

HUBA

**699 Series Differential Pressure Indicator & Transmitter**

Field Selectable Voltage and Current Outputs, F.S. Ranges From 0.1 to 20" W.C.

**DESCRIPTION**

Series 699 measures low differential pressures typically found in air conditioning applications such as air flow measurement, fan static pressures and specialty room pressure measurements in clean rooms and other low pressure space monitoring applications.

The 699 series incorporates time proven ceramic fulcrum lever technology. They deliver adjusted and temperature-compensated sensor signals, available as standard voltage or current outputs.

**FEATURES**

- Available with or without LCD display
- Adjustable measurement range
- Switchable output signals
- Switchable response curve (linear or root-extracted)
- Resettable Zero Point (Reset button)
- Full scale adjustable
- Attractive price / performance ratio
- Application at over and low pressure range possible
- Fast, easy mounting. Housing incorporates integral bracket- for wall or ceiling mounting

**APPLICATIONS**

- **HVAC Systems:** Filter monitoring, fan/blower control, and room pressure regulation.
- **Building Automation:** Airflow measurement and energy efficiency monitoring.
- **Industrial Applications:** Pneumatic and hydraulic system monitoring, process control.
- **Environmental and Laboratory Use:** Fume hood monitoring, environmental chamber control.
- **Cleanrooms & Pharmaceutical Manufacturing:** Pressure gradient monitoring, sterility assurance.
- **Energy Production and Utilities:** Boiler system monitoring, ventilation system control.
- **Water & Wastewater Treatment:** Pump efficiency monitoring, filter backwashing control.

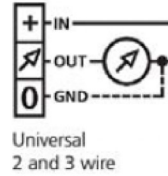
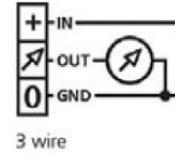
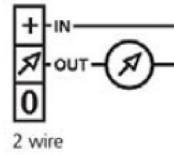
**SPECIFICATIONS****GENERAL**

Medium	Air and neutral gases	
Pressure ranges	F.S. from $\pm 0.1$ to 20" w.c. (See order table for field selectable ranges offered for each model)	
Units of pressure measurement	Inches w.c., mm w.c.	
Tolerable overload on one side of diaphragm:		
Pressure	40" w.c. at P1, 1.6" w.c. at P2	
Vacuum	40" w.c. at P2, 1.6" w.c. at P1	
Rupture pressure	2 x overload at ambient temperature	
	1.5 x overload at 70 °C	
Zero Adjustment	Zero point resettable by reset button	
Materials in contact with medium:		
Housing	Polycarbonate PC	
Diaphragm	Silicone	
Sensor	Al <sub>2</sub> O <sub>3</sub> (96%) / glass	
Temperature		
Medium and ambient	32 to 158°F (0 to +70 °C)	
Storage	14 to 158°F (10to +70 °C)	
No condensation		
Output/Power Supply:		
Three-Wire	0 to10 V, 13.5to 33 VDC / 24 VAC $\pm 15\%$	
	0 to 20 mA, 13.5 to 33 VDC / 24 VAC $\pm 15\%$	
	4 to 20 mA, 13.5 to 33 VDC / 24 VAC $\pm 15\%$	
Two-Wire	4 to 20 mA, 8.0 to 33 VDC	
Additional adjustable by software (with LCD Display, configuration 3 only)	0-5.0V, 6.5 to 33 VDC / 24 VAC $\pm 15\%$	
Load:		
3-wire	0-10 V	> 10 kOhm
	0-20 mA	< 500 Ohm
	4-20 mA	< 500 Ohm
2-wire	4-20 mA	< supply voltage - 8 V / 0.02 Ohms

## SPECIFICATIONS continued...

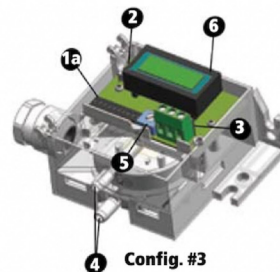
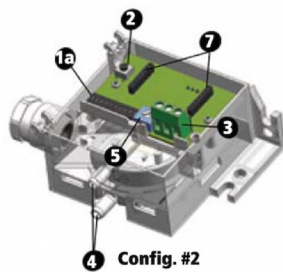
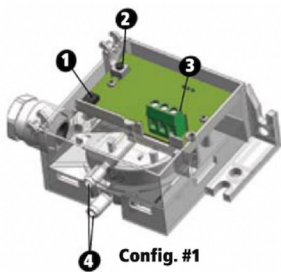
## WIRING

Current Consumption		
3-wire:	0-10 V	< 10 mA
	0-20 mA	< 30 mA
	4-20 mA	< 30 mA
2-wire	4-20 mA	20 mA
Backlight LCD-Display	30 mA	
Dynamic response:		
Response time	< 20 ms	
Load cycle	<10 Hz	
Response time Filter:		
Filter response time switchable for configuration 2	off or 1 second	
Filter response time programmable for configuration 3	0.2 / 1 / 5 / 20 seconds	



## PRESSURE RANGE ZERO OFFSETS

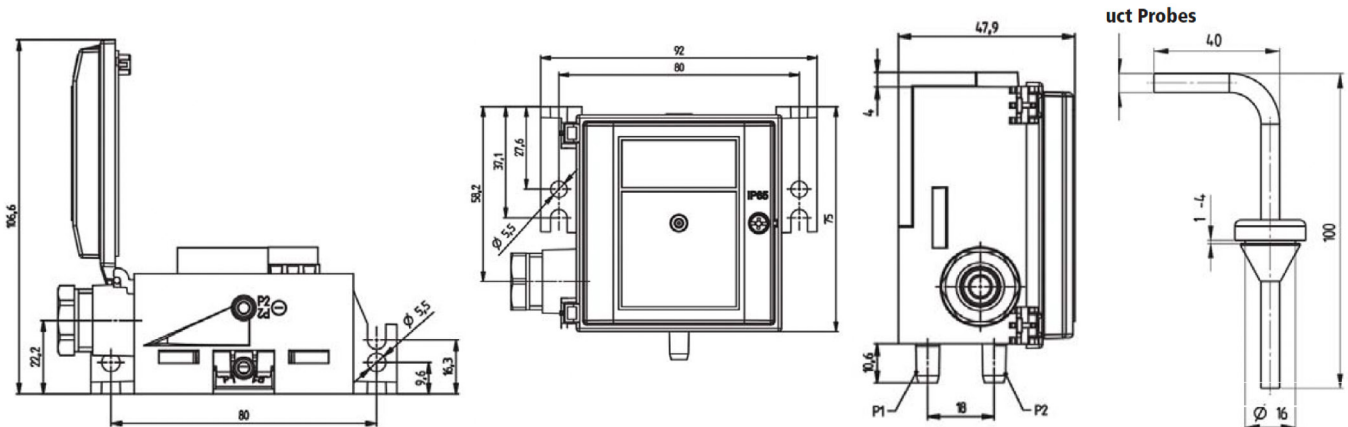
Factory preset for configurations 1 & 2; Field programmable for configuration 3



Legend	
1	Dual DIP Switch
1a	10 Position DIP Switch
2	Zero Point Reset
3	Terminal Connection
4	P1 & P2 Pressure Ports
5	Signal Amplification Potentiometer
6	LCD
7	LCD Receptacle

Legend			
Parameter	Config. 1	Config. 2	Config. 3
LCD Display	No	No	Yes
Field Select Output Signals	No	Yes	Yes
Field Select Response Time	No	Std. or 1 sec.	0.2, 1, 5 or 20 sec.
Display Program Menu & Program Button	No	No	Yes

## DIMENSIONS MM



# ORDERING INFORMATION

						1	2	3	4	5	6	7	8	9	10		
Order code selection table						699.	X	X	X	X	X	X	X	X	X	X	
Pre-adjustment	max. range					9											
	middle range (factory setting)					B											
	min. range (factory setting)					C											
Signal range selectable	Pressure range of 0 % to 100% fs						1										
	Pressure range of -10 % to 90% fs						2										
	Pressure range of -100 % to 100% fs						3										
Pressure range selectable	<b>mbar (hPa)</b>	<b>Pa</b>	<b>mmWS</b>	<b>inH2O</b>	<b>under pressure max.</b>												
	0 ... 0.3/0.5	30/50	3/5	0.1/0.2	-50 Pa			0									
	0 ... 0.3/0.5/1	30/50/100	3/5/10	0.1/0.2/0.3	-100 Pa			1									
	0 ... 0.5/1/3	50/100/300	5/10/30	0.3/0.5/1	-50 Pa			2									
	0 ... 1/3/5	100/300/500	10/30/50	0.5/1/2	-50 Pa			3									
	0 ... 3/5/10	300/500/1000	30/50/100	1/2/3	-50 Pa			4									
	0 ... 5/10/16	500/1000/1600	50/100/160	2/3/5	-50 Pa			5									
	0 ... 10/16/25	1000/1600/2500	100/160/250	3/5/10	-50 Pa			6									
0 ... 16/25/50	1600/2500/5000	160/250/500	5/10/20	-50 Pa			7										
Pressure unit	mbar								0								
	hPa								4								
	Pa								2								
	kPa								5								
	mmWS								3								
	inH2O								6								
Output signal / adjustment	Linear	without Filter dual			DIP-Switch				1		0						
		with Filter (transposable)			tenfold DIP-Switch				2								
	Square root extracted	without Filter dual			DIP-Switch				4		0						
		with Filter (transposable)			tenfold DIP-Switch				3								
Output / 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							
			8.0 ... 33 VDC		(2 wire)					5							
	Output signal complimentary selectable, at delivery no pre-adjustment						9				2	6					
Option	without display											0					
	with display in pressure unit chosen above											1					
	with display in % fs											2					
	with module MODBUS									2,3	1	3					
Pressure connection / Pressure orifices	Connection pipe Ø 6.2 mm			without pressure orifice 1										1			
				pressure orifice on P1 2										2			
				pressure orifice on P2 3											3		
				pressure orifice on P1 and P2												4	
Accessories / Connection Kit	IP 54		without												0		
			with connection kit (metal), 90° angled including tube 2 m long (Fig. 1)													1	
			with connection kit (plastic), straight including tube 2 m long (Fig. 2)													2	
	IP 65		without												3		
			with connection kit (metal), 90° angled including tube 2 m long (Fig. 1)												4		
			with connection kit (plastic), straight including tube 2 m long (Fig. 2)												5		
Pressure range variation (optinal)	Indicate W and state range on order (e.g.: W0 ... + 8mbar/OUT1...6V)					9	1									W	