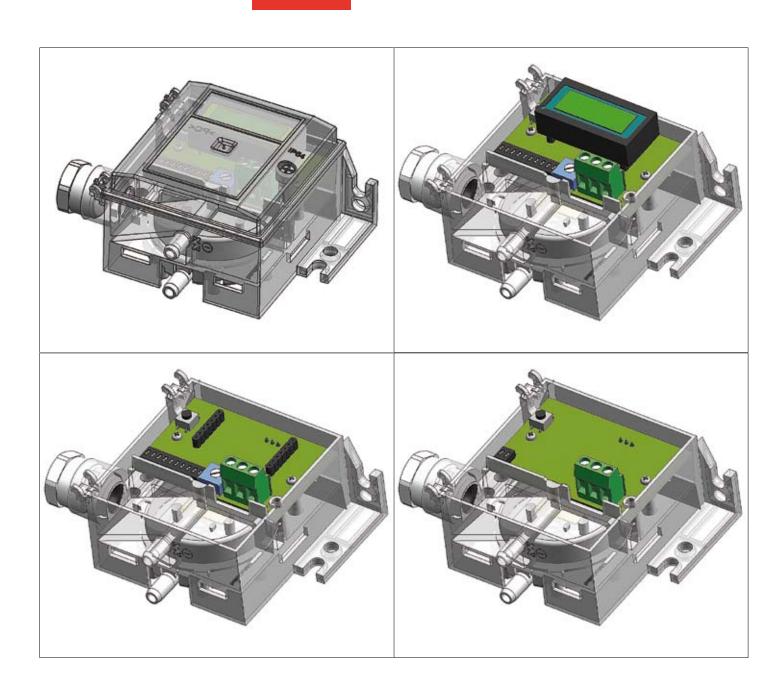
## Relative, vacuum- and differential pressure transmitter

-1 ... +1 mbar / 0 ... 1 - 50 mbar



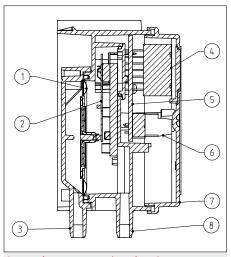
# Huba Control

FEINE MESSIDEEN FÜR DRUCK UND STRÖMUNG FOR FINE PRESSURE AND FLOW MEASUREMENT LA FINESSE DES MESURES DE PRESSION ET DE DEBIT

#### Technical overview

The differential pressure transmitters of the Type 699 series incorporate a proven ceramic fulcrum lever technology.

They deliver adjusted and temperaturecompensated sensor signals, available as standard voltage or current outputs. They are ideal for registering low air flow in air conditioning systems and for the measurement of fine pressures in laboratory, environmental and clean-room applications.



### Legend to cross-section drawing

- Diaphragm
- 2 Sensor element
- 3 P1 Pressure connection (higher pressure / minor Vacuum)
- LCD-Display (option)
- 5 Amplified electronics
- 6 Connection terminals
- 7 Cover
- P2 Pressure connection (higher pressure / major Vacuum)

### The distinct advantages

- Compact construction
- Fast, easy mounting. Housing incorporates integral bracket for wall or ceiling mounting. Snap-on cover with a single screw
- Available with LCD display = additional configurations all version acording to order code selection table
- Filter function
- Adjustable measurement range
- Switchable output signals
- Switchable response curve (linear or rootextracted)
- Zero point resettable (reset button)
- Full scale adjustable
- Attractive price / performance ratio
- Application at over and low pressure range possible

#### Medium

Air and neutral gases

#### Pressure range

±0.5 mbar ±1 mbar

0 ... 1 – 50 mbar

#### Tolerable overload on one side

Application at over pressure range 100 mbar on P1, 4 mbar on P2

Application at low pressure range -4 mbar on P1, -100 mbar on P2

### Rupture pressure

2 x overload at ambient temperature 1.5 x overload at 70 °C

#### Setting range

Zero point resettable by reset button

Full scale adjustable by DIP-Switch and additional individual adjustable with Turbopoti

#### Materials in contact with medium

Housing: Polycarbonate PC Diaphragm: Silicone Sensor: Al<sub>2</sub>O<sub>3</sub> (96%) / glass

#### Temperature

0 ... +70 °C Medium and ambient -10 ... +70 °C Storage

No condensation

#### Output Power supply

3-wire

0 ... 10 V 13.5... 33 VDC / 24 VAC ±15% 0 ... 20 mA 13.5... 33 VDC / 24 VAC ±15%

4 ... 20 mA 13.5... 33 VDC / 24 VAC ±15%

2-wire

4 ... 20 mA 8.0 ... 33 VDC

Additional adujustable by software (with LCD-Display only)

0 ... 5 V 6.5... 33 VDC / 24 VAC ±15%

### Load

3-wire

0 ... 10 V > 10 kOhm 0 ... 20 mA < 500 Ohm 4 ... 20 mA < 500 Ohm

2-wire

< supply voltage – 8 V [Ohm] 4 ... 20 mA

#### Current consumption

At nominal pressure

3-wire

0 ... 10 V < 10 mA0 ... 20 mA < 30 mA 4 ... 20 mA < 30 mA

2-wire

4 ... 20 mA 20 mA

Backlight LCD-Display 30 mA

#### Dynamic response

Suitable for dynamic measurements Response time < 20 ms Load cycle < 10 Hz

#### **Filter**

Filter response time switchable by 0.2 / 1 / 5 / 20 seconds

#### Electrical connection

Screw terminals for wire and stranded conductors up to 1.5 mm<sup>2</sup>, cable gland with built-in strain relief PG11

### Polarity reversal protection

Short circuit proof and protected against polarity reversal. Each connection is protected against crossover up to max. supply voltage.

#### Protection standard

Without cover IP 00 With cover IP 54 or IP 65

#### Pressure connections

Connection pipe Ø 6.2 mm

#### Installation arrangement

Recommended and factory adjustment: Vertical, with pressure connections downwards

#### Mounting

Mounting bracket (integrated in case)

#### Display

LCD display

doublespaced - per 8 digit alphanumeric (3-wire with backlight)

#### Adjustability

Optional version self configurable serveral parameter (see order code selection table)

### Tests / Admissions

UI

CE conform

### Weight

With display approx.100 g Without display approx. 90 g

#### Packaging

Single packaging in cardboard

### Accuracy

Parameter		Unit	±0.5 mbar	1 mbar	3 mbar	5 mbar	10 - 50 mbar
Tolerance zero point 1)	max.	% fs	±1.0	±1.0	±0.7	±0.7	±0.7
Tolerance full scale 1)	max.	% fs	±1.0	±1.0	±0.7	±0.7	±0.7
Resolution		% fs	±0.2	±0.2	±0.1	±0.1	±0.1
Total of linearity,							
hysteresis and repeatability	max.	% fs	±1.0	±1.0	±1.0	±1.0	±0.6
Logn therm stability acc. to DIN EN 60	)770	% fs	±1.0	±1.0	±1.0	±1.0	±1.0
TC zero point 2)	typ.	% fs/10K	±0.2	±0.2	±0.2	±0.1	±0.1
TC zero point 2)	max.	% fs/10K	±1.0	±1.0	±0.5	±0.4	±0.4
TC sensitivity 2)	typ.	% fs/10K	±0.3	±0.3	±0.2	±0.1	±0.1
TC sensitivity 2)	max.	% fs/10K	±0.6	±0.6	±0.5	±0.5	±0.2

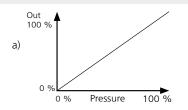
no additional root-extracted errors

Test conditions:

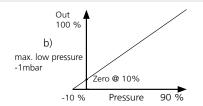
25 °C, 45% rF, Power supply 24 VDC

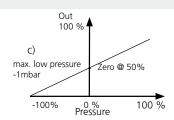
TC z.p. / TC z.p. 0 ... 70 °C

### Pressure range types



Pressure range switchable (see pressure ranges)





699. X X X X X X X X X X

### Order code selection table

Pressure range (switchable
(all pressure ranges for low
pressure applicable, too)

Unit of pressure

Pressure range	of 0 % bis 100	% FS	Diagramm	n a)	1					
Pressure range	of -10 % bis 90	% FS	Diagramm b)		2					
Pressure range	of -100 % bis 100	% FS	Diagramm	n c)	3					
mbar (hPa)	Pa	mmWS	inH <sub>2</sub> O							
0 0.3/ <b>0.5</b>	30/ <b>50</b>	3/ <b>5</b>	0.1/0.2	minimal operating pressure = -50 Pa		0				
0 0.3/0.5/ <b>1</b>	30/50/ <b>100</b>	3/5/ <b>10</b>	0.1/0.2/ <b>0.3</b>	minimal operating pressure = -100 Pa		1				
0 0.5/1/ <b>3</b>	50/100/ <b>300</b>	5/10/ <b>30</b>	0.3/0.5/1	minimal operating pressure = -50 Pa		2				
0 1/3/ <b>5</b>	100/300/ <b>500</b>	10/30/ <b>50</b>	0.5/1/2	minimal operating pressure = -50 Pa		3				
0 3/5/ <b>10</b>	300/500/ <b>1000</b>	30/50/ <b>100</b>	1/2/3	minimal operating pressure = -50 Pa		4				
0 5/10/ <b>16</b>	500/1000/ <b>1600</b>	50/100/ <b>160</b>	2/3/ <b>5</b>	minimal operating pressure = -50 Pa		5				
0 10/16/ <b>25</b>	1000/1600/ <b>2500</b>	100/160/250	3/5/10	minimal operating pressure = -50 Pa		6				
0 16/25/ <b>50</b>	1600/2500/ <b>5000</b>	160/250/ <b>500</b>	5/10/ <b>20</b>	minimal operating pressure = -50 Pa		7				
mbar							0			
hPa							4			
Pa							2			
kPa							5			
mmWS							6			
inH <sub>2</sub> O							3			

- Pressure ranges in grades (version dual DIP-Switch; without Display)

- Pressure ranges in grades; stepless adjustable with Turbo-Poti | pressure units | pressure range character | output signals; additional 0 ... 5V Filter (off / 0.2s / 1s / 5s / 20s) | response curve (linear / root extracted) | Backlight (off / 5s / on) (Version tenfold DIP-Switch; with Display)

Adjustability 1	
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Adjustability 2

Adjustability 3

Output signal/	Linear without Filter	Х				1		0			
Adjustment	Linear with Filter (transposable)		Х			2					
•	Square root extracted without Filter	Х				4		0			
	Square root extracted with Filter (transposable)		Х			3					
Output and power supply	0 10 V 13.5 33 VDC / 24 VAC ± 15 % 3-wire						1				
	0 20 mA 13.5 33 VDC / 24 VAC ± 15 % 3-wire						3				
	4 20 mA 13.5 33 VDC / 24 VAC ± 15 % 3-wire						4				
	4 20 mA 8.0 33 VDC 2-wire						5				
	Output signal complimentary selectabel, at delivery no pre-adjustment		Х			2	6				
Display	without	Х	Х					0			
doublespaced – 8 digit	in pressure unit chosen above			Х				1			
	in % fs			Х				2		Ш	
Pressure connections /	Connection pipe Ø 6.2 mm without pressure orifice								1		
Pressure orifices	Connection pipe Ø 6.2 mm pressure orifice on P1								2		
	Connection pipe Ø 6.2 mm pressure orifice on P2								3		
	Connection pipe Ø 6.2 mm pressure orifices on P1 and P2								4		
Acessories/	IP 54 without									0	
Connection Kit	P 54: With connection kit (metal), 90° angled including tube 2 m long (Set	1)								1	
	IP 54: With connection kit (plastic), straight including tube 2 m long (Set	2)								2	
	IP 65: Without									3	
	IP 65: With connection kit (metal), 90° angled including tube 2 m long (Set	1)							Ш	4	
	IP 65: With connection kit (plastic), straight including tube 2 m long (Set	2)							Ш	5	
Variation (optional)	Indicate W and state on order (e.g.: 0 9 mbar / Out 0	9 V)									W

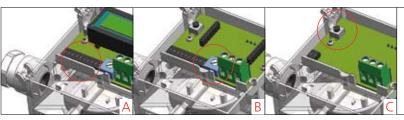
### Accessories

		Order number
Connection kit for vent duct (metal), 90° angled	including tube 2 m long (Set 1)	104312
Connection kit for vent duct (plastic), straight	including tube 2 m long (Set 2)	100064
DIN-rail mounting adaptor		112854

1) For changing diaphragm see "Installation arrangement"

<sup>2)</sup> TC = Temperature coefficient

<sup>-</sup> Pressure ranges in grades; stepless adjustable with Turbo-Poti I output signals I Filter (off / 1s) I response curve (linear / root extracted) (Version tenfold DIP-Switch; without Display)

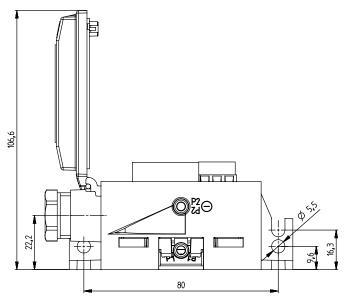


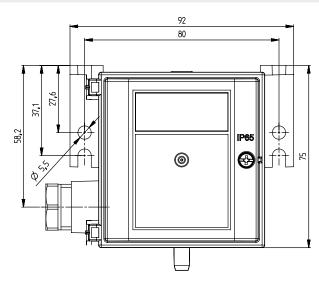


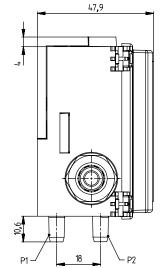
### Version

- A Tenfold DIP-Switch
- B Turbo-Potentiometer
- C Zero point reset
- D Housing with built-in fixing brackets

## Dimensions in mm Electrical connections







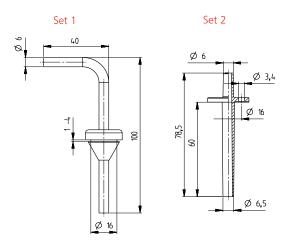


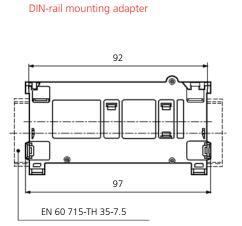


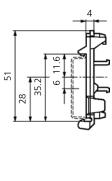


Universal-operating 2 and 3 wire

### Accessories







### Electromagnetic compatibility

CE conformity according EN 61326-2-3.

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## **Huba Control**

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