HK INSTRUMENTS

USER-FRIENDLY MEASURING DEVICES

DPT-2W - 2-wire differential pressure transmitter

USER GUIDE

MANAGEMENT SYSTEM CERTIFICATION
DNV
ISO 9001 · ISO 14001

5 YEAR WARRANTY

Contents

1 Introduction

Thank you for choosing an HK Instruments DPT series differential pressure transmitter. The DPT series is intended for use in commercial environments. The DPT-2W series differential pressure transmitter provides a 4...20 mA loop output.

All DPT-2W differential pressure transmitters are available with display.

1.1 About this user guide

This user guide contains important information about the installation, wiring, configuration and use of the product. Read this guide carefully before you install the product, connect the wires, or operate the product. Make sure that you fully understand all instructions before you start work. If you are not sure what the instructions mean, contact the seller or the manufacturer.

Follow all instructions in this user guide carefully. Always obey the applicable local rules and regulations.

The original instructions were written in English. If there are differences between the English instructions and the translations, refer to the English instructions.

If you find a mistake in the English instructions or in the translations, please send the details to the manufacturer.

1.2 Intended use

The DPT-2W differential pressure transmitter is intended to be used to measure differential pressure in ventilation ducts.

These transmitters are intended to be connected to building automation systems in the HVAC/R industry.

1.3 Applications

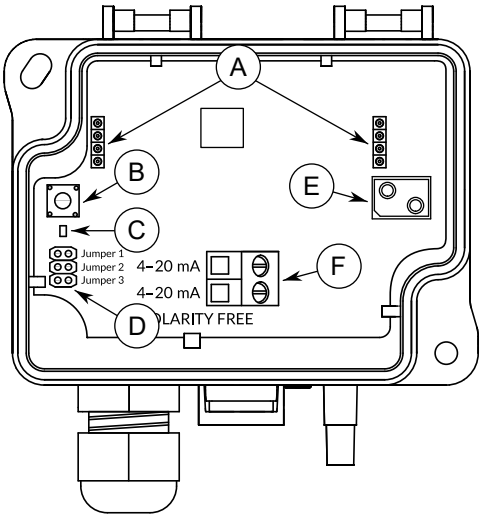
DPT-2W devices are commonly used in HVAC/R systems for:

- fan, blower and filter monitoring
- pressure and flow monitoring
- valve and damper control
- pressure monitoring in cleanrooms

2 Description of the product

This section introduces the main parts of the product and contains the technical specifications.

2.1 Overview of the main parts



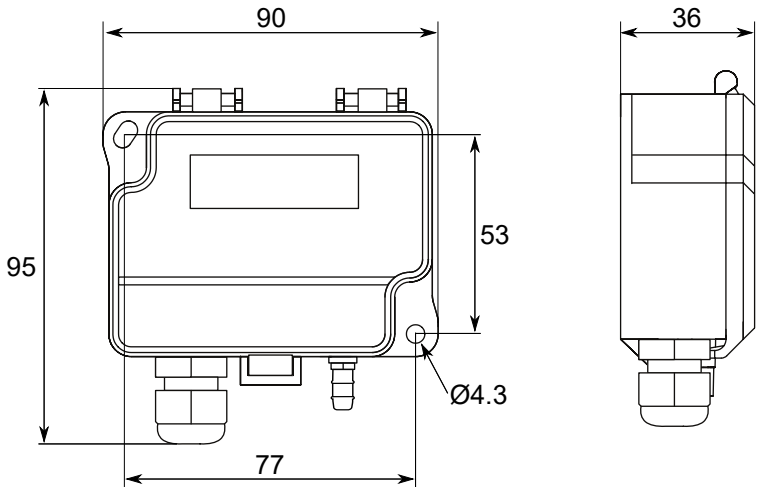
A Display connectors
B Zeroing button
C Indicator light
D Pressure range selection jumpers
E Pressure sensor
F Wiring terminal

2.2 Technical specifications

Property	Value
Supply	10...35 Vdc
Pressure measurement ranges	
-250 models	±25 / ±50 / ±100 / ±150 / 0...25 / 0...50 / 0...100 / *0...250 Pa
-2500 models	±100 / 0...100 / 0...250 / 0...500 / 0...1000 / 0...1500 / 0...2000 / *0...2500 Pa
-7000 models	0...750 / 0...1000 / 0...1250 / 0...2250 / 0...2500 / 0...3750 / 0...5000 / *0...7000 Pa
Accuracy (temperature compensated)	±1.5 % + 2 Pa from value
Overpressure	
Proof pressure	25 kPa
Burst pressure	30 kPa
Long term stability	
-250 and -2500 models	typ. -8…8 Pa / year
-7000 models	typ. -22…22 Pa / year
Response time	*0.8 s / 4 s
Zeroing	Manually by push button
Sensor	MEMS, no flow-through
Output	
Signal	4...20 mA, >20 Ω
Accuracy	typ. ±0.04 mA at 25 °C, load 100 Ω
Display (-D models)	3 1/2 digit display
Operating conditions	

Property	Value	
Temperature	-10...50 °C	
Humidity	0...95 %rH (non-condensing)	
Wire	0.2...1.5 mm^2 (24...16 AWG)	
Housing		
Materials	ABS and PC plastic	
Protection class	IP54	
Cable gland	M16	
Mounting	2 x Ø4.3 mm screw holes, one slotted	
Dimensions (w x h x d)	90 x 95 x 36 mm	
Weight	150 g	
Storage temperature	-40...70 °C	
Conformance	CE	UKCA
EMC	2014/30/EU	S.I. 2016 No. 1091
RoHS	2011/65/EU	S.I. 2012 No. 3032
WEEE	2012/19/EU	S.I. 2013 No. 3113
	* factory setting	

2.3 Dimensions



3 Safety precautions

The product is developed, manufactured and tested according to high quality standards. However, instructions for safe use shall be taken account when installing, using or disposing the product or parts of product.

Read this user guide carefully before commissioning, using or servicing this device. To avoid any kind of damage to people or property, follow the instructions carefully. HK Instruments is not liable for any hazards or damages to people or property which are caused by ignoring the using or installation instructions.

To avoid electrical shock or damage to equipment, disconnect power before installing or servicing the product. Use only a proper wiring rated for the full operating voltage and maximum current in the system even in the event of a fault.

To avoid potential fire and/or explosion, do not use the product in potentially flammable or explosive atmosphere.

The product condition must be checked before installation. Do not drop the product or use excessive force during installation. Do not use the product if any damages are visible.

After installation the product will be part of a system whose specifications and performance characteristics are not designed or controlled by HK Instruments. Refer to national and local authorities to ensure that the installation is functional and safe.

The product should only be used in professionally designed applications. Unauthorised modifications are not allowed. The product must not be used in relation with any equipment that in case of a failure may threaten, directly or indirectly, human health or life or result in danger to human beings, animals or property.

In this document, there are different kind of warnings and notes. The warning and note types are defined in the following table.

Sign	Description
WARNING:	The warning symbol indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION:	The caution symbol indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.
Important:	The important symbol indicates a potentially hazardous situation which, if not avoided, could result in damage to the device or property.
Note:	The note symbol indicates a useful tip or a recommended way to complete a task. These notes also provide information that is useful but not critical to the user.

4 Commissioning

4.1 Mounting the product

WARNING: Handle the product with care. Dropping the product may cause internal damage and unwanted functions in the connected system.

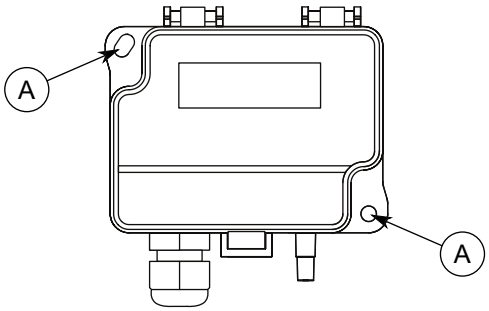
1. Check that the product is not damaged during transportation.
2. Select the mounting location.

CAUTION: Place the product outside the reach of children and animals.

Important: The product may only be installed in a location where the ambient conditions meet the operating condition requirements.

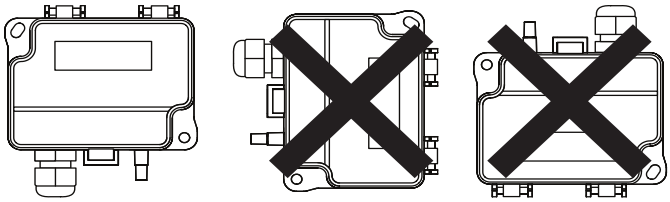
Operating conditions	
Temperature	-20...50 °C
Humidity	0...95 %rH (non condensing)

3. Mount the product on flat surface using the mounting points.



A. Mounting point

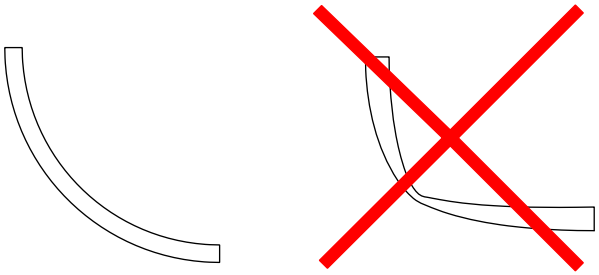
Mounting orientation:



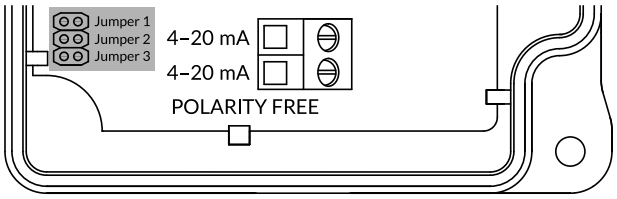
Select the mounting screws according to the mounting surface. The maximum screw diameter is 4.3 mm.

Important: Don't use excessive force when tightening the mounting screws.

4. Install the measuring hoses carefully so that the hoses don't bend too tightly.
Too tight curves may prevent the air flow to the sensor.



4.2 Measuring range selection



Settings for -250 models

	±25	±50	±100	±150	0...25	0...50	0...100	[1] 0...250
Jumper 1	● ●	● ●	● ●	● ●	■	■	■	■
Jumper 2	● ●	● ●	■	■	● ●	● ●	■	■
Jumper 3	● ●	■	● ●	■	● ●	■	● ●	■

Settings for -2500 models

	±100	0..100	0...250	0...500	0...1000	0...1500	0...2000	[1] 0...2500
Jumper 1	● ●	● ●	● ●	● ●	■	■	■	■
Jumper 2	● ●	● ●	■	■	● ●	● ●	■	■
Jumper 3	● ●	■	● ●	■	● ●	■	● ●	■

Settings for -7000 models

	0..750	0..1000	0...1250	0...2250	0...2500	0...3750	0...5000	[1] 0...7000
Jumper 1	● ●	● ●	● ●	● ●	■	■	■	■
Jumper 2	● ●	● ●	■	■	● ●	● ●	■	■
Jumper 3	● ●	■	● ●	■	● ●	■	● ●	■

[1] Factory setting

4.3 Selecting response time

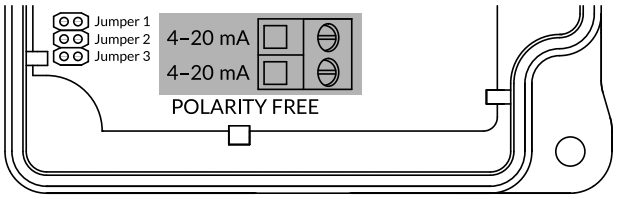
The response time affects how fast the transmitter reacts to changes in the system. The response time is the time the device takes to reach 63 % of the measured value. To smooth out unstable pressure fluctuations in applications, select a longer response time.

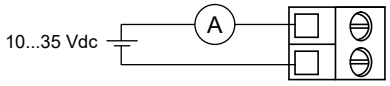
1. Open the cover.
2. Press the zeroing button briefly.
   The indicator light and display (-D models) indicate the selected response time.

Indicator light	Display	Response time
Three short flashes	*0.8*	0.8 seconds
Two long flashes	*4.0*	4 seconds

3. Close the cover.

4.4 Wiring



4-20 mA *4-20 mA*		Wiring polarity is free.

4.5 Zeroing

The possible zero point drifting can be eliminated by using the zeroing button on the circuit board.

Note: Supply voltage must have been connected for one hour prior the zeroing.

1. Disconnect both pressure measurement hoses.
2. Push the zeroing button until the indicator light turns on.
   The indicator light turns on approximately after 4 seconds.
3. Release the zeroing button.
   Zeroing starts and the indicator turns off. The zeroing is complete when the indicator light flashes two times.
4. Connect the pressure measurement hoses.

5 Disposal

The device is considered as electrical and electronic equipment for disposal in terms of the applicable European Directive. At the end of life the product must enter the recycling system at an appropriate collection point.

- The device must be disposed through channels provided for this purpose.
- The disposal must be completed according to the local and currently applicable laws and regulations.

Generally all metals can be recycled as material. Plastics and cardboard packaging material can be used in energy recovery. Printed circuit boards need selective treatment according to IEC 62635 guidelines. To aid recycling, plastic parts are marked with an appropriate identification code. Contact your local HK Instruments distributor for further information on environmental aspects and recycling instructions for professional recyclers.

6 Warranty policy

The seller is obligated to provide a warranty of five 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 the 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.