

**Type MA 32**

**Application**

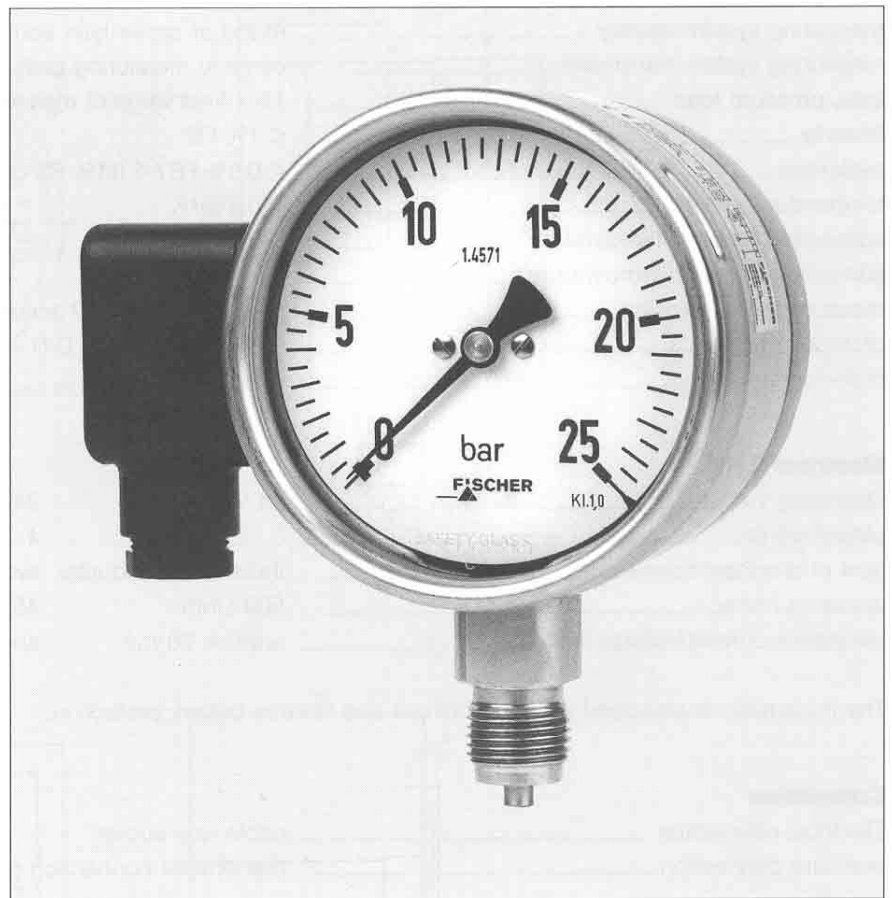
A transmitter manometer converts pressure values into standard electric signals.

These standard signals are suitable for being transmitted to displaying, recording or controlling receiver units. Large distances between the measuring point and the receiver unit can be bypassed whereby the signals are not tampered.

At the same time the transmitter manometer offers an analogous local display.

**Main features**

- Casing and measuring system of stainless steel
- Safety casing according to DIN EN 837-1
- Direct local pressure display
- Teletransmission of measured values



**Construction and Functioning**

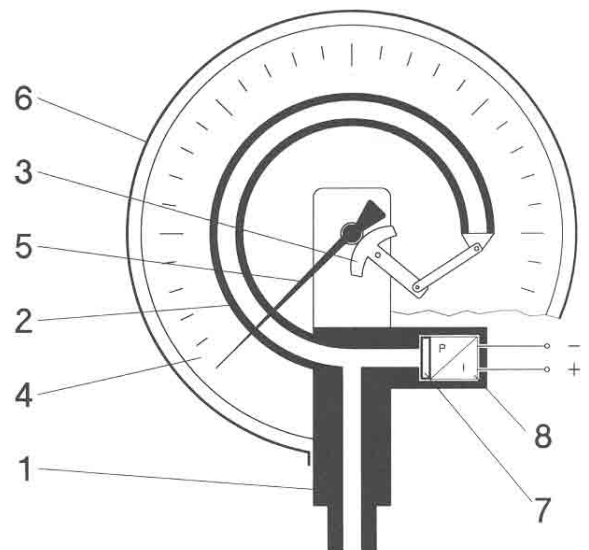
The transmitter-manometer consists of two measuring systems which are independent from each other.

A Bourdon-tube gauge is used for local display. An elastic deformation and a motion of the measuring system is caused by the pressure increase. This motion is transferred by the motion work which shifts the pointer in proportion to the pressure.

The standard electric signal is emitted by a ceramic measuring cell. The increasing pressure deforms the ceramic diaphragm, and consequently the DMS bridge fitted at the rear changes. An integrated electronic system converts the DMS bridge signals into standard electric signals.

**Functional Diagram**

1. connection shank
2. measuring element
3. motion work
4. dial face
5. pointer
6. casing
7. measuring cell
8. electronic conversion system



## Technical Data

### General

Measuring ranges	from 0...0,6 to 0...400 bar according to DIN EN 837-1 (see order code)
measuring system display	round or screw-type spring-tube manometer
measuring system transmitter	ceramic measuring cell
max. pressure load	1.3 x final value of measuring range
linearity	< 1% FS
hysteresis	< 0.5% FS / < 0.1% FS of electric output signal
temperature drift	< 0.4% / K
admissible ambient temperature	0...+60 °C
admissible medium temperature	0...+85 °C
measured value display	safety casing Ø 100 according to DIN EN 837-1
protection type	IP 54 according to DIN 40050
built-in position	vertical

### Electrical Data

Operating voltage	24 V DC	24 V DC	24 V DC
output signal	0...20 mA	4...20 mA	0...10 V DC
type of electrical connection	three-wire conductor	two-wire conductor	three-wire conductor
apparent ohmic	500 Ohm	450 Ohm	> 2 kOhm
resistance current/voltage limitation	approx. 26 mA	approx. 26 mA	approx. 13 V DC

The transmitter is equipped with short circuit and reverse battery protection.

### Connection

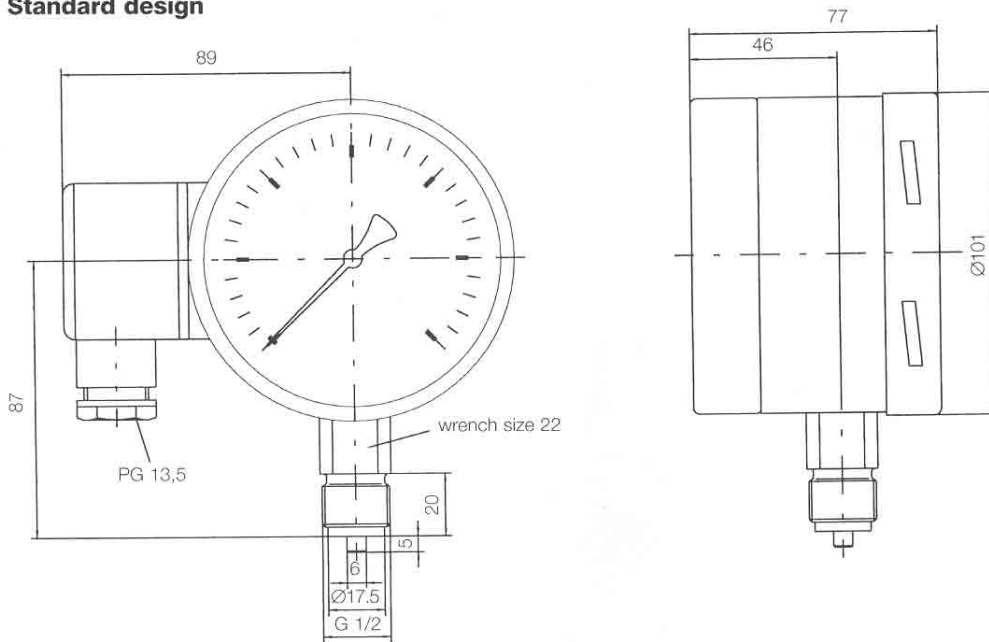
Electrical connection	cable wall socket
pressure connection	manometer connection peg according to DIN EN 837-1, below

### Materials

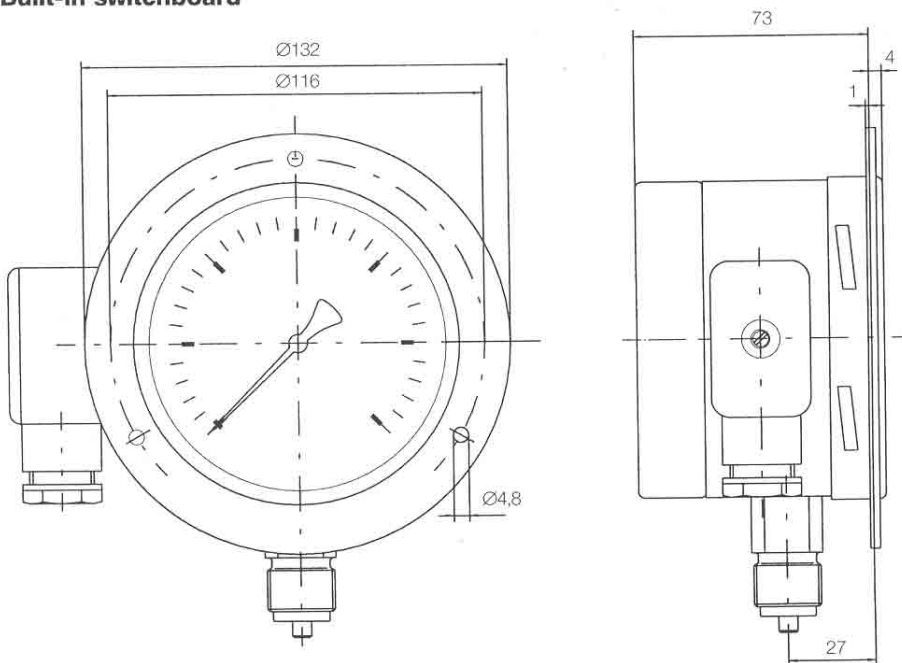
Measuring system	nickel chromium steel 1.4571, 1.4305 / ceramics
manometer casing	nickel chromium steel 1.4301
motion work	nickel chromium steel 1.4301
sealings that come in contact with medium	FPM
dial face and pointer	aluminium
inspection glass	multilayer compound glass

## Dimensioned Drawings

### Standard design

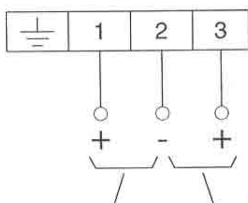


### Built-in switchboard



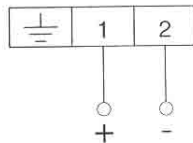
### Electric wiring diagrams

Three-wire conductor



output signal      operating voltage

two-wire conductor



## Ordering Code

### Transmitter- Manometer

Type MA 32

**0**  **8 7**  **K**  **0 0 0**

#### Measuring Ranges

0- 0.6 bar	▷	0	1
0- 1.0 bar	▷	0	2
0- 1.6 bar	▷	0	3
0- 2.5 bar	▷	0	4
0- 4.0 bar	▷	0	5
0- 6.0 bar	▷	0	6
0- 10 bar	▷	0	7
0- 16 bar	▷	0	8
0- 25 bar	▷	0	9
0- 40 bar	▷	1	0
0- 60 bar	▷	1	1
0- 100 bar	▷	1	2
0- 160 bar	▷	1	3
0- 250 bar	▷	1	4
0- 400 bar	▷	1	5
-1- +0 bar	▷	3	1
-1-+0.6 bar	▷	3	2
-1-+1.5 bar	▷	3	3
-1- +3 bar	▷	3	4
-1- +5 bar	▷	3	5
-1- +9 bar	▷	3	6
-1- +15 bar	▷	3	7

#### Measured Value Display

Safety casing Ø100 according to DIN EN 837-1

#### Construction

Standard	▷	O
front ring for panel mounting	▷	G

#### Pressure Connections

Connection thread 1/2 below BSP

#### Output Signal

0...20 mA, three-wire conductor	▷	A
4...20 mA, two-wire conductor	▷	B
0...10 V, DC, three-wire conductor	▷	C

#### Electrical Connection

Cable wall socket

#### 1. Additional Block – Liquid filling

without liquid filling	▷	0
damping liquid Parafin	▷	1