thermokon PDI1- Series Air Velocity and Temperature Sensor Instructions

thermokon®
asia pacific

Ti3230en
PDH- Series (V&T),

Technical Instruction
Air Velocity and Temperature Sensor
with Active Output

Contents

PDI1- Series Air Velocity and Temperature Sensor

The PDI1-Series (V&T) is designed to measure air velocity and temperature in HVAC systems
Field selected measuring ranges and sensor outputs
Field select Multiple Velocity measuring ranges
Optional with LCD and relay output available
Optional LCD display available.
The sensor works with low power supply
The control outputs are active.

USE

Compatible to all common HVAC DDC and Analog Controls systems, with/without Building Automation System
Differential pressure measurement in HVAC systems
Monitoring the air dampers in the primary or secondary controls systems
Supervision of the status of heating / cooling coils, preventing overheating / freezing

Featured

Sensor with active outputs
Internal selectable measuring ranges and sensor outputs
Optional with LCD- backlit display
Optional with field adjustable relay output
Professional and practical product design, withstands rough environmental conditions
Easy to use, install and maintain

Product Range

Order Codes	Power Supply	Sensor Outputs	Measuring Ranges	Display	Relay Output	Protection
PD11.AA	AC/DC 24V ±10%	0….10V* or 4….20mA	0…50°C 0…2m/s 0…10m/s* 0…20m/s	n/a	n/a	IP54
PD11.BA				LCD	n/a	
PDI1.CA				LCD	Relay (STDP)	

* default Value

Sensor Specification

Sensor Specification	Measured	Temperature / Air Flow
	Sensor Characteristics	Active / Active
	Sensor Output (s)	0..10V (min 1k Q) or 4…20mA (min. 0.4kQ)
	Accuracy (T)	<0.2m/s +5% of actual value
	Accuracy (v=0…2m/s)	<0.5m/s +5% of actual value
	Measuring Range (v)	0…10m/s /0..50°C
	Optional Measuring Range (v)	0…2m/s; 0…20m/s
	Temperature Sensor	0…50°C

Technical Information

Electrical Information	Power Supply	AC/DC 24V (10%)
	Frequency	50/60 Hzat AC 24V
	Terminal Clamp	Screw terminal, max. 1.5mm?
	Power Consumption	max. 125mA
	Relay Rating	AC 250V, max 6A; DC 30V, max. 6A
Mechanical Information	Immersion Rod Diameter	@10mm
	Immersion Rod Length	195mm
	Cable Entry	Dual entry, 2 x M16, @6…28mm cables
	Sensing Element Position	extemal, top of the immersion rod
	Range Selection	Jumper switches inside the housing
User Interface	Display	LCD- backlit (45.7×12.7mm)

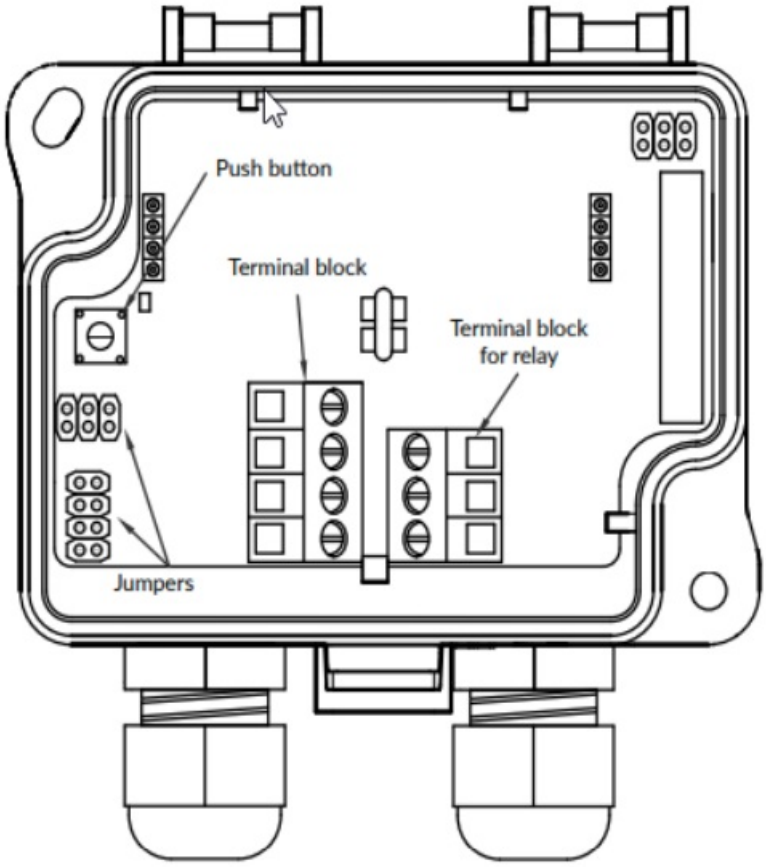
Color and Materials	Housing Cover	PC, grey
	Housing Bottom	ABS, grey
	Lock	Snap Connector
	Cable Glanc	Grey ABS
	Gland Rubber S	Black Rubber
	User element	Removable Jumpers
	Immersion Rod	US:AISI 304; EU: EN X 6 CrNi 18 10; GER: W. N. 1.301
Environmental Conditions	Operation Temperature	0°C…+50°C
	Operation Humidity	<95% r.h., no condensation
	Transport Temperature	-35°C…+70°C
	Transport Humidity	<95%rh.
	Storage Temperature	-10°C…+70°C
	Storage Humidity	< 85% r.h., no condensation
Norms and Directives	IP- Rating	IP54 to IEC6052
	Safety Class	1I to EN 60 730
	Product Standard 1	Automatic Electric. Controls for household and similar use
	Product Standard 2	2009/EN 60 730-1
	CE Conformities to	2004/108/EG Electromagnetic Compatibility E MV’
	LVD Directive	2014/35/EU
	RoHS Compatibility	RoHS 3, Directive 2015/863
	WEEE Directive	2012/19/EU
	Operation Climatic Condition	IEC 60721-3-3
	Operation Mechanical Condition	IEC 60 721-3-2 to class2M2
	Transport to Climatic Condition	IEC 60 721-3-2
	Transport Mechanical Condition	IEC 60 721-3-2 to class2M2
	Storage Climatic Condition	IEC 60 721-3-1
	Storage Mechanical Condition	IEC 60 721-3-1 to class2M2

Miscellaneous

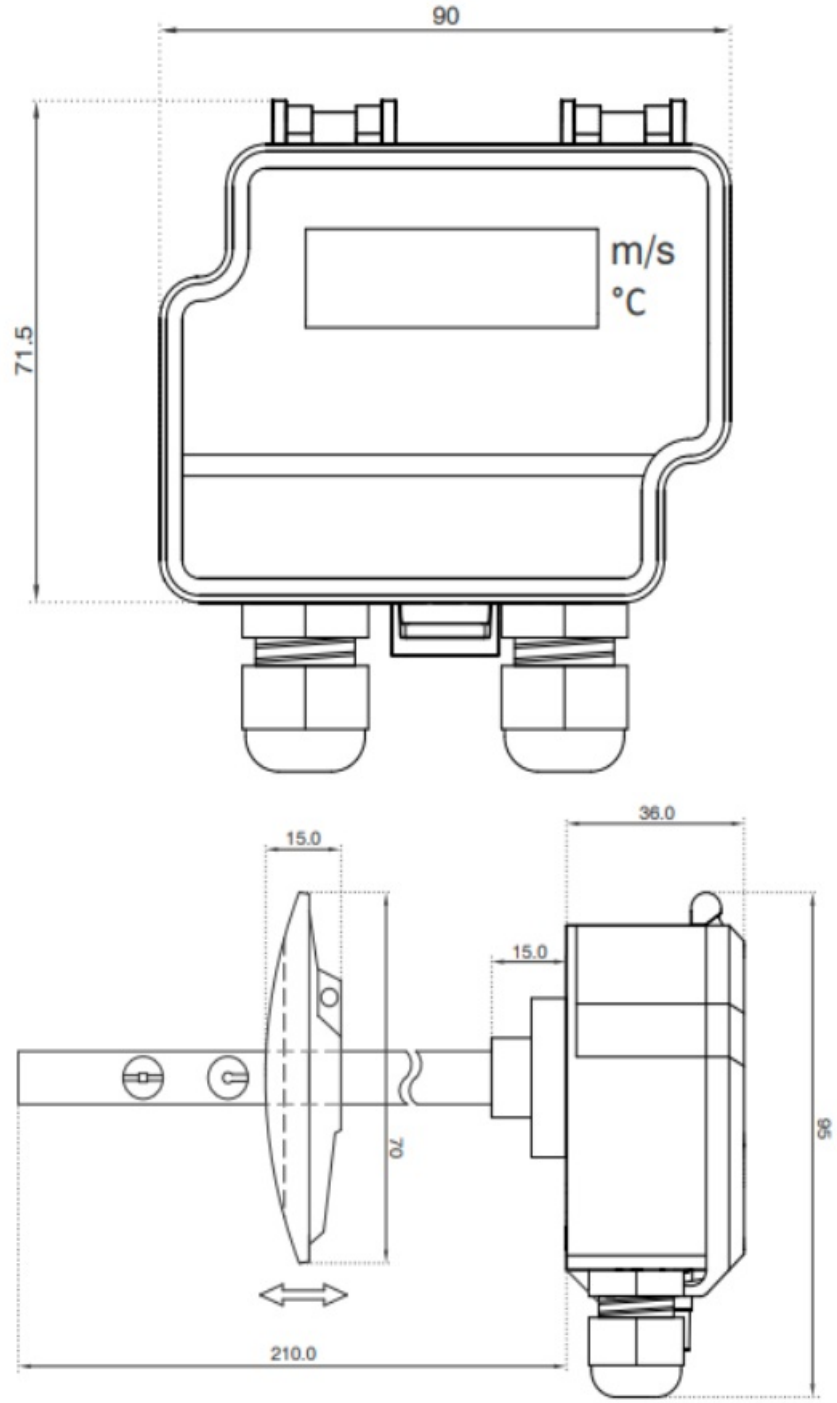
Accessories	Mounting Kit, Included in delivery	Duct Mounting flange
Shipping & Handling	Minimum Order	1 box with 1 piece
	Package Material	Rigid Cardboards Packaging
Order Notes	Order Code	See Product Range, Page 1, e.g. PDI1.AA

Mounting Instruction

SCHEMATICS



DIMENSIONAL DRAWINGS



INSTALLATION

1. Mount the device in the desired location (see step 1).
2. Open the lid and route the cable through the strain relief and connect the wires to the terminal block (see step 2). Use a separate strain relief for each cable.
3. The device is now ready for configuration.

⚠ **WARNING:** Apply power only after the device is properly wired.

STEP 1: MOUNTING THE DEVICE

1. Select the mounting location (on a duct).
2. Use the mounting flange of the device as a template and mark the screw holes.
3. Mount the flange on the duct with screws (not included). (Figure 1a)
4. Adjust the probe to the desired depth. Ensure that the end of the probe reaches the middle of the duct. (Figure

1b)

5. Tighten the screw on the flange to hold the probe in position.

Figure 1a - Mounting a flange

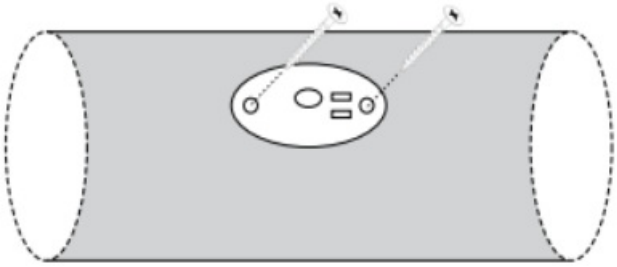


Figure 1b - Mounting the probe in a flange

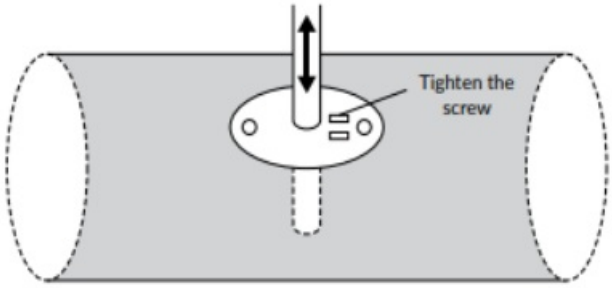
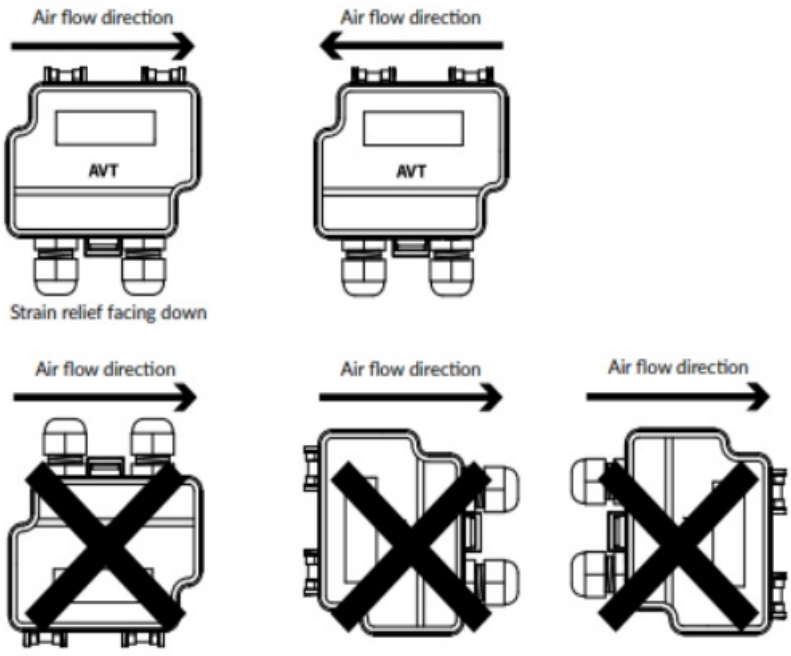


Figure 1c - Mounting orientation



STEP 2: WIRING DIAGRAMS

For CE compliance a properly grounded shielding cable is required.

1. Unscrew the strain relief and route the cable(s). Use the strain relief on the left for power in and signal out (Tout/vout) and the strain relief on the right for relay.

2. Connect the wires as shown in figure 2a and 2b.
3. Tighten the strain relief.

Figure 2a - Wiring diagram: Tout & Vout

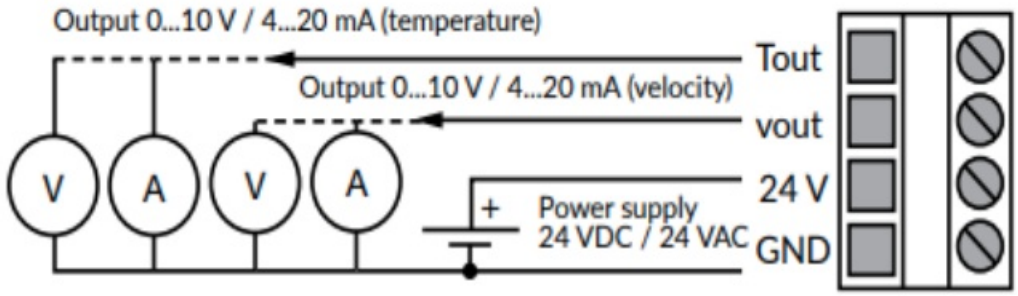
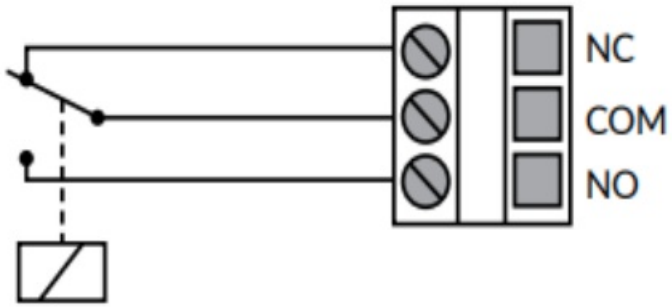


Figure 2b - Wiring diagram: relay output



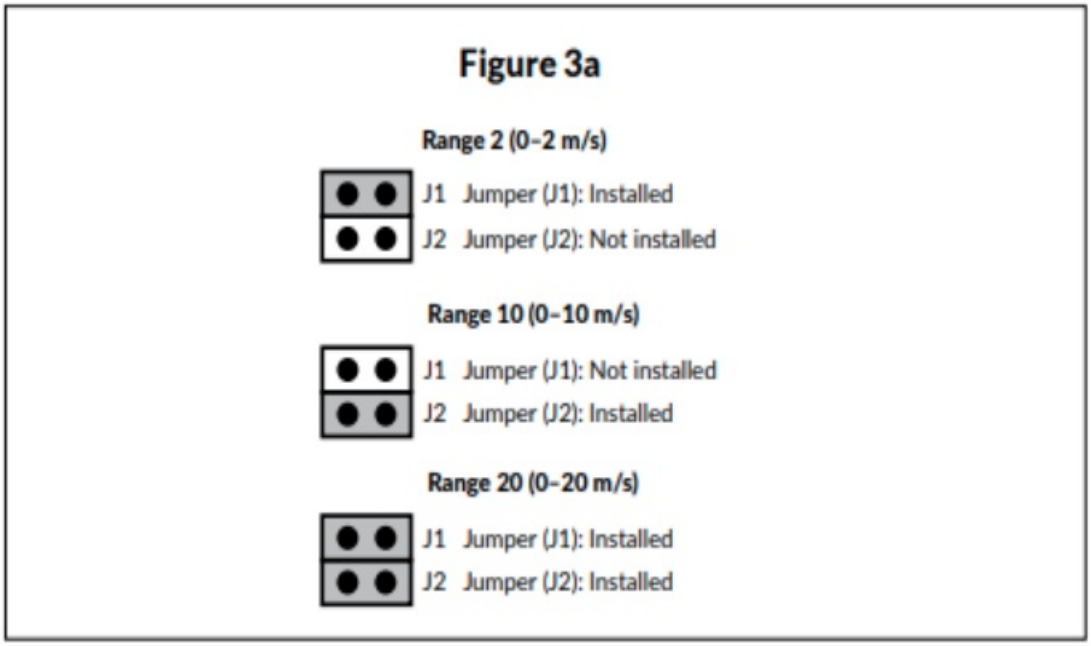
CONFIGURATION

1. Select the desired measurement range (see step 3).
2. Select the desired measurement mode (see step 4).
3. Configure the relay (optional) (see step 5).

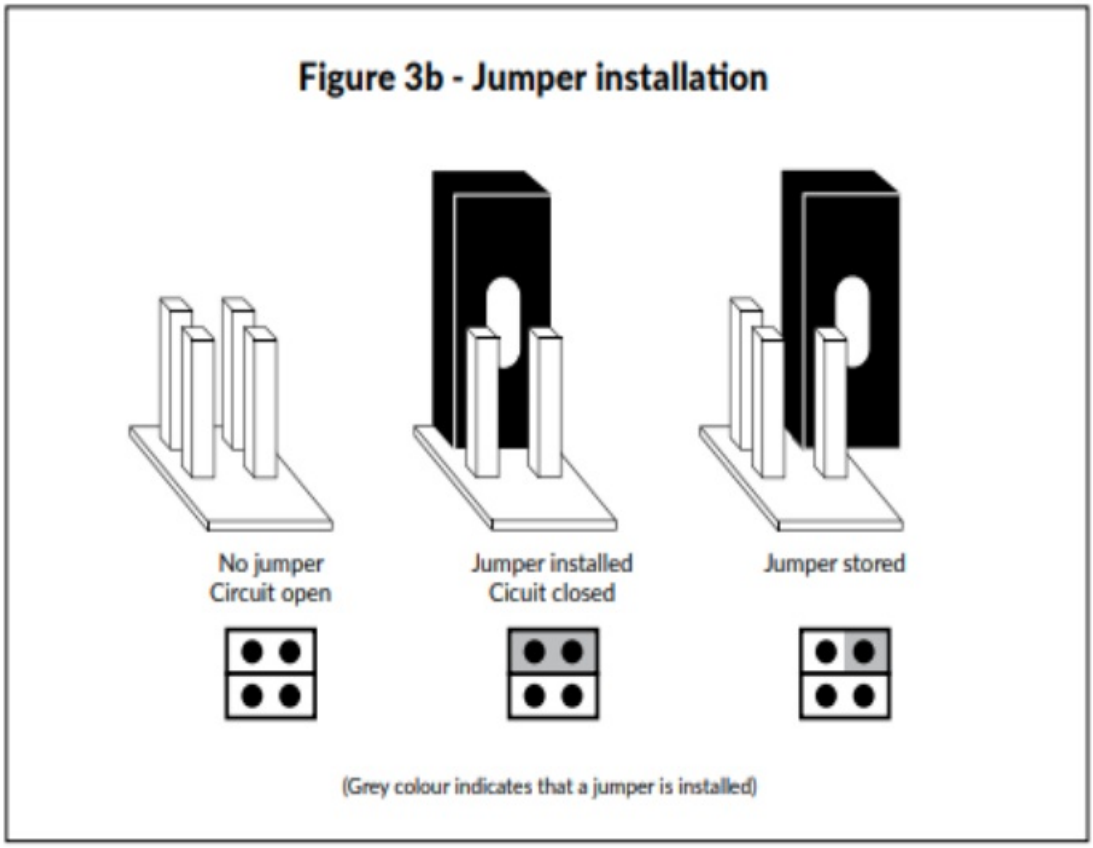
The device is now ready to be used.

STEP 3: SELECTING THE MEASUREMENT RANGE

Select the measurement range by installing jumpers as shown in Figure 3a. (See Figure 3a-3b – Jumper settings)



SELECTING THE MEASUREMENT RANGE CONTINUED



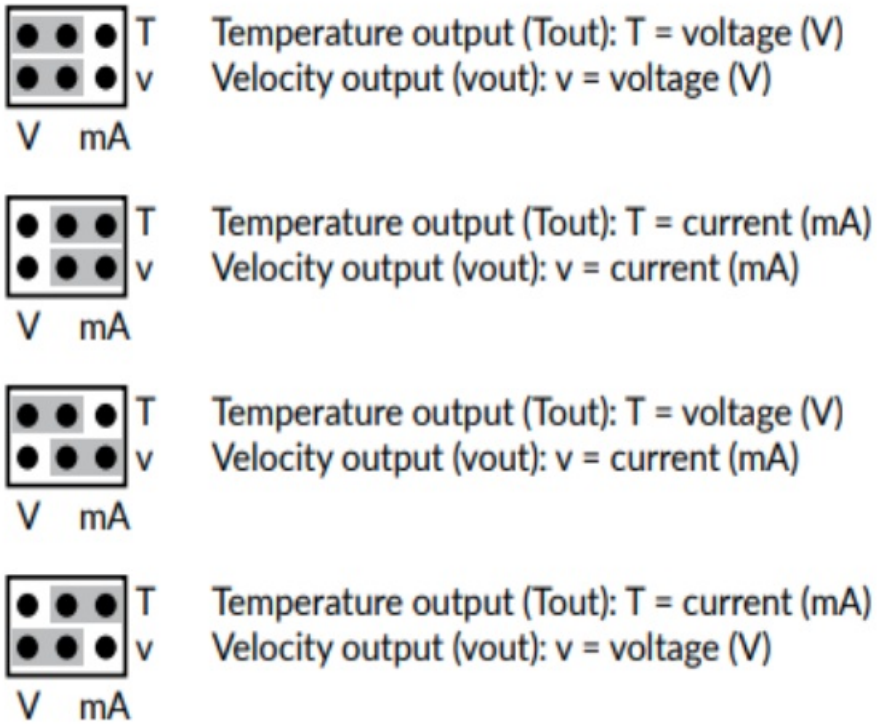
STEP 4: SELECTING THE MEASUREMENT MODE

Configure the outputs:

- Temperature output (Tout)
- Velocity output (vout)

Select the output moddseurrent (mA) or voltage (V), by instaling jumpers as shown in Figure 4. Both outputs, temperature (T) and velocity (v), are configured separately.

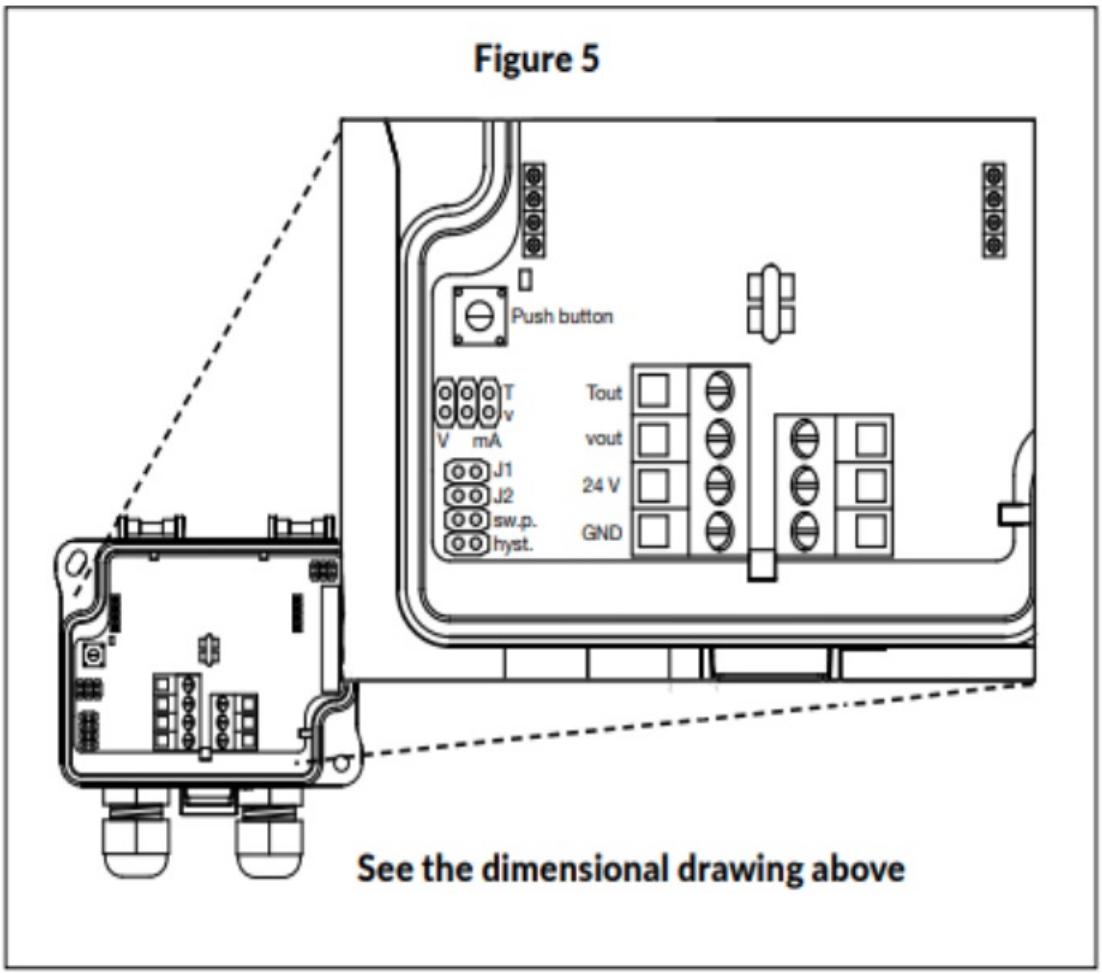
Figure 4



STEP 5: CONFIGURING THE RELAY RELAY MODEL ON

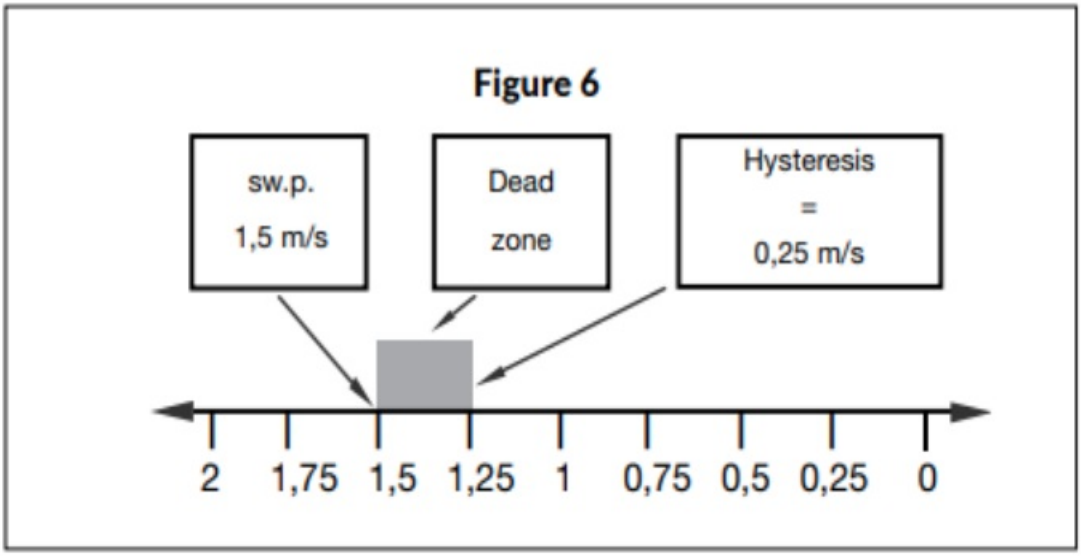
1. Switching point (display required)
   • Install a jumper to pins labeled sw.p. (switching point). (See Figure 5)
   • Press down on the pushbutton to select the switching point (e.g. 5,05 m/s = NC) of the relay. The chosen value (m/s)is shown on the display.
   • Remove and store the jumper after the configuration is completed.
2. Hysteresis (display required)
   • Install a jumper to pins labeled hyst. (hysteresis). (See Figure 5)
   • Press down on the pushbutton to select the hysteresis of the relay switching point. The chosen value (/) is shown on the display.
   • Remove and store the jumper after the configuration is completed.

NOTE! Relay configuration jumpers must be removed and stored for proper **operation.**



HSTERESIS

Hysteresis represents a dead-zone less than or equal to 20 % of the range selected. The hysteresis is anchored at the switching point (sw.p), extending to the hysteresis range selected.



In the above example switching point is set at 1,5 m/s, and hysteresis is set at 0,25 m/s. As the velocity increases over 1,5 m/s, the relay will open/close. As velocity reduces, the relay will not close/open until the velocity passes 1,25 m/s, thus preventing rapid cycling.

HYSTERESIS CONTINUED

Figure 7

Range	Maximum Hysteresis
m/s	m/s
0 – 2	0.4
0 – 10	2
0 – 20	4

The hysteresis maximum setting is based on the range selected.

RECYCLING/DISPOSAL

The parts left over from installation should be recycled according to your local instructions.
Decommissioned devices should be taken to a recycling site that specializes in electronic waste.

WARRANTY POLICY

The seller is obligated to provide a warranty of five years for the deliv- ered goods regarding material and manufacturing. The warranty period s 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 expira- tion 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, nor- mal wear and tear, improper or careless handling, abnormal use, over- loading, 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 s the buyer's responsibility, unless other- wise 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.

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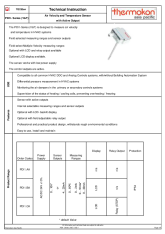
Documents / Resources



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