Huba Control

FOR FINE PRESSURE AND FLOW MEASUREMENT

Relative and differential pressure transmitter type 694

Pressure range
-0.5 ... 0.5 mbar / 0 ... 1 – 50 mbar

Type 694 pressure transmitters are available with or without integral digital display. 0…10 V / 4…20 mA outputs are available as well as square.

Individually ranged sensors ensure optimum accuracy and long term stability of measurement, and the variety of options means great flexibility, not only in climate control, but also in industrial and medical fine pressure measurement.

- Compact construction
- Fast, easy mounting. Housing incorporates integral bracket for wall or ceiling mounting. Snap-on cover with a single screw
- Available with or without LCD display
- Available with or without square root extraction
- Available zero point and full scale adjustable
- Attractive price / performance ratio

Technical overview

Pressure range

Relative and differential	-0.5 ... 0.5 mbar / 0 ... 1 – 50 mbar

Operating conditions

Medium			Air and neutral gases
Temperature		Medium / ambient	0 ... +70 °C
		Storage	-10 ... +70 °C
		No condensation	
Tolerable overload on one side	Application at over pressure range		P1 = 100 mbar P2 = 4 mbar
	Application at low pressure range		P1 = -4 mbar P2 = -100 mbar
Rupture pressure		ambient temperature	2 x overload
		70 °C	1.5 x overload

Materials in contact with medium

Sensor	Ceramic Al_2O_3 (96%)
Diaphragm	Silicone
Housing	Polycarbonat PC

Electrical overview

	Output	Power supply	Load	Current consumption [1]
2 wire	4 ... 20 mA	11.0 ... 33 VDC	$< \frac{\text{supply voltage - 11 V}}{0.02\ A}$ [Ohm]	< 20 mA
	0 ... 10 V	13.5 ... 33 VDC	> 10 kOhm	< 10 mA
3 wire	0 ... 20 mA	13.5 ... 33 VDC	< 400 Ohm	< 30 mA
	4 ... 20 mA	13.5 ... 33 VDC	< 400 Ohm	< 30 mA
Polarity reversal protection	Short circuit proof and protected against polarity reversal. Each connection is protected against crossover up to max. supply voltage.			

Dynamic response

Response time	< 20 ms
Load cycle	< 10 Hz

Protection standard

Without cover	IP 00
With cover	IP 54
	IP 65

Display

LCD display	3 digit

Setting range

Zero point	±10% fs
Full scale	40 ... 100% fs

Electrical connection

Screw terminals for wire and stranded conductors up to 1.5 mm²

Cable gland with built-in strain relief PG11

Pressure connection

Connection pipe	Ø 6.2 mm

Mounting instructions

Installation arrangement	Factory adjustment:	Vertical, with pressure connections downwards [2]
		Horizontal with cover downwards [3]
		Horizontal with cover upwards [4]
Mounting		Mounting bracket (integrated in case)

Tests / Admissions

ETL

Electromagnetic compatibility: CE conformity acc. EN 61326-2-3

Weight

Without display	~ 90 g
With display	~ 100 g

Packaging

Single packaging in cardboard

Accuracy

Parameter		Unit	±0.5 mbar	0 ... 1 mbar	0 ... 3 mbar	0 ... 5 mbar	0 ... 10 - 50 mbar
Tolerance zero point	max.	% fs	±1.0	±1.0	±0.7	±0.7	±0.7
Tolerance zero full scale	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	±3.0	±2.0	±1.0	±1.0	±0.6
Long therm stability acc. to DIN EN 60770		% fs	±1.0	±1.0	±1.0	±1.0	±1.0
TC zero point [4]	typ.	% fs/10K	±0.2	±0.2	±0.2	±0.1	±0.1
TC zero point [4]	max.	% fs/10K	±1.0	±1.0	±0.5	±0.4	±0.4
TC sensitivity [4]	typ.	% fs/10K	±0.3	±0.3	±0.2	±0.1	±0.1
TC sensitivity [4]	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

[1] At nominal pressure
[2] At ± types forcible
[3] Signal approximately ~13 Pa higher than actual pressure
[4] Signal approximately ~13 Pa lower than actual pressure
[5] TC = Temperature coefficient

With root-extracted output (2 … 100% pressure)

Absolute error: (% of full scale)

0 … 1 mbar	0 … 3 – 50 mbar
max. ±0.6 $\sqrt{\frac{p_{FS}}{p}}$ + 1.5	max. ±0.3 $\sqrt{\frac{p_{FS}}{p}}$ + 1.5

TC zero point: (% fs)

max. ±0.6 $\sqrt{\frac{p_{FS}}{p}}$ + 1.5

Order code selection table

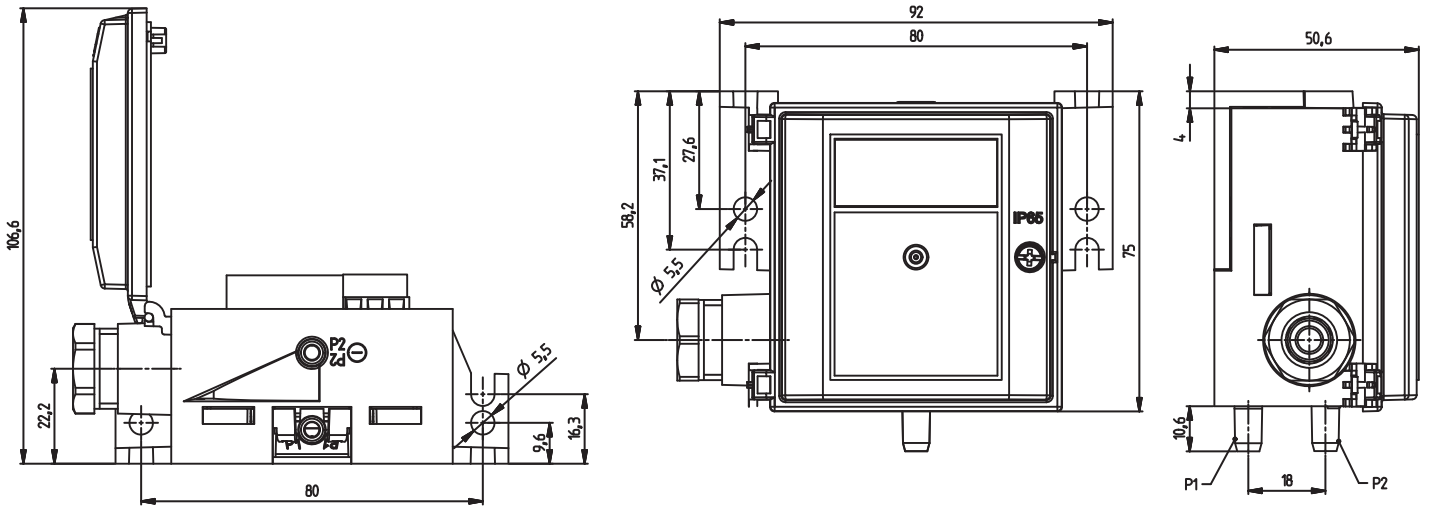
					694. 9	X	X	X	X	X	X	X	X	X
Pressure range [1]	mbar (hPa)	Pa	mmWS (mmH_2O)	inH_2O										
	-0.5 … 0.5	-50 … 50	-5 … 5	-0.2 … 0.2		3	1							
	0 … 1	0 … 100	0 … 10	0 … 0.4		1	1							
	0 … 3	0 … 300	0 … 30	0 … 1.2		1	2							
	0 … 5	0 … 500	0 … 50	0 … 2		1	3							
	0 … 10	0 … 1000	0 … 100	0 … 4		1	4							
	0 … 16	0 … 1600	0 … 160	0 … 6.4		1	5							
	0 … 25	0 … 2500	0 … 250	0 … 10		1	6							
	0 … 50	0 … 5000	0 … 500	0 … 20		1	7							
Pressure unit	mbar (hPa)							0						
	Pa							2						
	mmWS (mmH_2O)							3						
	inH_2O							1						
Output signal / adjustment	Linear								1					
	Linear	Full scale and zero point adjustable by customer							2					
	Square root extracted					1			4					
	Square root extracted	Full scale and zero point adjustable by customer				1			3					
Output / power supply [2]	0 ... 10 V	13.5… 33 VDC								1				
	0 ... 20 mA	13.5… 33 VDC								3				
	4 ... 20 mA	13.5… 33 VDC								4				
	4 ... 20 mA	11.0… 33 VDC								5				
Display 3 digit	Without										0			
	In pressure unit chosen above								1		1			
	In % fs										2			
Pressure connection / Pressure orifices	Connection pipe Ø 6.2 mm without pressure orifice											1		
	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 orifice on P1 and P2											4		
Accessories / Connection Kit	IP 54 without												0	
	IP 54 with connection kit (metal), 90° angled including tube 2 m long (Fig. 1)												1	
	IP 54 with connection kit (plastic), straight including tube 2 m long (Fig. 2)												2	
	IP 65 without												3	
	IP 65 with connection kit (metal), 90° angled including tube 2 m long (Fig. 1)												4	
	IP 65 with connection kit (plastic), straight including tube 2 m long (Fig. 2)												5	
Pressure range variation	Indicate W and state range on order (e.g.: W0 … + 8mbar/OUT1…6V)													W

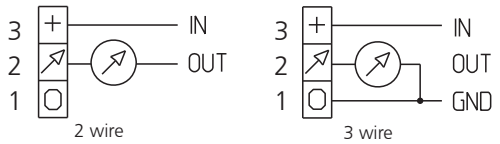
Accessories [3]

		Order number
Connection kit for vent duct (metal), 90° angled	including tube 2 m long (Fig. 1)	104312
Connection kit for vent duct (plastic), straight	including tube 2 m long (Fig. 2)	100064
DIN-rail mounting adaptor (Fig. 3)		112854
Calibration certificate		104551

[1] Other pressure range on request [2] Other output or power supply on request [3] Accessories supplied loose

Dimensions in mm / Electrical connections





Accessories

Fig. 1

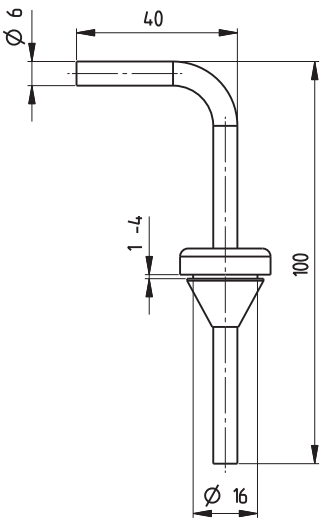


Fig. 2

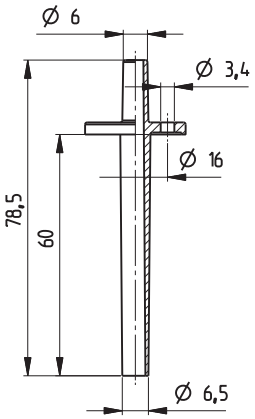


Fig. 3