



Pressure transmitter MKM

Low-pressure Transmitter for draught, pressure and differential pressure

- Diaphragm element
- Lowest span 0...10 Pa
- Force-balanced system
- Fast settling time
- Linear or square rooted electrical output signal
- Analogous output 0...10 V or 0/4...20 mA
- Supply voltage 24 Vac or 230 Vac



Description and Operation

Safety indications



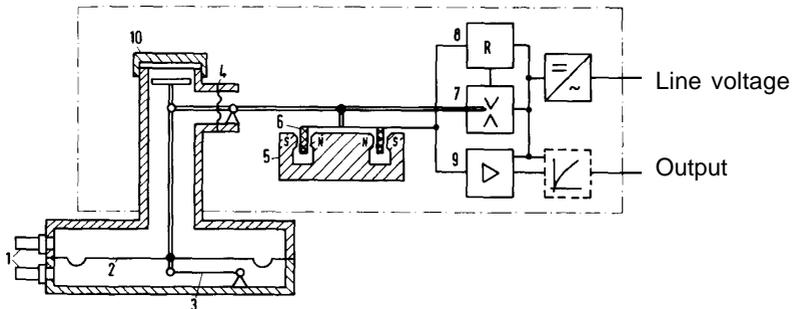
Attention! Read these instructions carefully before connecting the unit and putting it into operation. The device disposes of shock hazardous voltage and is therefore only to be connected and put into operation by trained and expert staff.

Use

The low-transmitter MKM serves for measuring pressure, differential pressure, flow or velocity of non-aggressive gases. Particular designing permits lowest spans down to 0,1 mbar (10 Pa), maximum span is 0...1200 Pa (12 mbar).

Applications are controlling of fans, room pressure controlling, filter-control, or measuring flow or velocity by orifice or pitot tubes.

Pressure is transmitted through the pressure connections (1) to a sensing diaphragm (2). This diaphragm, guided by steel strips (3), is lead through (4), and is frictionally connected with a moving coil (6), located in a magnetic field (5). A control unit (8), controlled by a position detector (7), feeds an electrical current into the moving coil, so the force of the moving coil will compensate the force produced by the sensing diaphragm. Moving coil current will therefore be exactly proportional to input pressure. An amplifier (9) converts the moving coil current into a standardized output signal.



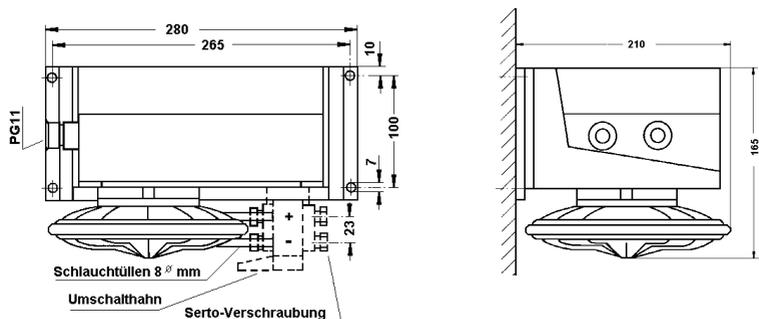
Flow measuring according to differential pressure methods or velocity measuring by pitot-tubes can be achieved by fitting the transmitter with a square rooted output signal. After unscrewing a locking cap (10) at the diaphragm case calibration of the transmitter can be examined or changed by imposing suitable weights. An expanded, expensive pressure standard is not required.

The transmitter is supplied by ac voltage 230 Vac or 24 Vac.

Monting

The transmitter is to be wall-mounted preventing any vibration. Deviation from horizontal mounting should not exceed 5 degrees.

Physical dimensions



Pressure connections

The diameter of the hose liners at the diaphragm case is 8 mm, connection will be done by suitable hoses.

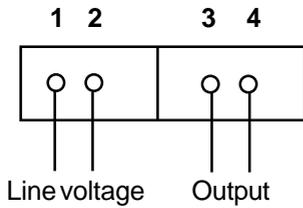
Electrical wiring

The electrical screw terminals are accessible after removing the rectangular case cover. Electrical wiring has to be done according to the connection diagram.

Attention!

External voltage on terminal 3 and 4, e.g. mistake of supply and output terminals, will destroy the device. A special terminal is assigned for the protective conductor.

Connection diagram



Attention!

External voltage on terminal 3 and 4 will destroy the device

Zero adjustment

After the first putting into operation zero adjustment should be done as follows: pull off pressure hoses from the liners.

Device with

linear characteristic

set output to zero or the value marked on the nameplate at „Messanfang“ by the potentiometer „Messanfang“

square rooted characteristic

unscrew the locking cap at the diaphragm case, impose the testing weight, set output to the value marked on the nameplate at „Messanfang“ by the potentiometer „Messanfang“, detach testing weight and rescrew the locking cap.

Calibration

The transmitter can be recalibrated to any span within the range of the order no. only by the aid of different weights. The following proceeding should be observed:

1. Unscrew the locking cap at the diaphragm case.
2. Remove the cover box at the printed circuit board.
3. On devices with square rooted characteristic a d.c. voltage 0...10 V, linear to differential pressure, is disposable at test point M. so zero will be adjustable.
4. Evaluate a weight from wanted span and weight factor, e.g.:

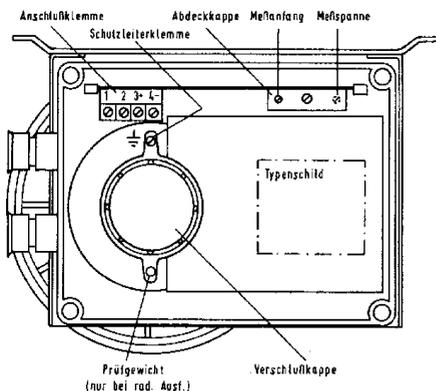
wanted span: 2,5 mbar

weight factor: 222,5 g/mbar (see nameplate)

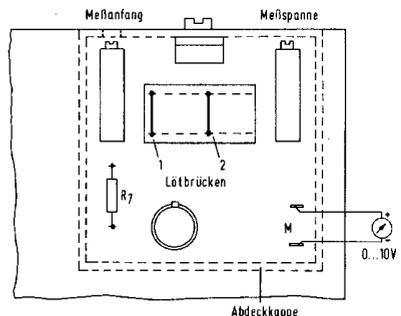
$$\begin{aligned} \text{weight} &= \text{wanted span} \times \text{weight factor} \\ &= 2,5 \text{ mbar} \times 222,5 \text{ g/mbar} \\ &= 556,3 \text{ g} \end{aligned}$$

5. Impose this weight to the compensating washers under the locking cap. (corresponding calibrated weights are available at order no. 26002)
6. Set output to ultimate value by aid of the soldering jumpers (coarse) and potentiometer „span“ (fine). On devices 2610, 2611, 2620 and 2621 only soldering jumper no. 1 is needed on devices 2612 and 2622 jumpers 1 and 2 have to be shifted parallelly. Shifting the jumpers from the left to the right will increase span by a factor of 1.8 per stage.
7. Adjust zero (weight detached) and ultimate value (weight imposed) alternately, until no more deviation can be measured.
8. Screw on cover box and locking cap.

Draufsicht (geöffnet)



Ausschnitt Leiterplatte



Technical data

measuring substances:	air and other non-aggressive gases
static pressure:	max. 0,2 bar
ranges:	2610 / 2620 0...0,1 mbar to 0...0,6 mbar 2611 / 2621 0...0,5 mbar to 0...3 mbar 2612 / 2622 0...2 mbar to 0...12 mbar 2613/2623 0...1 mbar to 0...60 mbar
overpressure protection:	2610 / 2620 / 2611 / 2621 10 mbar 2612 / 2622 50 mbar
output: (linear)	0...20 mA or 4...20 mA dc current or 0...10 V dc voltage
output: (square rooted)	0...20 mA dc current output is set to zero below 5% of span
max. load:	0...750 Ohm (on current output)
max. load:	0...20 mA (on voltage output)
supply voltage:	230 Vac oder 24 Vac
power consumption:	ca. 6,5 VA
ambient temperature:	0...50 °C
case:	plastic, grey with bracket for wall mounting
physical dimensions:	280 x 165 x 210 (BxHxT)
weight:	ca. 7 kg
protection class:	IP55
pressure connections:	hose liner, 8 mm Ø
terminals:	2 x 2,5 mm ² , protective conductor terminal conduit connections
mounting positions:	wall mounting, deviation from horizontal positon < 5 degrees
setting time:	app. 200 msec, additional electronic damping or with throttle nozzle
non-linearity: (linear)	< 0,1 %
deviation of characteristic: (square rooting)	< 0,5 % with more than 10 % of the span < 1,0 % with more than 5 % of the span output is set to zero below 5 % of span
Influences and tolerance limits	
load variation 0...100 %:	< 0,05 %
supply voltage:	< 0,1 % -15...+10 %
ambient temperture:	< 0,5 % / K at minimum span < 0,3 % / K at maximum span