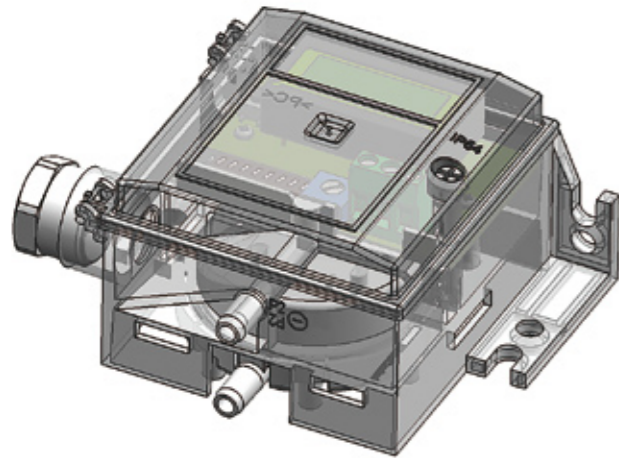


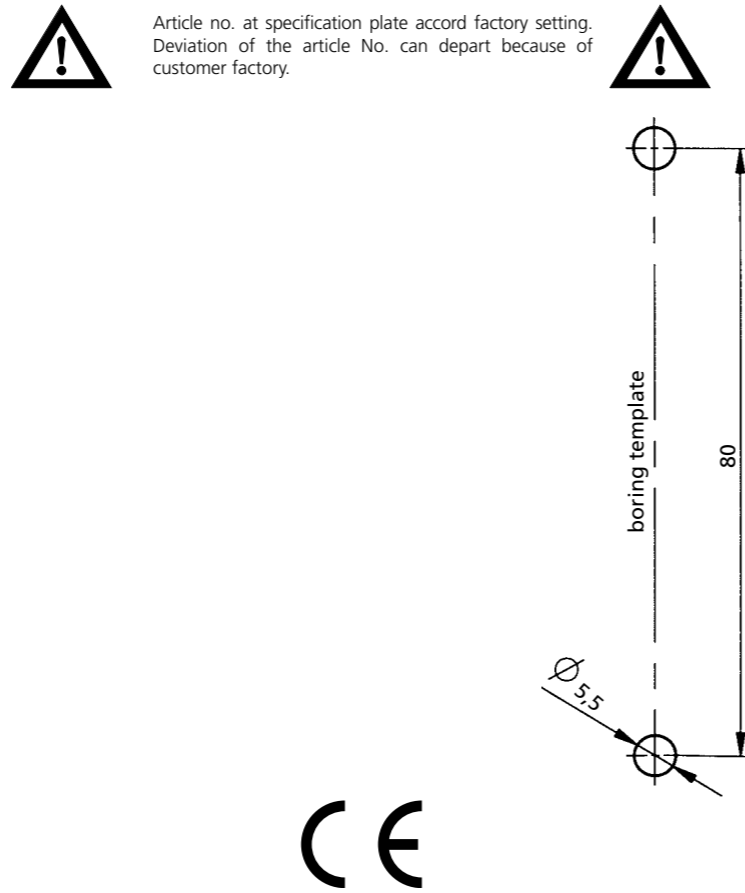
Relative, vacuum and differential pressure transmitter

Operating instructions

Huba Control



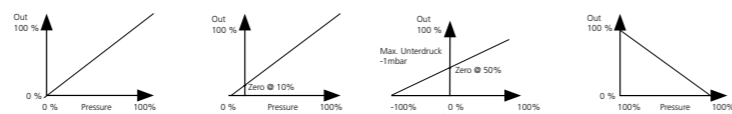
699 / EDITION 10/2009



Electromagnetic compatibility
 CE conformity (EMC) by application of harmonised standards:
 EN 61000-6-2, EN 61000-6-3 und EN 61326-1.

Menu descriptions

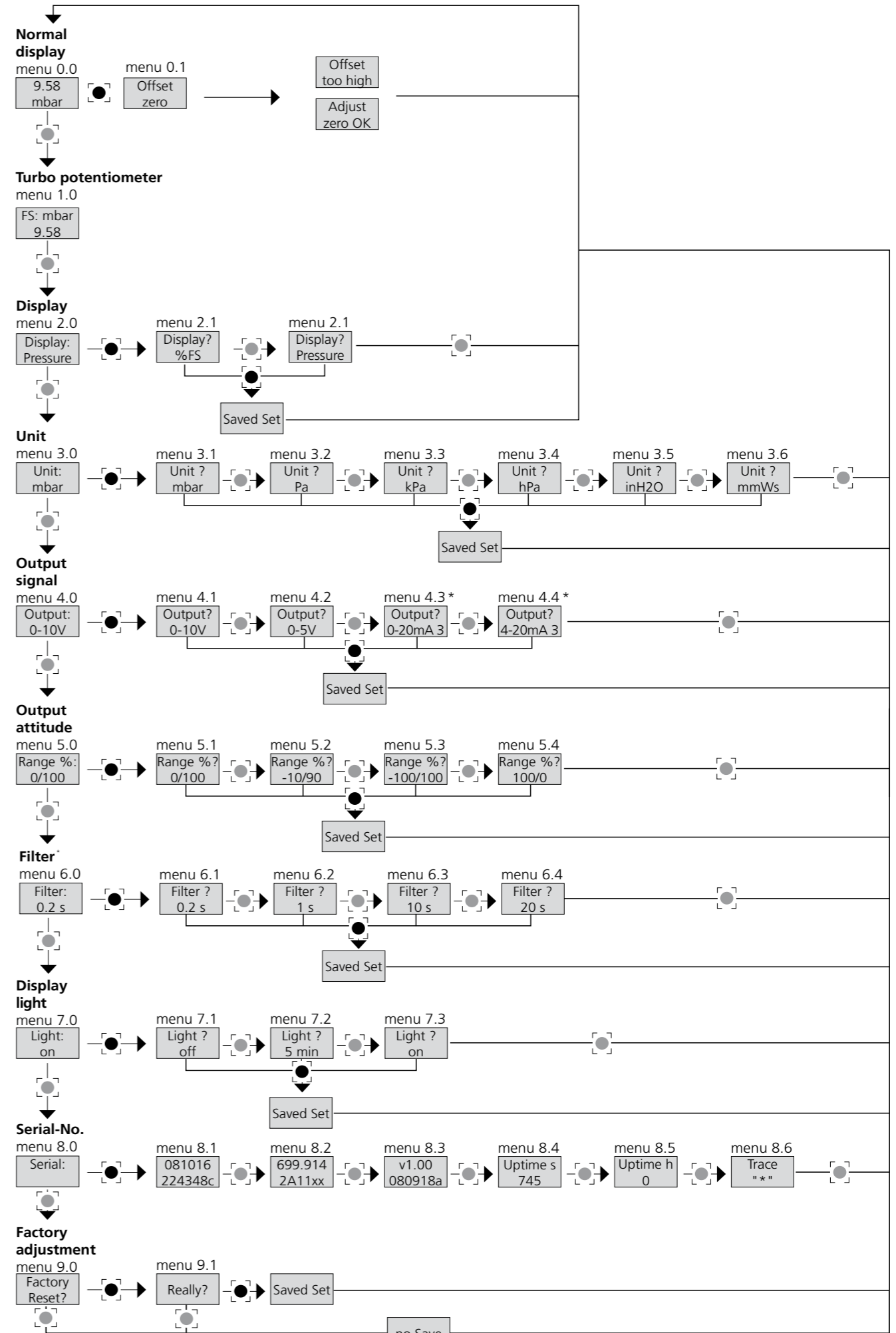
- Normal Display** → Pressure display in selected pressure range
- Turbo-Poti** → Display pressure adjustment by turpo-potentiometer
- Display** → Select pressure or % full scale available
- Unit** → Select pressure unit
(no direct translation of the pressure unit (see order code selection table))
- Output signal** → Select the output signal
- Output attitude** → Adjustment oft pressure range
- Filter** → Adjust response time
- 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 variant by specification plate or DIP-Switch position



Menu control

short keypress

long keypress



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

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

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 read zero. This kind of drift can be corrected by zero point reset.

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 crosssection.

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

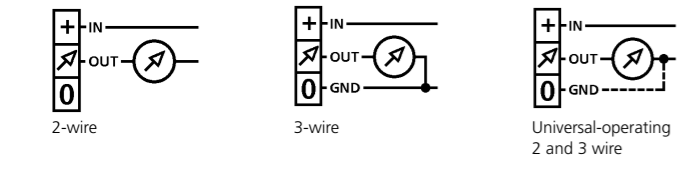
Installation arrangement

Empfehlung: Membrane Vertikal, Druckanschlüsse nach unten (Werkseinstellung).

Membrane Horizontal, Abdeckung nach unten. Signal ca. 10 Pa höher als effektiver Druck. (mit Null-Punkt-Reset abgleichbar).

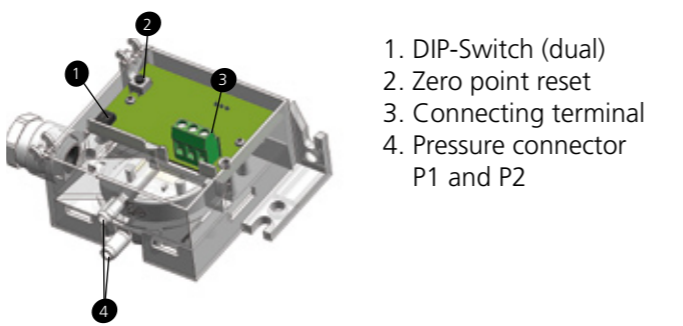
Membrane Horizontal, Abdeckung nach oben. Signal ca. 10 Pa tiefer als effektiver Druck. (mit Null-Punkt-Reset abgleichbar).

Connection diagrams



Version with measurement configuration only

(Adjustability 1)

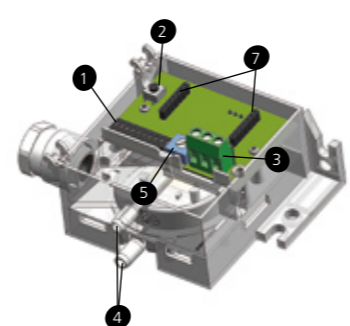


Pressure range ¹⁾	1	2
Range00	0	0
Range01	0	1
Range10	1	0
customer adjustment ²⁾	1	1

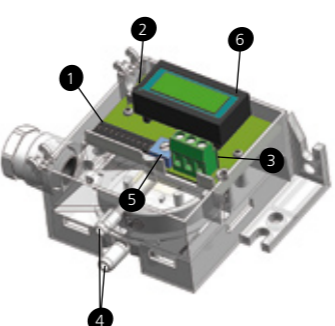
¹⁾ Pressure range
²⁾ Customized factory adjustment
³⁾ DIP-Switch position according to factory adjustment (see inside cover)

Complete configurable version

(Adjustability 2)



(Adjustability 3 - with display)



- DIP-Switch (tenfold)
- Zero point reset
- Connecting terminal
- Pressure connector P1 and P2
- Turbo potentiometer (Signal amplifications potentiometer)
- LCD (by adjustability 3 only)
- LCD receptacle

Adjustable pressure ranges

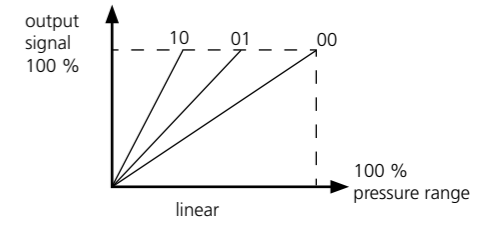
Factory Settings	1	2	3	4	5	6	7	8	9	10 ²⁾
Pressure range ¹⁾ Range00	0	0								
Range01	0	1								
Range10	1	0								
Output	0 ... 10 V 3W		1	1	0	0	0	0	0	
	0 ... 20 mA 3W		0	1	1	1	0	1		
	4 ... 20 mA 3W		0	1	1	0	0	1		
	4 ... 20 mA 2W		0	0	1	1	1	0		
Filter	off: 0 / on: 1									x
Signal	linear: 0 / root extracted: 1									x

¹⁾ Pressure ranges
²⁾ DIP-Switch position according to factory adjustment (see inside cover)

DIP-Switch position (see order code selection table)

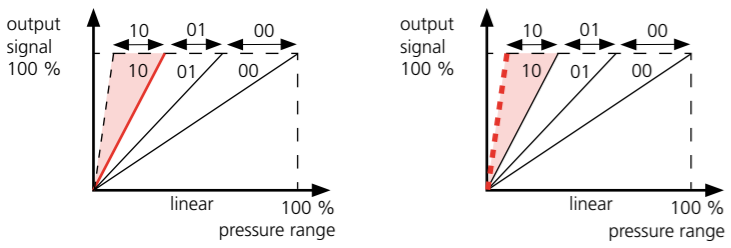
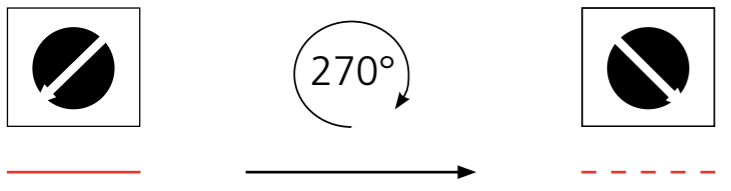
switchable pressure ranges	1	2	3	4	5	6	7
Range 00 (in mbar)	0.3	0.3	0.5	1	3	5	10 16
Range 01 (in mbar)	0.3	0.5	1	3	5	10	16 25
Range 10 (in mbar)	0.5	1	3	5	10	16	25 50

699.XX 0 1 2 3 4 5 6 7 (accord the 3rd position at order code selection table) Example - 699.910011010W



Adjustable full scale pressure inside the pressure ranges

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



Adjustable output signals

Factory Settings	1	2	3	4	5	6	7	8	9	10
Pressure range	Range00		0	0						
	Range01		0	1						
	Range10		1	0						
Output ¹⁾	0 ... 10 V 3W		1	1	0	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

¹⁾ four possible setting options, otherwise an output error may occur

DIP-Switch position

DIP-Switch position	output signal	connection diagrams
	0 ... 10 V 0 ... 5 V*	
	0 ... 20 mA	
	4 ... 20 mA	
	4 ... 20 mA	

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

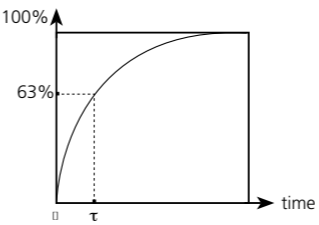
Adjustable filter function

Factory Settings	1	2	3	4	5	6	7	8	9	10
Pressure range	Range00		0	0						
	Range01		0	1						
	Range10		1	0						
Output	0 ... 10 V 3W		1	1	0	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

DIP-Switch position

DIP-Switch position	Filter
	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)



Adjustable reponse curve

Factory Settings	1	2	3	4	5	6	7	8	9	10
Pressure range	Range00		0	0						
	Range01		0	1						
	Range10		1	0						
Output	0 ... 10 V 3W		1	1	0	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

DIP-Switch position

DIP-Switch position	output signal	response curve
	linear	
	root extracted	