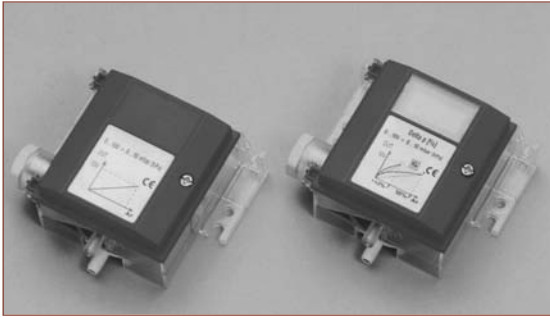


# PRESSURE, VACUUM AND DIFFERENTIAL PRESSURE TRANSMITTER 0 TO 50 MBAR

## TYPE 694



### Technical Overview

The differential pressure transmitters of the TYPE 694 series incorporate a proved ceramic fulcrum level technology. They deliver calibrated, temperature-compensated 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 environmental, laboratory and clean-room applications (air and non-corrosive gases).

### 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 our without LCD display
- Available with our without root-extracted output
- Attractive price / performance ratio

### Legend to Cross-section Drawing

1. Diaphragm
2. Sensor element
3. P1 higher pressure / lower vacuum
4. Display
5. Amplifier electronics
6. Connection terminals
7. Cover
8. P2 lower pressure / higher vacuum

### Pressure Ranges

See order code selection table

### Overload

See order code selection table

### Rupture Pressure

500 mbar

### Accuracy

Linear output:

Zero point	< +/-0.7 % fs
(Type 0 - 1 mbar	< +/-1.0 % fs)
Linearity inclusive hysteresis	< +/-1.0 % fs
(Type 0 - 1 mbar	< +/-2.0 % fs)

Total of linearity, hysteresis, repeatability and zero point:  
From -50 to + 50 Pa <math>\pm 3\text{ Pa}</math> (3% FS)

Square-root extracted output:

Absolute error (from 2 ... 100 % pressure)  

$$\leq \pm 0.3 \sqrt{\frac{\text{PFS}}{P}} + 1.5 \text{ [% of full scale]}$$

Type 0 - 1 mbar:

$$\leq \pm 0.6 \sqrt{\frac{\text{PFS}}{P}} + 1.5 \text{ [% of full scale]}$$

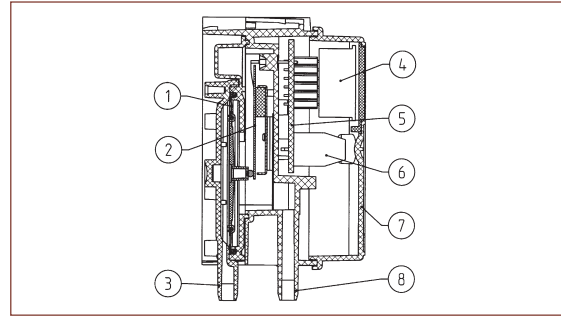
### Temperature Influences

Medium and ambient temperature 0°C to +70°C

Storage temperature -10 to +70 °C

TC zero point with linear output: <math>\pm 0.04\text{ % fs}/^\circ\text{C}</math>

with root-extracted output: (from 2 ... 100 % pressure)

$$< \pm 0.06 \sqrt{\frac{\text{PFS}}{P}} \text{ in % fs}/^\circ\text{C}$$


### Diaphragm

Two-component silicone LSR

### Case Construction

Fire classification to UL94

Cover: HB

Pressure housing complete: V-2

### Dynamic Response / Resolution

Suitable for dynamic measurements.

Response time <math>< 10\text{ ms}</math>

Load change <math>< 10\text{ Hz}</math>

Resolution:

1 mbar fs version: <math>< 0.2\text{ % fs}</math>

3 to 50 mbar fs versions: <math>< 0.1\text{ % fs}</math>

### Pressure Connections

Connection pipe  $\varnothing$  6.2 mm

### Weight

100 grams with display

90 grams without display

### Installation Arrangement

Vertical (factory calibrated), pressure connections downwards.  
effect of orientation, see facing page.

### Output Signal and Power Supply

See order code selection table.

Short circuit proof and protected against polarity reversal. Each connection against other with max. +/- supply voltage.

Electromagnetic compatibility: CE conformity to EC directive 89/336 EEC (EMC) by application of harmonized standards IEC 61000-6-3 and EN 61000-6-2.

### Load Impedance

3-wire cable:

0 - 10 V > 10 kOhm

0 - 20 mA < 400 Ohm

4 - 20 mA < 400 Ohm

2-wire cable:

4 - 20 mA  $\leq \frac{\text{supply voltage} - 11\text{V}}{0.02\text{ A}}$  [Ohm]

### Current Consumption

3-wire cable:

0 - 10 V < 10 mA

0 - 20 mA < 30 mA

4 - 20 mA < 30 mA

2-wire cable: 4 - 20 mA

### Electrical Connection / Protection Standard

Screw terminals for wire & stranded conductors up to 1.5 mm<sup>2</sup>.

Cable gland with built-in strain relief Pg 11.

IP 00 without cover

IP 54 with cover

### Display

Liquid-crystal, 3 1/2 digit

### Accessories

See order code selection table



# PRESSURE, VACUUM AND DIFFERENTIAL PRESSURE TRANSMITTER 0 TO 50 MBAR

Order Code Selection Table

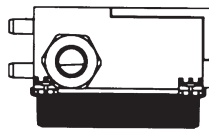
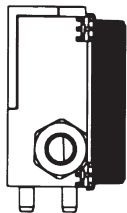
694 .						9	X	X	X	X	X	X	X	X
	mbar	p max. Pa <sup>1)</sup>	p max. InchH2O	p max.	p max.									
Pressure range <sup>2)</sup>	-0.5/+ 0.5	(+/-50)	-50/+50	+ 5000	-0.2/+0.2	(+/-20)	3	1						
	0 ... 1	(50)	0 ... 100	5 000	0 ... 0.4	(20)	1	1						
(Overload)	0 ... 3	(50)	0 ... 300	5 000	0 ... 1.2	(20)	1	2						
	0 ... 5	(100)	0 ... 500	10 000	0 ... 2	(40)	1	3						
	0 ... 10	(100)	0 ... 100 (x10=Pa)	10 000	0 ... 4	(40)	1	4						
	0 ... 16	(100)	0 ... 160 (x10=Pa)	10 000	0 ... 6.4	(40)	1	5						
	0 ... 25	(200)	0 ... 250 (x10=Pa)	20 000	0 ... 10	(80)	1	6						
	0 ... 50	(200)	0 ... 500 (x10=Pa)	20 000	0 ... 20	(80)	1	7						
Unit of pressure shown	mbar								0					
	inchH2O								1					
	Pa								2					
Output signal /	Output signal/LCD-Display	Full scale adjustable with potentiometer by customer												
Full scale adjustment	linear	No						1						
	linear	Yes (at P = 40 ... 100%)						2						
	with square root extraction	No						4						
	with square root extraction	Yes (at P = 40 ... 100%)						3						
Outputs <sup>3)</sup>	OUT	IN												
and power supply	0 ... 10 V	3-wire cable	13.5 ... 33 VDC / 24 VAC +/-15%						1					
	0 ... 20 mA	3-wire cable	13.5 ... 33 VDC / 24 VAC +/-15%						3					
	4 ... 20 mA	3-wire cable	13.5 ... 33 VDC / 24 VAC +/-15%						4					
	4 ... 20 mA	2-wire cable	11 ... 33 VDC						5					
Δp display	Without Δp display										0			
	Δp display in pressure unit (not for adjustable / square root extraction versions)										1			
	Δp display as % fs										2			
Pressure connections/	Connection pipe Ø 6.2 mm		without pressure orifices										1	
Pressure orifices	Connection pipe Ø 6.2 mm		pressure orifices on P1										2	
	Connection pipe Ø 6.2 mm		pressure orifices on P2										3	
	Connection pipe Ø 6.2 mm		pressure orifices on P1 and P2										4	
Connection kit	Without connection kit													0
with tube (2 m)	With connection kit		as Fig. 1 in individual packing											1
	With connection kit		as Fig. 2 in individual packing											2

## Accessories

Connection set for vent duct Fig. 1 tube 2 m long	1	0	4	3	1	2
Fig. 2 tube 2 m long	1	0	0	0	6	4

## Orientation

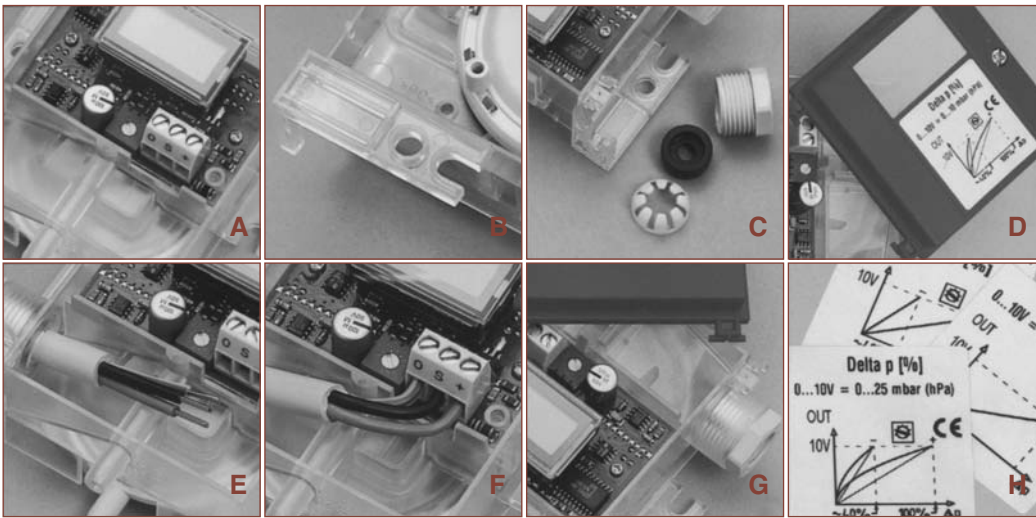
Recommended: Vertical, with pressure Connections downwards (factory calibration). (± types forcible)	Horizontal with cover downwards. Signal approx. 10 Pa Higher than actual pressure	Horizontal with cover upwards Signal approximately 10 Pa below actual pressure.
---	---	--



- <sup>1)</sup> Pascal value displayed in LCD  
<sup>2)</sup> Other pressure ranges on request.  
<sup>3)</sup> Other outputs on request.

# PRESSURE, VACUUM AND DIFFERENTIAL PRESSURE TRANSMITTER 0 TO 50 MBAR

## Versions



- A - Potentiometer for scale end value
- B - Housing with built-in fixing brackets
- C - Pg gland with cable strain relief
- D - Self-retaining screw in cover
- E - Angled surface for easy cable entry
- F - Robust terminal strip suitable for No. 2 screwdriver
- G - Snap-removable cover
- H - Front-plate label with quick guide to functions

## Electromagnetic Compatibility:

CE conformity to EC directive 89/336 EEC (EMC) by application of harmonized standards EN 50081-1 and EN 50082-2.

Type of interface / Interference susceptibility	Test standard	Effects
Electronic discharge ESD	EN 61000-4-2 8 kV air discharge / 4 kV contact discharge	No failure
High-frequency electromagnetic radiation (HF)	EN 61000-4-3 0.15 ... 80 MHz, 10 V/m	No effect
Fast transients (burst)	EN 61000-4-4 ± 2 kV	No failure
Surge	EN 61000-4-5 Line-Line: ± 1 kV Line-Ground: ± 2 kV	No failure
Conducted HF interference	EN 61000-4-6 80 ... 1000 MHz, 10 VRMS	No effect

Type of interference / Emitted interference	Test standard	Effects
Conducted interface	EN 55022 0.15...30 MHz	None
Radiation from housing	EN 55022 30...1000 MHz	None



# PRESSURE, VACUUM AND DIFFERENTIAL PRESSURE TRANSMITTER 0 TO 50 MBAR

Dimensions in mm / Electrical Connections / Square Root Function

