

Model DE 03

General Description

The DE 03 Electronic Differential Pressure Transmitter combines electronic measurement with a rugged sensor design, resulting in high accuracy, high differential and static rating, and ability to handle difficult media. It is available with local digital readout and electronic limit detection relays, with measuring range of 0 – 40 mbar to 0 – 25 bar.

DE 03 Transmitters are suitable for a wide range of applications, for example:

- Water and effluent treatment plants, and other filteration applications: for monitoring condition of filters
- Flow monitoring in sprinkler systems
- Flow measurement of steam and hot water, using differential pressure flow sensors, in remote heating systems
- Monitoring pressure drop across valves
- Pump control dependent on differential pressure in block unit heating power stations

Important Features

- Highly corrosion resistant
- Rugged, wear resistant sensor design
- Low hysteresis
- Easily cleaned pressure chamber
- Unaffected by fouling

Principles of Operation

The pressure to be compared act on outer flexible stainless steel isolating diaphragms, at opposite ends of the sensing capsule. A third diaphragm in between acts as the sensing element. Both outer diaphragms are backed by intermediate plates, contoured to match the profile of the outer diaphragms. The cavity of the capsule is filled with hydraulic fluid, and is divided into two separate parts by the central sensing diaphragm. Pressures acting on the outer diaphragms are transferred to the sensing diaphragm by the fluid, through apertures in the intermediate plates. An axial metal rod joined to the sensing diaphragm forms the core of a precision LVDT displacement sensing element. The coils of the LVDT are and protected from the capsule fluid.

When pressures are equal on both sides of the sensing diaphragm, it is at zero position. Pressure difference across the sensing diaphragm causes it to deflect away from the higher pressure side, resulting in linear displacement of the LVDT core. This displacement is sensed by the LVDT's coils, and converted by an



electronic module to an output signal proportional to the pressure differential. Inward deflection of each isolating diaphragm is limited by the intermediate plate behind it. This also limits the pressure that can be transferred to the sensing

diaphragm, and through it, to the isolating diaphragm on the other side. Thus, all three diaphragms are fully protected against excess differential pressure in either direction, and also against high static pressures.

Schematic Diagram 1 Isolating diaphragms 2 Intermediate (contoured) plate 3 Sensing diaphragm 4 LVDT sensing element core 5 Pressure transfer fluid 6 LVDT sensing element coils

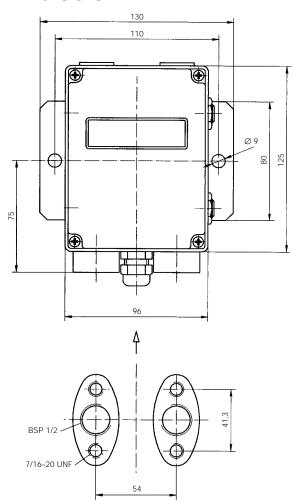


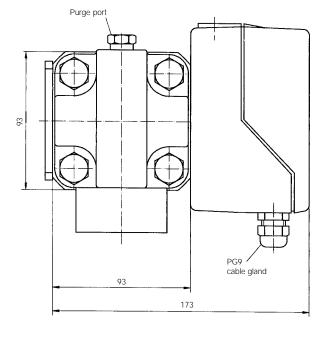
Specifications

General						
Measuring ranges	0 – 40 mbar to 0 – 25	bar (see Ordering	Code)			
Nominal pressure rating		2d. (000 0.dog				
Max. static pressure						
Accuracy						
Max. differential overpressure	Safe up to max. static pressure; pressure differential in either direction					
Linearity						
Hysterics						
Operating temperature						
T	Media: -15° to +70°	C				
Temperature coefficientProtection class						
FIOLECTION Class	_ IF 54, per DIN 40050					
Electrical						
Power supply		230 V AC				
	115 V AC	115 V AC				
	24 V AC	24 V AC	041/150			
Dower concuration (convey)	24 V DC	24 V DC	24 V DC			
Power consumption (approx.)		3 VA/3 W	2-wire loop			
Output signal	 _ 0/4 — 20 mA	0 – 10 V DC	4 – 20 mA			
Output load impedance	< 1000 ohms	> 2000 ohms				
Output current limit (approx.)		-	30 mA			
Output voltage limit		12 V DC	_			
Square root conversion accuracy	_ +/- 0.5 %	_	_			
with offset compensation	_ 2 % (max.)					
Display	3 – 1/2 digit LCD					
Span adjustment	Approx. 10 % of range full-scale					
Zero adjustment	_ Approx. 10% of range	e full-scale				
Limit Relays						
Number of limit relays	None (standard), one	or two (optional)				
Set-point adjustment	 None (standard), one or two (optional) The readout can be switched to display limit set-point, instead of displaying measured. With 2 limit relays, the 					
	display can be furthe					
	display set-point 1 or 2. In this mode, the set-point is					
	adjusted to user-determined value/s. The set-point can					
Relay hystereris	adjusted over 100 % of span (range full-scale) Approx. 2 %					
	Approx. 2 % Maximum: 250 V DC; 1 A; 250 VA					
Thomas contacts family	a 200 1 20	,,				
Connections						
Electrical connections						
Pressure connections	cable gland. (Plug-in	Connector available	e as option).			
riessure connections	sockets. (Other types					
Purge ports						
Materials Displaying (soluting (soluting)	Ctainland atail 1 1571	Ontional Heatelle	, C			
Diaphragms (isolating / sensing)						
Intermediate plate	Viton (fluorocarbon elastomer). Optional: PTFE coated.					
	Aluminium alloy, hard coated Aluminium alloy (painted); plastic					
		,, p.a				
Mounting / Installation						
	 Metal tube connect 					
	- Hose connectors: c					
	- Direct connection to					
	` ,	eu sockets (using th	nread sealing compound)			
	Mounting: - Wall mounting plate bracket - Pipe mounting bracket kit (DZ 10) for 2" pipe					
	Tipo mounting brac	(DZ 10) 101 Z	- ٢٠٢٠			



Dimensions



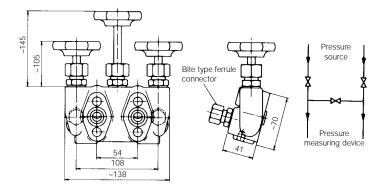


Accessories

The optional 3-spindle blocking/equalising valves unit Model DZ 36 mounts directly on to the DIN 19213 standard pressure connection flanges. It is used for zero dP calibration, and static pressure testing.

Dimensions

3-spindle blocking/equalising valve Model DZ 36 (DIN 19213 flange mounting).

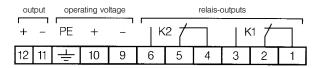


Electrical Connections

Supply Voltage: 230 V AC, 115 V AC, 24 V AC

out	put	oper	ating vol	tage		relais-outputs					
+	_	PE	L1	N	K	2 /		K	17		
12	11	+	10	9	6	5	4	3	2	1	

Supply Voltage: 24 V DC



4-20 mA 2-Wire Loop:

24 V DC loop supply (series connected)



Accessories: Mounting kit for 2-inch pipe

