SERIES G 4-10

VOLUMETRIC FLOW METER
DRY TYPE

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Bessel S.r.l. - Via Rodolfo Morandi, 44/b - 06012, Città di Castello (PG) - Italy
+ 39 075 852 21 89 | info@bessel.it | www.bessel.it

INTRODUCTION

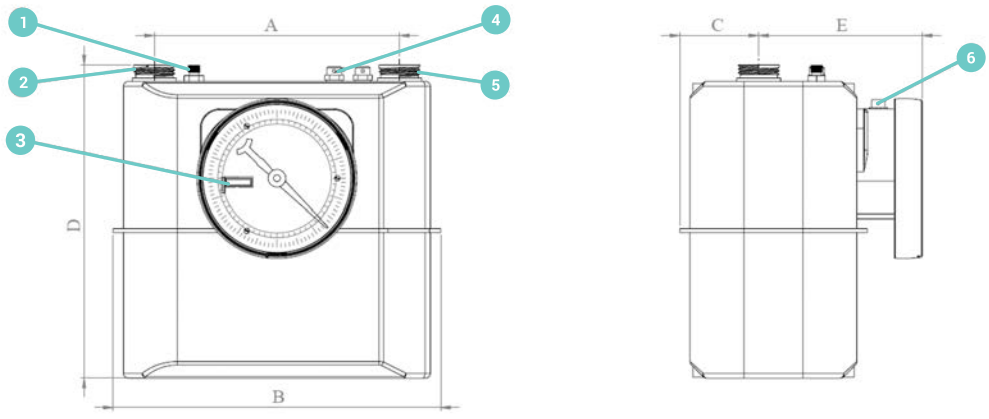
The volumetric flow meter – dry type - G 4-10, for decades an expression of high measuring accuracy, have been further refined and improved. In its current shape and construction, it represents an high-precision gas measuring device.

MEASURING PRINCIPLE

Four measuring chambers, separated from each other by synthetic membranes, are periodically filled and emptied. The movement of the membranes is transferred to a crankshaft that drives the slide valves through which the gas flow is controlled. The rotary movement of the measuring unit is transferred by means of a magnetic or mechanical coupling to the totalising device of the meter. The synthetic membranes are stopped pneumatically, which ensures smooth, quiet movements and thus low bearing loads.
The hot-formed amphitheatre diaphragm ensures remarkable geometric stability over time. The control of the slide valves and the use of high-quality materials ensure a high level of functionality of the instrument. The use of small slide valves makes the G 4-10 stable in measurement and resistant to soiling (RPF 0.65 according to BS 4161).

TECHNICAL FEATURES

The accuracy of the reading is ensured by a dial with a diameter of 160 mm, divided into tenths of a litre, connected to a resettable counter. Both the indicator needle and the counter can be reset by hand. The dial, circular in shape, is equipped with 2 scales:
a) an external scale for the fine reading of the values in dm^3
b) an internal scale for reading consumption in dm^3/minute
The resettable counter, which can be reset to zero, records the total consumption in m^3 during the time period considered (test duration time).



1 Manometer inlet
2 Gas inlet
3 Resettable counter
4 Thermometer inlet
5 Gas outlet
6 Pulse gen. port

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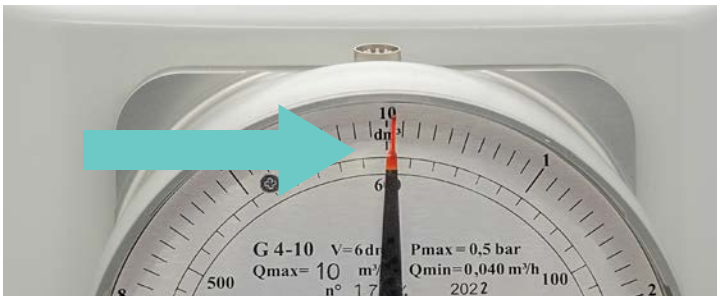
INSTALLATION AND MEASURING

When used to control a gas meter, G 4-10 should be connected upstream of the instrument under test.

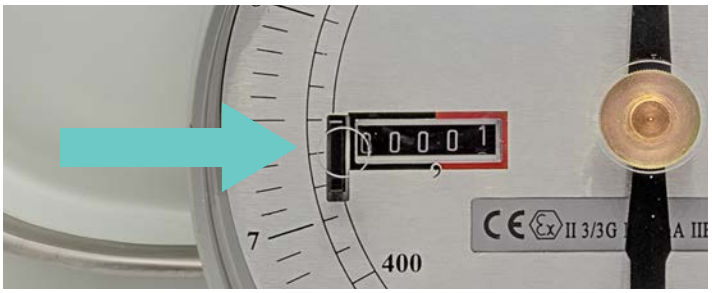
4.1. ZEROING INDICATOR NEEDLE

Reset the indicator needle by making an air/gas flow in the direction allowed by the meter at a flow rate < Qmax.
Warning! Do never turn the needle by hand.



4.2. RESET COUNTER

Reset the counter by pressing button repeatedly until the operation is complete. Incorrect zeroing may block the system.



Over the measuring range, the measurement error variation is less than 1 %.
This degree of measurement accuracy is only achievable if the commissioning instructions are strictly observed. Meter is calibrated at 10 [mbar] (normal operating pressure).

Note: The G 4-10 meter is of the volumetric diaphragm type, which means that, in its normal operation, it has loading and unloading phases of the four measuring chambers.
This means that, especially at low flow rates, the meter can have a non-constant rotation speed of the indicator needle throughout its 360° rotation.
This does not necessarily lead to malfunctioning even when, at very low flow rates, the indicator needle tends to stop.
However, it is a good rule of thumb, to carry out tests with volumes corresponding to multiple number of full revolutions of the meter.

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PULSE GENERATOR (OPTION)

On request, the G 4-10 meter can be equipped with pulse transmitters. For details on available options, connection type and output, please refer to the datasheet.

MANTEINANCE

Bessel laboratory gas meters type G 4-10 are maintenance free.

TROUBLESHOOTING

Whatever the cause and the defect generated by it, the meter is still repairable.
For this reason, in the event of a defect, we recommend to contact Bessel's after-sales service, which will provide instructions for sending the meter back for inspection and recalibration.