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## Relative, vacuum and differential pressure transmitter

### *Operating instructions*

 **Huba Control**



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## **Before operating refer to the instruction manual!**

Any person entrusted with the set-up or operation of the device, must have read and understood this operation manual, in particular all safety notes. The guarantee is invalid in respect of damage resulting from a failure to follow the instructions, incorrect handling or inappropriate use. We accept no responsibility for consequential damages resulting from any of the above.

## **Safety information**



### **General information**

In order to ensure safe operation, the device may only be operated in accordance to the specifications stated in this operation manual. Furthermore, all legal and safety regulations concerning this specific application should be observed. This also applies to the use of accessories.

### **Correct use to the intended purpose**

These devices are designed for indication and monitoring of process variables. All other forms of usage do not comply with the intended purpose. These sensors may not be used solely as means for prevention of dangerous machine and system conditions. Machines and systems must be constructed in such a way, that faulty states cannot lead to a dangerous situation for the operating staff (e.g. due to independent limit switches, mechanical interlocking devices, etc.).

### **Qualified staff**

The devices may only be installed, connected, set-up and operated by qualified staff and in compliance with the technical specifications. Qualified staff is defined as persons, who are familiar with set-up, mounting, start-up and operation of this device and who possess a recognized degree or certificate of appropriate professional training.

### **Remaining hazards**

These sensors employ state-of-the-art technology and are safe to operate. However, if they are installed and operated by unqualified staff, an element of risk remains.



In this manual the remaining risks are marked by the following symbol:

This symbol is posted where there is a risk of serious injury or death or the damage of material and property, if the warning is ignored

## Installation and set-up instructions

Even though the device is excellently protected against electro-magnetic interference, installation and cabling must be carried out correctly to ensure interference immunity.

1. Use shielded cables for the signal and control lines with the connecting lead of the screen being kept as short as possible. The connection point of the shielding depends on the existing connection conditions.
2. Never route signal and control cables together with the trunk line or feeder cables of motors, cylinder coils, rectifiers etc. The cables must be routed in conductive and grounded cable conduits. This applies especially to long-distance cables, or environments in which the cables are exposed to strong radio waves from broad casting stations.
3. Signal lines should be installed in mounting cabinets and as far away as possible from contactors, control relays, transformers and other sources of interference.
4. Fix plug screw only with closed cover



### Mounting

- Prior to mounting or removing the sensor it must be verified that the system is depressurized.
- Do not mount sensors in locations subject to high pressure pulses.
- Significant thermal changes in the sensor environment can lead to a zero shift. As a result, the measuring value displayed in a depressurized state will not read zero. This kind of drift can be corrected by zero point reset.
- Supply from SELV or class 2 source limited energy circuit 15 W or less
- Use Copper conductors only

### Further information

Voltage version 0 ... 5, 0 ... 10V

Please consider a possible fall of voltage in the GND supply especially in connection with the use of the display and display lighting. Recommended is a short cable with a large crossection.

To prevent over-heating the display lighting switches off automatically with higher temperatures.

## Installation arrangement

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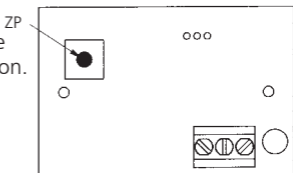
**Recommended installation arrangement:**  
vertical, with pressure connections facing downward,  
drain of possible condensed water (factory calibration).

Notice: Mount the transmitter with minimum 10 mm distance to magnetic material. If this is not possible there is a failure of up to minus 1 Pa for transmitters mounted on sheet steel.

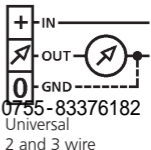
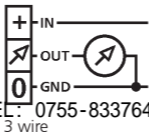
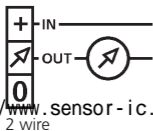
**ZP = Push Zero point reset.**

The installation position is variable by using the zero point reset button. Pressure variations are resettable after installation.

Ensure the power supply is not interrupted when storing customer settings (ZP – reset,).



## Connection diagrams

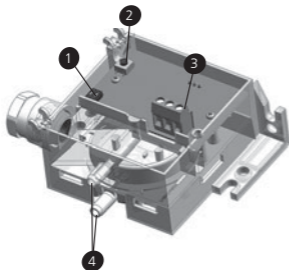


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## Version with measurement configuration only

(Adjustability 1)

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1. DIP-Switch (dual)
2. Zero point reset
3. Connecting terminals
4. Pressure connectors P1 and P2

			<sup>3)</sup> $\frac{1}{0}$
<b>Pressure range</b> <sup>1)</sup>			
Range00	0	0	
Range01	0	1	
Range10	1	0	
customer adjustment <sup>2)</sup>	1	1	

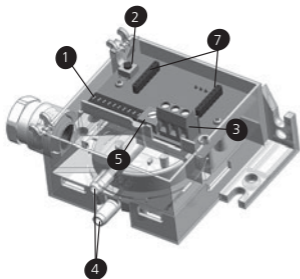
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<sup>2)</sup> Customized factory adjustment

<sup>3)</sup> DIP-Switch position according to factory adjustment (see inside cover)

## Complete configurable version

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1. DIP-Switch (tenfold)
2. Zero point reset
3. Connecting terminals
4. Pressure connectors  
P1 and P2

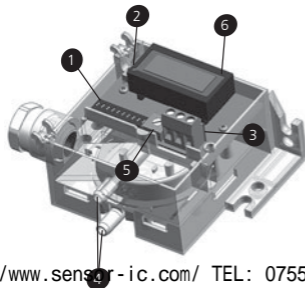
5. Turbo potentiometer

*(Signal amplifications potentiometer)*

6. LCD *(by adjustability 3 only)*

7. LCD receptacle

*(Adjustability 3 - with display)*



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## Adjustable pressure ranges

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### Factory Settings

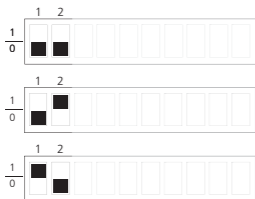
		1	2	3	4	5	6	7	8	9	10 <sup>2)</sup>
		$\frac{1}{0}$	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Pressure range<sup>1)</sup></b>	Range00	0	0								
	Range01	0	1								
	Range10	1	0								
<b>Output</b>	0 ... 10 V 3W			1	1	0	0	0	0		
	0 ... 20 mA 3W			0	1	1	1	0	1		
	4 ... 20 mA 3W			0	1	1	0	0	1		
	4 ... 20 mA 2W			0	0	1	1	1	0		
<b>Filter</b>	off: 0 / on: 1									X	
<b>Signal</b>	linear: 0 / root extracted: 1										X

<sup>1)</sup> Pressure ranges

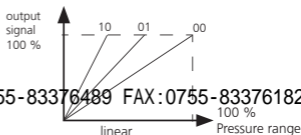
<sup>2)</sup> DIP-Switch position according to factory adjustment (see *inside cover*)

### DIP-Switch position

switchable pressure ranges



Range 00 (in mbar)	0.5	1	3	5	10	16	25	50
Range 01 (in mbar)	0.3	0.5	1	3	5	10	16	25
Range 10 (in mbar)	0.3	0.3	0.5	1	3	5	10	16



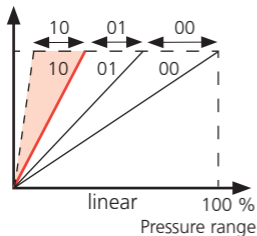
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## Adjustable full scale pressure inside the pressure ranges

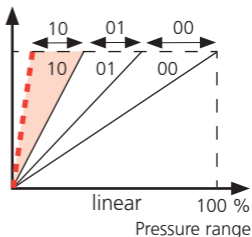
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With turbo potentiometer it's possible to make additional  
continuously variable adjustment inside the pressure ranges.



output signal  
100 %



output signal  
100 %



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## Adjustable output signals

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### Factory Settings

		1	2	3	4	5	6	7	8	9	10
		$\frac{1}{0}$	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pressure range	Range00	0	0								
	Range01	0	1								
	Range10	1	0								
Output <sup>1)</sup>	0 ... 10 V 3W			1	1	0	0	0	0		
	0 ... 20 mA 3W			0	1	1	1	0	1		
	4 ... 20 mA 3W			0	1	1	0	0	1		
	4 ... 20 mA 2W			0	0	1	1	1	0		
Filter	off: 0 / on: 1									X	
Signal	linear: 0 / root extracted: 1										X

<sup>1)</sup> four possible setting options, otherwise an output error may occur

### DIP-Switch position



### output signal

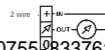
0 ... 10 V  
0 ... 5 V\*

0 ... 20 mA

4 ... 20 mA

4 ... 20 mA

### Connection diagrams



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\* 0-5V only possible with adjustability 3 - adjust via menu control

## Adjustable filter function

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Factory Settings		1	2	3	4	5	6	7	8	9	10
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Pressure range</b>	Range00	0	0								
	Range01	0	1								
	Range10	1	0								
<b>Output</b>	0 ... 10 V 3W		1	1	0	0	0	0			
	0 ... 20 mA 3W		0	1	1	1	0	1			
	4 ... 20 mA 3W		0	1	1	0	0	1			
	4 ... 20 mA 2W		0	0	1	1	1	0			
<b>Filter</b>	off: 0 / on: 1									x	
<b>Signal</b>	linear: 0 / root extracted: 1										x

### DIP-Switch position



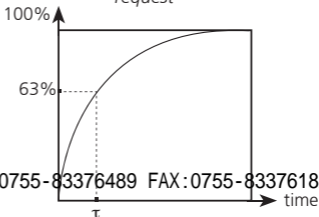
Filter off



Filter on (1 sec.)  
other response time on request

#### ATTENTION:

Filter „on“ = Other filter response time are selectable via software - only possible with adjustability 3 (see menu control)



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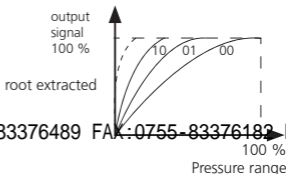
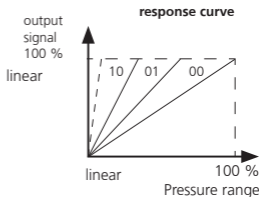
## Adjustable reponse curve

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### Factory Settings

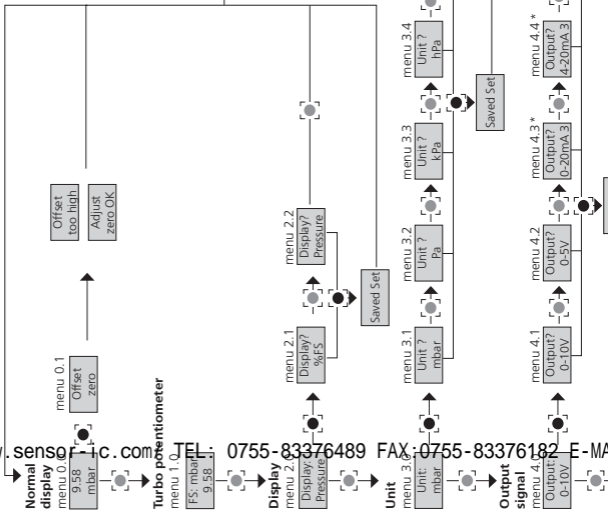
		$\frac{1}{0}$	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Pressure range</b>	Range00	0	0									
	Range01	0	1									
	Range10	1	0									
<b>Output</b>	0 ... 10 V 3W			1	1	0	0	0	0			
	0 ... 20 mA 3W			0	1	1	1	0	1			
	4 ... 20 mA 3W			0	1	1	0	0	1			
	4 ... 20 mA 2W			0	0	1	1	1	0			
<b>Filter</b>	off: 0 / on: 1											X
<b>Signal</b>	linear: 0 / root extracted: 1											X

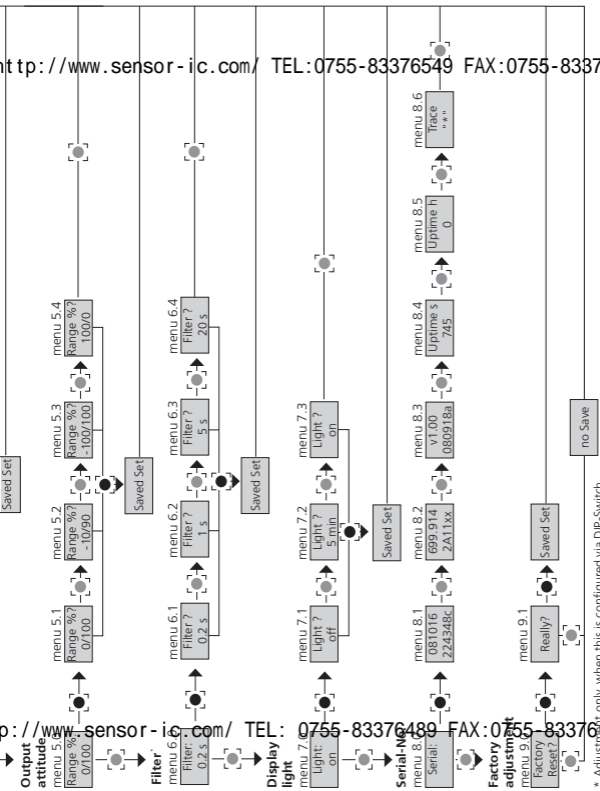
### DIP-Switch position



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# Menu control



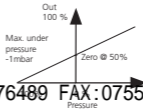
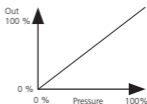
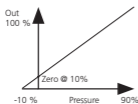


\* Adjustment only, when this is configured via DIP-Switch.

## Menu descriptions

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- Normal Display** → Pressure display in selected pressure range
- Turbo-Poti** → Display full scale pressure adjustment by turpopotentiometer
- Display** → Selection of display the pressure or % full scale
- Unit** → Select pressure unit (*no direct conversion of the pressure unit - see order code selection table*)
- Output signal** → Select the output signal
- Output attitude** → Parallel moving or adjustment of pressure range



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**Filter** → Select response time at pressure changes

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**Display light** → Select light - on/off and automatic power shut-off after 5 min.

**Serial number** → Product information - reference only

**Factory Adjustment** → Software reset to factory setting according specification plate and DIP-Switch position

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Anleitung auf Leistungsanschluss (Druckbereich, Anschlusschema und Artikelnummer) entsprechen der Werkseinstellung. Aufgrund von kundenseitiger Konfigurationen können die Einstellungen von diesen Angaben abweichen. Bevor das Gerät konfiguriert wird, sollte die Bedienungsanleitung beachtet werden.

The factory setting information (pressure range, output / power supply, connection diagram and article no.) is located on the specification label. Because of customer configuration the settings can differ from this information and before the device is configured please refer to the operating manual.

Les données présentes sur la plaque signalétique (plage de pression, sortie/alimentation, schéma de raccordement et numéro d'article) correspondent au réglage d'usine. En raison d'une configuration personnalisée du client, les réglages peuvent être différents de ces données. Avant de configurer l'appareil, il convient de tenir compte du mode d'emploi.

**Elektromagnetische Verträglichkeit**  
**Electromagnetic compatibility**  
**Compatibilité électromagnétique**

**CE-konform gemäss EN 61326-2-3.**

**CE conformity according EN 61326-2-3.**

**Conformité (CEM) selon EN 61326-2-3.**