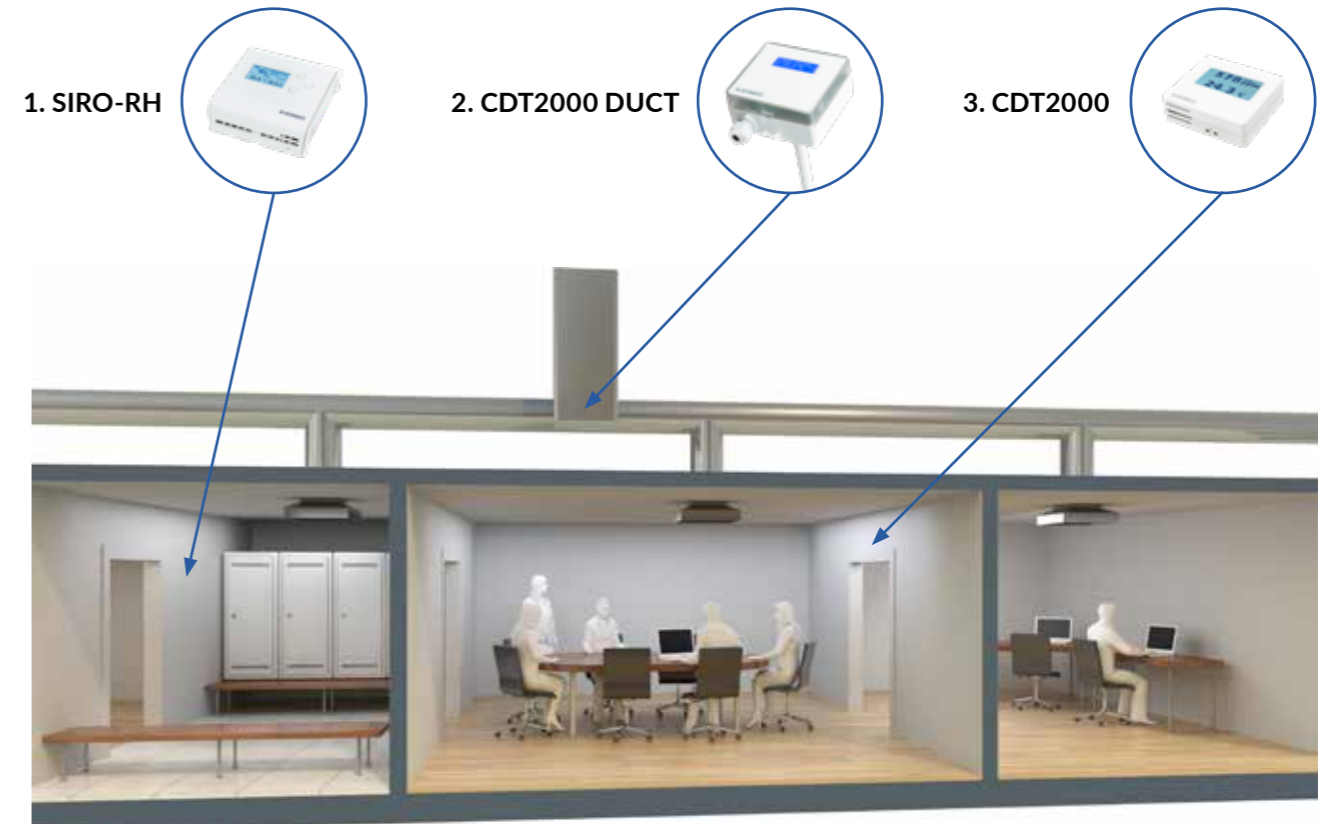


## DEMAND-CONTROLLED VENTILATION (DCV)

HK Instruments' multifunctional measuring devices are used as a part of demand-controlled ventilation. Ventilation is boosted when a large number of people are in the building. Ventilation solutions of this type are needed in schools, offices, sports halls and hotels – that is, in all locations where it is important to maintain good air quality, even if utilisation rates vary greatly. In addition to ensuring good air quality, demand-controlled ventilation reduces energy consumption in buildings.

As a result of technical innovations, our devices are even more versatile than before. CDT2000-DC, a CO<sub>2</sub> transmitter using Dual Channel technology, is maintenance-free and can also be used in hospitals, nursing homes and other environments that would be challenging for ordinary CO<sub>2</sub> transmitters. The large display on a CDT device is informative and easy to read, which also creates added value for the users of the building.

Siro-rH (1) and CDT2000 (3) monitor the air quality in individual rooms and communicate any needs for added capacity to the building management system. CDT2000 Duct (2) monitors the extracted air across the area, enabling demand-controlled ventilation in the entire office.

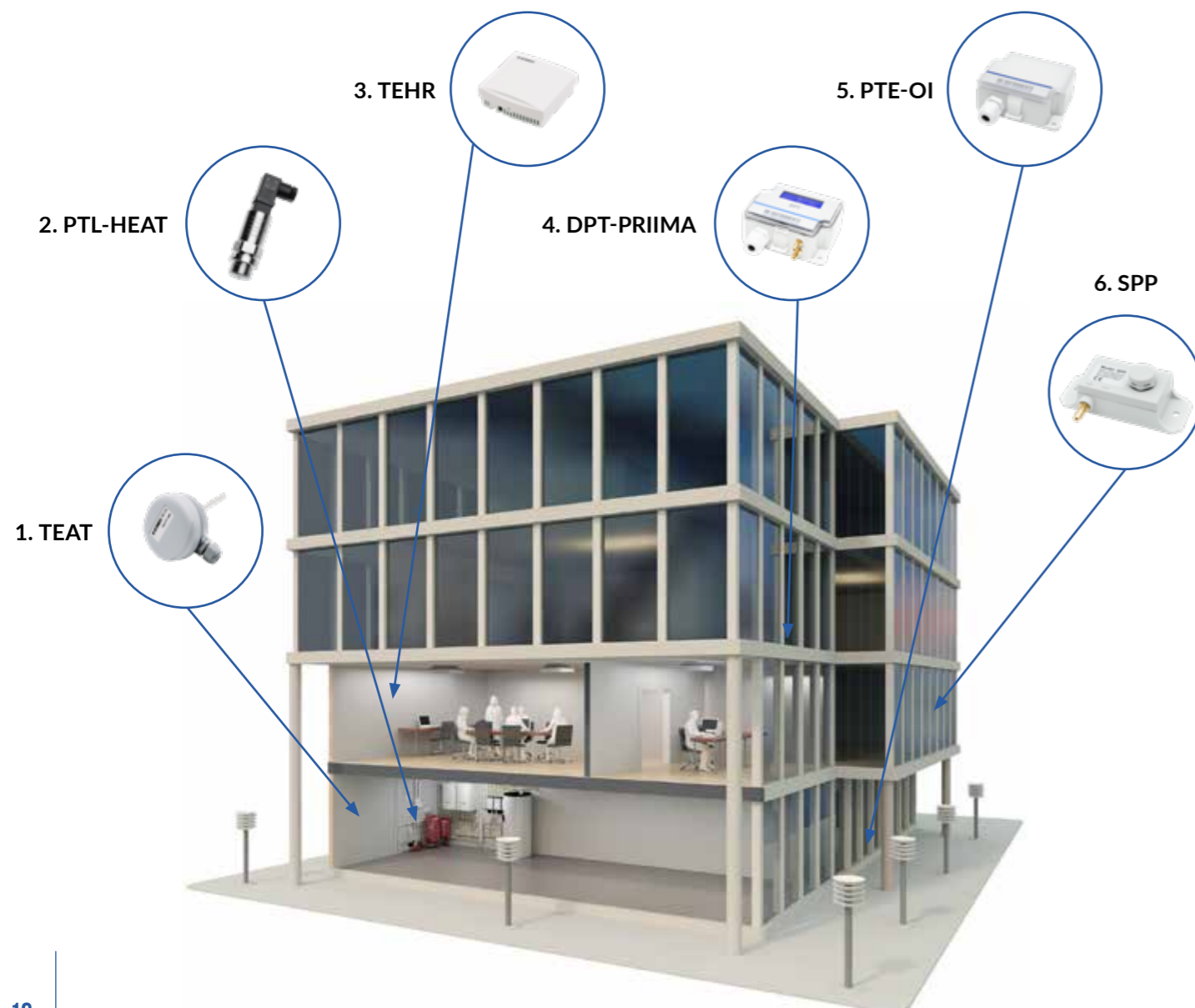




## COMMERCIAL BUILDING SOLUTIONS

HK Instruments produces user-friendly measurement devices for indoor and outdoor facilities. Passive outdoor temperature and light sensors are reliable in use and reduce the need for cabling. These sensors predict the need for heating in a building and control outdoor lighting sensibly and energy-efficiently. Liquid pressure transmitters can be used to monitor district heating and cooling, as well as detecting any leaks and preventing water damage. Surveillance of differential pressure across the building envelope takes care of the health of the building and prevents serious structural problems.

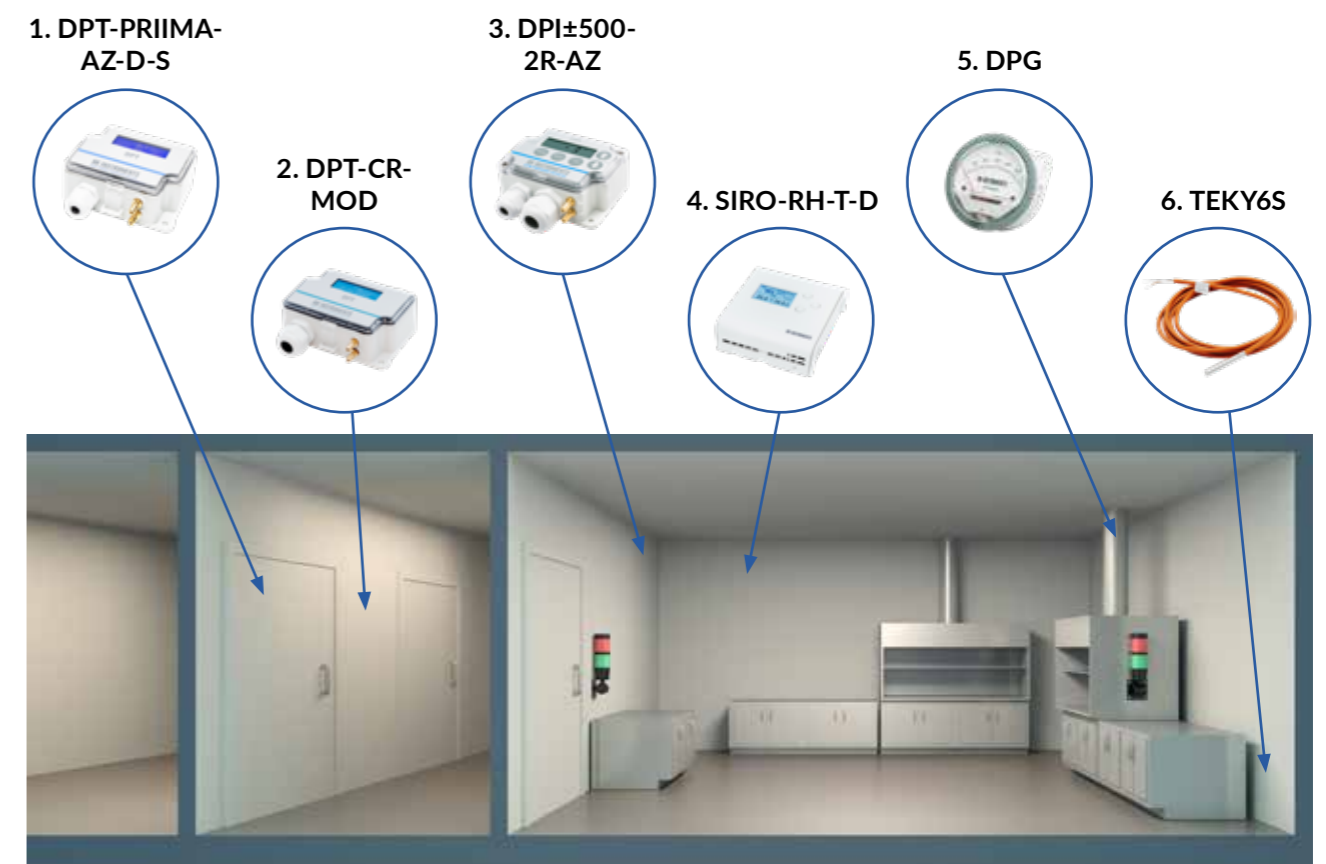
PTE-OI (5) measures outdoor temperatures and the level of outdoor light. Together with TEHR (3), which measures room temperatures, and TEAT (1), which measures heating system temperatures, the sensors enable the proactive control of the heating network. PTL-Heat (2) monitors pressure in the heating network and provides alerts about leaks when pressure decreases. PTE-OI carries out light measurements to determine when outdoor lighting should be switched on and off. DPT-Priima (4) measures the differential pressure over the building envelope, maintaining the desired pressure balance. SPP (6), static pressure port, connected to DPT-Priima, prevents direct wind interference on the transmitter by filtering any wind gusts.



## CLEANROOM APPLICATION

Pressure differences between rooms in hospitals, laboratories and other demanding environments can be controlled through pressurisation and depressurisation to ensure favourable working conditions and the cleanliness of products. Designed to monitor pressure differences between rooms, differential pressure transmitters measure the difference in pressure between the cleanroom and the adjacent room. DPT-Priima, which measures even the smallest pressure differences, is an excellent choice when the pressurisation of facilities requires high accuracy and operational reliability. In addition to measuring pressure differences, it is important to measure the temperature and humidity in cleanrooms. The Siro humidity and temperature transmitter is the perfect choice for such measurements. All our cleanroom devices are available with a calibration certificate. Our devices ensure uninterrupted production in cleanrooms, which require reliable, continuous monitoring.

The DPT-Priima-AZ-D-S (1) and DPT-CR-MOD (2) monitor overpressure in laboratory facilities. In addition, DPT-CR-MOD works as a cleanroom panel that shows differential pressure, relative humidity and temperature on its display. DPT-CR-MOD is connected to Siro-rH-T-D (4) that communicates the room temperature and humidity both to DPT-CR-MOD and to the automation system. The relay of the DPI±500-2R-AZ (3) electronic differential pressure switch and transmitter activates the beacon alarm light if the pressure in the facility exceeds the threshold value. The DPG analogue gauge (5) is easy to read, which makes it suitable for indicating the exact pressure in the laminar flow cabinet. TEKY6S (6) measures the temperature in a refrigerated cabinet, making it possible to collect long-term historical data.



# DIFFERENTIAL PRESSURE TRANSMITTERS

DPT series pressure transmitters are accurate and user-friendly devices with a stylish and modern design. Fully automated zero point calibration, AZ-calibration, offers reliability in the most sensitive of applications. In addition, the AZ-calibration provides cost savings over the lifetime of a building, as it makes the device completely maintenance-free.

The excellent usability of DPT-R8 series is widely known among electricians and installers all over the world. DPT-Priima is designed especially for high accuracy applications, and is also available as Modbus version, DPT-Priima-MOD, that includes air flow measurement. DPT-MOD and DPT-IO-MOD series Modbus transmitters can be connected on serial line and therefore require less wiring than traditional transmitters. Modbus communication is a modern and distortion-free way to transmit measurement data.

The DPT-Dual-MOD with Modbus communication offers savings in the device and installation costs due to its two pressure sensors and Input terminal. DPT-Dual-MOD-AHU is designed especially for air handling units. It offers a possibility to measure pressure from two different points, and one of the measurements can be set to show the air flow rate.



DPT-R8



DPT-PRIIMA



DPT-PRIIMA-MOD



DPT-MOD



DPT-IO-MOD



DPT-CR-MOD



DPT-DUAL-MOD



DPT-DUAL-MOD-AHU



DPT-DUAL



DPT-2W



DPI

# DPT-R8 DIFFERENTIAL PRESSURE TRANSMITTERS

THREE-WIRE

USER-FRIENDLY  
DEVICES WITH AN  
EXCEPTIONAL DESIGN



### DPT-R8

The DPT-R8 series includes electronic differential pressure transmitters that offer exceptional performance, high quality and competitive pricing. Because of the high accuracy of the devices, it is usually not necessary to narrow down the range to get accurate measurements. DPT-R8 devices are easily customizable, and also available for private labeling.

### USAGE & APPLICATIONS

The differential pressure transmitter is used for measuring low pressures of air and non-combustible gases in order to monitor and control building automation, HVAC and cleanroom systems.

### OPTIONS

AZ: autozero element    D: display    S: span point calibration for high accuracy applications

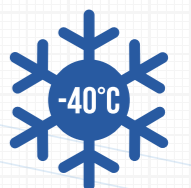
-40C: cold-resistant model

### TECHNICAL DETAILS

|   |   |
|---|---|
| <b>Accuracy (from applied pressure):</b><br>(models 250 and 2500) | Pressure < 125 Pa = 1 % + ±2 Pa<br>Pressure > 125 Pa = 1 % + ±1 Pa                |
| <b>Accuracy (from applied pressure):</b><br>(model 7000)          | Pressure < 125 Pa = 1.5 % + ±2 Pa<br>Pressure > 125 Pa = 1.5 % + ±1 Pa            |
| <b>Zero point calibration:</b>                                    | automatic with autozero element (-AZ) or by pushbutton                            |
| <b>Measuring units:</b>   | Pa, kPa, mbar, inchWC, mmWC, psi  |
| <b>Supply voltage:</b>  | 24 VDC ±10 % / 24 VAC ±10 %   |
| <b>Power consumption:</b>   | < 1.0 W (< 1.2 W with output current 20 mA)<br>-40 °C model: <4.0 W when <0 °C    |
| <b>Output signals (3-wire):</b>                                   | 0/2...10 VDC<br>4...20 mA   |
| <b>Operating temperature:</b>                                     | -20...+50 °C (with autozero calibration -5...+50 °C)<br>-40...+50 °C (-40C model) |
| <b>Response time:</b>   | 0.8 / 8 s   |
| <b>Protection standard:</b>                                       | IP54  |

### DPT-R8

|                               |   |   |     |     |    |  |
|-------------------------------|---|---|-----|-----|----|--|
| Example:<br>DPT2500-R8-AZ-D   | <b>Product series</b>   |   |     |     |    |  |
|                               | DPT   | Differential pressure transmitter   |     |     |    |  |
|                               | <b>Measuring ranges (Pa)</b>  |   |     |     |    |  |
|                               | 250   | -150...+150 / -100...+100 / -50...+50 / -25...+25 / 0...25 / 0...50 / 0...100 / 0...250 |     |     |    |  |
|                               | 2500  | -100...+100 / 0...100 / 0...250 / 0...500 / 0...1000 / 0...1500 / 0...2000 / 0...2500   |     |     |    |  |
|                               | 7000  | 0...1000 / 0...1500 / 0...2000 / 0...2500 / 0...3000 / 0...4000 / 0...5000 / 0...7000   |     |     |    |  |
|                               | <b>Model type</b>   |   |     |     |    |  |
|                               | -R8   | Eight measuring ranges  |     |     |    |  |
|                               | <b>Zero point calibration</b>   |   |     |     |    |  |
|                               | -AZ   | With autozero calibration<br>Standard with pushbutton manual zero point calibration     |     |     |    |  |
| <b>Display</b>                |   |   |     |     |    |  |
| -D                            | With display<br>Without display   |   |     |     |    |  |
| <b>Span point calibration</b> |   |   |     |     |    |  |
| -S                            | Span point calibration<br>Without span point calibration  |   |     |     |    |  |
| <b>Cold resistance</b>        |   |   |     |     |    |  |
| -40C                          | -40 °C cold resistant (not available with autozero calibration)<br>Without -40 °C cold resistance |   |     |     |    |  |
| Model                         | DPT   | 2500  | -R8 | -AZ | -D |  |



# DPT-PRIIMA DIFFERENTIAL PRESSURE TRANSMITTERS

HIGH ACCURACY

HIGH ACCURACY  
TRANSMITTER FOR  
DEMANDING APPLICATIONS



## TECHNICAL DETAILS

|  |  |
|--|--|
| <b>Accuracy (from applied pressure):</b> | 0.4 % + ±0.4 Pa  |
| <b>Measuring ranges (Pa):</b>            | -25...+25 / -50...+50 / -100...+100 / -500...+500 / 0...25 / 0...50 / 0...250 / 0...1000 |
| <b>Zero point calibration:</b>           | automatic with autozero element (-AZ) or by pushbutton                                   |
| <b>Measuring units:</b>                  | Pa, kPa, mbar, inchWC, mmWC, psi   |
| <b>Supply voltage:</b>                   | 24 VDC ±10 % / 24 VAC ±10 %  |
| <b>Power consumption:</b>                | < 1.0 W (< 1.2 W with output current 20 mA)  |
| <b>Output signals (3-wire):</b>          | 0/2...10 VDC<br>4...20 mA  |
| <b>Operating temperature:</b>            | -5...+50 °C  |
| <b>Response time:</b>                    | 0.4 / 8 s  |
| <b>Protection standard:</b>              | IP54   |

## DPT-PRIIMA

|                                      |                                |                                   |     |    |    |
|--------------------------------------|--------------------------------|-----------------------------------|-----|----|----|
| <b>Example:</b><br>DPT-Priima-AZ-D-S | <b>Product series</b>          |                                   |     |    |    |
|                                      | DPT                            | Differential pressure transmitter |     |    |    |
|                                      | <b>Model type</b>              |                                   |     |    |    |
|                                      | -Priima                        | High accuracy                     |     |    |    |
|                                      | <b>Zero point calibration</b>  |                                   |     |    |    |
|                                      | -AZ                            | With autozero calibration         |     |    |    |
|                                      | <b>Display</b>                 |                                   |     |    |    |
| -D                                   | With display                   |                                   |     |    |    |
|                                      | Without display                |                                   |     |    |    |
| <b>Span point calibration</b>        |                                |                                   |     |    |    |
| -S                                   | Span point calibration         |                                   |     |    |    |
|                                      | Without span point calibration |                                   |     |    |    |
| <b>Model</b>                         | DPT                            | -Priima                           | -AZ | -D | -S |



DPT-PRIIMA TOGETHER WITH SPP  
(STATIC PRESSURE PORT) IS A  
COMPLETE SOLUTION FOR BUILDING  
ENVELOPE MEASUREMENT

### DPT-PRIIMA

DPT-Priima is a high accuracy differential pressure transmitter designed for cleanrooms and other demanding applications. DPT-Priima has a new, extremely accurate sensor and automatic zero point calibration, and optional span point calibration and calibration certificate.

### USAGE & APPLICATIONS

DPT-Priima is used in applications where the required accuracy is higher than the regular building automation pressure transmitters can reach. The most common applications are pressure monitoring in cleanrooms and over the building envelope.

# DPT-PRIIMA-MOD DIFFERENTIAL PRESSURE TRANSMITTERS

HIGH ACCURACY, WITH MODBUS COMMUNICATION



## TECHNICAL DETAILS

|  |   |
|--|---|
| <b>Communication:</b>                    | RS-485 Modbus (RTU)   |
| <b>Accuracy (from applied pressure):</b> | 0.4 % + ±0.4 Pa   |
| <b>Measuring ranges (Pa):</b>            | -120...+120 / -240...+240 / -620...+620 / -1240...+1240 / -2490...+2490               |
| <b>Zero point calibration:</b>           | automatic with autozero element (-AZ), by pushbutton or via Modbus                    |
| <b>Measuring units:</b>                  | Pressure: Pa, kPa, mbar, inchWC, mmWC, psi<br>Flow: m³/s, m³/h, cfm, l/s, m/s, ft/min |
| <b>Supply voltage:</b>                   | 24 VDC ±10 % / 24 VAC ±10 %   |
| <b>Power consumption:</b>                | < 1.0 W   |
| <b>Output signal:</b>                    | via Modbus  |
| <b>Operating temperature:</b>            | -5...+50 °C   |
| <b>Response time:</b>                    | 0.4-20 s  |
| <b>Protection standard:</b>              | IP54  |

## DPT-PRIIMA-MOD

|  |                               |  |     |    |
|--|-------------------------------|--|-----|----|
| <b>Example:</b><br>DPT-Priima-MOD-<br>AZ-D | <b>Product series</b>         |  |     |    |
|  | DPT                           | Differential pressure transmitter        |     |    |
|  | <b>Model type</b>             |  |     |    |
|  | -Priima-MOD                   | High accuracy, with Modbus communication |     |    |
|  | <b>Zero point calibration</b> |  |     |    |
|  | -AZ                           | With autozero calibration                |     |    |
| <b>Display</b>                             |                               |  |     |    |
|  | -D                            | With display                             |     |    |
| Model                                      | DPT                           | -Priima-MOD                              | -AZ | -D |

## INCLUDES AIR FLOW MEASUREMENT



### DPT-PRIIMA-MOD

DPT-Priima-MOD is a multifunctional high accuracy differential pressure transmitter with Modbus communication and air flow measurement. It is designed for cleanrooms and other demanding applications. DPT-Priima-MOD has a new, extremely accurate sensor and automatic zero point calibration, and optional calibration certificate.

### USAGE & APPLICATIONS

The DPT-Priima-MOD is used for measuring differential pressure and air flow in building automation, HVAC and clean-room systems. It can also be used with several different measurement probes such as FloXact™ or pitot tube, and air dampers. The most common applications are pressure monitoring in cleanrooms and over the building envelope.

# DPT-MOD DIFFERENTIAL PRESSURE TRANSMITTERS

WITH AIR FLOW MEASUREMENT AND MODBUS COMMUNICATION

ALL-IN-ONE TRANSMITTER:  
MEASURE VOLUME FLOW,  
VELOCITY AND DIFFERENTIAL  
PRESSURE



### DPT-MOD

DPT-MOD is a multifunctional transmitter for measuring volume flow, velocity, and static and differential pressure. The measurements can be read and the configuration done via Modbus communication. DPT-MOD requires less wiring than the traditional 3-wire transmitters because multiple devices can be connected on serial line.

### USAGE & APPLICATIONS

The DPT-MOD is used for measuring air flow or low pressures of air and non-combustible gases in order to monitor and control building automation, HVAC and cleanroom systems. It can also be used with several different measurement probes such as FloXact™ or pitot tube, and air dampers.

### TECHNICAL DETAILS

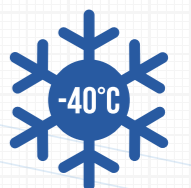
|  |   |
|--|---|
| <b>Communication:</b>                                    | RS-485 Modbus (RTU)   |
| <b>Accuracy (from applied pressure):</b><br>(model 2500) | Pressure < 125 Pa = 1 % + ±2 Pa<br>Pressure > 125 Pa = 1 % + ±1 Pa                    |
| <b>Accuracy (from applied pressure):</b><br>(model 7000) | Pressure < 125 Pa = 1.5 % + ±2 Pa<br>Pressure > 125 Pa = 1.5 % + ±1 Pa                |
| <b>Zero point calibration:</b>                           | automatic with autozero element (-AZ), by pushbutton or via Modbus                    |
| <b>Measuring units:</b>                                  | Pressure: Pa, kPa, mbar, inchWC, mmWC, psi<br>Flow: m³/s, m³/h, cfm, l/s, m/s, ft/min |
| <b>Supply voltage:</b>                                   | 24 VAC ±10 % / 24 VDC ±10 %   |
| <b>Power consumption:</b>                                | < 1.3 W<br>-40 °C model: <4.3 W when <0 °C  |
| <b>Output signal:</b>                                    | via Modbus  |
| <b>Response time:</b>                                    | 1.0–20 s, selectable via menu or via Modbus   |
| <b>Operating temperature:</b>                            | -20...+50 °C (with autozero calibration -5...+50 °C)<br>-40...+50 °C (-40C model)     |
| <b>Protection standard:</b>                              | IP54  |

### DPT-MOD

|                                      |  |
|--------------------------------------|--|
| <b>Example:</b><br>DPT-MOD-2500-AZ-D | <b>Product series</b><br>DPT Differential pressure transmitter   |
|                                      | <b>Model type</b><br>-MOD Modbus communication   |
|                                      | <b>Measuring ranges (Pa)</b><br>-2500 -250...2500<br>-7000 -700...7000   |
|                                      | <b>Zero point calibration</b><br>-AZ With autozero calibration<br>Standard with pushbutton manual zero point calibration         |
|                                      | <b>Display</b><br>-D With display  |
|                                      | <b>Cold resistance</b><br>-40C -40 °C cold resistant (not available with autozero calibration)<br>Without -40 °C cold resistance |
| <b>Model</b>                         | DPT -MOD -2500 -AZ -D  |



NOW AVAILABLE WITH AIR FLOW MEASUREMENT  
AND AUTOZERO CALIBRATION



# DPT-IO-MOD DIFFERENTIAL PRESSURE TRANSMITTERS

WITH MODBUS COMMUNICATION AND INPUT TERMINAL

SAVE IN COSTS OF  
THE DEVICES AND  
IN THE INSTALLATION  
COSTS



### DPT-IO-MOD

DPT-IO-MOD differential pressure transmitter for air is designed for Modbus (RTU) communication network. The DPT-IO-MOD has an input terminal that turns it into a multifunction transmitter. When using the input terminal, temperature transmitters can be replaced with temperature sensors. Very precise pressure sensor and easily operated interface make the device reliable and user-friendly.

### USAGE & APPLICATIONS

The DPT-IO-MOD is used for measuring low pressures of air and non-combustible gases in order to monitor and control building automation, HVAC and cleanroom systems.

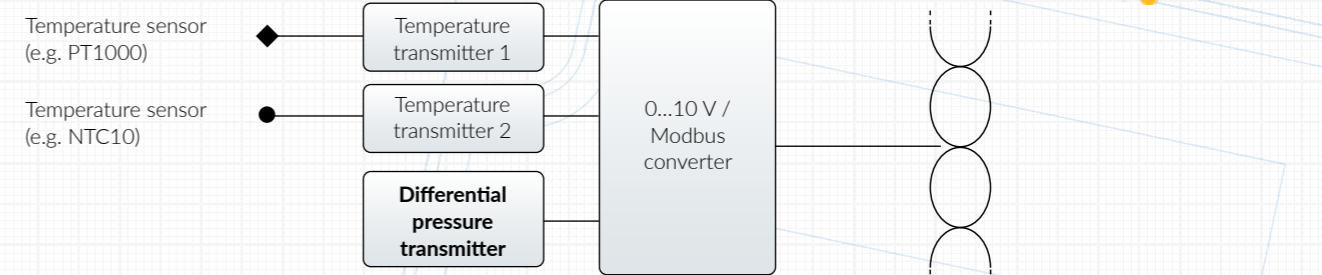
### TECHNICAL DETAILS

|  |  |
|--|--|
| <b>Communication:</b>                    | RS-485 Modbus (RTU)  |
| <b>Accuracy (from applied pressure):</b> | Pressure < 125 Pa = 1 % + ±2 Pa<br>Pressure > 125 Pa = 1 % + ±1 Pa     |
| <b>Accuracy (from applied pressure):</b> | Pressure < 125 Pa = 1.5 % + ±2 Pa<br>Pressure > 125 Pa = 1.5 % + ±1 Pa |
| <b>Zero point calibration:</b>           | by pushbutton or via Modbus  |
| <b>Measuring units:</b>                  | Pa, kPa, mbar, inchWC, mmWC, psi                                       |
| <b>Supply voltage:</b>                   | 24 VDC ±10 % / 24 VAC ±10 %  |
| <b>Power consumption:</b>                | < 1.3 W  |
| <b>Output signal:</b>                    | via Modbus   |
| <b>Operating temperature:</b>            | -20...+50 °C   |
| <b>Response time:</b>                    | 1...20 s selectable via menu   |
| <b>Protection standard:</b>              | IP54   |

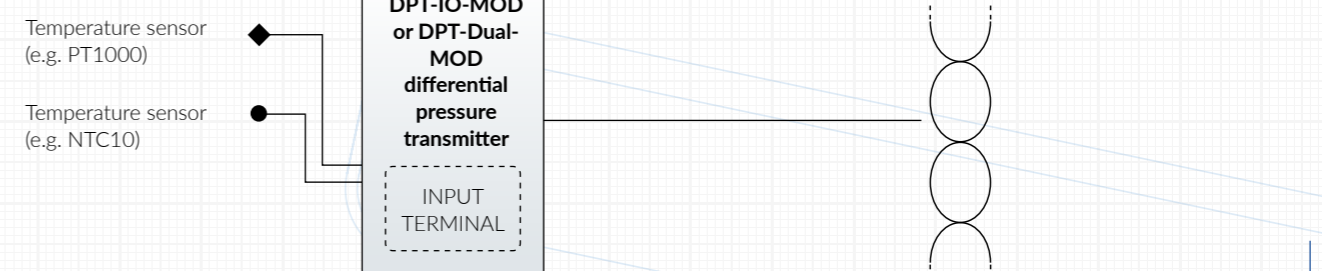
### DPT-IO-MOD

|                                      |                              |         |   |    |
|--------------------------------------|------------------------------|---------|---|----|
| <b>Example:</b><br>DPT-IO-MOD-2500-D | <b>Product series</b>        | DPT     | Differential pressure transmitter       |    |
|                                      | <b>Model type</b>            | -IO-MOD | Input terminal and Modbus communication |    |
|                                      | <b>Measuring ranges (Pa)</b> | -2500   | -250...2500                             |    |
|                                      |                              | -7000   | -700...7000                             |    |
|                                      | <b>Display</b>               | -D      | With display                            |    |
| -D                                   |                              |         |   |    |
| <b>Model</b>                         | DPT                          | -IO-MOD | -2500                                   | -D |

### Traditional system:



### New system with DPT-IO-MOD or DPT-Dual-MOD



# DPT-CR-MOD DIFFERENTIAL PRESSURE TRANSMITTERS

FOR CLEANROOM MONITORING

COST-EFFICIENT SOLUTION  
FOR MONITORING  
CLEANROOM CONDITIONS



### DPT-CR-MOD

DPT-CR-MOD is a differential pressure transmitter designed specially for cleanroom monitoring. In addition to differential pressure, the device enables monitoring temperature and relative humidity. A 0...10 V voltage input of an external humidity and temperature transmitter (for example Siro-rH-T) can be connected to the input terminal of the device. In this case, all three measured values (differential pressure, relative humidity, temperature) can be shown simultaneously on the display. Alternatively, a passive temperature sensor can be connected to the input terminal. DPT-CR-MOD is compatible with Modbus serial communication protocol.

### USAGE & APPLICATIONS

DPT-CR-MOD is used for monitoring and controlling differential pressure, relative humidity and temperature in cleanrooms.

### TECHNICAL DETAILS

|  |  |
|--|--|
| <b>Communication:</b>                    | RS-485 Modbus (RTU)  |
| <b>Accuracy (from applied pressure):</b> | Pressure < 125 Pa = 1 % + ±2 Pa<br>Pressure > 125 Pa = 1 % + ±1 Pa |
| <b>Zero point calibration:</b>           | by pushbutton or via Modbus  |
| <b>Measuring units:</b>                  | Pressure: Pa, kPa, mbar, inchWC, mmWC, psi<br>Temperature: °C, °F  |
| <b>Supply voltage:</b>                   | 24 VDC ±10 % / 24 VAC ±10 %  |
| <b>Power consumption:</b>                | < 1.3 W  |
| <b>Output signal:</b>                    | via Modbus   |
| <b>Operating temperature:</b>            | -20...+50 °C   |
| <b>Response time:</b>                    | 1...20 s selectable via menu                                       |
| <b>Protection standard:</b>              | IP54   |

### DPT-CR-MOD

|                                 |                       |   |  |
|---------------------------------|-----------------------|---|--|
| <b>Example:</b><br>DPT-CR-MOD-D | <b>Product series</b> |   |  |
|                                 | DPT                   | Differential pressure transmitter                   |  |
|                                 | <b>Model type</b>     |   |  |
|                                 | -CR-MOD               | For cleanroom monitoring, with Modbus communication |  |
| Model                           | <b>Display</b>        |   |  |
|                                 | -D                    | With Display  |  |
|                                 | -D                    |   |  |



DPT-CR-MOD measures the pressure difference between the cleanroom and the anteroom and sends the information to the automation system via Modbus to maintain optimal conditions in the cleanroom. DPT-CR-MOD is connected to the Siro indoor air quality transmitter that measures relative humidity and temperature. Siro sends the information to DPT-CR-MOD that shows it on its display, together with differential pressure measurement.



# DPT-DUAL-MOD DIFFERENTIAL PRESSURE TRANSMITTERS

WITH TWO PRESSURE SENSORS AND MODBUS COMMUNICATION



## TECHNICAL DETAILS

|   |  |
|---|--|
| <b>Communication:</b>                                 | RS-485 Modbus (RTU)  |
| <b>Accuracy (from applied pressure): (model 2500)</b> | Pressure < 125 Pa = 1 % + ±2 Pa<br>Pressure > 125 Pa = 1 % + ±1 Pa     |
| <b>Accuracy (from applied pressure): (model 7000)</b> | Pressure < 125 Pa = 1.5 % + ±2 Pa<br>Pressure > 125 Pa = 1.5 % + ±1 Pa |
| <b>Zero point calibration:</b>                        | by pushbutton or via Modbus  |
| <b>Measuring units:</b>                               | Pressure: Pa, kPa, mbar, inchWC, mmWC, psi                             |
| <b>Supply voltage:</b>                                | 24 VDC ±10 % / 24 VAC ±10 %  |
| <b>Power consumption:</b>                             | < 1.3 W  |
| <b>Output signal:</b>                                 | via Modbus   |
| <b>Operating temperature:</b>                         | -20...+50 °C   |
| <b>Response time:</b>                                 | 1...20 s selectable via menu   |
| <b>Protection standard:</b>                           | IP54   |

## DPT-DUAL-MOD

|  |                              |   |
|--|------------------------------|---|
| <b>Example:</b><br>DPT-Dual-MOD-2500-D | <b>Product series</b>        |   |
|  | DPT                          | Differential pressure transmitter             |
|  | <b>Model type</b>            |   |
|  | -Dual-MOD                    | Two pressure sensors and Modbus communication |
|  | <b>Measuring ranges (Pa)</b> |   |
|  | -2500                        | -250...2500                                   |
|  | -7000                        | -700...7000                                   |
| <b>Display</b>                         |                              |   |
|  | -D                           | With display                                  |
| <b>Model</b>                           | DPT                          | -Dual-MOD -2500 -D                            |

### DPT-DUAL-MOD

DPT-Dual-MOD combines two differential pressure transmitters into one device. It offers a possibility to measure pressure from two different points. DPT-Dual-MOD has a Modbus interface and an Input terminal. When using the Input terminal, temperature transmitters can be replaced with temperature sensors. As a result, you will save in costs of the devices and in the installation costs.

### USAGE & APPLICATIONS

DPT-Dual-MOD can be used in all applications where you need to measure two different pressures. The devices are suitable for air and non-combustible gases.



# DPT-DUAL-MOD-AHU DIFFERENTIAL PRESSURE TRANSMITTERS

FOR AIR HANDLING UNITS

INCLUDES  
AN AIR FLOW  
TRANSMITTER



## DPT-DUAL-MOD-AHU

DPT-Dual-MOD-AHU is especially designed for air handling units, combining two differential pressure transmitters into one device. It offers a possibility to measure pressure from two different points. One of the measurements can be set to show the air flow rate. DPT-Dual-MOD-AHU has a Modbus interface and an Input terminal. When using the Input terminal, temperature transmitters can be replaced with temperature sensors. As a result, you will save in costs of the devices and in the installation costs.

## USAGE & APPLICATIONS

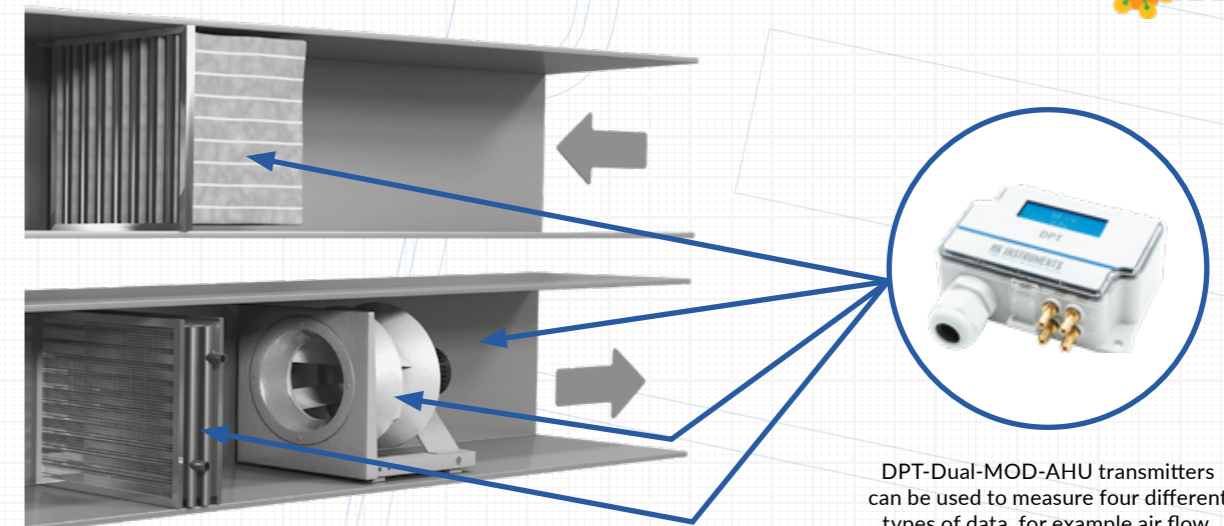
DPT-Dual-MOD-AHU is designed for air handling units where one sensor monitors the air flow across the centrifugal fan while the other sensor monitors the filter cleanliness. The devices are suitable for air and non-combustible gases.

## TECHNICAL DETAILS

|  |   |
|--|---|
| <b>Communication:</b>                    | RS-485 Modbus (RTU)   |
| <b>Accuracy (from applied pressure):</b> | Sensor A (-700...7000 Pa):<br>Pressure < 125 Pa = 1.5 % + ±2 Pa<br>Pressure > 125 Pa = 1.5 % + ±1 Pa            |
|  | Sensor B (-250...2500 Pa):<br>Pressure < 125 Pa = 1 % + ±2 Pa<br>Pressure > 125 Pa = 1 % + ±1 Pa                |
| <b>Zero point calibration:</b>           | by pushbutton or via Modbus   |
| <b>Measuring units:</b>                  | Pressure: Pa, kPa, mbar, inchWC, mmWC, psi<br>Flow: m <sup>3</sup> /s, m <sup>3</sup> /h, cfm, l/s, m/s, ft/min |
| <b>Supply voltage:</b>                   | 24 VDC ±10 % / 24 VAC ±10 %   |
| <b>Power consumption:</b>                | < 1.3 W   |
| <b>Output signal:</b>                    | via Modbus  |
| <b>Operating temperature:</b>            | -20...+50 °C  |
| <b>Response time:</b>                    | 1...20 s selectable via menu  |
| <b>Protection standard:</b>              | IP54  |

## DPT-DUAL-MOD-AHU

| Example:           | Product series |   |
|--------------------|----------------|---|
| DPT-Dual-MOD-AHU-D | DPT            | Differential pressure transmitter   |
|                    |                | <b>Model type</b>   |
|                    | -Dual-MOD-AHU  | For air handling units, both 2500 and 7000 sensors, flow measurement and Modbus communication |
|                    |                | <b>Display</b>  |
|                    | -D             | With display  |
| Model              | DPT            | -Dual-MOD-AHU   |
|                    |                | -D  |



DPT-Dual-MOD-AHU transmitters can be used to measure four different types of data, for example air flow, filter condition, heating coil and air temperature.

# DPT-DUAL DIFFERENTIAL PRESSURE TRANSMITTERS

WITH TWO PRESSURE SENSORS



## TECHNICAL DETAILS

|  |  |
|--|--|
| <b>Accuracy (from applied pressure):</b> | Pressure < 125 Pa = 1 % + ±2 Pa<br>Pressure > 125 Pa = 1 % + ±1 Pa     |
| <b>Accuracy (from applied pressure):</b> | Pressure < 125 Pa = 1.5 % + ±2 Pa<br>Pressure > 125 Pa = 1.5 % + ±1 Pa |
| <b>Zero point calibration:</b>           | by pushbutton  |
| <b>Measuring units:</b>                  | Pa, kPa, mbar, inchWC, mmWC, psi                                       |
| <b>Supply voltage:</b>                   | 24 VDC ±10 % / 24 VAC ±10 %  |
| <b>Power consumption:</b>                | < 1.0 W  |
| <b>Output signals (3-wire):</b>          | 2 x 0...10 VDC or 2 x 0...5 VDC (selectable by jumper)                 |
| <b>Operating temperature:</b>            | -20...+50 °C   |
| <b>Response time:</b>                    | 0.8 / 4 s  |
| <b>Protection standard:</b>              | IP54   |

## DPT-DUAL

|                                    |                              |   |
|------------------------------------|------------------------------|---|
| <b>Example:</b><br>DPT-Dual-2500-D | <b>Product series</b>        |   |
|                                    | DPT                          | Differential pressure transmitter   |
|                                    | <b>Model type</b>            |   |
|                                    | -Dual                        | With two pressure sensors   |
|                                    | <b>Measuring ranges (Pa)</b> |   |
|                                    | -2500                        | -100...+100 / 0...100 / 0...250 / 0...500 / 0...1000 / 0...1500 / 0...2000 / 0...2500 |
|                                    | -7000                        | 0...1000 / 0...1500 / 0...2000 / 0...2500 / 0...3000 / 0...4000 / 0...5000 / 0...7000 |
|                                    | <b>Display</b>               |   |
|                                    | -D                           | With display  |
|                                    |                              | Without display   |
| <b>Model</b>                       | DPT                          | -Dual -2500 -D  |

### DPT-DUAL

DPT-Dual series differential pressure transmitters are engineered for building automation in the HVAC/R industry. DPT-Dual is a technologically advanced transmitter measuring static and differential pressure from two different points, with field selectable units, range and output, all in a single device.

### USAGE & APPLICATIONS

The differential pressure transmitter is used for measuring low pressures of air and non-combustible gases in order to monitor and control building automation and HVAC systems.

# DPT-2W DIFFERENTIAL PRESSURE TRANSMITTERS

TWO-WIRE



## TECHNICAL DETAILS

|                                      |                      |
|--------------------------------------|----------------------|
| Accuracy (from FS):                  | ±1.5 %               |
| Long term stability, typical 1 year: | ≤ ± 8 Pa; model 2500 |
| Measuring unit:                      | Pa                   |
| Zero point calibration:              | by pushbutton        |
| Supply voltage:                      | 10...35 VDC          |
| Output signal:                       | 4...20 mA            |
| Operating temperature:               | -10...+50 °C         |
| Response time:                       | 0.8 / 4 s            |
| Protection standard:                 | IP54                 |

## DPT-2W

|                                     |   |   |     |    |
|-------------------------------------|---|---|-----|----|
| <b>Example:</b><br>DPT-2W-2500-R8-D | <b>Product series</b>   |   |     |    |
|                                     | DPT-2W  | Differential pressure transmitter with 2-wire configuration |     |    |
|                                     | <b>Measuring ranges (Pa)</b>  |   |     |    |
|                                     | -2500 -100...+100 / 0...100 / 0...250 / 0...500 / 0...1000 / 0...1500 / 0...2000 / 0...2500 |   |     |    |
|                                     | <b>Model type</b>   |   |     |    |
|                                     | -R8   | Eight measuring ranges                                      |     |    |
|                                     | <b>Display</b>  |   |     |    |
|                                     | -D  | With display  |     |    |
|                                     |   | Without display   |     |    |
| Model                               | DPT-2W  | -2500   | -R8 | -D |

## LOOP-POWERED 4–20 mA TRANSMITTER

### DPT-2W

The DPT-2W is a differential pressure transmitter with two-wire connection.

### USAGE & APPLICATIONS

The differential pressure transmitter is used for measuring low pressures of air and non-combustible gases in order to monitor and control building automation, HVAC and cleanroom systems.

# DPI ELECTRONIC DIFFERENTIAL PRESSURE SWITCH AND TRANSMITTER

THE RIGHT CHOICE WHEN  
YOU NEED AN AIR  
PRESSURE ALARM



## TECHNICAL DETAILS

|   |   |
|---|---|
| <b>Accuracy (from FS):</b>                  | ±1.5 % (±0.7 % with span point calibration) (including: general accuracy, temperature drift, linearity, hysteresis, and repetition error) |
| <b>Long term stability, typical 1 year:</b> | ±1 Pa (±8 Pa without autozero element -AZ)  |
| <b>Zero point calibration:</b>              | automatic with autozero element (-AZ) or by using the buttons on the lid  |
| <b>Supply voltage:</b>                      | 21-35 VDC / 24 VAC ±10 % (without -AZ option)<br>24 VDC ±10 % / 24 VAC ±10 % (with -AZ option)  |
| <b>Current consumption:</b>                 | 35 mA + relays (7 mA each) + AZ (20 mA) + 0...10 V output (10 mA)   |
| <b>Output signals:</b>                      | 0...10 V<br>Relay output 1 (250 VAC / 30 VDC / 6 A)<br>Optional relay output 2 (250 VAC / 30 VDC / 6 A)                                   |
| <b>Operating temperature:</b>               | -10...+50 °C (with autozero calibration -5...+50 °C)  |
| <b>Response time:</b>                       | 0.5...10 s  |
| <b>Protection standard:</b>                 | IP54  |

## DPI

| Example:<br>DPI±500-2R-D      | Product series                                    |   |     |    |
|-------------------------------|---|---|-----|----|
|                               | DPI   | Electronic differential pressure switch and transmitter |     |    |
| <b>Measuring ranges (Pa)</b>  |   |   |     |    |
| ±500                          | -100...100 / -250...250 / -300...300 / -500...500 |   |     |    |
| 2500                          | 0...100 / 0...250 / 0...1000 / 0...2500           |   |     |    |
| <b>Number of relays</b>       |   |   |     |    |
| -1R                           | One relay   |   |     |    |
| -2R                           | Two relays  |   |     |    |
| <b>Zero point calibration</b> |   |   |     |    |
| -AZ                           | With autozero calibration                         |   |     |    |
|                               | Standard with manual zero point calibration       |   |     |    |
| <b>Display</b>                |   |   |     |    |
| -D                            | With display                                      |   |     |    |
| -D                            |   |   |     |    |
| Model                         | DPI   | ±500  | -1R | -D |

**UP TO TWO RELAYS WHICH CAN BE CONFIGURED SEPARATELY  
ALSO WITH AUTOZERO CALIBRATION**

### DPI

The DPI is an electronic differential pressure switch and transmitter with up to two relay outputs.

### USAGE & APPLICATIONS

The DPI is used for measuring and indicating low pressures of air and non-combustible gases in order to monitor and control building automation, HVAC and cleanroom systems.

# AIR FLOW AND VELOCITY TRANSMITTERS

DPT-Flow transmitters are unique devices that make measuring air flow easier than ever before. Together with FloXact™ measurement probes the same devices are the right option when measuring flow in a duct. Again, if you wish to measure air velocity, your selection would be AVT which offers multiple measuring ranges in a single device together with relay and temperature output signals. DPT-Flow-Batt is an on-site display for air flow or differential pressure designed for environments where electricity is not available.



DPT-FLOW



FLOXACT™



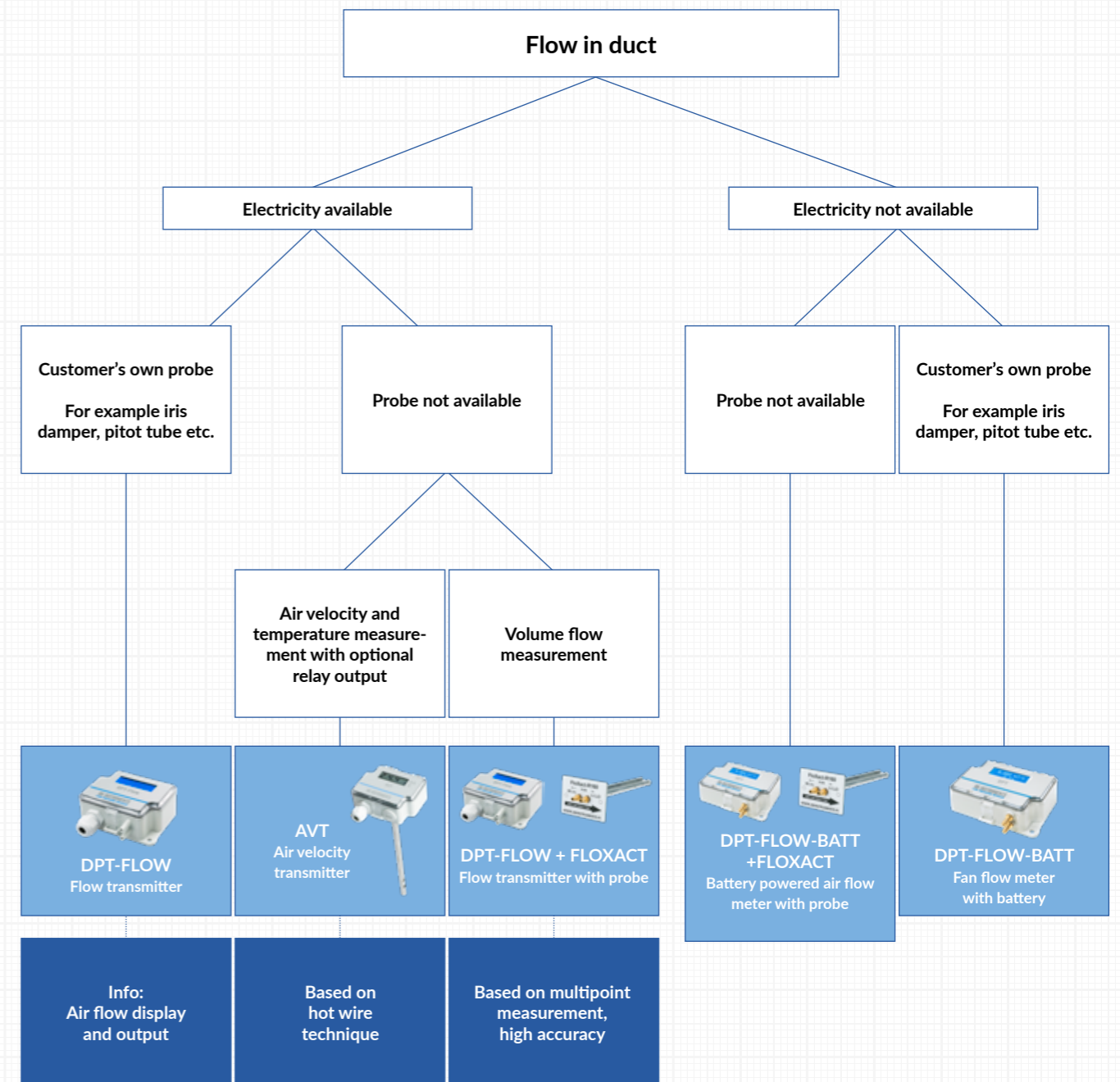
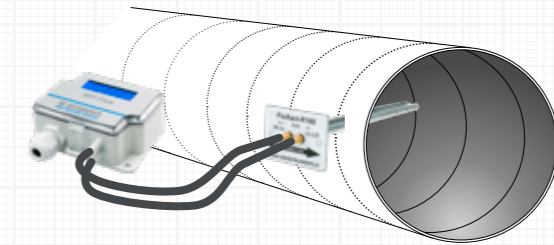
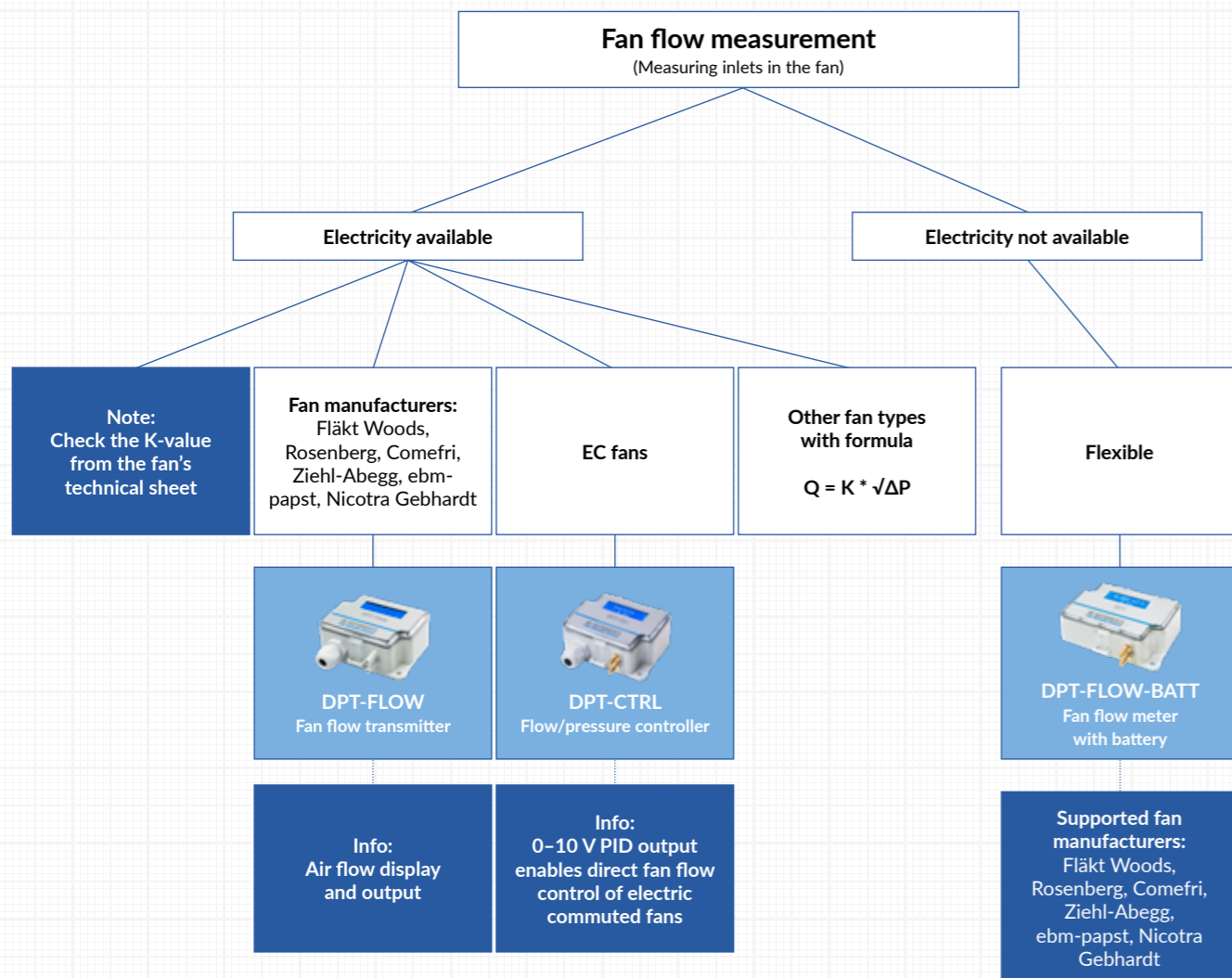
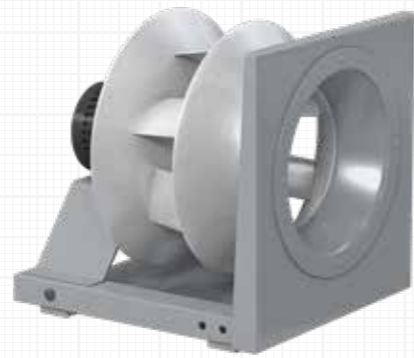
DPT-FLOW-BATT



AVT

# FLOW MEASUREMENT

## PRODUCT SELECTION GUIDE



# DPT-FLOW FLOW TRANSMITTER FOR HVAC SYSTEMS

IDEAL PRODUCT FOR  
MEASURING THE FLOW  
RATE BOTH ON CENTRIFUGAL  
FANS AND IN A DUCT SYSTEM



## DPT-FLOW

DPT-Flow is a flow transmitter that provides an easy way to measure the flow rate on centrifugal fans or in a duct system. One device is suitable for a range of fan types. It can also be used with several different measurement probes such as FloXact™ or pitot tube, and air dampers.

## USAGE

The DPT-Flow can be used to measure the air flow on centrifugal fans or as a transmitter to regulate the air flow in a duct or on the selected fan or blower. It can also be used in a duct system or in air-handling units as an on-site display for flow.

## APPLICATIONS

The DPT-Flow is an ideal instrument for air flow monitoring and control, and fan and blower control.

## TECHNICAL DETAILS

|   |   |
|---|---|
| <b>Accuracy (from applied pressure):</b><br>(models 1000 and 2000)              | Pressure < 125 Pa = 1 % + ±2 Pa<br>Pressure > 125 Pa = 1 % + ±1 Pa                    |
| <b>Accuracy (from applied pressure):</b><br>(models 5000 and 7000)              | Pressure < 125 Pa = 1.5 % + ±2 Pa<br>Pressure > 125 Pa = 1.5 % + ±1 Pa                |
| <b>Zero point calibration:</b>  | automatic with autozero element (-AZ)<br>or by pushbutton                             |
| <b>Measuring units:</b>   | Pressure: Pa, kPa, mbar, inchWC, mmWC, psi<br>Flow: m³/s, m³/h, cfm, l/s, m/s, ft/min |
| <b>Supply voltage:</b>  | 24 VAC ±10 % / 24 VDC ±10 %   |
| <b>Power consumption:</b>   | < 1.0 W<br>-40C model: <4.0 W when <0 °C  |
| <b>Output signals for pressure<br/>and air flow (selectable<br/>by jumper):</b> | 0/2...10 VDC<br>4...20 mA   |
| <b>Operating temperature:</b>   | -20...+50 °C (with autozero calibration -5...+50 °C)<br>-40...+50 °C (-40C model)     |
| <b>Response time:</b>   | 1...20 s  |
| <b>Protection standard:</b>   | IP54  |

ALSO USABLE WITH  
MEASUREMENT PROBES  
SUCH AS FLOXACT™,  
PITOT TUBES,  
AND AIR DAMPERS

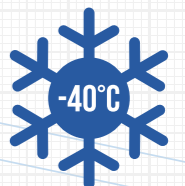
## DPT-FLOW

| Example:           | Product series |   |          |
|--------------------|----------------|---|----------|
| DPT-Flow-2000-AZ-D | DPT-Flow       | Flow transmitter for HVAC systems                               |          |
|                    |                | <b>Measuring ranges (Pa)</b>                                    |          |
|                    |                | -1000   | 0...1000 |
|                    |                | -2000   | 0...2000 |
|                    |                | -5000   | 0...5000 |
|                    |                | -7000   | 0...7000 |
|                    |                | <b>Zero point calibration</b>                                   |          |
|                    | -AZ            | With autozero calibration                                       |          |
|                    |                | Standard with pushbutton manual zero point calibration          |          |
|                    |                | <b>Display</b>  |          |
|                    | -D             | With display  |          |
|                    |                | <b>Cold resistance</b>  |          |
|                    | -40C           | -40 °C cold resistant (not available with autozero calibration) |          |
|                    |                | Without -40 °C cold resistance                                  |          |
| Model              | DPT-Flow       | -2000   | -AZ -D   |

## PRE-PROGRAMMED FAN MANUFACTURERS

Fläkt Woods, Rosenberg, Nicotra Gebhardt, Comefri, Ziehl-Abegg, ebm-papst

The fan only needs to have a pressure tap/port to which the DPT-Flow can be connected





# FLOXACT™ AVERAGING MULTI-POINT PITOT TUBE FOR FLOW MEASUREMENTS



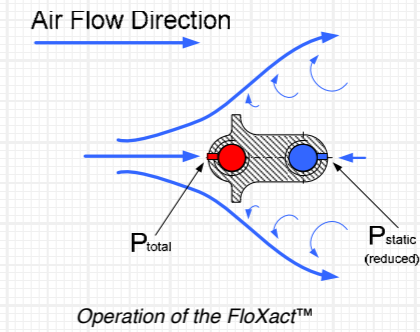
## FLOXACT™

The FloXact™ probe is a differential air pressure device designed to measure air volume flow in a duct. It includes multiple sensing points to measure total and static pressures. The FloXact™ probe incorporates a unique design to amplify the differential pressure by 2.5 times for accurate measurement of lower air velocities down to 1.0 m/s (200 fpm). It is easy to install and cost-effective.

### DESIGN FEATURES

- Multiple sensing points for greater accuracy
- Easy installation
- Chamfered sensing points for consistent readings
- 2 % accuracy
- 2.5 X signal amplification
- Accepts 1/4" OD tubing

## OPERATION



## INSTALLATION

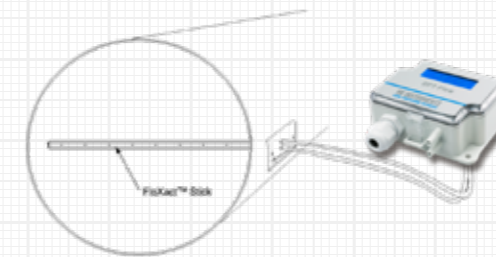


Figure 1. FloXact™ -R mounting.

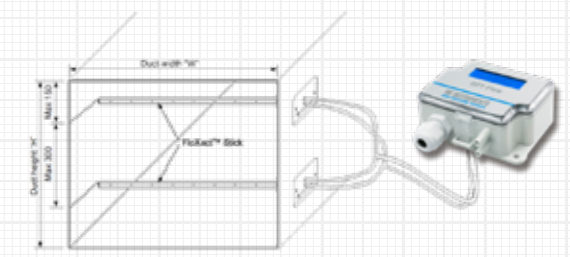
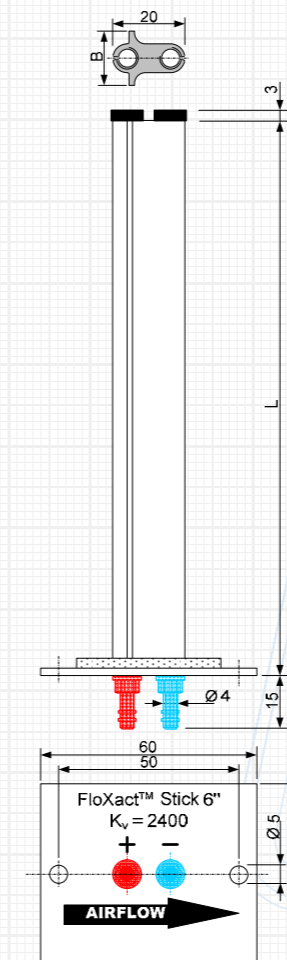


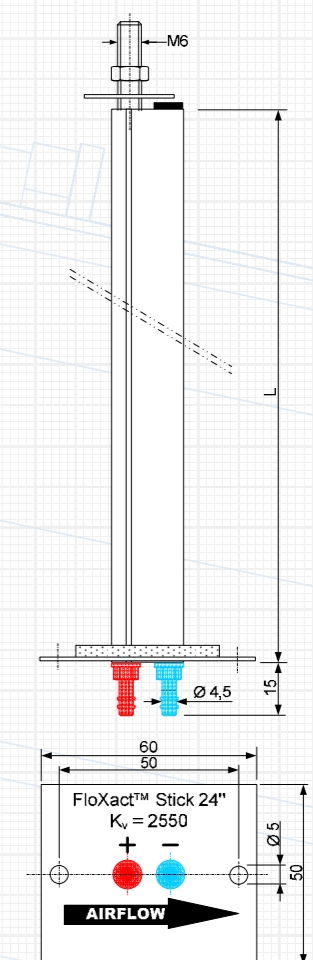
Figure 2. FloXact™ -L mounting.

## DIMENSIONS

FloXact™-R available models :  
All standard round duct sizes up to 1500 m



FloXact™-L available models :  
250, 300, ... 1500 (50 mm steps)



# DPT-FLOW-BATT BATTERY POWERED DIFFERENTIAL PRESSURE AND AIR FLOW METER

MEASURE THE AIR FLOW  
IN ENVIRONMENTS WHERE  
ELECTRICITY IS  
NOT AVAILABLE



## DPT-FLOW-BATT

DPT-Flow-Batt is a user-friendly on-site display for air flow or differential pressure designed for environments and applications where electricity is not available. One device is suitable for a range of different fan types. It also provides an easy way to measure the flow rate in a duct system for example together with a FloXact™ averaging measurement probe.

## USAGE & APPLICATIONS

DPT-Flow-Batt is an on-site display designed for air handling units to measure the air flow on centrifugal fans. DPT-Flow-Batt can also be used in the duct system as an on-site display for flow. The device can be used with several different measurement probes such as FloXact™ or pitot tube, and air dampers. The requirement is that the K-value of the measurement probe or damper is known.

## TECHNICAL DETAILS

|                                |   |
|--------------------------------|---|
| <b>Accuracy (from FS):</b>     | ±1.5 % (Including: general accuracy, temperature drift, linearity, hysteresis, long term stability, and repetition error) |
| <b>Zero point calibration:</b> | by pushbutton   |
| <b>Measuring units:</b>        | Pressure: Pa, kPa, mbar, inchWC, mmWC, psi<br>Flow: m³/s, m³/h, cfm, l/s, m/s, ft/min                                     |
| <b>Supply voltage:</b>         | 9 V battery   |
| <b>Current consumption:</b>    | ~20 mA on active mode   |
| <b>Operating temperature:</b>  | -20...+50 °C  |
| <b>Response time:</b>          | 1.0-10 s, selectable via menu   |
| <b>Protection standard:</b>    | IP54  |

## DPT-FLOW-BATT

|                             |                       |                                |              |
|-----------------------------|-----------------------|--------------------------------|--------------|
| <b>Example:</b>             | <b>Product series</b> |                                |              |
| <b>DPT-Flow-Batt-7000-D</b> | DPT-Flow-Batt         | Battery powered air flow meter |              |
|                             |                       | <b>Measuring ranges (Pa)</b>   |              |
|                             |                       | -7000                          | 0...7000     |
|                             |                       | <b>Display</b>                 |              |
|                             |                       | -D                             | With display |
| Model                       | DPT-Flow-Batt         | -7000                          | -D           |

# AVT AIR VELOCITY AND TEMPERATURE TRANSMITTER

WITH RELAY OUTPUT



## TECHNICAL DETAILS

|                                 |   |
|---------------------------------|---|
| <b>Accuracy (from reading):</b> | < 0.2 m/s + 5 % (Range 0...2 m/s)<br>< 0.5 m/s + 5 % (Range 0...10 m/s)<br>< 1.0 m/s + 5 % (Range 0...20 m/s) |
| <b>Measuring units:</b>         | m/s, °C   |
| <b>Supply voltage:</b>          | 24 VDC ±10 % / 24 VAC ±10 %   |
| <b>Power consumption:</b>       | 35 mA (50 mA with relay) + 40 mA with mA outputs  |
| <b>Output signal 1:</b>         | 0...10 V or 4...20 mA (linear to °C)  |
| <b>Output signal 2:</b>         | 0...10 V or 4...20 mA (linear to m/s)   |
| <b>Optional relay output:</b>   | Potential free SPDT 250 VAC, 6 A / 30 VDC,<br>6 A with adjustable switching point and hysteresis              |
| <b>Operating temperature:</b>   | 0...+50 °C  |
| <b>Probe:</b>                   | Adjustable immersion length 50...180 mm, mounting flange included   |
| <b>Protection standard:</b>     | IP54  |

## AVT

| Example:<br>AVT-D-R | Product series |  |    |
|---------------------|----------------|--|----|
|                     | AVT            | Air velocity transmitter, measuring ranges 0...2 / 0...10 / 0...20 m/s |    |
|                     | <b>Display</b> |  |    |
|                     | -D             | With display   |    |
|                     |                | Without display  |    |
|                     | <b>Relay</b>   |  |    |
|                     | -R             | With relay   |    |
|                     |                | Without relay  |    |
| Model               | AVT            | -D   | -R |

### AVT

The AVT is an electronic air velocity and temperature transmitter for air and non-combustible gases with optional relay output.

### USAGE

AVT is used in HVAC and building automation systems.

### APPLICATIONS

Monitoring air velocity and temperature in ducts and laminar flow cabinets, and at ventilators and dampers.

# PRESSURE AND FLOW CONTROLLERS

The DPT-Ctrl series PID controllers are engineered for stand-alone building automation in the HVAC/R industry. With the built-in controller it is possible to control the constant pressure or flow of fans, VAV systems or dampers. DPT-Ctrl series offers various models for energy-efficient control of modern EC fans in all sizes of systems.

The DPT-Ctrl-MOD can be used as a pressure or flow controller in modular building automation systems. Setpoints and other parameters can be adjusted remotely via bus. With the temperature compensation feature, the fan speed can be adjusted according to temperature. This saves energy by exhausting the right amount of air in cold environments.



DPT-CTRL



DPT-CTRL-MOD

# DPT-CTRL PID CONTROLLERS

WITH DIFFERENTIAL PRESSURE OR AIR FLOW TRANSMITTER



## DPT-CTRL

DPT-CTRL is a multifunctional PID controller with differential pressure or air flow transmitter. It enables controlling constant pressure or flow of fans, VAV systems or dampers. When controlling flow, it is possible to select a fan manufacturer or a common measuring probe that has a K-value.

## USAGE & APPLICATIONS

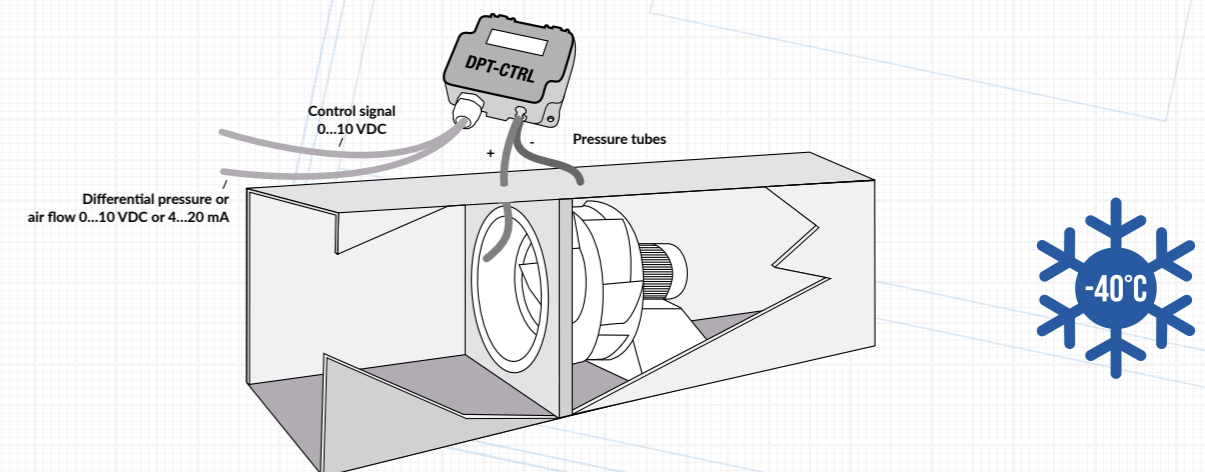
DPT-CTRL can be used to control air flow or constant pressure in applications where it is important to keep a constant vacuum or a steady air flow, such as vacuuming units in renovation sites that keep a constant negative pressure so that impurities do not spread to other spaces.

## TECHNICAL DETAILS

|  |   |
|--|---|
| <b>Accuracy (from applied pressure):</b><br>(model 2500)                 | Pressure < 125 Pa = 1 % + ±2 Pa<br>Pressure > 125 Pa = 1 % + ±1 Pa                    |
| <b>Accuracy (from applied pressure):</b><br>(model 7000)                 | Pressure < 125 Pa = 1.5 % + ±2 Pa<br>Pressure > 125 Pa = 1.5 % + ±1 Pa                |
| <b>Measuring units:</b>  | Pressure: Pa, kPa, mbar, inchWC, mmWC, psi<br>Flow: m³/s, m³/h, cfm, l/s, m/s, ft/min |
| <b>Control signal:</b>   | 0...10 VDC  |
| <b>Output signal for pressure<br/>or air flow (selectable via menu):</b> | 0...10 VDC<br>4...20 mA   |
| <b>PID-parameters:</b>   | Adjustable via menu   |
| <b>Zero point calibration:</b>   | Automatic with autozero element (-AZ) or by pushbutton                                |
| <b>Supply voltage:</b>   | 24 VDC ±10 % / 24 VAC ±10 %   |
| <b>Power consumption:</b>  | < 1.0 W   |
| <b>Operating temperature:</b>  | -20...+50 °C with autozero (-AZ) calibration -5...+50 °C<br>-40...+50 °C (-40C model) |
| <b>Protection standard:</b>  | IP54  |

## DPT-CTRL

|                                       |  |
|---------------------------------------|--|
| <b>Example:</b><br>DPT-CTRL-2500-AZ-D | <b>Product series</b><br>DPT-CTRL Pressure and flow controller       |
|                                       | <b>Measuring ranges (Pa)</b>   |
|                                       | -2500 0...2500   |
|                                       | -7000 0...7000   |
|                                       | <b>Zero point calibration</b>  |
|                                       | -AZ With autozero calibration  |
|                                       | Standard with pushbutton manual zero point calibration               |
|                                       | <b>Display</b>   |
|                                       | -D With display  |
|                                       | <b>Cold resistance</b>   |
|                                       | -40C -40 °C cold resistant (not available with autozero calibration) |
|                                       | Without -40 °C cold resistance                                       |
| <b>Model</b>                          | DPT-CTRL -2500 -AZ -D  |



# DPT-CTRL-MOD PID CONTROLLERS

WITH DIFFERENTIAL PRESSURE OR AIR FLOW TRANSMITTER  
AND MODBUS COMMUNICATION



## DPT-CTRL-MOD

The DPT-Ctrl-MOD controller is engineered for building automation in the HVAC industry. With the built-in controller of the DPT-Ctrl-MOD it is possible to control the constant pressure or flow of fans, VAV systems or dampers. When controlling air flow, it is possible to select a fan manufacturer or a common measuring probe that has a K-value. Modbus communication enables remote adjustment of the setpoint and other parameters, so it can be used as a part of building management systems (BMS).

## USAGE & APPLICATIONS

DPT-Ctrl-MOD is designed to be used in buildings with a BMS to control air flow or constant pressure of an individual zone. A building operator can easily monitor and adjust the parameters via Modbus. The outdoor temperature compensation feature brings energy savings in cold areas automatically by decreasing extract air flow rates to preserve warm air.

## TECHNICAL DETAILS

|   |   |
|---|---|
| <b>Communication:</b>                                 | RS-485 Modbus (RTU)   |
| <b>Accuracy (from applied pressure): (model 2500)</b> | Pressure < 125 Pa = 1 % + ±2 Pa<br>Pressure > 125 Pa = 1 % + ±1 Pa                    |
| <b>Accuracy (from applied pressure): (model 7000)</b> | Pressure < 125 Pa = 1.5 % + ±2 Pa<br>Pressure > 125 Pa = 1.5 % + ±1 Pa                |
| <b>Measuring units:</b>                               | Pressure: Pa, kPa, mbar, inchWC, mmWC, psi<br>Flow: m³/s, m³/h, cfm, l/s, m/s, ft/min |
| <b>Control signal:</b>                                | 0...10 VDC  |
| <b>PID-parameters:</b>                                | Selectable via menu and Modbus  |
| <b>Zero point calibration:</b>                        | via Modbus or by pushbutton   |
| <b>Supply voltage:</b>                                | 24 VDC ±10 % / 24 VAC ±10 %   |
| <b>Power consumption:</b>                             | < 1.0 W   |
| <b>Output signal:</b>                                 | via Modbus  |
| <b>Operating temperature:</b>                         | -20...+50 °C  |
| <b>Protection standard:</b>                           | IP54  |

## DPT-CTRL-MOD

|  |                              |                              |       |    |
|--|------------------------------|------------------------------|-------|----|
| <b>Example:</b><br>DPT-Ctrl-MOD-<br>2500-D | <b>Product series</b>        |                              |       |    |
|  | DPT-Ctrl                     | Pressure and flow controller |       |    |
|  | <b>Model type</b>            |                              |       |    |
|  | -MOD                         | Modbus communication         |       |    |
|  | <b>Measuring ranges (Pa)</b> |                              |       |    |
|  | -2500                        | -250...2500                  |       |    |
| -7000                                      | -700...7000                  |                              |       |    |
| <b>Display</b>                             |                              |                              |       |    |
| -D   | With display                 |                              |       |    |
| Model                                      | DPT-Ctrl                     | -MOD                         | -2500 | -D |



**OUTSIDE AIR TEMPERATURE COMPENSATION FUNCTION AND FIXED OUTPUT FUNCTION VIA MENU AND MODBUS**

**2SP FEATURE WITH A BINARY INPUT TO SELECT BETWEEN TWO USER-ADJUSTABLE SETPOINTS**

# AIR QUALITY

HK Instruments' air quality products measure carbon dioxide, VOC (volatile organic compounds), PM (particulate matter), relative humidity, temperature and carbon monoxide. There are models available for both room and duct measurements.

Measuring CO<sub>2</sub> concentration in the indoor air is important. If the concentration is too high, people feel tired and get headaches, which decreases work efficiency and learning skills. If the concentration is in a good level, the air quality in general is also good and the ventilation efficient enough. This indicates that the quantity of airborne viruses and other particles in the indoor air is low. Measuring CO<sub>2</sub> concentration also helps in achieving demand-controlled ventilation, which improves the energy efficiency of the building. In big picture, this helps to control the climate change.

The VOC concentration is measured to regulate demand-controlled ventilation and to keep the indoor air quality in a good level. The VOC molecules originate from both people and materials (for example building materials, cigarette smoke, detergents) and can be harmful to people.

The PM sensor measures the size and amount of particulates in the indoor air. The particulates originate from, for example, traffic, industry, energy production and all burning processes. The particulates are globally one of the most important factors affecting the air quality and human health. The smaller the particulate, the more harmful it is. The PM measurements are made, for example, to assess the performance of air filters or to see if the cleaning in public places is at an adequate level.



SIRO

SIRO-MOD

CDT2000



CDT2000 DUCT



RHT DUCT



KLU 100



HML

# SIRO INDOOR AIR QUALITY TRANSMITTERS

ALL THE MOST  
RELEVANT IAQ  
SENSORS IN  
ONE DEVICE



## TECHNICAL DETAILS

|                                      |   |
|--------------------------------------|---|
| <b>Accuracy:</b>                     | CO <sub>2</sub> : ±43 ppm + 3 % of reading (typical)<br>Relative humidity: ±2.4 % rH (typical at 20 °C, 30 % rH)<br>Temperature: ±0.5 °C (typical at 20 °C)<br>TVOC: ±15 % of reading (typical)<br>PM: 0...100 µg/m <sup>3</sup> :<br>PM2.5: ±15 µg/m <sup>3</sup> ; PM1.0, PM10: ±25 µg/m <sup>3</sup><br>100...1000 µg/m <sup>3</sup> :<br>PM2.5: ±15 %; PM1.0, PM10: ±25 %<br>(at 25 °C ±5 °C) |
| <b>Measuring units:</b>              | CO <sub>2</sub> : ppm<br>Relative humidity: % rH<br>Temperature: °C<br>VOC CO <sub>2</sub> eq: ppm<br>TVOC: ppm, µg/m <sup>3</sup><br>PM1/2.5/10: µg/m <sup>3</sup>   |
| <b>Calibration (CO<sub>2</sub>):</b> | Automatic self-calibration, ABC Logic™  |
| <b>Supply voltage:</b>               | 24 VDC/VAC ±10 %  |
| <b>Output signal 1-4:</b>            | 0...10 V / 2...10 V / 0...5 V<br>optional 4...20 mA<br>linear to selected measurement<br>(CO <sub>2</sub> , VOC, PM, rH or Temp)  |
| <b>Operating temperature:</b>        | 0...+50 °C  |
| <b>Protection standard:</b>          | IP20  |



ALSO AVAILABLE WITH  
BLACK HOUSING

## SIRO

| Example:     | Product series |                                 |  |    |
|--------------|----------------|---------------------------------|--|----|
| Siro-CO2-T-D | Siro           | Indoor air quality transmitter  |  |    |
|              |                | <b>CO<sub>2</sub> sensor</b>    |  |    |
|              |                | -CO2                            | With CO <sub>2</sub> sensor (option not available with PM sensor)          |    |
|              |                |                                 | Without CO <sub>2</sub> sensor   |    |
|              |                | <b>VOC sensor</b>               |  |    |
|              |                | -VOC                            | With VOC sensor (option not available with PM sensor)                      |    |
|              |                |                                 | Without VOC sensor   |    |
|              |                | <b>PM sensor</b>                |  |    |
|              |                | -PM                             | With PM sensor (option not available with CO <sub>2</sub> and VOC sensors) |    |
|              |                |                                 | Without PM sensor  |    |
|              |                | <b>Relative humidity sensor</b> |  |    |
|              |                | -rH                             | With relative humidity sensor  |    |
|              |                |                                 | Without relative humidity sensor (option not available with VOC sensor)    |    |
|              |                | <b>Temperature sensor</b>       |  |    |
|              |                | -T                              | With temperature sensor  |    |
|              |                |                                 | Without temperature sensor (option not available with VOC or rH sensor)    |    |
|              |                | <b>Output</b>                   |  |    |
|              |                |                                 | Voltage output   |    |
|              |                | -A                              | Voltage and current output   |    |
|              |                | <b>Display</b>                  |  |    |
|              |                | -D                              | With display   |    |
|              |                |                                 | Without display  |    |
| Model        | Siro           | -CO2                            | -T   | -D |

### SIRO

Siro is an indoor air quality transmitter with a modern design and new hardware, including sensors. The transmitter is available with several optional air quality sensors. The device can be equipped with CO<sub>2</sub> concentration and VOC (Volatile Organic Compounds) measurements or alternatively PM (Particulate Matter) measurement, and in addition temperature and humidity measurements. Siro has four freely configurable voltage outputs, and optional current outputs. Siro utilizes the industry standard NDIR measurement principle with self-calibrating ABC logic™ for CO<sub>2</sub> measurement.

The Siro series devices are available with user interface that includes LCD display and buttons making the configuration of the device quick and easy. An external configuration tool is available for devices without user interface.

### USAGE & APPLICATIONS

Siro is used to monitor and control temperature, humidity, CO<sub>2</sub>, VOC and PM levels in offices, public spaces, meeting rooms and classrooms.



# SIRO-MOD INDOOR AIR QUALITY TRANSMITTERS

WITH MODBUS COMMUNICATION

ALL VALUES  
ARE AVAILABLE  
SIMULTANEOUSLY  
VIA MODBUS



## SIRO-MOD

Siro-MOD is an indoor air quality transmitter with Modbus communication. Siro-MOD has a modern design and new hardware, including sensors. The transmitter is available with several optional air quality sensors. The device can be equipped with CO<sub>2</sub> concentration and VOC (Volatile Organic Compounds) measurements or alternatively PM (Particulate Matter) measurement, and in addition temperature and humidity measurements. Siro-MOD has also four freely configurable voltage outputs. Siro-MOD utilizes the industry standard NDIR measurement principle with self-calibrating ABC logic™ for CO<sub>2</sub> measurement.

The Siro series devices are available with user interface that includes LCD display and buttons making the configuration of the device quick and easy. An external configuration tool is available for devices without user interface.

## USAGE & APPLICATIONS

Siro-MOD is used to monitor and control temperature, humidity, CO<sub>2</sub>, VOC and PM levels in offices, public spaces, meeting rooms and classrooms.

## TECHNICAL DETAILS

|                                      |   |
|--------------------------------------|---|
| <b>Communication:</b>                | RS-485 Modbus (RTU)   |
| <b>Accuracy:</b>                     | CO <sub>2</sub> : ±40 ppm + 3 % of reading (typical)<br>Relative humidity: ±2.2 % rH (typical at 20 °C, 30 % rH)<br>Temperature: ±0.4 °C (typical at 20 °C)<br>TVOC: ±15 % of reading (typical)<br>PM: 0...100 µg/m <sup>3</sup> :<br>PM2.5: ±15 µg/m <sup>3</sup> ; PM1.0, PM10: ±25 µg/m <sup>3</sup><br>100...1000 µg/m <sup>3</sup><br>PM2.5: ±15 %; PM1.0, PM10: ±25 %<br>(at 25 °C ±5 °C) |
| <b>Measuring units:</b>              | CO <sub>2</sub> : ppm<br>Relative humidity: % rH<br>Temperature: °C<br>VOC CO <sub>2</sub> eq: ppm<br>TVOC: ppm, µg/m <sup>3</sup><br>PM1/2.5/10: µg/m <sup>3</sup>   |
| <b>Calibration (CO<sub>2</sub>):</b> | Automatic self-calibration, ABC Logic™  |
| <b>Supply voltage:</b>               | 24 VDC/VAC ±10 %  |
| <b>Operating temperature:</b>        | 0...+50 °C  |
| <b>Protection standard:</b>          | IP20  |



SIRO-CT ENABLES COMMISSIONING  
OF SIRO DEVICES WITHOUT DISPLAY

## SIRO-MOD

|  |  |   |     |    |    |
|--|--|---|-----|----|----|
| <b>Example:</b><br>Siro-MOD<br>-PM-T-D | <b>Product series</b>  |   |     |    |    |
|  | Siro   | Indoor air quality transmitter                                    |     |    |    |
|  | <b>Model type</b>  |   |     |    |    |
|  | -MOD   | With Modbus communication   |     |    |    |
|  | <b>CO<sub>2</sub> sensor</b>   |   |     |    |    |
|  | -CO2   | With CO <sub>2</sub> sensor (option not available with PM sensor) |     |    |    |
|  |  | Without CO <sub>2</sub> sensor                                    |     |    |    |
|  | <b>VOC sensor</b>  |   |     |    |    |
|  | -VOC   | With VOC sensor (option not available with PM sensor)             |     |    |    |
|  |  | Without VOC sensor  |     |    |    |
| <b>PM sensor</b>                       |  |   |     |    |    |
| -PM                                    | With PM sensor (option not available with CO <sub>2</sub> and VOC sensors) |   |     |    |    |
|  | Without PM sensor  |   |     |    |    |
| <b>Relative humidity sensor</b>        |  |   |     |    |    |
| -rH                                    | With relative humidity sensor  |   |     |    |    |
|  | Without relative humidity sensor (option not available with VOC sensor)    |   |     |    |    |
| <b>Temperature sensor</b>              |  |   |     |    |    |
| -T                                     | With temperature sensor  |   |     |    |    |
|  | Without temperature sensor (option not available with VOC or rH sensor)    |   |     |    |    |
| <b>Output</b>                          |  |   |     |    |    |
|  | Voltage output   |   |     |    |    |
| -A                                     | Voltage and current output   |   |     |    |    |
| <b>Display</b>                         |  |   |     |    |    |
| -D                                     | With display   |   |     |    |    |
|  | Without display  |   |     |    |    |
| Model                                  | Siro   | -MOD  | -PM | -T | -D |

# CDT2000 CARBON DIOXIDE TRANSMITTERS

WALL MOUNTED

TOUCHSCREEN  
DISPLAY  
FOR EASY  
ADJUSTMENT



## CDT2000

CDT2000 combines CO<sub>2</sub> concentration and temperature measurements into one easy-to-use device with a touchscreen display. It offers easy installation and adjustment, several different model options and various output signals that are configurable separately for each measurement parameter. CDT2000 utilizes the industry standard NDIR measurement principle with self-calibrating ABC logic™ for CO<sub>2</sub> measurement. CDT2000-DC is a dual channel model with a measuring channel and a reference channel that makes a continuous comparison and the necessary adjustment accordingly. CDT2000-DC is also suitable for buildings that are continuously occupied.

## USAGE & APPLICATIONS

CDT2000 wall mount model is used to monitor and control CO<sub>2</sub> levels in offices, public spaces, meeting rooms and classrooms. CDT2000-DC series devices can also be used in applications where there is a constant source of carbon dioxide present (for example hospitals and greenhouses).

## TECHNICAL DETAILS

|                               |  |
|-------------------------------|--|
| <b>Accuracy:</b>              | CO <sub>2</sub> : ±40 ppm + 3 % of reading, typical (additional ±3 ppm when using the output)<br>DC model: 75 ppm or 10 % of reading (whichever is greater)<br>Temperature: <0.5 °C<br>Total error band includes accuracy, hysteresis and temperature effect over 5...50 °C and 10-90 % rH |
| <b>Measuring units:</b>       | ppm, °C  |
| <b>Calibration:</b>           | Automatic self-calibration, ABC Logic™ or continuous comparison (DC)   |
| <b>Supply voltage:</b>        | 24 VDC/VAC ±10 %   |
| <b>Output signal 1:</b>       | 0/2...10 V or 4...20 mA (linear to CO <sub>2</sub> )   |
| <b>Output signal 2:</b>       | 0/2...10 V or 4...20 mA (linear to Temp)   |
| <b>Optional relay output:</b> | Potential free SPDT 250 VAC, 6 A / 30 VDC, 6 A with adjustable switching point and hysteresis  |
| <b>Operating temperature:</b> | 0...+50 °C   |
| <b>Protection standard:</b>   | IP20   |

CDT2000-DC IS ALSO SUITABLE FOR BUILDINGS THAT ARE CONTINUOUSLY OCCUPIED

## CDT2000

| Example:<br>CDT2000-1R-D | Product series                                    |  |    |
|--------------------------|---|--|----|
|                          | CDT2000   | Carbon dioxide transmitter, analog outputs |    |
| CDT-MOD-2000             | Carbon dioxide transmitter, Modbus communication  |  |    |
|                          | Calibration                                       |  |    |
|                          | ABC logic™, Automatic Background Calibration      |  |    |
|                          | -DC Dual channel, for continuously occupied space |  |    |
|                          | Mounting  |  |    |
|                          | Wall mount  |  |    |
|                          | Relay   |  |    |
|                          | -1R   | With relay                                 |    |
|                          |   | Without relay                              |    |
|                          | Display   |  |    |
|                          | -D  | With display                               |    |
|                          |   | Without display                            |    |
| Model                    | CDT2000   | -1R  | -D |



TIME EXTENSION BUTTON ENABLES BOOSTING VENTILATION MANUALLY USING THE TOUCH-SCREEN DISPLAY

# CDT2000 DUCT CARBON DIOXIDE TRANSMITTERS

DUCT MOUNTED

MEASURE THE TOTAL  
CONCENTRATION OF CO<sub>2</sub>  
WHERE ROOM MEASUREMENT  
IS NOT POSSIBLE



## CDT2000 DUCT

CDT2000 Duct combines CO<sub>2</sub> and temperature measurements into one device installed in a ventilation duct. Illuminated display ensures easy readability also from a distance. The CDT2000 Duct has a screwless lid and an easily adjustable mounting flange that make installing the device easy. CDT2000 utilizes the industry standard NDIR measurement principle with self-calibrating ABC logic™ for CO<sub>2</sub> measurement. CDT2000-DC is a dual channel model with a measuring channel and a reference channel that makes a continuous comparison and the necessary adjustment accordingly. CDT2000-DC is also suitable for buildings that are continuously occupied.

## USAGE & APPLICATIONS

CDT2000 Duct is used to monitor and control CO<sub>2</sub> concentration of incoming and return air in a ventilation system. CDT2000-DC Duct series devices can also be used in applications where there is a constant source of carbon dioxide present (for example hospitals and greenhouses).

## TECHNICAL DETAILS

|                                  |  |
|----------------------------------|--|
| <b>Accuracy:</b>                 | CO <sub>2</sub> : ±40 ppm + 3 % of reading, DC model: 75 ppm or 10 % of reading (whichever is greater)<br>Temperature: <0.5 °C |
| <b>Measuring units:</b>          | ppm, °C  |
| <b>Calibration:</b>              | Automatic self-calibration, ABC Logic™ or continuous comparison (DC)   |
| <b>Supply voltage:</b>           | 24 VDC/VAC ±10 %   |
| <b>Output signal 1:</b>          | 0/2...5/10 V (linear to CO <sub>2</sub> )  |
| <b>Output signal 2:</b>          | 0/2...5/10 V (linear to Temp)  |
| <b>Optional output signal 3:</b> | 4...20 mA (linear to CO <sub>2</sub> ) (A model)   |
| <b>Optional output signal 4:</b> | 4...20 mA (linear to Temp) (A model)   |
| <b>Operating temperature:</b>    | 0...+50 °C   |
| <b>Protection standard:</b>      | IP54   |

## CDT DUCT

|                                   |                       |  |    |
|-----------------------------------|-----------------------|--|----|
| <b>Example:</b><br>CDT2000 Duct-D | <b>Product series</b> |  |    |
|                                   | CDT2000               | Carbon dioxide transmitter, analog outputs       |    |
|                                   | CDT-MOD-2000          | Carbon dioxide transmitter, Modbus communication |    |
|                                   | <b>Calibration</b>    |  |    |
|                                   |                       | ABC logic™, Automatic Background Calibration     |    |
|                                   | -DC                   | Dual channel, for continuously occupied space    |    |
|                                   | <b>Mounting</b>       |  |    |
|                                   | Duct                  | Duct mount                                       |    |
|                                   | <b>Output</b>         |  |    |
|                                   |                       | Voltage output                                   |    |
|                                   | -A                    | Voltage and current output                       |    |
|                                   | <b>Display</b>        |  |    |
|                                   | -D                    | With display                                     |    |
|                                   |                       | Without display                                  |    |
| Model                             | CDT2000               | Duct   | -D |



ALSO AVAILABLE WITH MODBUS COMMUNICATION AND mA OUTPUT

# RHT DUCT HUMIDITY TRANSMITTERS

DUCT MOUNTED



### RHT DUCT

RHT Duct is a duct mounted humidity and temperature transmitter available also with an illuminated display. In addition to relative humidity and temperature measurement, the device calculates also dew point, mixing ratio, enthalpy and absolute humidity.

### USAGE & APPLICATIONS

RHT Duct is used to monitor and control relative humidity of incoming and return air in ventilation system.

### TECHNICAL DETAILS

|                                  |   |
|----------------------------------|---|
| <b>Accuracy:</b>                 | Temperature: <0.5 °C<br>Relative humidity: ±2...3 % rH at 0...50 °C and 10...90 % rH<br>Total error band includes accuracy, hysteresis and temperature effect over 5...50 °C and 10-90 % rH |
| <b>Measuring units:</b>          | °C, % rH  |
| <b>Supply voltage:</b>           | 24 VDC/VAC ±10 %  |
| <b>Output signal 1:</b>          | 0/2...5/10 V (linear to rH)   |
| <b>Output signal 2:</b>          | 0/2...5/10 V (linear to Temp)   |
| <b>Optional output signal 3:</b> | 4...20 mA (linear to rH) (A model)  |
| <b>Optional output signal 4:</b> | 4...20 mA (linear to Temp) (A model)  |
| <b>Operating temperature:</b>    | 0...+50 °C  |
| <b>Protection standard:</b>      | IP54  |

### RHT DUCT

| Example:<br>RHT Duct-D | Product series                                      |   |                |
|------------------------|---|---|----------------|
|                        | RHT   | Relative humidity transmitter, analog outputs |                |
| RHT-MOD                | Relative humidity transmitter, Modbus communication |   |                |
|                        | Mounting  |   |                |
|                        | Duct  | Duct mount                                    |                |
|                        |   | Output  |                |
|                        |   |   | Voltage output |
|                        | -A  | Voltage and current output                    |                |
|                        |   | Display                                       |                |
|                        | -D  | With display                                  |                |
|                        |   | Without display                               |                |
| Model                  | RHT   | Duct  | -D             |



### NEW FEATURES:

**DEW POINT, MIXING RATIO, ENTHALPY AND ABSOLUTE HUMIDITY**

**ALSO AVAILABLE WITH MODBUS COMMUNICATION AND mA OUTPUT**

# KLU 100

## OUTDOOR HUMIDITY TRANSMITTERS



### KLU 100

KLU 100 is a humidity and temperature transmitter for outdoor applications. The transmitters use a capacitive sensor to detect air humidity and NTC10 sensor to detect temperature. These high-quality sensors guarantee long stability and wide ranges. Linear output signals for both measurements can be coded either to 0...10 V or 4...20 mA.

### TECHNICAL DETAILS

|                             |  |
|-----------------------------|--|
| <b>Accuracy:</b>            | Humidity: $\pm 2$ % rH (0...90 % rH / 25 °C)<br>Temperature: $\pm 0.5$ °C / 0 °C |
| <b>Measuring ranges:</b>    | Humidity: 0...100 % rH<br>Temperature: -50...50 °C                               |
| <b>Supply voltage:</b>      | 24 VAC/VDC, < 1VA  |
| <b>Output signals:</b>      | Humidity: 0...10 VDC / 4...20 mA<br>Temperature: 0...10 VDC / 4...20 mA          |
| <b>Ambient temperature:</b> | -50...50 °C  |
| <b>Protection standard:</b> | IP54, cable downwards  |

# HML CARBON MONOXIDE TRANSMITTER



## TECHNICAL DETAILS

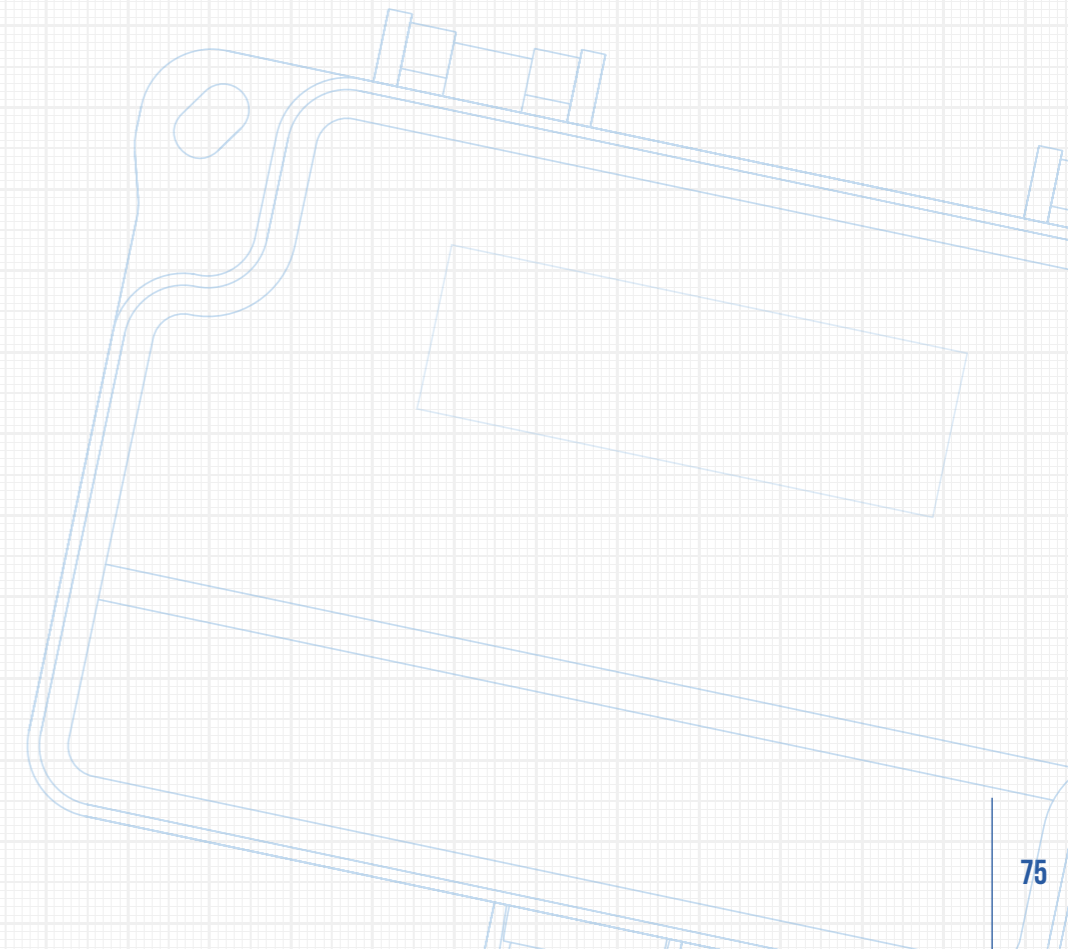
|                        |   |
|------------------------|---|
| Measuring unit:        | ppm   |
| Measuring range:       | 0...100 ppm or 0...300 ppm  |
| Measuring element:     | Electro-chemical  |
| Accuracy (at 25 °C):   | ±10 ppm for < 70 ppm values<br>±15 % of value for > 70 ppm values |
| Time constant (t63 %): | 1.5 min   |
| Supply voltage:        | 24 VAC/VDC (22...28 V)  |
| Output signal:         | 0...10 VDC / 4...20 mA  |
| Operating temperature: | -30...+40 °C  |
| Protection standard:   | IP54, cable downwards   |

## ALSO AVAILABLE WITH DISPLAY

## HMV EXCHANGE KIT FOR EASY SENSOR REPLACING WHEN THE DEVICE NEEDS CALIBRATING

### HML

The HML is an easy-to-use, reliable transmitter for detecting CO gas. It is commonly used in places where air includes CO gas, such as parking garages.



# PRESSURE TRANSMITTERS FOR LIQUIDS

Pressure detection in liquids in heating and cooling systems. Also suitable for refrigerants and non-aggressive gases.



## PTL-HEAT

PTL-Heat is used for pressure detection in non-condensing applications such as district heating or heat recovery systems.



## PTL-COOL

PTL-Cool is designed for extreme conditions where condensation is a common problem. PTL-Cool has a two-layer protection for electronics. This is why the possible condensation does not harm the device. Suitable for plants that use refrigerants.



## DPTL

The DPTL is made for differential pressure detection in liquids for air-conditioning, heating and water systems. The equipment can withstand mildly corrosive substances and liquids.

### TECHNICAL DETAILS PTL-HEAT

|                        |                                |
|------------------------|--------------------------------|
| Accuracy (from FS):    | ±1.0 %                         |
| Supply voltage:        | 15...24 VDC/VAC                |
| Output signal:         | 0...10 V or 4...20 mA (2-wire) |
| Protection standard:   | IP65, one-layer protection     |
| Pressure connector:    | inside thread G1/4"            |
| Ambient temperature:   | 0...+105 °C, non-condensing    |
| Temperature of medium: | 0...+125 °C                    |

### TECHNICAL DETAILS PTL-COOL

|                        |   |
|------------------------|---|
| Accuracy (from FS):    | ±1.0 %  |
| Supply voltage:        | 15...24 VDC/VAC                                 |
| Output signal:         | 0...10 V or 4...20 mA (2-wire)                  |
| Protection standard:   | IP65, two-layer protection against condensation |
| Pressure connector:    | inside thread G1/4"                             |
| Ambient temperature:   | -40...+60 °C                                    |
| Temperature of medium: | -40...+50 °C                                    |

### PTL

|                          |                                   |                                   |    |    |
|--------------------------|-----------------------------------|-----------------------------------|----|----|
| Example:<br>PTL-Heat-4-V | Product series                    |                                   |    |    |
|                          | PTL                               | Pressure transmitter for liquids  |    |    |
|                          | Application                       |                                   |    |    |
|                          | - Heat                            | For heating applications          |    |    |
|                          | - Cool                            | For cooling applications          |    |    |
|                          | Measuring range (bar)             |                                   |    |    |
|                          | -4                                | 0...4 (PTL-Cool only on request)  |    |    |
|                          | -6                                | 0...6                             |    |    |
|                          | -10                               | 0...10                            |    |    |
|                          | -16                               | 0...16 (PTL-Cool only on request) |    |    |
| -25                      | 0...25 (PTL-Cool only on request) |                                   |    |    |
| Output                   |                                   |                                   |    |    |
| -V                       | Voltage                           |                                   |    |    |
| -A                       | Current (2-wire)                  |                                   |    |    |
| Model                    | PTL                               | -Heat                             | -4 | -V |

PTL-COOL HAS A TWO-LAYER PROTECTION FOR ELECTRONICS. THIS IS WHY THE POSSIBLE CONDENSATION DOES NOT HARM THE DEVICE.

### TECHNICAL DETAILS DPTL

|                        |                                |
|------------------------|--------------------------------|
| Accuracy (from FS):    | ±1.0 %                         |
| Supply voltage:        | 15...24 VDC/VAC                |
| Output signal:         | 0...10 V or 4...20 mA (3-wire) |
| Protection standard:   | IP65                           |
| Pressure connector:    | inside thread G1/4"            |
| Operating temperature: | -20...+80 °C                   |

### DPTL

|                        |                       |   |    |
|------------------------|-----------------------|---|----|
| Example:<br>DPTL-2,5-V | Product series        |   |    |
|                        | DPTL                  | Differential pressure transmitter for liquids |    |
|                        | Measuring range (bar) |   |    |
|                        | -1                    | 0...1   |    |
|                        | -2,5                  | 0...2,5                                       |    |
|                        | -4                    | 0...4   |    |
|                        | -6                    | 0...6   |    |
|                        | Output                |   |    |
|                        | -V                    | Voltage                                       |    |
|                        | -A                    | Current (3-wire)                              |    |
| Model                  | DPTL                  | -2,5  | -V |

# PASSIVE TEMPERATURE SENSORS

Comprehensive range of temperature sensors for HVAC applications.

Products are available with the following sensor types and accuracies:

- NTC10k  $\pm 0.2\text{ }^{\circ}\text{C}$  @  $25\text{ }^{\circ}\text{C}$
- NTC20k  $\pm 0.2\text{ }^{\circ}\text{C}$  @  $25\text{ }^{\circ}\text{C}$
- Pt1000  $\pm 0.3\text{ }^{\circ}\text{C}$  @  $0\text{ }^{\circ}\text{C}$
- Ni1000  $\pm 0.4\text{ }^{\circ}\text{C}$  @  $0\text{ }^{\circ}\text{C}$
- Ni1000-LG  $\pm 0.5\text{ }^{\circ}\text{C}$  @  $0\text{ }^{\circ}\text{C}$
- NTC1.8k  $\pm 0.3\text{ }^{\circ}\text{C}$  @  $25\text{ }^{\circ}\text{C}$



TEK



TEHR



TEKY6S



TEU



PTE-01



TEAT



TENA



TEPK



TEV



# PASSIVE TEMPERATURE SENSORS FOR GAS



## TEK

DUCT TEMPERATURE SENSOR

TEK is used to sense air temperature inside a ventilation duct. Installation of the device is easy because the screw cover and the terminal blocks are tilted to 45°.



## TEHR

ROOM TEMPERATURE SENSOR

TEHR is used to sense air temperature indoors. It can be mounted on a surface or on a flush mounted box.

### TECHNICAL DETAILS TEK

|                       |                                |
|-----------------------|--------------------------------|
| Measuring range:      | -50 ... +70 °C                 |
| Probe length:         | 200 mm                         |
| Probe outer diameter: | 8 mm                           |
| Protection class:     | IP54, cable or probe downwards |

### TECHNICAL DETAILS TEHR

|                     |                 |
|---------------------|-----------------|
| Measuring range:    | 0 ... +50 °C    |
| Housing dimensions: | 86 x 86 x 32 mm |
| Protection class:   | IP20            |

### TEK / TEHR

| Example:<br>TEK-NTC10<br>TEHR-NTC10 | Product series          |                         |
|-------------------------------------|-------------------------|-------------------------|
|                                     | TEK                     | Duct temperature sensor |
| TEHR                                | Room temperature sensor |                         |
|                                     | Sensor element          |                         |
|                                     | -NTC10                  | 10 kΩ @ 25 °C           |
|                                     | -NTC20                  | 20 kΩ @ 25 °C           |
|                                     | -Pt1000                 | 1000 Ω @ 0 °C           |
|                                     | -Ni1000                 | 1000 Ω @ 0 °C           |
|                                     | -Ni1000-LG              | 1000 Ω @ 0 °C           |
|                                     | -NTC1.8k                | 1.8 kΩ @ 25 °C          |
| Model                               | TEK                     | -NTC10                  |
|                                     | TEHR                    | -NTC10                  |

# PASSIVE TEMPERATURE SENSORS FOR GAS



## TEKY6S

CABLE TEMPERATURE SENSOR

TEKY6S senses temperatures in a wide range. It is well protected from the environment by its stainless steel sleeve which is rolled on to a silicone rubber cable. TEKY6S has a high protection rating of IP67.



## TEU

OUTSIDE AIR TEMPERATURE SENSOR

TEU is used to sense outside air temperature. Installation of the device is easy because the screw cover and the terminal blocks are tilted to 45°.



## PTE-OI

OUTSIDE AIR TEMPERATURE AND ILLUMINANCE SENSOR

PTE-OI is a combination of a passive temperature and an illuminance sensor. It is used to sense outside air temperature and ambient lighting conditions. In addition to the outside air temperature, the PTE-OI includes an ambient illuminance sensor. The illuminance sensor is hermetically sealed for protection.

### TECHNICAL DETAILS TEKY6S

|                           |   |
|---------------------------|---|
| <b>Measuring range:</b>   | -50 ... +150 °C                               |
| <b>Materials:</b>         | Sleeve: Stainless steel<br>Cable: Silicone    |
| <b>Sleeve dimensions:</b> | Outer diameter: 6 mm<br>Length: 45 mm         |
| <b>Cable length:</b>      | 2.3 m (Custom lengths available upon request) |
| <b>Protection class:</b>  | IP67  |

### TECHNICAL DETAILS TEU

|                          |                       |
|--------------------------|-----------------------|
| <b>Measuring range:</b>  | -50 ... +50 °C        |
| <b>Protection class:</b> | IP54, cable downwards |

### TECHNICAL DETAILS PTE-OI

|                                     |                |
|-------------------------------------|----------------|
| <b>Operating temperature:</b>       | -50 ... +50 °C |
| <b>Measuring range:</b>             | 0...1000 lx    |
| <b>Illuminance sensor accuracy:</b> | ±20 % @100 lx  |
| <b>Protection class:</b>            | IP54           |

### TEKY6S / TEU / PTE-OI

| Example:     | Product series |  |                          |
|--------------|----------------|--|--------------------------|
|              | TEKY6S-NTC10   | TEKY6S   | Cable temperature sensor |
| TEU-NTC10    | TEU            | Outside air temperature sensor                 |                          |
| PTE-OI-NTC10 | PTE-OI         | Outside air temperature and illuminance sensor |                          |
|              |                | Sensor element                                 |                          |
|              |                | -NTC10   | 10 kΩ @ 25 °C            |
|              |                | -NTC20   | 20 kΩ @ 25 °C            |
|              |                | -Pt1000  | 1000 Ω @ 0 °C            |
|              |                | -Ni1000  | 1000 Ω @ 0 °C            |
|              |                | -Ni1000-LG                                     | 1000 Ω @ 0 °C            |
|              |                | -NTC1.8k                                       | 1.8 kΩ @ 25 °C           |
| Model        | TEKY6S         | -NTC10   |                          |
|              | TEU            | -NTC10   |                          |
|              | PTE-OI         | -NTC10   |                          |

# PASSIVE TEMPERATURE SENSORS FOR LIQUIDS

## TEAT IMMERSION SENSOR

TEAT immersion sensor is used to sense the liquid temperature in pipes in HVAC systems. TEAT needs to be installed into an immersion pocket. Installation of the device is easy because the screw cover and the terminal blocks are tilted to 45°.



## TENA FAST RESPONSE IMMERSION SENSOR

TENA immersion sensor is used to sense the liquid temperature in pipes in HVAC systems. TENA is a fast response immersion sensor for liquid applications where fast response time is needed. Installation of the device is easy because the screw cover and the terminal blocks are tilted to 45°.



### TECHNICAL DETAILS TEAT

|                       |                                  |
|-----------------------|----------------------------------|
| Measuring range:      | -50 ... +120 °C                  |
| Probe length:         | 85 mm                            |
| Probe outer diameter: | 6 mm                             |
| Materials:            | Measuring probe: stainless steel |
| Protection class:     | IP54, cable or probe downwards   |

### TECHNICAL DETAILS IMMERSION POCKET AT 80 / ATM 80 / ATH 80

|                  |   |
|------------------|---|
| Length:          | 80 mm (Other lengths available upon request)  |
| Outer diameter:  | 8 mm  |
| Mounting:        | R½" threads   |
| Material:        | AT: stainless steel (AISI 300)<br>ATH: acid-proof steel (AISI 316L)<br>ATM: brass (MS362) |
| Pressure rating: | PN16  |

### TECHNICAL DETAILS TENA

|                       |                                |
|-----------------------|--------------------------------|
| Measuring range:      | -50 ... +120 °C                |
| Probe length:         | 100 mm                         |
| Probe outer diameter: | 4 mm                           |
| Mounting:             | R½" threads                    |
| Material:             | Stainless steel                |
| Pressure rating:      | PN16                           |
| Protection class:     | IP54, cable or probe downwards |

### TEAT / TENA

| Example:   | Product series |                                |
|------------|----------------|--------------------------------|
|            | TEAT-NTC10     | TEAT                           |
| TENA-NTC10 | TENA           | Fast response immersion sensor |
|            | Sensor element |                                |
|            | -NTC10         | 10 kΩ @ 25 °C                  |
|            | -NTC20         | 20 kΩ @ 25 °C                  |
|            | -Pt1000        | 1000 Ω @ 0 °C                  |
|            | -Ni1000        | 1000 Ω @ 0 °C                  |
|            | -Ni1000-LG     | 1000 Ω @ 0 °C                  |
|            | -NTC1.8k       | 1.8 kΩ @ 25 °C                 |
| Model      | TEAT           | -NTC10                         |
|            | TENA           | -NTC10                         |

# PASSIVE TEMPERATURE SENSORS FOR LIQUIDS

## TEPK

SURFACE SENSOR

TEPK surface sensor is used to sense the liquid temperature in pipes in HVAC systems. TEPK is easy to install with an adjustable tie and does not need immersion pocket to sense pipe temperature.



## TEV

FROST GUARD SENSOR

TEV frost guard sensor is used to sense the liquid temperature in radiators and pipes in HVAC systems. TEV is a fast response sensor for protecting radiators from freezing.



### TECHNICAL DETAILS TEPK

|                          |   |
|--------------------------|---|
| <b>Measuring range:</b>  | -20 ... +80 °C                                    |
| <b>Materials:</b>        | Probe: Zinc casting<br>Cable: PVC (LIYY 2 x 0.14) |
| <b>Probe dimensions:</b> | 41.2 x 14.9 x 6.5 mm                              |
| <b>Cable length:</b>     | 2.0 m (Custom lengths available upon request)     |
| <b>Protection class:</b> | IP54  |

### TECHNICAL DETAILS TEV

|                         |  |
|-------------------------|--|
| <b>Measuring range:</b> | -50 ... +120 °C                                    |
| <b>Materials:</b>       | Probe: acid-proof steel, brass                     |
| <b>Dimensions:</b>      | Probe outer diameter: 4 mm<br>Probe length: 200 mm |
| <b>Pressure rating:</b> | PN16   |

### TEPK / TEV

| Example:  | Product series |                    |                |
|-----------|----------------|--------------------|----------------|
|           | TEPK-NTC10     | TEPK               | Surface sensor |
| TEV-NTC10 | TEV            | Frost guard sensor |                |
|           |                | Sensor element     |                |
|           |                | -NTC10             | 10 kΩ @ 25 °C  |
|           |                | -NTC20             | 20 kΩ @ 25 °C  |
|           |                | -Pt1000            | 1000 Ω @ 0 °C  |
|           |                | -Ni1000            | 1000 Ω @ 0 °C  |
|           |                | -Ni1000-LG         | 1000 Ω @ 0 °C  |
|           |                | -NTC1.8k           | 1.8 kΩ @ 25 °C |
| Model     | TEPK           | -NTC10             |                |
|           | TEV            | -NTC10             |                |

# DPG DIFFERENTIAL PRESSURE GAUGE



## TECHNICAL DETAILS

|                              |                                       |
|------------------------------|---------------------------------------|
| Accuracy (from FS):          | < ±3 % (DPG60 < ±5 % ; DPG100 < ±4 %) |
| Operating temperature:       | -5...+60 °C                           |
| Zero point adjustment screw: | external in the plastic cover         |
| Mounting:                    | surface mounting or flush mounting    |
| Mounting position:           | vertical                              |

| Product | Measuring range |
|---------|-----------------|
| DPG60   | 0-60 Pa         |
| DPG100  | 0-100 Pa        |
| DPG120  | 0-120 Pa        |
| DPG200  | 0-200 Pa        |
| DPG250  | 0-250 Pa        |
| DPG300  | 0-300 Pa        |
| DPG400  | 0-400 Pa        |
| DPG500  | 0-500 Pa        |
| DPG600  | 0-600 Pa        |
| DPG800  | 0-800 Pa        |
| DPG1K   | 0-1 kPa         |
| DPG1.5K | 0-1.5 kPa       |
| DPG2K   | 0-2 kPa         |
| DPG3K   | 0-3 kPa         |
| DPG5K   | 0-5 kPa         |

### DPG

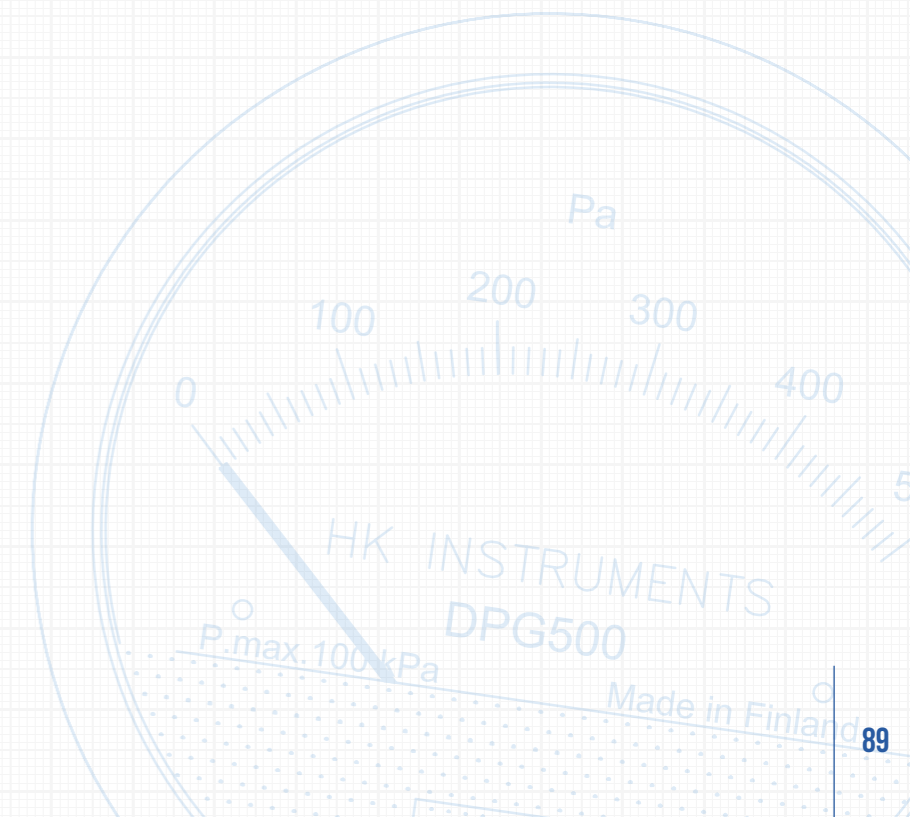
DPG is a standard pressure gauge for measuring overpressure and differential pressure.

### USAGE

DPG is used to measure low pressures of air and non-combustible gases mainly in HVAC systems.

### APPLICATIONS

- monitoring filters and ventilators
- monitoring overpressure and pressure difference in air ducts, air handling units, cleanrooms and laminar flow cabinets



# LIQUID COLUMN MANOMETERS



## MM

Reliable inclined column manometer with leakage protection system



## MMU

Traditional U-tube manometer with easy zero point calibration

Liquid column manometers are reliable and inexpensive traditional pressure meters. The manometers are good for measuring and indicating small overpressure, vacuum and differential pressure of air and non-aggressive gases in low pressure ranges.

Liquid column manometers are ideal for general-purpose work in air-conditioning and ventilation, monitoring of air filters for contamination and monitoring of air flow and air velocity.

## MM

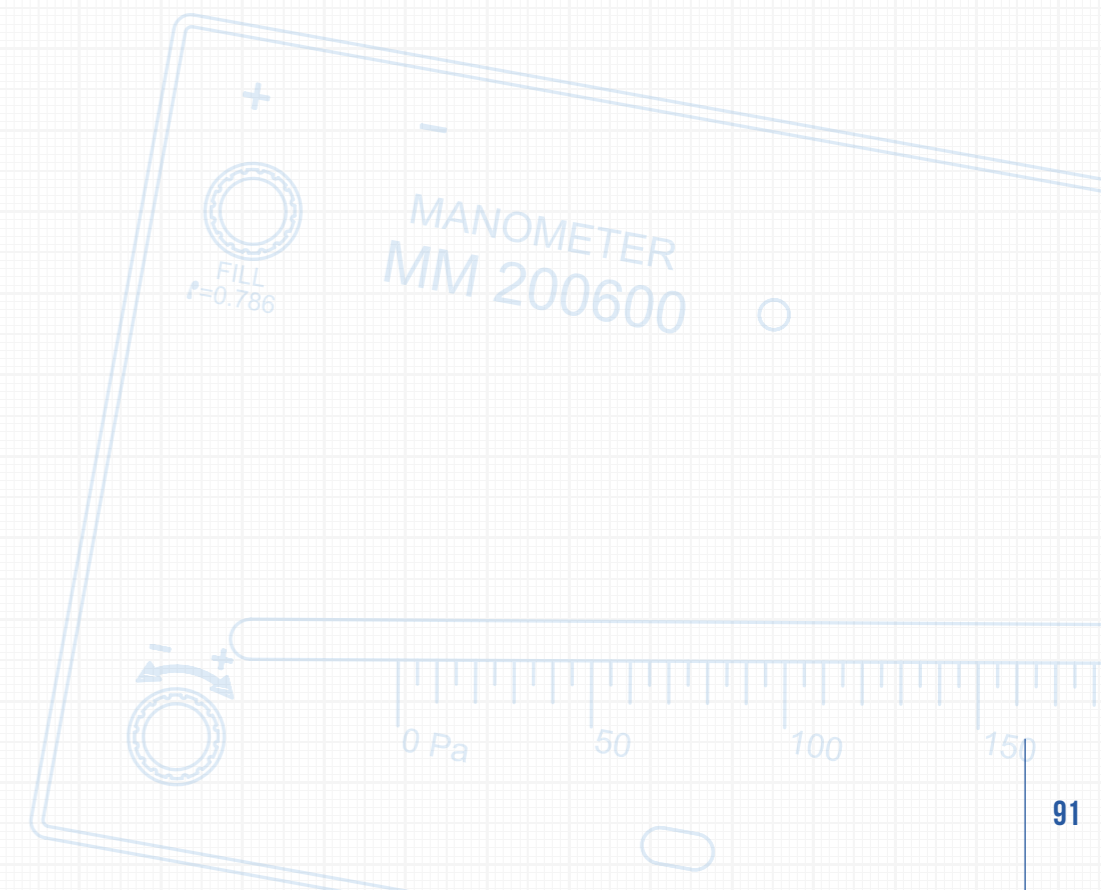
| Product     | Measuring range     | Accuracy   |
|-------------|---------------------|------------|
| MM±100500*) | -100...100...500 Pa | 2 Pa/25 Pa |
| MM200600    | 0...200...600 Pa    | 5 Pa/25 Pa |

\*) Delivered with level bubble.

Optional level bubble is available to MM200600 on request!

## MMU

| Product | Measuring range | Accuracy |
|---------|-----------------|----------|
| MMU±500 | ±500 Pa         | 10 Pa    |

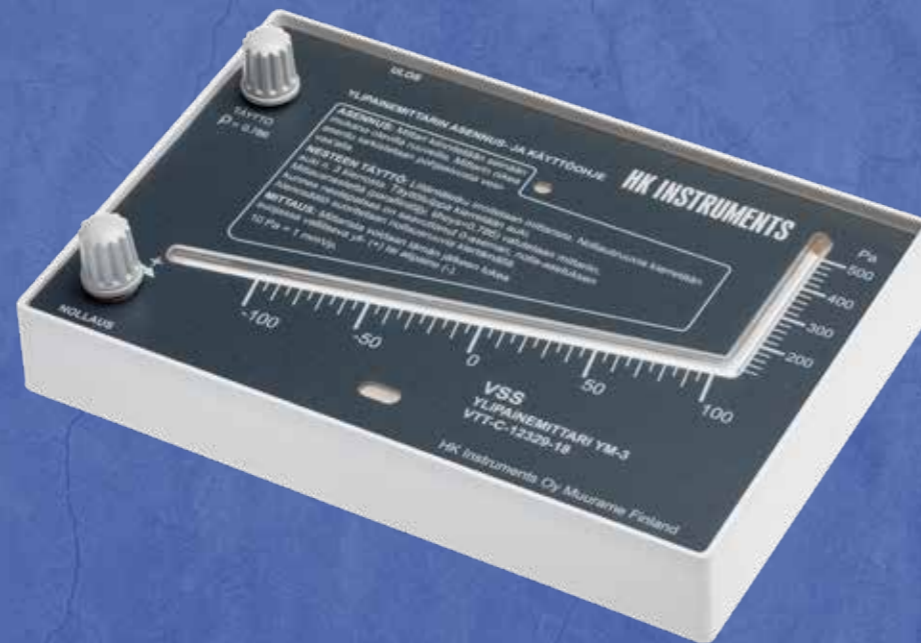


# YM-3 OVERPRESSURE METER FOR CIVIL DEFENCE AND MILITARY SHELTERS

## TECHNICAL DETAILS

|                              |   |
|------------------------------|---|
| <b>Accuracy (MM±100500):</b> | -100...100 Pa ±5 Pa<br>100...500 Pa ±25 Pa  |
| <b>Overpressure:</b>         | Static pressure -20...300 kPa   |
| <b>Measurement ranges:</b>   | -100...100...500 Pa   |
| <b>Safety:</b>               | Withstands rapid change in velocity 2.5 m/s, 30 g<br>Withstands vibration with acceleration of 2.5 m/s, 30 g<br>Protected against blast shock and static pressure loads<br>Certificate VTT-C-12329-18 granted by VTT / Technical Research Centre of Finland |

**PROTECTED  
AGAINST BLAST  
SHOCK AND  
STATIC PRESSURE  
LOADS**



**CERTIFIED BY VTT / TECHNICAL RESEARCH  
CENTRE OF FINLAND**



### YM-3

The YM-3 overpressure meter is designed and tested to withstand strong blast loadings exerted on the meter through its connection pipe. YM-3 is type-tested and approved by the Technical Research Centre of Finland / VTT that performs type inspecting mandated by the Finnish Ministry of the Interior.

### USAGE & APPLICATIONS

Measures and monitors overpressure in civil defence and military shelters.

# PS DIFFERENTIAL PRESSURE SWITCH



## TECHNICAL DETAILS

|  |   |
|--|---|
| Accuracy of switching point (low limit typ.):  | ±8 Pa (PS1500: ±20 Pa, PS4500: ±100 Pa) |
| Accuracy of switching point (high limit typ.): | ±15 %                                   |
| Service life:                                  | over 1 000 000 switching operations     |
| Electrical rating (resistive load):            | 3 A / 250 VAC (PS200: 0.1 A / 250 VAC)  |
| Electrical rating (inductive load):            | 2 A / 250 VAC (PS200: --)               |
| Operating temperature:                         | -20...+60 °C                            |
| Protection standard:                           | IP54                                    |

| Product | Measuring range |
|---------|-----------------|
| PS200   | 20...200 Pa     |
| PS300   | 30...300 Pa     |
| PS500   | 30...500 Pa     |
| PS600   | 40...600 Pa     |
| PS1500  | 100...1500 Pa   |
| PS4500  | 500...4500 Pa   |

### PS

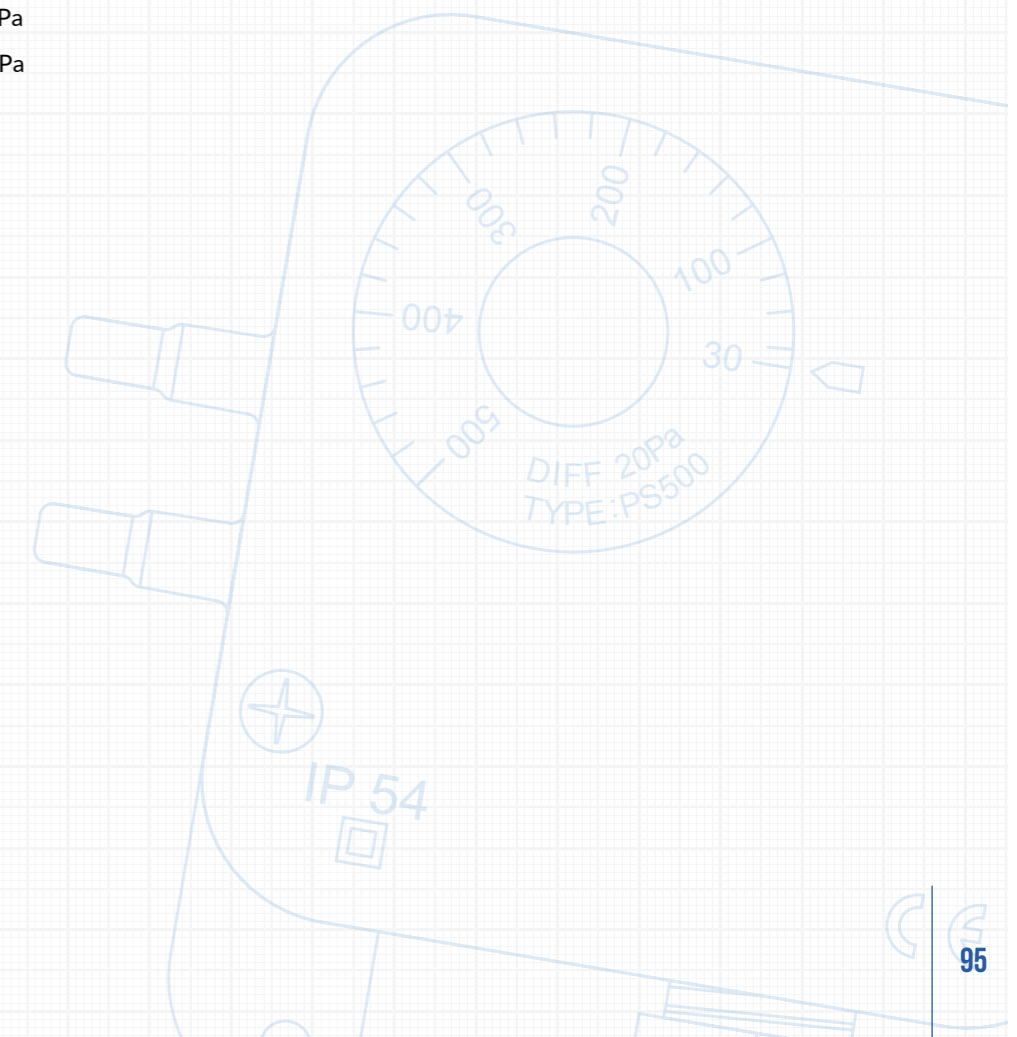
PS is a robust, easy-to-use differential pressure switch for air and non-combustible gases.

### USAGE

The pressure switches are used in ventilation and air-conditioning systems to monitor changes in overpressure, vacuum and differential pressure.

### APPLICATIONS

- monitoring filters and fans
- monitoring vacuum and overpressure in air ducts
- controlling defrosting functions





# FILTER ALERTS

The filter alerts are a solution for systems requiring visual indication of pressure on site, together with a switching point signal. The filter alerts are ideal for general-purpose work in air-conditioning and ventilation, especially in monitoring of air filters for contamination.

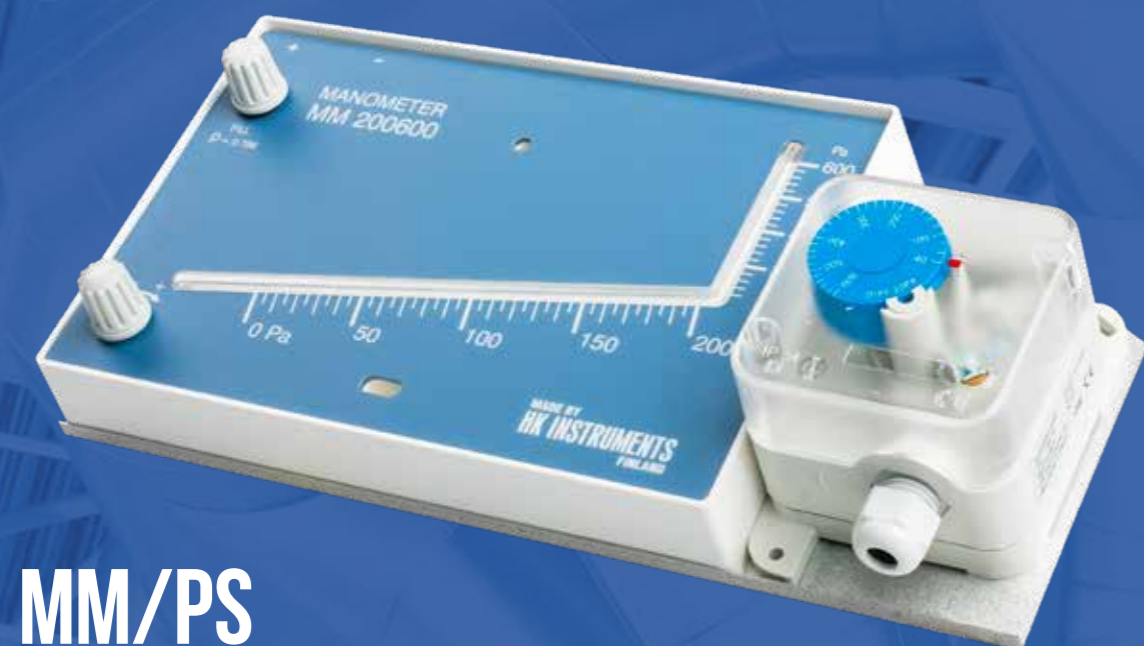
The available combinations include pressure gauge and pressure switch combination (DPG/PS), and inclined tube manometer and pressure switch combination (MM/PS).

## MM/PS

| Product        | MM range    | PS range    |
|----------------|-------------|-------------|
| MM200600/PS600 | 0... 600 Pa | 40...600 Pa |

## DPG/PS

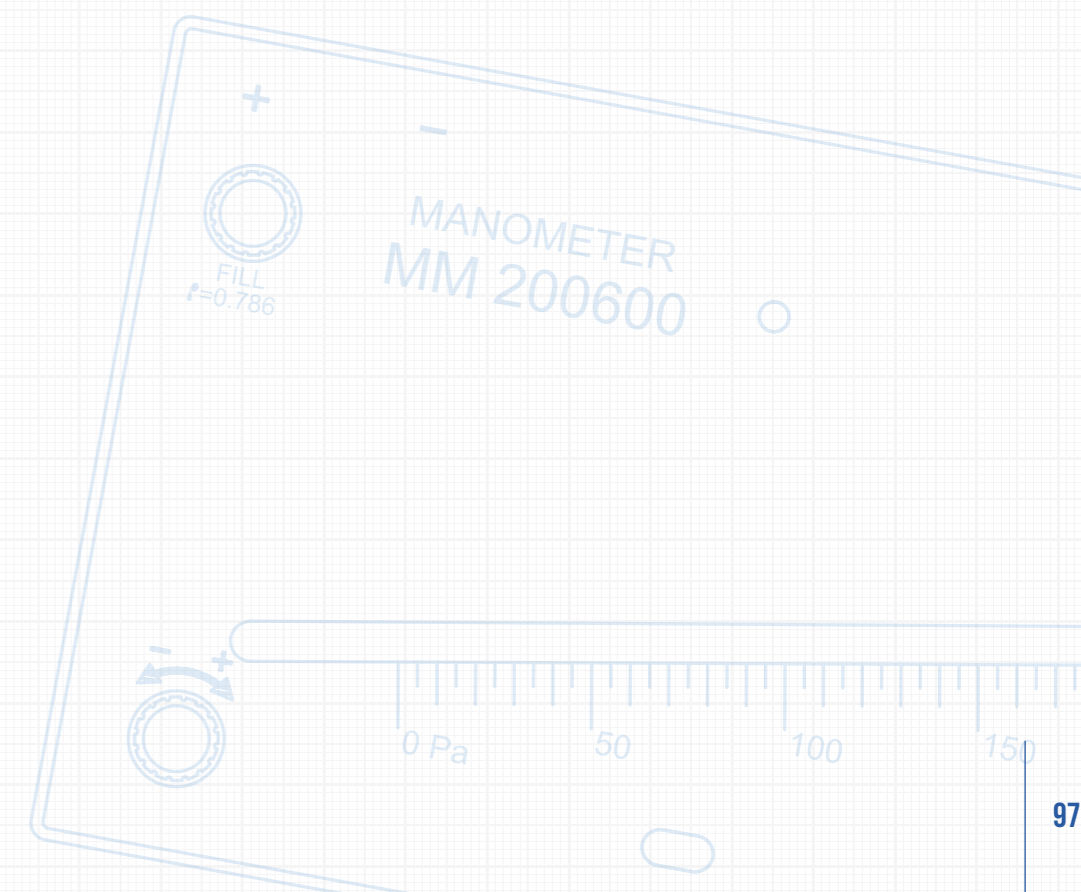
| Product        | DPG range   | PS range      |
|----------------|-------------|---------------|
| DPG200/PS200   | 0... 200Pa  | 20...200 Pa   |
| DPG600/PS600   | 0... 600 Pa | 40...600 Pa   |
| DPG1,5K/PS1500 | 0...1500 Pa | 100...1500 Pa |



MM/PS



DPG/PS



# PHM-V1 MICROMANOMETER

HANDHELD INSTRUMENT FOR MEASURING AIR PRESSURE  
AND AIR FLOW

COMPLETE FIELD  
INSTRUMENT FOR HVAC  
VENTILATION BALANCING  
AND DIAGNOSTICS



## TECHNICAL DETAILS

|                        |   |
|------------------------|---|
| Range:                 | -250...2550 Pa  |
| Maximum overpressure:  | 30 kPa  |
| Accuracy:              | ± 1.4 % from applied pressure   |
| USB:                   | Mini B  |
| Units on display:      | Pressure: Pa, mmH <sub>2</sub> O, inchWC, mbar<br>Flow: l/s, m <sup>3</sup> /h, m <sup>3</sup> /s |
| Operating temperature: | -10 ... +50 °C  |

Can be used with pitot tube

Preprogrammed valve manufacturers include for example:

- EH-Muovi
- Fläkt Woods
- Halton
- Lindab
- Climecon
- Swegon
- Uponor

Save time and reduce human error with a preprogrammed K-factor database.

PHM-V1 Manager software allows you to upload measuring results, add new ventilation valve data and create documentations efficiently on your computer.

PHM-V1 is delivered in a handy case containing a calibration certificate, ventilation valve measurement kit, PHM-V1 manager software etc.

### PHM-V1

PHM-V1 micromanometer is a handheld instrument for measuring air pressure and air flow. Its patented technology includes over 1000 preprogrammed ventilation valve and diffuser K-factor databases. This feature allows measuring without manual calculations or knowing the manufacturer's K-factors. Over 500 measuring results can be saved and then downloaded to PHM-V1 Manager computer software for documentations.

### APPLICATIONS

- Air flow and pressure measurements from air diffusers, ventilation valves, dampers and grilles
- Measuring room-to-room pressures or across the building envelope
- In-duct measurements with pitot tube
- Measuring pressure drop across the filter
- Fan flow measurement
- Cleanroom air flow measurements

# ACCESSORIES

## TUBES AND EXTENSIONS



PVC tube 4/7 matt, 2 m



PVC tube 4/7 matt, 100 m coil



T-connector for d=4 mm tube  
L-connector for d=4 mm tube  
Connector extension for d=4 mm tube

## MOUNTING



Accessory pack  
(tube, duct connectors)



Accessory pack for  
DPG flush mounting



PTL adapter G1/4"-G1/2"



Duct connector, plastic,  
for d=4 mm tube (80 mm)



Duct connector, metallic,  
for d=4 mm tube (40 mm)



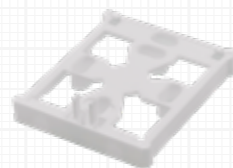
Duct connector, metallic,  
for d=4 mm tube (100 mm)



DPTL mounting plate



Mounting flange for duct  
sensors



Siro mounting plate

## MANOMETER LIQUIDS



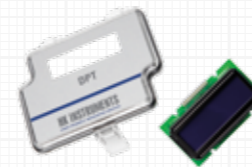
Gauge fluid 0,786; 30 ml (red)  
Gauge fluid 0,786; 250 ml (red)

## THERMOMETERS

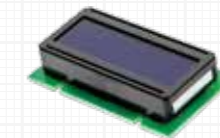


Thermometer  
-40...60 °C

## OTHER ACCESSORIES



Display upgrade kit  
(DPT & DPT-Flow)



Digital display, blue  
(DPT & DPT-Flow)



4-digit, green/black  
display (2W, AVT)



DPT cover with front label



Static pressure port



Commissioning tool for  
Siro transmitters



Sealing insert

## VERIFIED ACCURACY



## HIGH-QUALITY PRODUCTS



## FRIENDLY AND PROFESSIONAL CUSTOMER SERVICE



## FAST DELIVERIES

**1. Applicability of the Terms and Conditions.** These terms and conditions shall be applied to trade in devices, components and accessories between HK Instruments Oy and the customer, unless the parties have otherwise mutually agreed in writing. These conditions do not apply to trade by agents, to which the manufacturer's conditions of sale shall be applied.

**2. Price.** The prices in effect at the time the offer is made form the basis of pricing. All prices exclude VAT. If changes occur in customs, freight, VAT or other general payments related to the delivery before the date of delivery, the seller has the right to change the price of the goods in the same proportion that said changed prices or payments affected the price of the goods.

**3. Offer.** The seller's offer is binding and it is valid for 30 days unless otherwise agreed. Provided the seller's offer is tendered under intermediary terms and conditions of sale, an immediate in storage offer is denoted whereby the goods may be sold to a third party during the period the offer is valid and the seller does not guarantee the inventory is sufficient.

**4. Contract.** A contract between the seller and the buyer is deemed to have been established when

- the parties have signed a written contract (purchase agreement)
- the buyer has approved a binding offer in writing (order) or
- the seller has confirmed in writing as such an order other than one based on an offer or an order different from the offer (order confirmation)

**5. Drawings and Descriptions.** The information on prices, measurements, weights and performances given in descriptions, photos, memos, drawings, directories and price lists and other information containing technical and other details have been given without obligations, unless specifically referred to in the offer. All technical drawings and documents needed for the manufacture of the product or its component, which one party has provided to the other party prior to, or after the signing of the contract, shall remain the property of the provider. The receiving party may not, without the provider's consent, use, copy, surrender or divulge by other means information regarding them to a third party.

**6. Condition of Delivery.** The condition of delivery is free seller's storage (re: Incoterms 2020 EXW) unless otherwise agreed.

**7. Packaging.** The prices stated in price lists and directories apply to unpacked products.

**8. Time of Delivery.** Unless the time of delivery is agreed, the seller shall stipulate the time of delivery. The goods are considered to have been delivered when the seller has handed them over to a freight carrier for forwarding to the purchaser. When, according to the terms of the contract, the buyer has to collect the goods from the seller or from a place designated by the seller, the goods are deemed conveyed when the seller has notified the buyer that the goods are ready for delivery.

**9. Conveyance and Examination of the Goods.** On acceptance of the goods, the customer must make sure that the delivered goods correspond with the packing list and are externally undamaged. Before using, connecting, or installing the goods, the customer must again examine the goods to ensure their flawless condition. Complaints regarding errors or deficiencies must be made to the seller without delay, at the latest within 8 days of the conveyance of the goods.

**10. Force Majeure.** The seller is not liable to fulfill the contract if an obstacle the seller is unable to overcome exists regarding the contract, or if fulfilling the contract would require sacrifices that are unreasonable compared to the advantage for the buyer should the seller fulfill the contract. If said obstacle or disparity ceases to exist within a reasonable period of time, the buyer has the right to demand that the seller fulfill the contract. When the manufacturer or the party from which the seller obtains the goods has not fulfilled the terms of his contract thus causing the seller's delivery to be delayed or not completed, the seller is not obligated to compensate the buyer for any potential losses. The buyer does not have the right to request a new delivery to replace a flawed

product if an obstacle as noted in this section exists for the seller. When completion of the contract within a reasonable period of time becomes impossible due to factors noted in this section, both parties are entitled to cancel the contract with no liability to compensate by notifying the other party of their intentions in writing.

**11. Payment.** The payment period starts from the invoice date. In case of a delay in payment, the buyer is liable for compensating the seller according to his/her rate of interest and paying the expenses arising from the collection of payment.

**12. Warranty.** The seller is obligated to provide a warranty of five (5) years for the delivered goods regarding material and manufacturing. The warranty period is considered to start on the delivery date of the product. If a defect in raw materials or a production flaw is found, the seller is obligated, when the product is sent to the seller without delay or before expiration of the warranty, to amend the mistake at his/her discretion either by repairing the defective product or by delivering free of charge to the buyer a new flawless product and sending it to the buyer. Delivery costs for repair under warranty will be paid by the buyer and the return costs by the seller. The warranty does not comprise damages caused by accident, lightning, flood or other natural phenomenon, normal wear and tear, improper or careless handling, abnormal use, overloading, improper storage, incorrect care or reconstruction, or changes and installation work not done by the seller. The selection of materials for devices prone to corrosion is the buyer's responsibility, unless otherwise is legally agreed upon. Should the manufacturer alter the structure of the device, the seller is not obligated to make comparable changes to devices already purchased. Appealing for warranty requires that the buyer has correctly fulfilled his/her duties arisen from the delivery and stated in the contract. The seller will give a new warranty for goods that have been replaced or repaired within the warranty, however only to the expiration of the original product's warranty time. The warranty includes the repair of a defective part or device, or if needed, a new part or device, but not installation or exchange costs. Under no circumstance is the seller liable for damages compensation for indirect damage. This warranty sets forth the total aggregate liability of the seller in respect to any defects in the products and the seller specifically disclaims any other guarantees, representations and warranties, either express or implied, including but not limited to warranty for fitness for specific purpose.

**13. Limitation of Liability.** Parties are responsible for their obligations under the agreement. However, the seller shall not be liable for any indirect or consequential damages to customer including but not limited to loss of production or profit, financing costs, loss of data, costs or damages related to cover purchase, damage to other products or equipment. The total aggregate liability of the seller under the contract shall not exceed the contract value of the delivered products under the respective agreement excluding the value added tax. The limitations of liability under this section 13 shall not apply, if the damage is caused by willful misconduct or gross negligence.

**14. Returns.** The sale made is binding and irrevocable and the seller is not liable to accept the return of a product. Products delivered according to contract are taken back and products reimbursed up to 70% provided the seller has, prior to the return of the product, agreed to it. Returned products may be taken back and credited provided they are in the original package and in original condition.

**15. Notifications.** The sender is responsible for ensuring the arrival of notifications sent to the other party.

**16. Ownership.** Ownership of the product is passed to the buyer when the price is paid in full.

**17. Disagreements.** Disagreements concerning contracts and related stipulations should be settled primarily by the parties to the contract. In case a settlement cannot be reached, the dispute shall be resolved in Finland in the lower court at the domicile of the seller.

# HK INSTRUMENTS

## USER-FRIENDLY MEASURING DEVICES

HK Instruments is a Finnish company specialized in manufacturing and developing technologically advanced measuring devices for HVAC applications. Our devices are primarily used in air handling systems and building automation.

35 years of experience and exports to more than 45 countries prove our high-class product development and cost-effective manufacturing. We have invested in practical user interfaces and that is why the installation of our devices is extremely easy and fast.

# HK INSTRUMENTS

Keihästie 7  
FIN-40950 MUURAME  
FINLAND

Phone. +358 14 337 2000  
Fax. +358 14 337 2020

info@hkinstruments.fi  
www.hkinstruments.fi

