

HK INSTRUMENTS

USER-FRIENDLY MEASURING DEVICES



PRODUCT PORTFOLIO

Solutions for measuring air pressure, air flows, air velocities, liquid pressures, CO₂ gas concentration and relative humidity within air handling and ventilation systems.

DIFFERENTIAL PRESSURE TRANSMITTERS

DPT-R8	8-range differential pressure transmitters.	6
DPT-2W	Differential pressure transmitters with 2-wire configuration.	8
DPT-MOD	Differential pressure transmitters with Modbus configuration	10
DPT-DUAL	Differential pressure transmitter with two pressure sensors	12

AIR FLOW AND VELOCITY METERS

DPT-FLOW	Flow meter for HVAC systems.	18
FloXact™	Multi-point pitot tube for flow measurements.	20
AVT	All-in-one air velocity transmitter with temperature and relay outputs.	22
DPG+flow scale	Differential pressure gauge with air flow scale	40

CARBON DIOXIDE TRANSMITTERS

CDT2000	Wall mount CO ₂ transmitter with temperature output.	26
CDT2000 DUCT	CO ₂ transmitter with temperature output for duct	28

HUMIDITY TRANSMITTERS

RHT	Wall mount humidity (rH) transmitter with temperature output	32
RHT DUCT	Humidity (rH) transmitter with temperature output for duct	34



DPT-R8



DPT-MOD



DPT-DUAL



DPT-FLOW



FloXact™



AVT



CDT2000



CDT2000 Duct

CARBON MONOXIDE TRANSMITTER

CMT	Carbon monoxide transmitter	36
-----	---------------------------------------	----

AIR PRESSURE GAUGES & MANOMETERS

DPG	Differential pressure gauge	40
MM	Liquid column manometer with leakage protection system	42
MMU	U-tube manometer	42
MMK	Vertical tube manometer	42

PRESSURE SWITCHES

DPI	Electronic differential pressure switch with 2 relays and 0-10 V output.	46
PS	Mechanical differential pressure switch	48

FILTER ALERTS (DISPLAY + RELAY)

DPG/PS	Combination of differential pressure gauge and differential pressure switch	52
MM/PS	Combination of liquid column manometer and differential pressure switch.	52

PRESSURE TRANSMITTERS FOR LIQUIDS

PTL	Pressure transmitters for liquids.	54
DPTL	Differential pressure transmitters for liquids	54



RHT



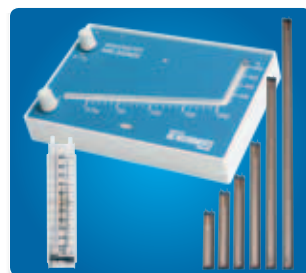
RHT Duct



CMT



DPG



MM / MMU / MMK



DPI



PS



FILTER ALERTS

DIFFERENTIAL PRESSURE TRANSMITTERS

DPT series pressure transmitters represent the latest development in their class. The digital sensor makes measuring pressure even more accurate than before. Fully automated zero point calibration, *AZ-calibration*, offers reliability in the most sensitive of applications. In addition, it provides cost savings over the lifetime of a building, as it makes the device completely maintenance free.

While DPT-R8 offers up to eight measurement ranges in a single device, DPT-MOD makes two-way communication possible over Modbus network.

The DPT-Dual with Modbus interface offers savings in the device and installation costs due to its two pressure sensors and Input terminal.



DPT-R8



DPT-2W



DPT-MOD

URE

DPT-R8	8-range differential pressure transmitters	6
DPT-2W	Differential pressure transmitters with 2-wire configuration	8
DPT-MOD	Differential pressure transmitters with Modbus configuration	10
DPT-DUAL	Differential pressure transmitter with two pressure sensors	12



DPT-DUAL



DIFFERENTIAL PRESSURE TRANSMITTERS

THREE-WIRE

DPT-R8

The DPT series includes electronic differential pressure transmitters that offer exceptional performance, high quality and economical pricing.

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

Q: flow linear output



DPT-R8

TECHNICAL DETAILS

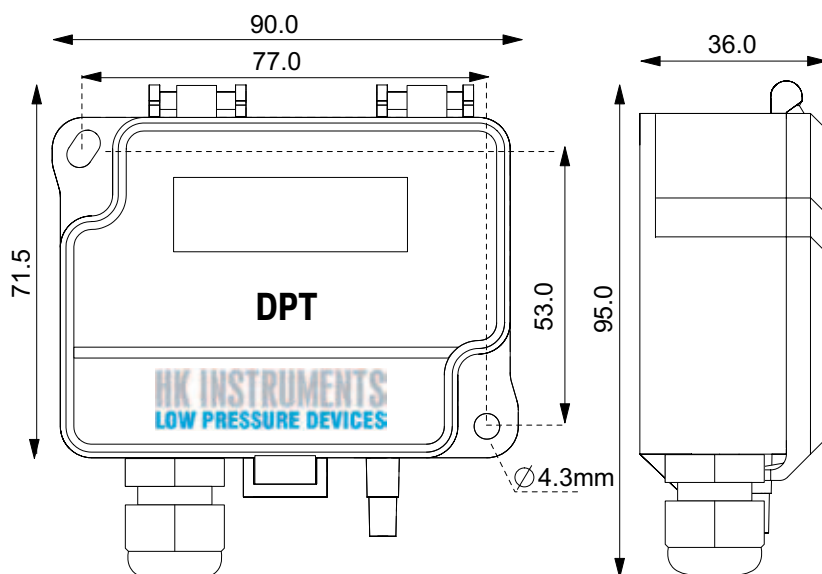
Accuracy (from applied pressure):	±1,5 % + 1 Pa (including: general accuracy, temperature drift, linearity, hysteresis, long term stability and repetition error).
Zero point calibration:	automatic with autozero element (-AZ) or with push button
Measuring unit on display:	selectable by jumper (Pa, kPa, mbar, inchWC, mmWC, psi)
Supply voltage:	24 VDC ±10 % / 24 VAC ±10 %
Power consumption:	< 1.0 W (< 1.5 W with output current 20 mA)
Output signals (3-wire):	0...10 VDC, Load R minimum 1 KΩ 4...20 mA, maximum load 500 Ω
Ambient temperature:	-10...+50 °C
Response Time:	0,8 / 4 s
Protection standard:	IP54

Selectable measurement range

			-150...+150 Pa	-100...+100 Pa	-50...+50 Pa	-25...+25 Pa	0...25 Pa	0...50 Pa	0...100 Pa	0...250 Pa	0...500 Pa	0...1000 Pa	0...1500 Pa	0...2000 Pa	0...2500 Pa	0...3000 Pa	0...4000 Pa	0...5000 Pa	0...7000 Pa	
Model 250	Product code	Product description*																		
	103.004.016	DPT250-R8-AZ	x	x	x	x	x	x	x	x										
	103.004.017	DPT250-R8-AZ-D	x	x	x	x	x	x	x	x										
	103.004.018	DPT250-R8-AZ-S	x	x	x	x	x	x	x	x										
	103.004.019	DPT250-R8-AZ-D-S	x	x	x	x	x	x	x	x										
Model 2500	103.007.023	DPT2500-R8		x					x	x	x	x	x	x	x					
	103.007.024	DPT2500-R8-D		x					x	x	x	x	x	x	x					
	103.007.025	DPT2500-R8-AZ		x					x	x	x	x	x	x	x					
	103.007.026	DPT2500-R8-AZ-D		x					x	x	x	x	x	x	x					
Model 7000	103.016.003	DPT7000-R8										x	x	x	x	x	x	x	x	
	103.016.004	DPT7000-R8-D										x	x	x	x	x	x	x	x	
	103.016.005	DPT7000-R8-AZ										x	x	x	x	x	x	x	x	
	103.016.006	DPT7000-R8-AZ-D										x	x	x	x	x	x	x	x	

*R8 = number of measurement ranges per device, D = display, AZ = autozero element, S = span point calibration

Dimensions



ACCESSORIES
SEE PAGE 56

DIFFERENTIAL PRESSURE TRANSMITTERS

TWO-WIRE

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.



DPT-2W

TECHNICAL DETAILS

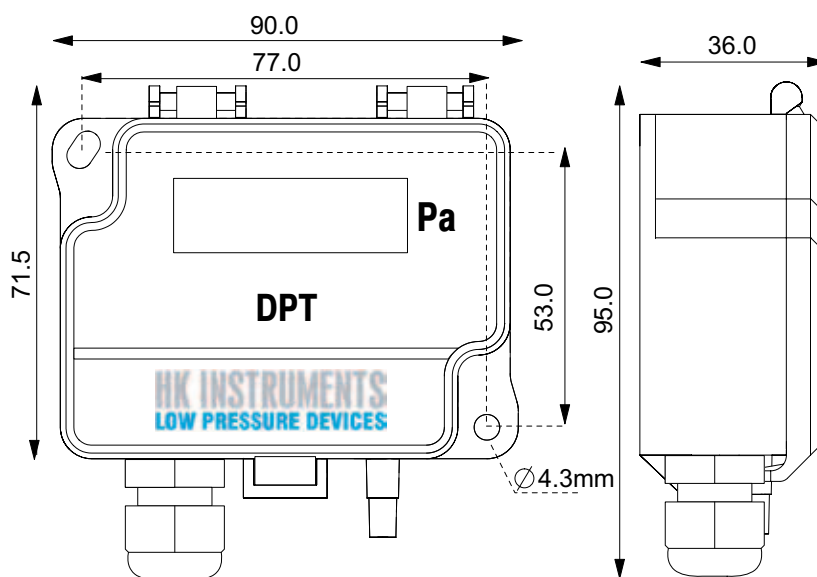
Accuracy from FS:	±1,5 % or (±6 Pa < 250 Pa) (including: general accuracy, temperature drift, linearity, hysteresis and repetition error)
Long term stability, typical 1 year:	≤ ± 8 Pa; model 2500
Zero point calibration:	with push button
Supply voltage:	10...35 VDC
Max. supply current:	32 mA
Output signal:	4...20 mA
Max output current:	32 mA
Ambient temperature:	-10...+50 °C
Response Time:	0.8 / 4 s
Protection standard:	IP54

Selectable measurement range

DPT-2W	Product code	Product description*	Selectable measurement range							
			-100...+100 Pa	0...100 Pa	0...250 Pa	0...500 Pa	0...1000 Pa	0...1500 Pa	0...2000 Pa	0...2500 Pa
	104.007.005	DPT-2W-2500-R8	x	x	x	x	x	x	x	x
	104.007.006	DPT-2W-2500-R8-D	x	x	x	x	x	x	x	x
	104.007.007	DPT-2W-2500-R8-Q	x	x	x	x	x	x	x	x
	104.007.008	DPT-2W-2500-R8-D-Q	x	x	x	x	x	x	x	x

*R8 = number of measurement ranges per device, D = display, Q = flow linear output

Dimensions



ACCESSORIES
SEE PAGE 56

DIFFERENTIAL PRESSURE TRANSMITTERS WITH MODBUS INTERFACE

DPT-MOD

DPT-MOD differential pressure transmitter for air is designed for Modbus (RTU) communication network. The DPT-MOD has an input terminal which 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 makes the device reliable and user-friendly.

Usage & applications

The DPT-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.



DPT-MOD

TECHNICAL DETAILS

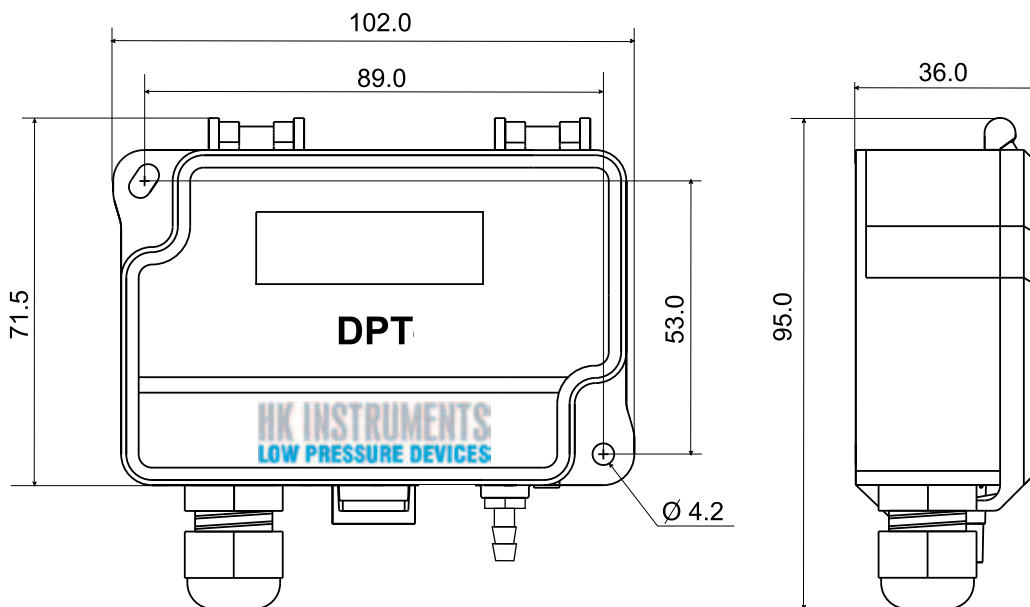
Communication:	RS-485 Modbus (RTU)
Accuracy from range:	$\pm 1,5\% + 1\text{ Pa}$ (including: general accuracy, temperature drift, linearity, hysteresis, long term stability and repetition error).
Zero point adjustment:	via Modbus or by push button
Supply voltage:	24 VDC $\pm 10\%$ / 24 VAC $\pm 10\%$
Power consumption:	$< 1.3\text{ W}$
Output signal:	via Modbus (RTU)
Ambient temperature:	$-10\dots+50\text{ }^\circ\text{C}$
Response Time:	1...20 s selectable via menu
Protection standard:	IP54

DPT-MOD

Code	Product description	Measuring range (Pa)
114.003.002	DPT-MOD-2500-D	-250...2500
114.009.002	DPT-MOD-7000-D	-250...7000



Dimensions



ACCESSORIES
SEE PAGE 56

DIFFERENTIAL PRESSURE TRANSMITTERS

WITH TWO PRESSURE SENSORS

DPT-DUAL

DPT-Dual combines two differential pressure transmitters into one device. It offers a possibility to measure pressure from two different points. It 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 can be used in all applications where you need to measure two different pressures. It is suitable for air and non-combustible gases.



DPT-DUAL

TECHNICAL DETAILS

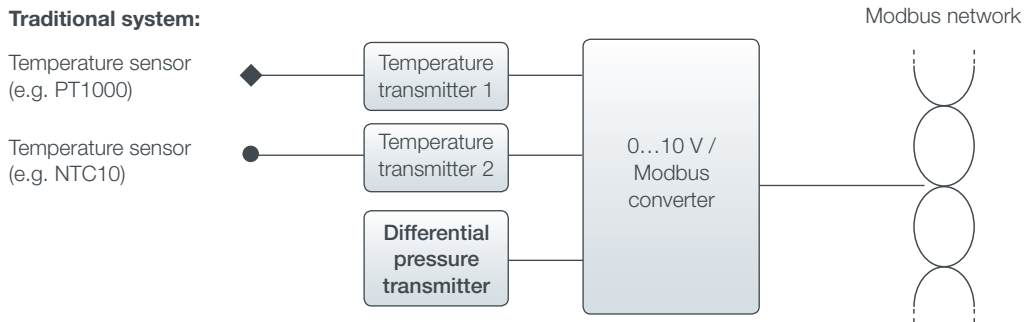
Communication:	RS-485 Modbus (RTU)
Accuracy (from applied pressure):	$\pm 1,5 \% + 1 \text{ Pa}$ (including: general accuracy, temperature drift, linearity, hysteresis, long term stability and repetition error).
Zero point calibration:	via Modbus or by push button
Measuring unit on display:	selectable via menu (Pa, mbar, inchWC, mmWC, psi)
Supply voltage:	24 VDC $\pm 10 \%$ / 24 VAC $\pm 10 \%$
Power consumption:	$< 1.0 \text{ W}$ ($< 1.5 \text{ W}$ with output current 20 mA)
Ambient temperature:	$-10 \dots +50 \text{ }^\circ\text{C}$
Response Time:	1...20 s selectable via menu
Protection standard:	IP54

DPT-DUAL

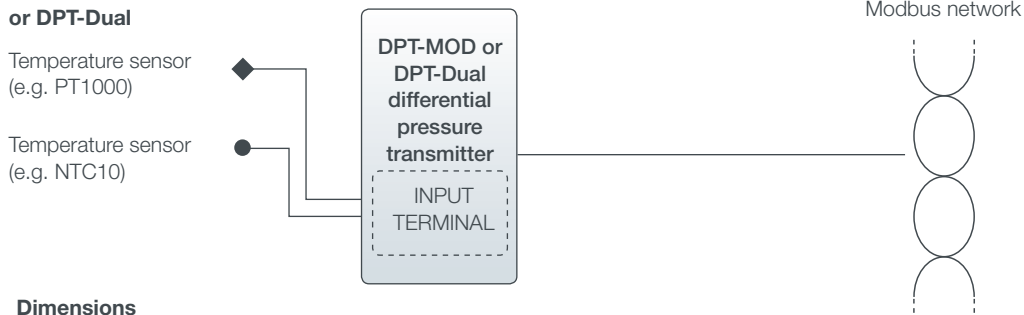
Code	Product description	Measuring range (Pa)
120.007.004	DPT-Dual-MOD-2500-D	-250...2500



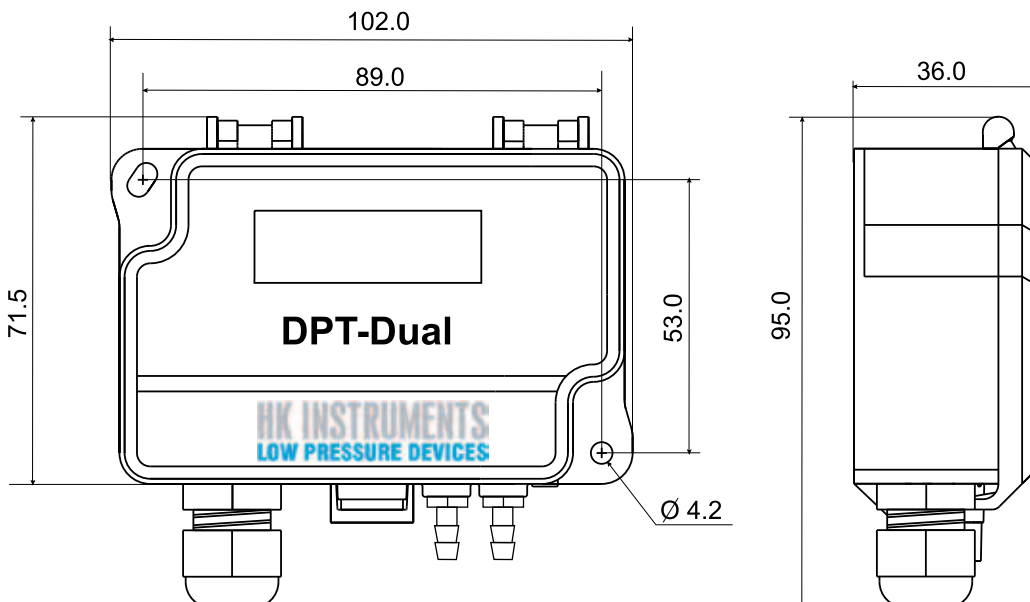
Traditional system:



New system with DPT-MOD or DPT-Dual



Dimensions



ACCESSORIES
SEE PAGE 56

AIR FLOW AND VELOCITY METERS

These unique devices make measuring air flow and air velocity 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 measurement ranges in a single device together with relay and temperature output signals.

DPT-FLOW	Flow meter for HVAC systems	18
FloXact™	Multi-point pitot tube for flow measurements.	20
AVT	All-in-one air velocity transmitter with temperature and relay outputs	22
DPG+flow scale	Differential pressure gauge with air flow scale.	30



DPT-FLOW



FloXact™



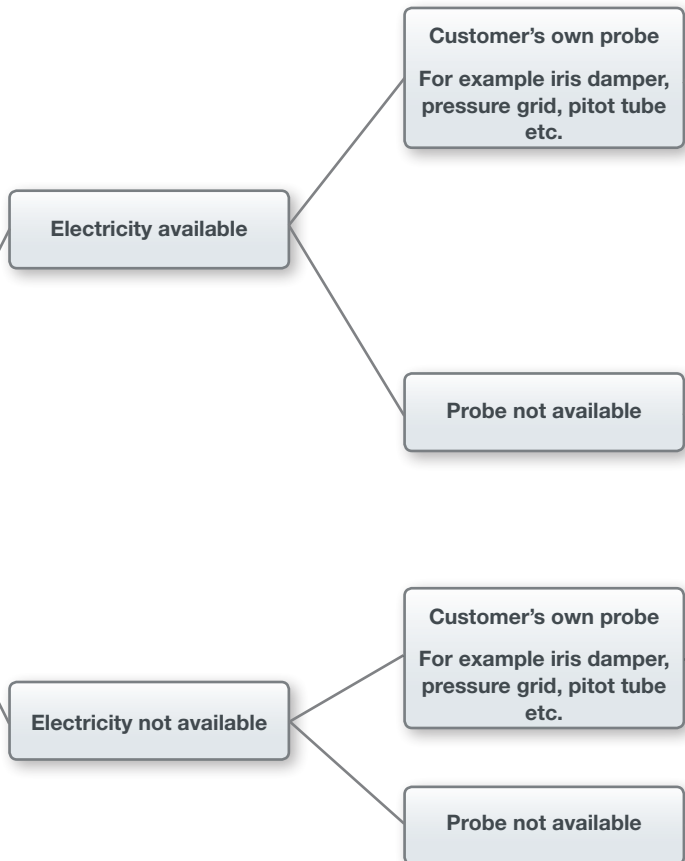
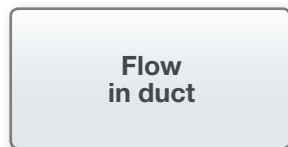
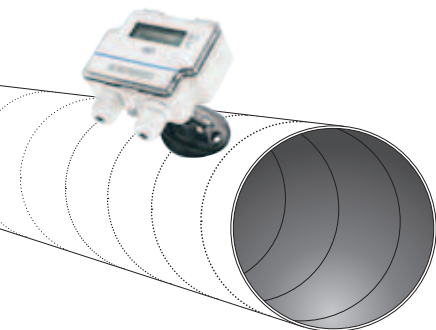
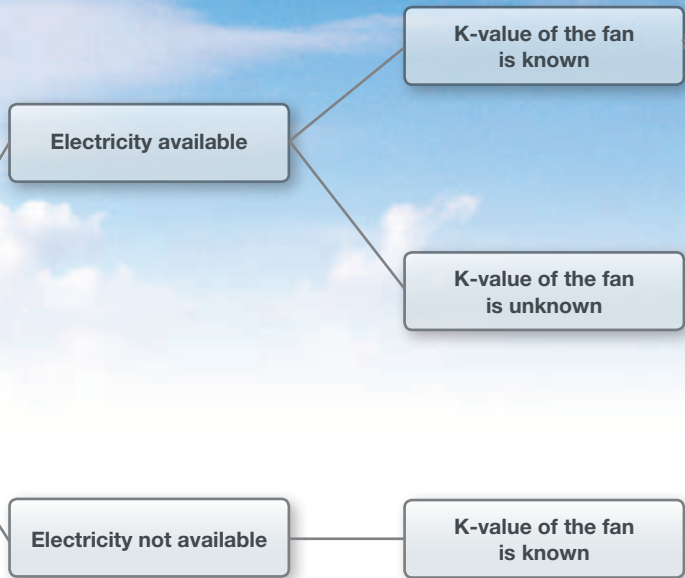
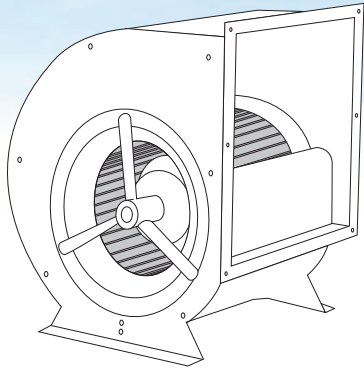
AVT

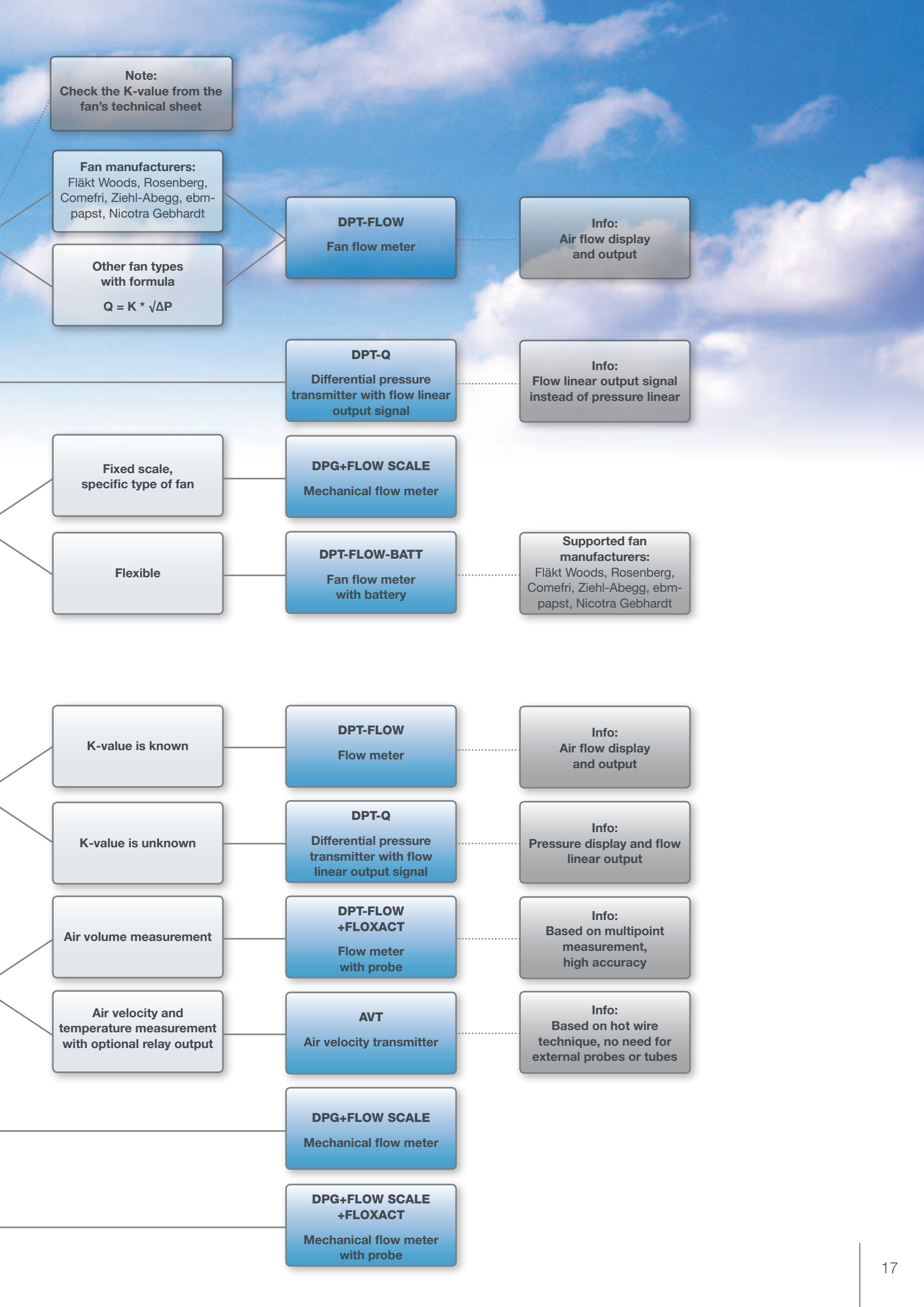


DPG+flow scale

FLOW MEASUREMENT

Product Selection Guide





Note:
Check the K-value from the fan's technical sheet

Fan manufacturers:
Fläkt Woods, Rosenberg, Comefri, Ziehl-Abegg, ebmpapst, Nicotra Gebhardt

Other fan types with formula
 $Q = K * \sqrt{\Delta P}$

DPT-FLOW
Fan flow meter

Info:
Air flow display and output

DPT-Q
Differential pressure transmitter with flow linear output signal

Info:
Flow linear output signal instead of pressure linear

Fixed scale, specific type of fan

DPG+FLOW SCALE
Mechanical flow meter

Flexible

DPT-FLOW-BATT
Fan flow meter with battery

Supported fan manufacturers:
Fläkt Woods, Rosenberg, Comefri, Ziehl-Abegg, ebmpapst, Nicotra Gebhardt

K-value is known

DPT-FLOW
Flow meter

Info:
Air flow display and output

K-value is unknown

DPT-Q
Differential pressure transmitter with flow linear output signal

Info:
Pressure display and flow linear output

Air volume measurement

DPT-FLOW +FLOXACT
Flow meter with probe

Info:
Based on multipoint measurement, high accuracy

Air velocity and temperature measurement with optional relay output

AVT
Air velocity transmitter

Info:
Based on hot wire technique, no need for external probes or tubes

DPG+FLOW SCALE
Mechanical flow meter

DPG+FLOW SCALE +FLOXACT
Mechanical flow meter with probe

FLOW METER FOR HVAC SYSTEMS

DPT-FLOW

DPT-Flow is a flow meter 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.



Ideal product for measuring the flow rate both on centrifugal fans and in a duct system

DPT-FLOW

TECHNICAL DETAILS

Accuracy (from applied pressure):	±1,5 % or (± 2 Pa < 125 Pa) (including: general accuracy, temperature drift, linearity, hysteresis, long term stability and repetition error).
Zero point calibration:	automatic with autozero element (-AZ) or with push button
Supply voltage:	24 VAC ±10 % / 24 VDC ±10 %
Power consumption:	< 1.0 W
Output signals for pressure and air flow (selectable by jumper):	0...10 VDC, Load R minimum 1kΩ or 4...20 mA, maximum load 500Ω
Ambient temperature:	-5...+50 °C
Response Time:	1...20 s
Protection standard:	IP54
Calculation formula:	$V = k * \sqrt{\Delta P(Pa)}$

Also usable with measurement probes such as FloXact™, pitot tubes, and air dampers

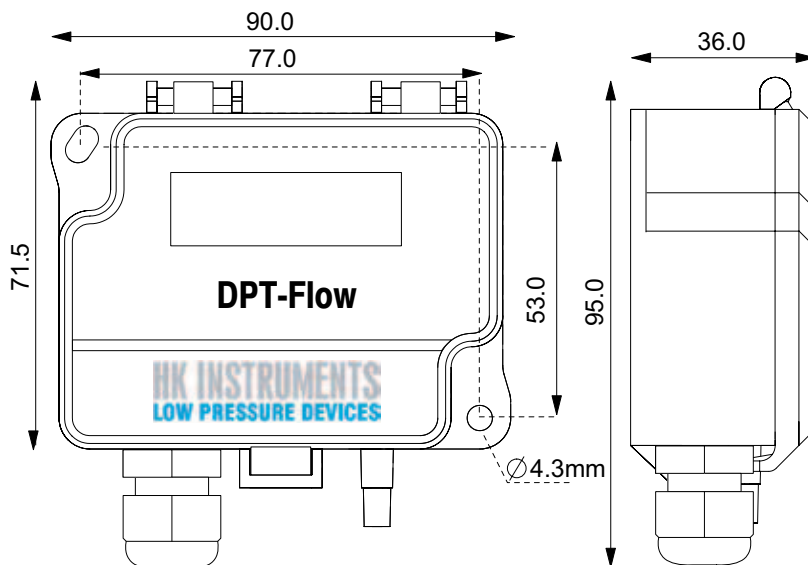
DPT-FLOW

Product code	Product description	Measuring range (Pa)
102.001.012	DPT-FLOW-1000-D	0...1000
102.002.009	DPT-FLOW-2000-D	0...2000
102.004.012	DPT-FLOW-5000-D	0...5000
102.006.013	DPT-FLOW-7000-D	0...7000
102.001.002	DPT-FLOW-1000-AZ-D	0...1000
102.002.002	DPT-FLOW-2000-AZ-D	0...2000
102.004.003	DPT-FLOW-5000-AZ-D	0...5000
102.006.002	DPT-FLOW-7000-AZ-D	0...7000

Supported fan manufacturers

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

Dimensions



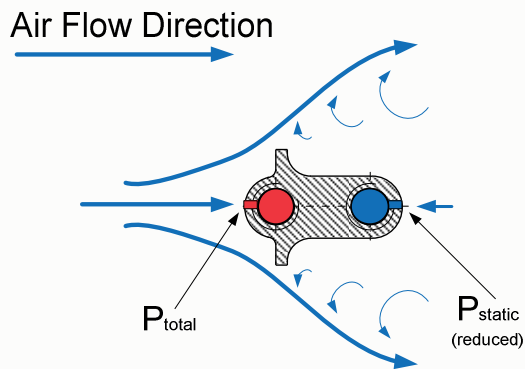
FloXact™

Application

The FloXact™ probe is a differential air pressure device designed to measure air velocities 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 approximately 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 of the FloXact™



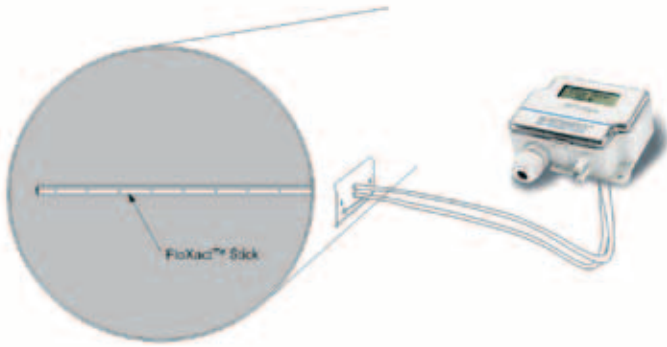


Figure 1. FloXact™ -L mounting.

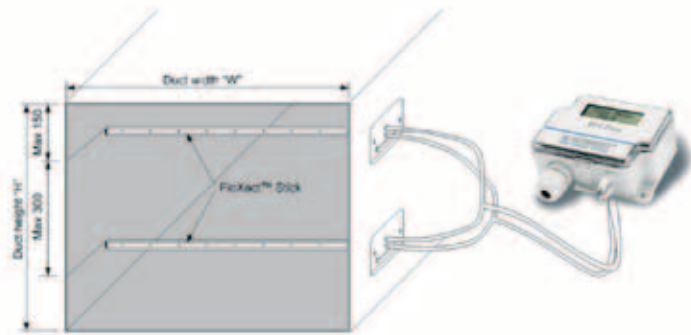
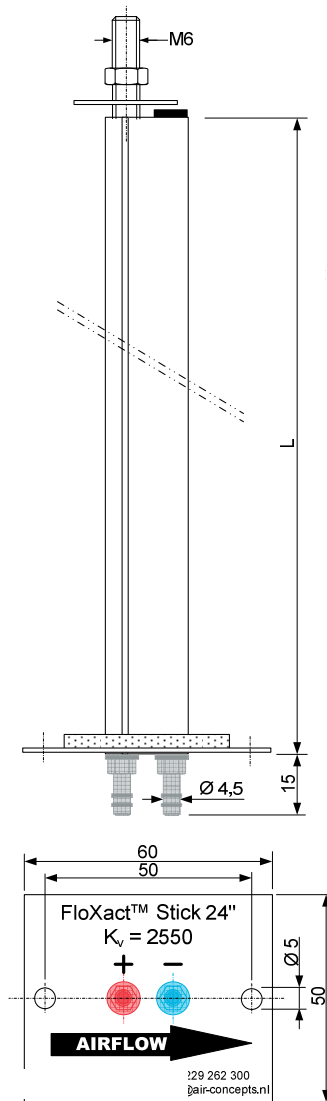
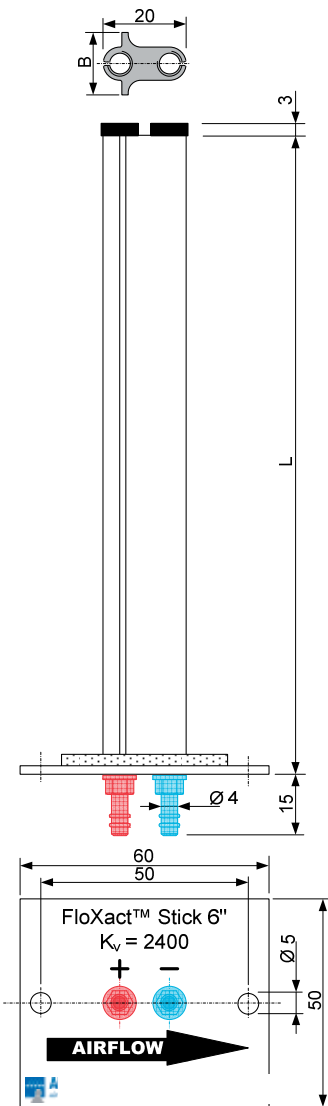


Figure 2. FloXact™ -R mounting.

Dimensions

FloXact™-R available models :
100, 125, 160, 200, 250, 315, 400 and 450

FloXact™-L available models :
250, 300, ... 1200 (50mm steps)



AIR VELOCITY TRANSMITTER

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.



Air velocity and temperature transmitter with relay output

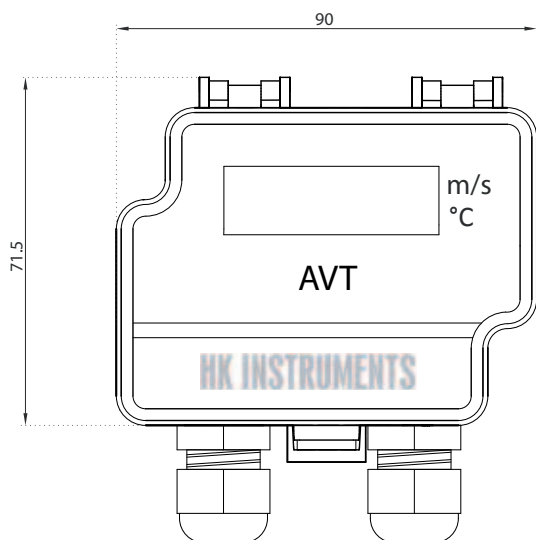
TECHNICAL DETAILS

Accuracy:	< 0,1 m/s + 5 % from reading (Range 0...2 m/s) < 0,5 m/s + 5 % from reading (Range 0...10 m/s) < 1,0 m/s + 5 % from reading (Range 0...20 m/s)
Supply voltage:	24 VDC ±10 % / 24 VAC ±10 %
Power consumption:	35 mA (50 mA with relay) + 40 mA with mA outputs
Output signal 1:	0...10 V (linear to °C), L min 1 kΩ or 4...20 mA (linear to °C), L max 400 Ω
Output signal 2:	0...10 V (linear to m/s), L min 1 kΩ or 4...20 mA (linear to m/s), L max 400 Ω
Optional relay output:	Potential free SPDT 250 VAC, 6 A / 30 VDC, 6 A with adjustable switching point and hysteresis
Ambient temperature:	0...+50 °C
Probe:	Adjustable Immersion length 50...190 mm, mounting flange included
Protection standard:	IP54

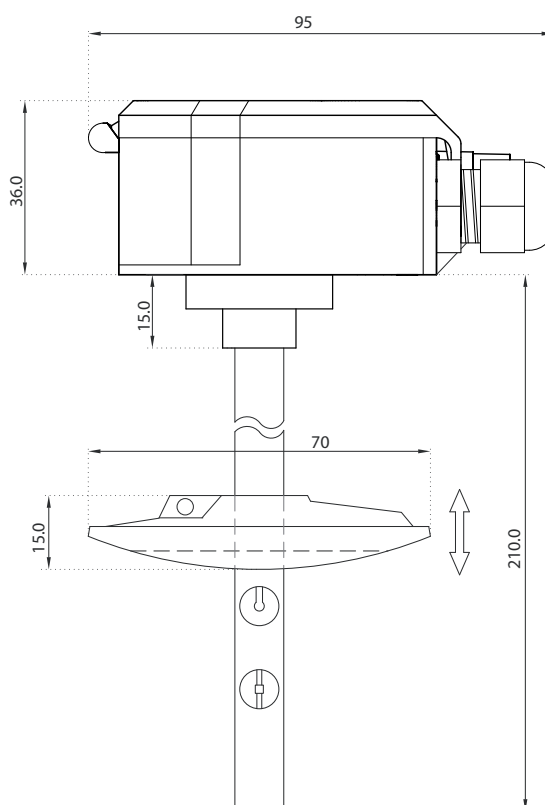
AVT

Product code	Product description	Measuring range (Pa)
117.004.001	AVT	0...2 / 0...10 / 0...20 m/s
117.004.002	AVT-D	0...2 / 0...10 / 0...20 m/s
117.004.003	AVT-D-R	0...2 / 0...10 / 0...20 m/s

Dimensions



Dimensions of probe



ACCESSORIES
SEE PAGE 56

CARBON DIOXIDE TRANSMITTERS

CDT2000 series products are economical and versatile devices that measure CO₂ concentration and temperature (T). These devices are available for duct or wall mounting. CDT2000 is the first device measuring CO₂ with large touchscreen display enabling easy configuration and adjustment. CDT2000 Duct is a cost-effective solution for measuring the total concentration of CO₂ in duct systems.



CDT2000



CDT2000 DUCT

CDT2000	CO ₂ transmitter with temperature output	24
CDT2000 Duct	CO ₂ transmitter with temperature output for duct	26



CARBON DIOXIDE TRANSMITTERS

WALL MOUNTED

CDT2000

CDT2000 combines CO₂ concentration, temperature and optional relative humidity measurements in one easy-to-use device with a touch-screen 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 CO₂ measurement.

Usage & applications

CDT2000 wall mount model is used to monitor and control CO₂ and humidity levels in offices, public spaces, meeting rooms and classrooms.



Touchscreen display for easy adjustment

CDT2000

TECHNICAL DETAILS

Suitable media:	Air and non-aggressive gases
Measurement elements:	Pt1000 temperature sensor, Non Dispersive Infrared (NDIR) CO ₂ sensor, thermoset polymer capacitive sensing element for humidity
Electrical interface:	Supply voltage: 24 VDC/VAC ±10 %
Current consumption:	150 mA (max)
Output signal 1:	0/2...10 V (linear to CO ₂), L min 1 kΩ or 4...20 mA (linear to CO ₂), L max 500 Ω
Output signal 2:	0/2...10 V (linear to rH), L min 1 kΩ or 4...20 mA (linear to rH), L max 500 Ω
Output signal 3:	0/2...10 V (linear to Temp), L min 1k Ω or 4...20 mA (linear to Temp), L max 500 Ω
Optional relay output:	Potential free SPDT 250 VAC, 6 A / 30 VDC, 6 A with adjustable switching point and hysteresis
Materials:	Housing: ABS
Cover	ABS
Ambient temperature:	0...+50 °C
Protection standard:	IP20

CDT2000

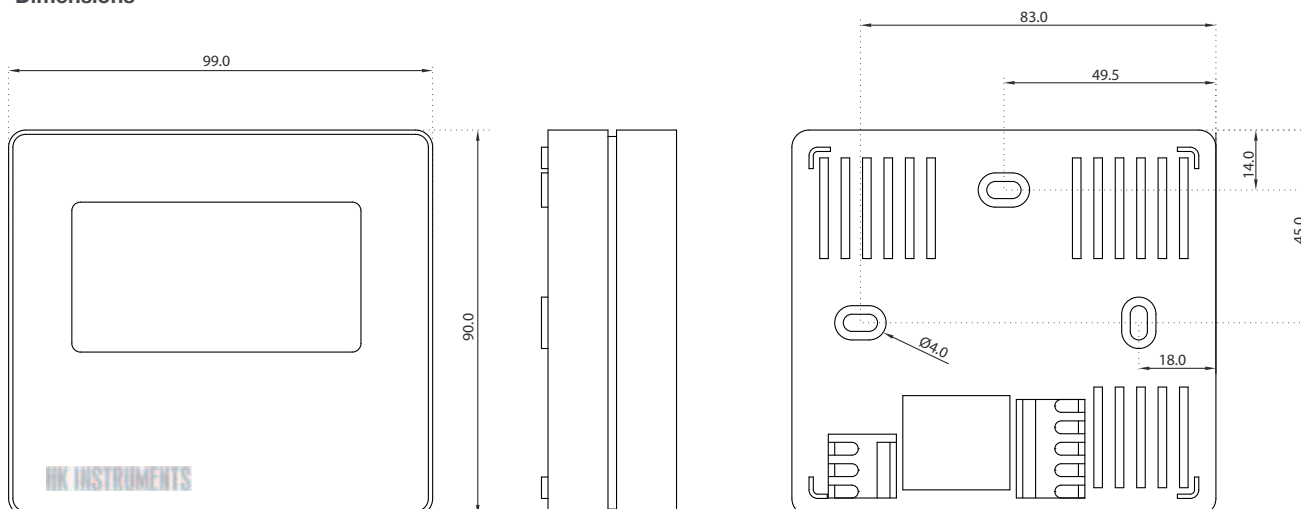
Product code	Product description*
301.001.001	CDT2000
301.001.002	CDT2000-D
301.001.003	CDT2000-1R-D
301.001.004	CDT-MOD-2000-D
301.001.005	CDT-MOD-2000-1R-D
301.003.001	CDT2000-rH
301.003.002	CDT2000-rH-D
301.003.003	CDT2000-1R-rH-D
301.003.004	CDT2000-MOD-rH-D
301.003.005	CDT-MOD-2000-1R-rH-D

*D = display, 1R = relay, MOD = Modbus, rH = humidity

Customizable to your preferences:
optional display, relay, humidity
measurement and Modbus
compatibility



Dimensions



ACCESSORIES
SEE PAGE 56

NEW!

CARBON DIOXIDE TRANSMITTERS

DUCT MOUNTED

CDT2000 Duct

CDT2000 Duct measures CO₂ concentration in air ventilation ducts. Illuminated display ensures easy readability also from a distance.

Usage & applications:

CDT2000 Duct is used to monitor and control CO₂ concentration of incoming and return air in a ventilation system.



CDT2000 DUCT

TECHNICAL DETAILS

Suitable media:	Air and non-aggressive gases
Measurement elements:	NTC10k temperature sensor, Non Dispersive Infrared (NDIR) CO ₂ sensor,
Electrical interface:	Supply voltage: 24 VDC/VAC ±10 %
Current consumption:	150 mA (max)
Output signal 1:	0/2...10 V (linear to CO ₂), L min 1 kohm or
Output signal 2:	0/2...10 V (linear to T), L min 1 kohm or
Materials:	Housing: ABS Cover: PC
Ambient temperature:	0...+50 °C
Protection standard:	IP54

CDT2000 Duct

Product code

CDT2000 Duct
CDT2000 Duct-D

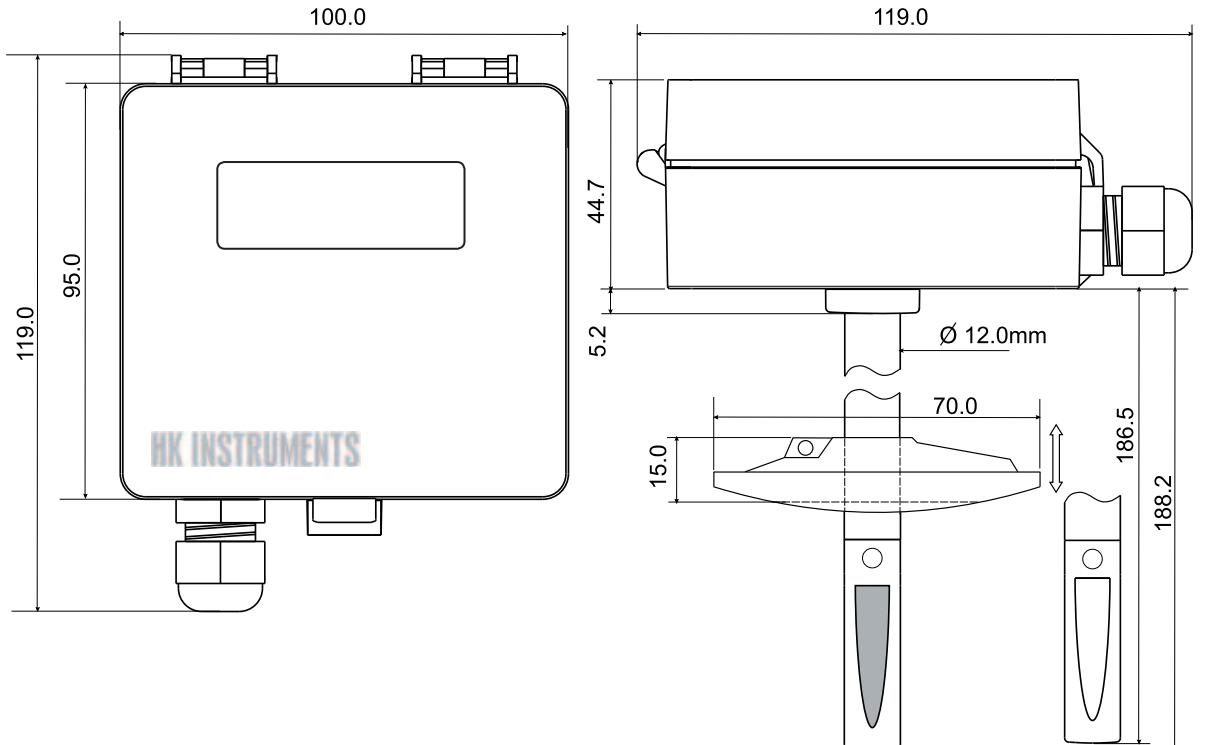
Product description*

302.001.001
302.001.002

Measure the total concentration of CO₂ where room measurement is not feasible

*D = display

Dimensions



HUMIDITY TRANSMITTERS

RHT series devices measure relative humidity (rH) and temperature. They are available for duct or wall mounting. The configuration and adjustment of the RHT is quick and easy because of the large touch-screen display. RHT Duct is a user-friendly solution for measuring relative humidity in air ducts.



RHT



RHT DUCT

RHT	Humidity (rH) transmitter with temperature output	32
RHT Duct	Humidity (rH) transmitter with temperature output for duct	34



HUMIDITY TRANSMITTERS

WALL MOUNTED

RHT

RHT is a wall mounted relative humidity and temperature transmitter that offers several different model options for easy customizability.

Usage and applications

RHT wall mount model is used to monitor and control relative humidity levels in offices, public spaces, hospitals, meeting rooms and classrooms.



Touchscreen
display for easy
adjustment

TECHNICAL DETAILS

Suitable media:	Air and non-aggressive gases
Measurement elements:	Pt1000 temperature sensor, thermoset polymer capacitive sensing element for humidity
Electrical interface:	Supply voltage: 24 VDC/VAC \pm 10 %
Current consumption:	150 mA (max)
Output signal 1:	0/2...10 V (linear to rH), L min 1 k Ω or 4...20 mA (linear to rH), L max 500 Ω
Output signal 2:	0/2...10 V (linear to Temp), L min 1k Ω or 4...20 mA (linear to Temp), L max 500 Ω
Optional relay output:	Potential free SPDT 250 VAC, 6 A / 30 VDC, 6 A with adjustable switching point and hysteresis
Materials:	Housing: ABS
Cover	ABS
Ambient temperature:	0...+50 °C
Protection standard:	IP20

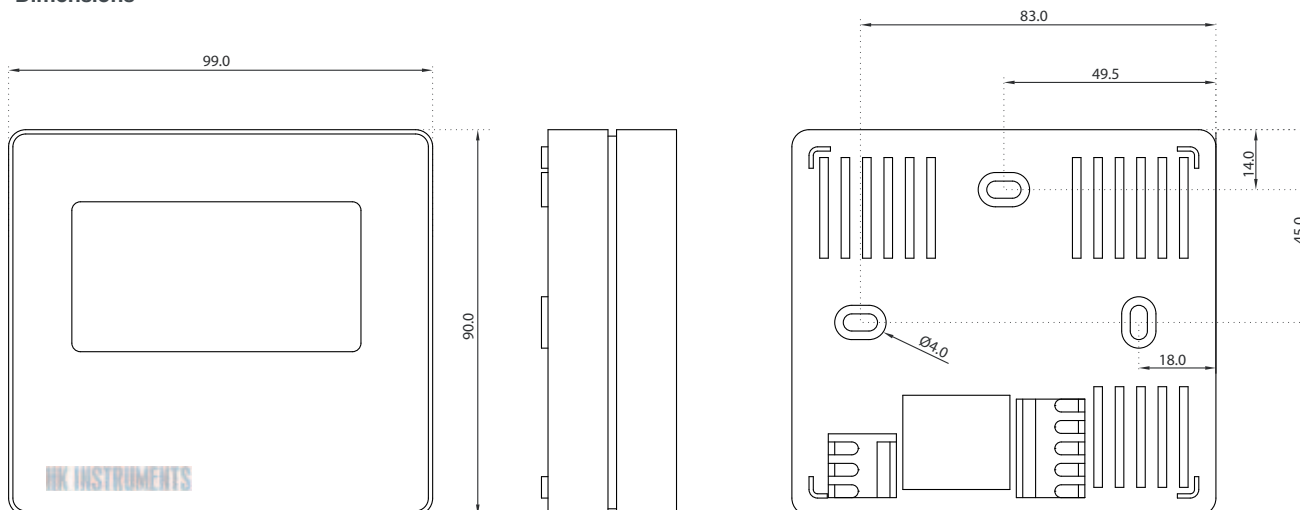
RHT

Product code	Product description*
301.002.001	RHT
301.002.002	RHT-D
301.002.003	RHT-MOD-D



*D = display, MOD = Modbus

Dimensions



NEW!

HUMIDITY TRANSMITTERS

DUCT MOUNTED

RHT Duct

RHT Duct is a duct mounted humidity and temperature transmitter available also with an illuminated display.

Usage & applications:

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



RHT DUCT

TECHNICAL DETAILS

Suitable media:	Air and non-aggressive gases
Measurement elements:	NTC10k temperature sensor, thermoset polymer capacitive sensing element for humidity
Electrical interface:	Supply voltage: 24 VDC/VAC \pm 10 %
Current consumption:	150 mA (max)
Output signal 1:	0/2...10 V (linear to rH), L min 1 kohm or
Output signal 2:	0/2...10 V (linear to T), L min 1 kohm or
Materials:	Housing: ABS Cover: PC
Ambient temperature:	0...+50 °C
Protection standard:	IP54

RHT Duct

Product code

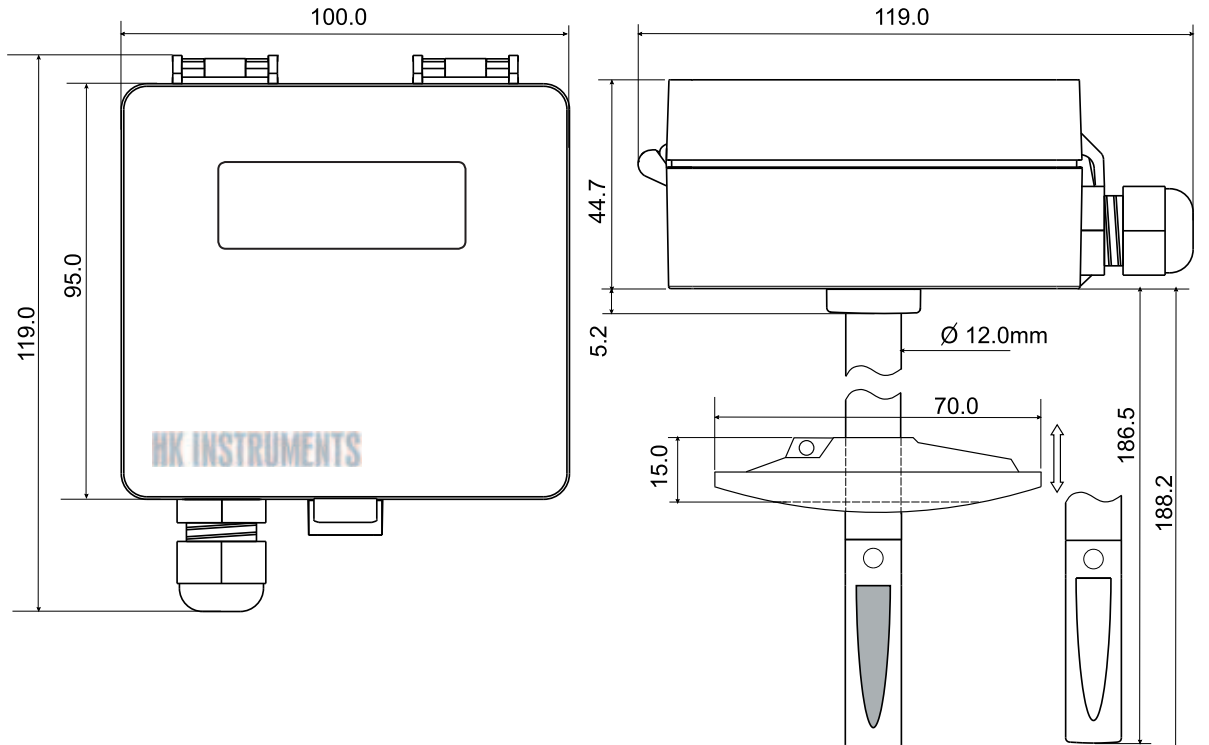
RHT Duct
RHT Duct-D

Product description*

302.002.001
302.002.002

*D = display

Dimensions



CARBON MONOXIDE TRANSMITTER

The CMT 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.



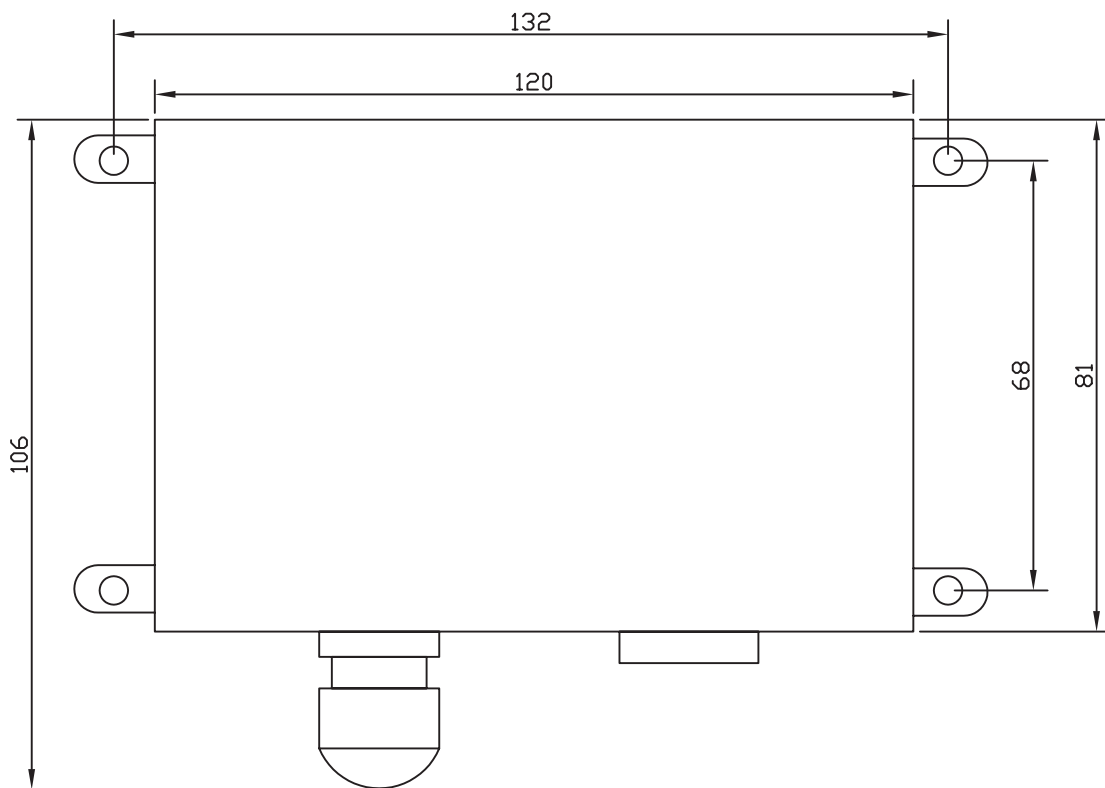
TECHNICAL DETAILS

Power:	20...28 VDC
Output:	4-20 mA (2-wire)
Protection standard:	IP65
Ambient temperature:	-10...40 °C

CMT

Code	Product	Measuring range	Linearity	Cross sensitivity
115.001.001	CMT	0...300 ppm CO	≤ 2 % on 300 ppm CO	≤ 2 % on 300 ppm CO

Dimensions



AIR PRESSURE GAUGES & MANOMETERS

Mechanical differential pressure gauges and manometers offer a reliable and cost-effective solution for pressure monitoring in HVAC systems.

DPG	Differential pressure gauge	40
MM	Liquid column manometer with leakage protection system	42
MMU	U-tube manometer	42
MMK	Vertical tube manometer	42



DPG



MM



MMU

RS



MMK



DIFFERENTIAL PRESSURE GAUGE

DPG

DPG

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

Usage

The 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
- monitoring air flow on ventilators and in air ducts (special flow scales available separately)



DPG with flow scale, a cost-effective solution for on-site air flow measurement

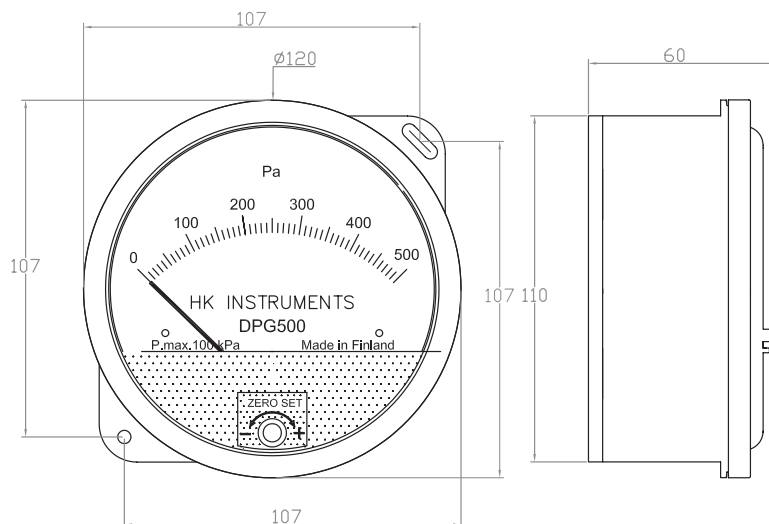
TECHNICAL DETAILS

Accuracy from FS (20°C):	< ±2 % (DPG60 < ±4 % ; DPG100 < ±3 %)
Ambient temperature:	-5...+60 °C
Zero point adjustment screw:	external in the plastic cover
Mounting:	surface mounting or flush mounting
Mounting position:	vertical
Measuring air flow:	special flow scales available separately, easy to install on-site

DPG

Code	Product description	Measuring range (Pa)
106.001.001	DPG60	0-60 Pa
106.002.001	DPG100	0-100 Pa
106.003.001	DPG120	0-120 Pa
106.004.001	DPG200	0-200 Pa
106.005.001	DPG250	0-250 Pa
106.006.001	DPG300	0-300 Pa
106.022.001	DPG400	0-400 Pa
106.007.001	DPG500	0-500 Pa
106.008.001	DPG600	0-600 Pa
106.009.001	DPG800	0-800 Pa
106.010.001	DPG1k	0-1 kPa
106.011.001	DPG1,5k	0-1,5 kPa
106.012.001	DPG2k	0-2 kPa
106.013.001	DPG3k	0-3 kPa
106.014.001	DPG5k	0-5 kPa

Dimensions



Interchangeable flow scales



Snap!



Install!



Go!

LIQUID COLUMN MANOMETERS

MM, MMU & MMK



Reliable inclined column manometer
with leakage protection system



Traditional U-tube
manometer with easy
zero point calibration

Extremely robust mano-
meters used e.g. in vessels



Liquid column manometers are reliable and inexpensive traditional pressure meters. The manometers are good for measuring and indicating small overpressure, underpressure 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

MM			
Code	Product	Measuring range (Pa)	Accuracy
107.001.001	MM±50 *)	-50...0... +50 Pa	1 Pa
107.002.001	MM100 *)	-20...0... +100 Pa	1 Pa
107.003.001	MM±100500	-100...0... +500 Pa	5 Pa/25 Pa
107.004.001	MM200600	0...200...600 Pa	5 Pa/25 Pa

*) The types delivered with level bubble

Optional level bubble is available to all models on request!

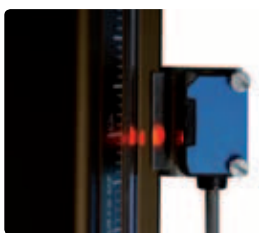
MMU

MMU			
Code	Product	Measuring range (Pa)	Accuracy
113.002.001	MMU±500	±500 Pa	10 Pa

MMK

MMK			
Code	Product	Measuring range (Pa)	Accuracy
108.001.001	MM1K	0...1 000 Pa	10 Pa
108.002.001	MM1,5K	0...1 500 Pa	10 Pa
108.003.001	MM2K	0...2 000 Pa	10 Pa
108.004.001	MM3K	0...3 000 Pa	10 Pa
108.005.001	MM5K	0...5 000 Pa	10 Pa
108.006.001	MM7K	0...7 000 Pa	10 Pa
108.007.001	MM10K	0...10 000 Pa	10 Pa

Available with photoelectric limit switch. 10...30 VDC.



AIR PRESSURE SWITCHES

Our offering includes two kinds of differential pressure switches.

The mechanical differential pressure switches (PS) offer a cost-effective solution for filter monitoring and other applications, where on/off information is required.

The electronic differential pressure switches (DPI) offer up to two relay outputs, each of which can be configured independently, together with 0-10 V output. Therefore, it is the right option for more sophisticated building automation systems. It is suitable for example for boiler pressure monitoring and alarm.



DPI



PS

DPI Electronic differential pressure switch with 2 relays and 0-10 V output 46
PS Mechanical differential pressure switch48



DIFFERENTIAL PRESSURE INDICATOR

DPI

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

Usage & applications

The differential pressure indicator 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.



Need an alarm?

Select DPI - A transmitter with relay output!

TECHNICAL DETAILS

Accuracy from range:	see model selection table
Long term stability, typical 1 year:	± 1 Pa (± 8 Pa without autozero element -AZ)
Zero point calibration:	automatic with autozero element (-AZ) or with push button
Supply voltage:	21-35 VDC / 24 VAC ± 10 % (without -AZ option) 24 VDC ± 10 % / 24 VAC ± 10 % (with -AZ option)
Current consumption:	35 mA + relays (7 mA each) + AZ (20 mA) + 0...10 V output (10 mA)
Output signals:	0...10 V, L min 1 k Ω Relay output 1 (250 VAC / 30 VDC / 6 A) Optional relay output 2 (250 VAC / 30 VDC / 6 A)
Ambient temperature:	-10...+50 $^{\circ}\text{C}$
Response Time:	0,5...10s
Protection standard:	IP54

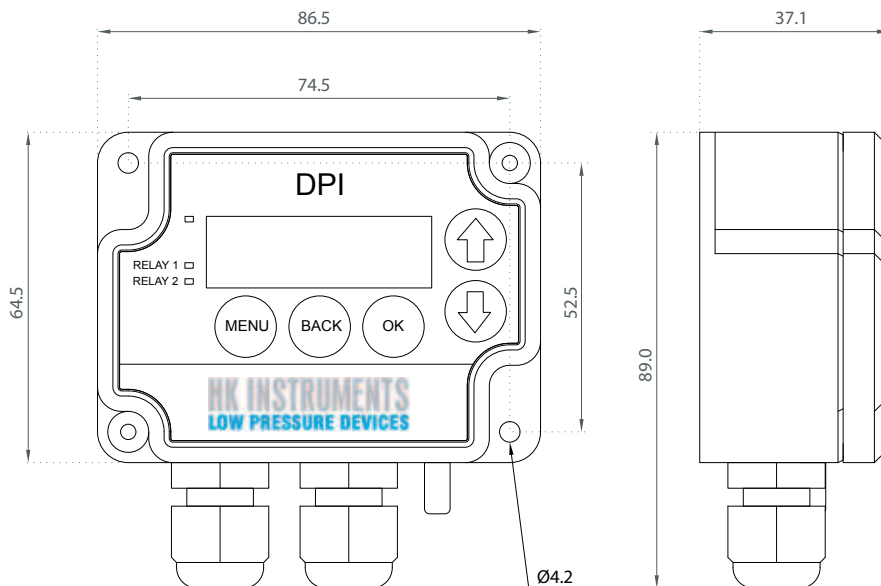
DPI

Product code	Product description	Measuring range (Pa)	Accuracy from range
118.001.001	DPI \pm 500-1R-D	± 100 / ± 250 / ± 300 / ± 500	$\pm 1,5$ % or (± 3 Pa < 250 Pa)
118.001.002	DPI \pm 500-1R-AZ-D	± 100 / ± 250 / ± 300 / ± 500	$\pm 1,5$ % or (± 3 Pa < 250 Pa)
118.001.003	DPI \pm 500-2R-D	± 100 / ± 250 / ± 300 / ± 500	$\pm 1,5$ % or (± 3 Pa < 250 Pa)
118.001.004	DPI \pm 500-2R-AZ-D	± 100 / ± 250 / ± 300 / ± 500	$\pm 1,5$ % or (± 3 Pa < 250 Pa)
118.002.001	DPI2500-1R-D	100 / 250 / 1000 / 2500	$\pm 1,5$ % or (± 6 Pa < 250 Pa)
118.002.002	DPI2500-1R-AZ-D	100 / 250 / 1000 / 2500	$\pm 1,5$ % or (± 6 Pa < 250 Pa)
118.002.003	DPI2500-2R-D	100 / 250 / 1000 / 2500	$\pm 1,5$ % or (± 6 Pa < 250 Pa)
118.002.004	DPI2500-2R-AZ-D	100 / 250 / 1000 / 2500	$\pm 1,5$ % or (± 6 Pa < 250 Pa)

* AZ for autozero element, -2R for 2 relays

** including: general accuracy, temperature drift, linearity, hysteresis and repetition error

Dimensions



DIFFERENTIAL PRESSURE SWITCH

PS

The 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, underpressure and differential pressure.

Applications

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

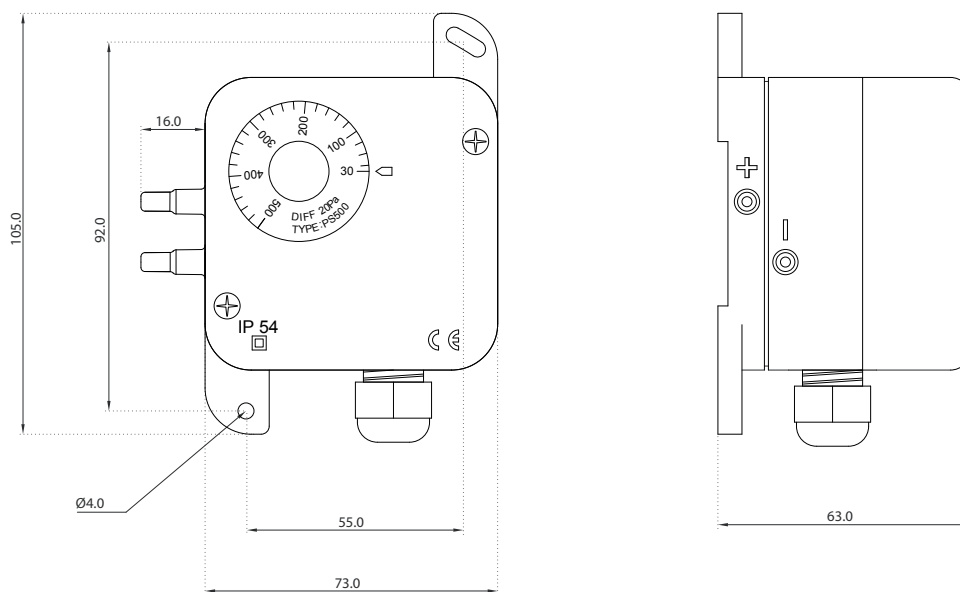


TECHNICAL DETAILS

Accuracy of switching point (low limit typ.):	±5 Pa (PS1500: ±10 Pa, PS4500: ±50 Pa)
Service life:	over 1 000 000 switching operations
Ambient temperature:	-20...+60 °C
Protection standard:	IP54

PS Code	Product	Measuring range (Pa)	Electrical rating (resistive load)	Electrical rating (inductive load)
105.001.001	PS200	20...200 Pa	0,1A / 250 VAC	--
105.002.001	PS300	30...300 Pa	3A / 250VAC	2A / 250VAC
105.003.001	PS500	30...500 Pa	3A / 250 VAC	2A / 250 VAC
105.004.001	PS600	40...600 Pa	3A / 250 VAC	2A / 250 VAC
105.005.001	PS1500	100...1500 Pa	3A / 250 VAC	2A / 250 VAC
105.006.001	PS4500	500...4500 Pa	5A / 250 VAC	2A / 250 VAC

Dimensions



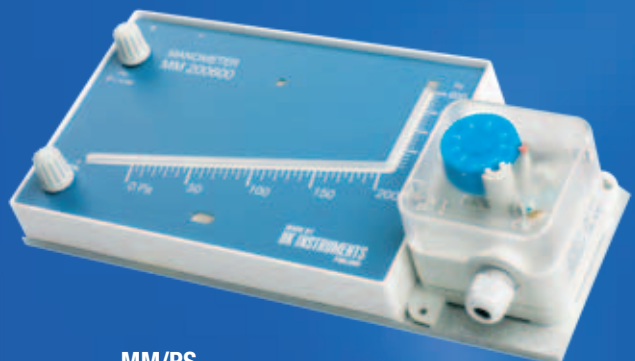
FILTER ALERTS (DISPLAY + RELAY)

In many situations filter monitoring requires an alarm signal and a local display. Our filter alerts are the right solution for these situations. The filter alerts combine differential pressure switches with gauges and manometers into one practical product offering.

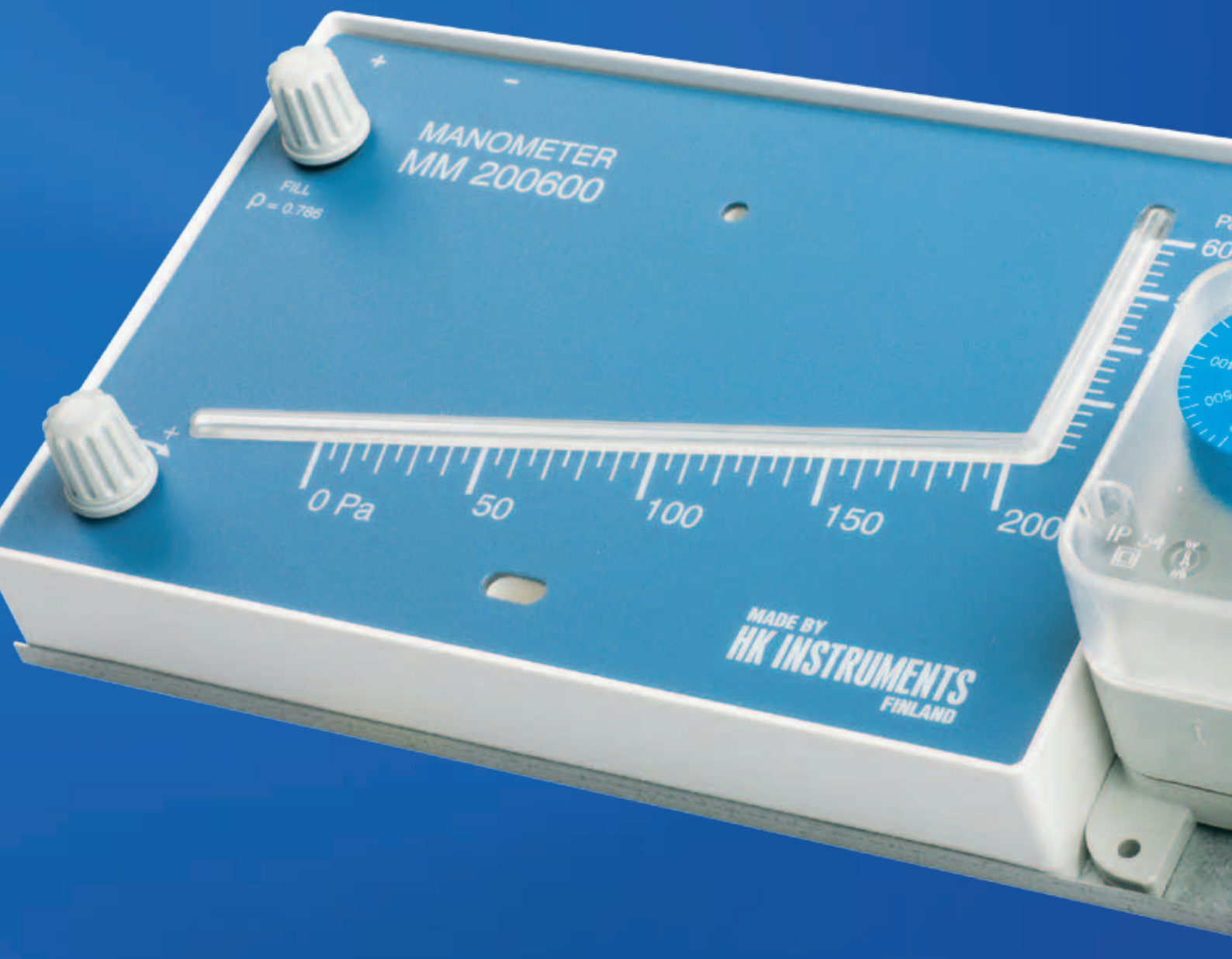
DPG/PS	Combination of differential pressure gauge and differential pressure switch	52
MM/PS	Combination of liquid column manometer and differential pressure switch	52



DPG/PS



MM/PS



FILL
 $\rho = 0.786$

MANOMETER
MM 200600

0 Pa 50 100 150 200

MADE BY
HK INSTRUMENTS
FINLAND

IP 54

Pa
60
001
005

FILTER ALERTS

The filter alerts are a solution for systems requiring visual indication of pressure on site, together with 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).



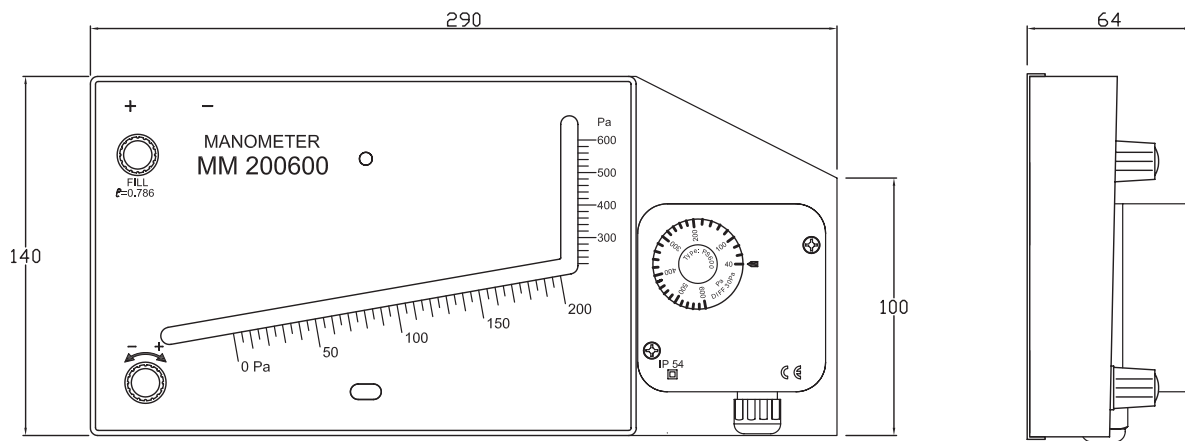
MM/PS

MM/PS			
Code	Product	MM range (Pa)	PS range (Pa)
110.001.001	MM200600/PS600	0... 600 Pa	40...600 Pa

Accessories

Same as for MM and PS

Dimensions



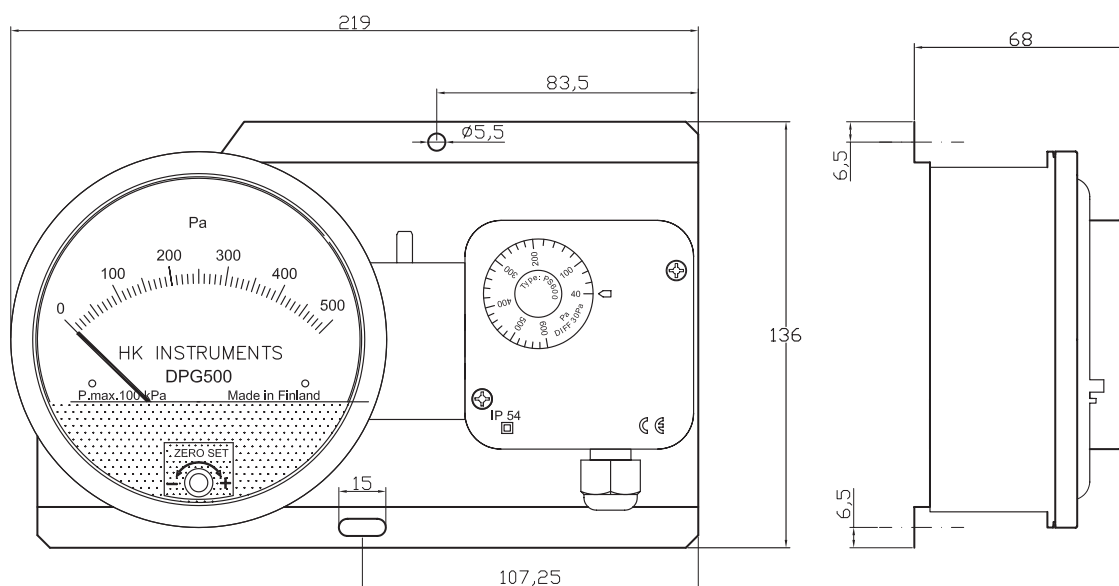
DPG/PS

DPG/PS			
Code	Product	DPG range (Pa)	PS range (Pa)
109.001.001	DPG200/PS200	0... 200Pa	20...200 Pa
109.002.001	DPG600/PS600	0... 600 Pa	40...600 Pa
109.003.001	DPG1,5K/PS1500	0...1500 Pa	100...1500 Pa

Accessories

Same as for DPG and PS

Dimensions



ACCESSORIES
SEE PAGE 56

PRESSURE TRANSMITTERS FOR LIQUIDS

These robust devices are the right choice when looking for reliable pressure instruments for liquids.

PTL	Pressure transmitters for liquids	55
DPTL	Differential pressure transmitters for liquids	55



PTL



DPTL

PTL

The PTL is a pressure transmitter for pressure detection in liquids for air-conditioning, heating and water systems. Suitable for plants that use refrigerants.

TECHNICAL DETAILS

Accuracy (typ.):	±0,7%
Power:	15...24 VDC/VAC
Output:	0...10 V or 4-20 mA
Protection standard:	IP65
Pressure connector:	G1/4" (G1/2" adaptor included)
Ambient temperature:	-40...105 °C

PTL Code	Product	Measuring range (bar)
112.001.001	PTL4/V	0...4 bar
112.002.001	PTL6/V	0...6 bar
112.003.001	PTL10/V	0...10 bar
112.004.001	PTL16/V	0...16 bar
112.005.001	PTL25/V	0...25 bar
112.001.002	PTL4/A	0...4 bar
112.002.002	PTL6/A	0...6 bar
112.003.002	PTL10/A	0...10 bar
112.004.002	PTL16/A	0...16 bar
112.005.002	PTL25/A	0...25 bar



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

Accuracy from FS:	±1 %
Power:	15...24 VDC/VAC
Output:	0...10 V or 4-20 mA
Protection standard:	IP54
Pressure connector:	inside thread G1/4"
Ambient temperature:	-10...50 °C

DPTL Code	Product	Measuring range (bar)
111.001.001	DPTL1/V	0...1 bar
111.002.001	DPTL2,5/V	0...2,5 bar
111.003.001	DPTL4/V	0...4 bar
111.004.001	DPTL6/V	0...6 bar
111.001.002	DPTL1/A	0...1 bar
111.002.002	DPTL2,5/A	0...2,5 bar
111.003.002	DPTL4/A	0...4 bar
111.004.002	DPTL6/A	0...6 bar



ACCESSORIES

	DPT (all models except 2W)	DPT-2W	DPT-Flow	AVT	CDT / RHT	CDT / RHT Duct	CMT	DPG	MM	MMU	MMK	DPI	PS	MM/PS	DPG/PS	DPTL	PTL
STANDARD ACCESSORIES																	
Product description																	
Mounting screw	x	x	x		x	x		x	x		x	x	x	x	x		
PVC tube 2m	x	x	x					x	x	x	x	x	x	x	x		
Duct connector, plastic for d=4 mm tube (80 mm)	x	x	x					x				x	x		x		
Gauge fluid 30 ml									x	x	x			x			
Attention stickers									x					x	x		
Adaptor G 1/4" to G1/2"																x	
Mounting flange					x							x					
OPTIONAL ACCESSORIES																	
Product description																	
Calibration certificate (0, 50 %, 100 %)	x	x	x	x				x				x	x				
Display 4-digit			x		x												
Display 2-line backlit (blue)	x			x		x											
PVC tube 4/7 2 m	x	x	x					x	x	x	x	x	x	x	x	x	
PVC tube 4/7 matt (100m)	x	x	x					x	x		x	x	x	x	x		
Accessory pack (tube, duct connectors)	x	x	x					x	x	x	x	x	x	x	x	x	
Accessory pack for DPG flush mounting								x									
Gauge fluid 0,786; 30 ml (red)									x	x	x			x			
Gauge fluid 0,786; 250 ml (red)									x	x	x			x			
Gauge fluid 1,870; 30 ml (blue)									x					x			
Duct connector, plastic for d=4 mm tube (80 mm)	x	x	x					x	x	x	x	x	x	x	x	x	
Duct connector, metallic for d=4 mm tube (40 mm)	x	x	x					x	x		x	x	x	x	x	x	
Duct connector, metallic for d=4 mm tube (100 mm)	x	x	x					x	x		x	x	x	x	x	x	
T-connector for d=4 mm tube	x	x	x					x	x	x	x	x	x				
Mounting screw for PS/DPG/DPT ZN M4x2 (1000 pcs)	x	x	x	x			x	x	x	x	x	x	x				
Flow scale								x								x	



HK INSTRUMENTS – TERMS AND CONDITIONS

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 2010 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 handed 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 24 months 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 or his/her authorized representative. 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.

13. 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.

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

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

16. 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.

CHECK
OUR NEW
WEBSITE!

WWW.HKINSTRUMENTS.FI

HK INSTRUMENTS
LOW PRESSURE DEVICES

Home About Us Products Contact Us Tel. 1-800-878-2142

Welcome

Feedback

Where to buy the products? See who is our distributor at your local area.

Product updates and upcoming exhibitions

European Expertise
HK Instruments' culture epitomizes European craftsmanship. The company was created by an innovative engineer named Heikki Kallionmäki in 1967 in Muusane, Finland. Precision and producing to specifications has been a hallmark of the HK Instruments' philosophy from the beginning. Our employees bring years of experience to the job every day and help to craft the products of tomorrow.

World Class Products
State of the art production facilities, equipment, and people, world class design and rigorous testing, enable the production of World Class products.

Caring for Customers
That meet the demanding needs of our distributor network, and customers in the HVAC/R and building automation markets around the world.

News Contact us! HK Instruments Inc Tel. 1-800-878-2142

HK INSTRUMENTS
LOW PRESSURE DEVICES

Home About Us Products Contact Us Tel. 1-800-878-2142

DPI

Feedback

Detailed product information

DPI
Electronic Pressure Switches

DPI Differential Pressure Indicator

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

Usage

The Differential Pressure Indicator is used for measuring and indicating low pressures of air and non-combustible gases in order to monitor and control building automation, HVAC and clean room systems.

Applications

Used as an electronic pressure switch to monitor

Air filters & fans
Clean rooms
Boilers
Process hygiene

3...10V output in each device
1-relay and 2-relay versions available
User interface via push buttons located on the lid membrane.

Order sample

Applications Technical data Product information

HK 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 which led to the discovery of the Higgs Boson. For the differential pressure measurements CERN has selected the DPT250-R8 sensor from HK Instruments. This device complies with CERN's stringent requirements in terms of precision, reliability and ease of integration. A total of 50 DPT transmitters will be installed in the underground areas such as experimental caverns, access galleries and pressurized modules. In addition, air quality transmitters of type CDT2000 will be used for the control of air conditioning in control rooms of the LHC experiments.

Francisco Josa

CERN - European Organization for Nuclear Research



eNewsletter

Do you want to receive up-to-date information about product releases or perhaps you want to know on which exhibitions HK Instruments is present?

Sign up now for our eNewsletter and be the first to know! Simply send us an email to info@hkinstruments.fi or use the feedback form on our website.

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.

Over 20 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

