652

Differential pressure, vacuum, overpressure transmitter 0 – 1 bar

EDITION 07/2004

Huba Control

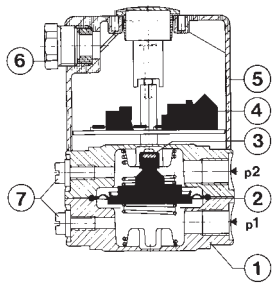
FOR FINE PRESSURE AND FLOW MEASUREMENT

EDITION 05/2001

Technical overview

The differential pressure transmitter of type series 652 are used for the long- and short-distance transmission of electrical pressure-proportional signals. They are specially suited for the continuous level or flow monitoring of neutral and slightly aggressive liquids and gases in heating, ventilation and process technology.

The pressure or differential pressure to be monitored acts on a diaphragm, which in turn acts against a spring. As a result of the pressure action and the resultant diaphragm movement a permanent magnet fastened on the diaphragm moves in the direction of a hall sensor arranged outside the pressure case.



The distinct advantages

- High overpressure safety margin 10/20 bar on P1
- 3 standardized output signals for direct processing in control/ monitoring systems
- Functionally simple, rugged mechanics with high operating reliability
- Also for slightly aggressive liquids and gases
- Market-oriented attractive price/performance ratio

This sensor emits an electrical signal which is proportional to the magnetic field. The signal is linearized, compensated an amplified.

Legend to cross-section drawing

1	Pressure case
2	Diaphragm
3	Permanent magnet
4	Electronic pcb
5	Cover
6	PG9 Union
7	Vent
P1	Hither pressure/ lower vacuum
P2	Lower pressure/ higher vacuum

Pressure ranges

See order code selection table.
Other pressure ranges on request.

Overload

10 bar (range up to 200 mbar)
20 bar (range from 500 mbar)

Rupture pressure

30 bar

Accuracy

Linearity	< +/- 1.5 % fs
Hysteresis	< +/- 1.5 % fs
Zero point offset	< +/- 1.0 % fs

Higher accuracies on request.

Case construction

Pressure case:
Anodized black aluminium, brass or nickel-plated brass
Cover: plastic

Diaphragm

A – NBR-based	E – EPDM
C – FPM	F – Silicon

Parts coming into contact with the medium, to base and diaphragm:

X 12 CrMoS 17	1.4104
X 5 CrNi 18 9	1.4301
X 12 CrNi 17 7	1.4310

Steel category A 2 for screws
Polyacetate-C / Polyamide

Temperature influences

Medium temperature

NBR-based	0 … +80°C
FPM	-10 … +80°C
EPDM	-10 … +80°C
Q (Silicon)	-40 … +80°C
Ambient temperature (electronic pcb)	-25 … +60°C

Temperature error

Temperature drift 0.08% fs / degree (20°C related to zero point)

Dynamic response

Response time	< 10 ms
Load change	< 10 Hz

Pressure connections

1/8 G Inside thread
P1 > P2

Weight

Pressure case aluminium:
370 grams
Pressure case brass/ nickel-plated brass: 860 grams

Installation arrangement

Unrestricted.
The transmitter is calibrated in the factory with the diaphragm positioned vertically. In the case of liquid media vent screw up, i.e. pressure connections down.

Outputs

0 … 10 V	3-wire cable
0 … 20 mA	3-wire cable
4 … 20 mA	3-wire cable

Power supply

20 – 30 VDC
24 VAC

Load

Current load	Voltage load
≤ 300 Ohm	≥ 10 kOhm

Current consumption

0 – 10 V	35 mA
0 – 20 mA	max. 55 mA
4 – 20 mA	max. 55 mA

Electical connections / Protection class

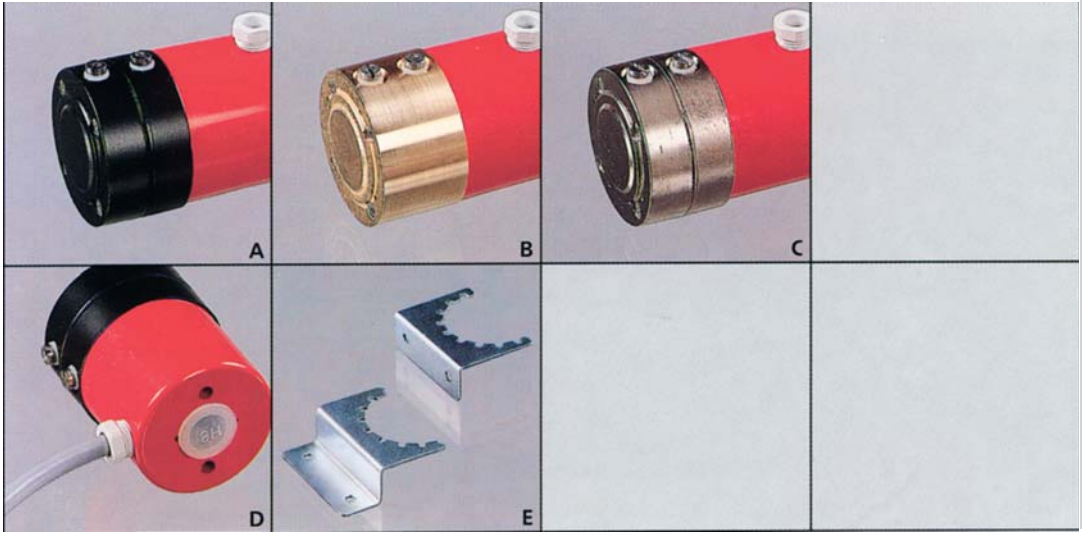
See order code selection table.
Other connections on request.
Short circuit proof and with polarity reversal protection.

Accessories

Mounting bracket

Options

± ranges symmetrical and adjustable versions on request.



A – Pressure case anodized aluminium

B – Pressure case brass

C – Pressure case nickel-plated brass

D – Cable connection with cover PG 9

E – Mounting bracket type A / type B

Order code selection table

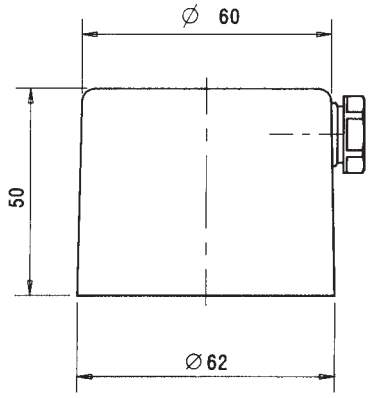
EDITION 05/2001

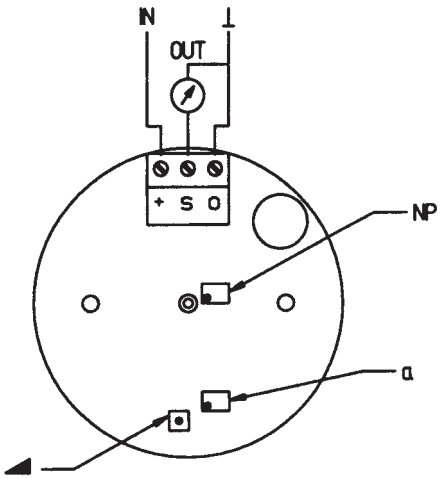
652 .	9	X	X	X	X	X	X	X	X	X	X
Pressure ranges (mbar)[1]	**Operation pressure max.**										
0 – 50	10000 mbar		0								
0 – 100	10000 mbar		1								
0 – 200	10000 mbar		2								
0 – 500	20000 mbar		3								
0 – 1 000	20000 mbar		4								
Outputs[2]	0 – 10 V			0							
	0 – 20 mA			1							
	4 – 20 mA			4							
Linearity	+/- 1.5 % fs				1						
Power supply (IN)	20 – 30 VDC					0					
	24 VAC +15/-10 %					1					
Electrical connections	Screw terminals						0				
	(Protection class with cover IP 65)										
Pressure connections	Inside thread G 1/8							0			
Pressure case	Anodized aluminium black								0		
	Brass (CuZn)								1		
	Nickel-plated brass (CuZn)								2		
Diaphragm	Type A – NBR-based									0	
	Type C – FPM									1	
	Type E – EPDM									2	
	Type F – Q (Silicon)									3	
Mounting	Without mounting bracket										0 0
	With mounting bracket type A										0 1
	With mounting bracket type B										0 2

[1] Other pressure ranges on request.
[2] Other output signals on request.

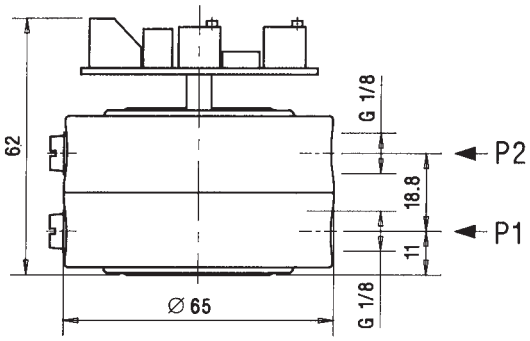
Dimensions in mm / electrical connections

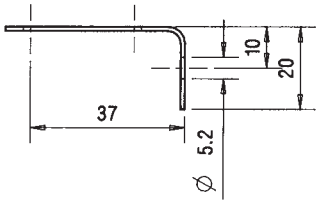
EDITION 07/2004

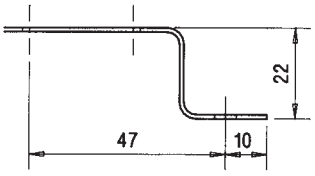


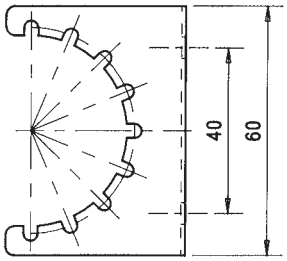


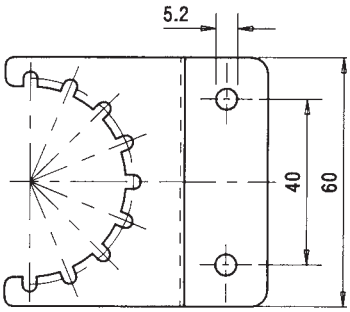
P1 > P2











Electromagnetic compatibility:
CE conformity to EC directive 89/336 (EMC) by application of harmonized standards EN 61000-6-1 and EN 61000-6-3.

Interference stability	Test standard	Effects
Electrostatic discharge ESD	EN 61000-4-2 8 kV air, 4 kV contact	No failure
High-frequency electromagnetic radiation (HF)	EN 61000-4-3 3 V/m, 80...1000 MHz	- 400 - 1000 MHz: < 8% signal influence
Conducted HF interference	EN 61000-4-6 3 V, 0.15 ... 80 MHz	No effect
Fast transients (burst)	EN 61000-4-4 0.5 kV	No failure
Surge	EN 61000-4-5	No test
Magnetic fields	EN 61000-4-8 3 A/m, 50 Hz	No effect
Interference emit	**Test standard**	**Effects**
Conducted interference Radiation from housing	EN 55022 (CISPR 22) 0.15...30 MHz 30...1000 MHz, 10 meters	No effect No effect

Technical data subjects to change.

Internet: www.hubacontrol.com

Huba Control Switzerland
Headquarters
Industriestrasse 17
CH-5436 Würenlos
Phone ++41 (0) 56 436 82 00
Fax ++41 (0) 56 436 82 82
e-mail: info.ch@hubacontrol.com

Huba Control United Kingdom
Unit 3 Network Point
Range Road
GB-Witney Oxfordshire OX29 0YD
Phone 01 993 776 667
Fax 01 993 776 671
e-mail: info.uk@hubacontrol.com

Huba Control France
e-mail: info.fr@hubacontrol.com
Huba Control Germany
e-mail: info.de@hubacontrol.com
Huba Control Netherlands
e-mail: info.nl@hubacontrol.com

Agent for: