

Product Information

Flow meter turbine, with shut-off device



A.u.K. Müller

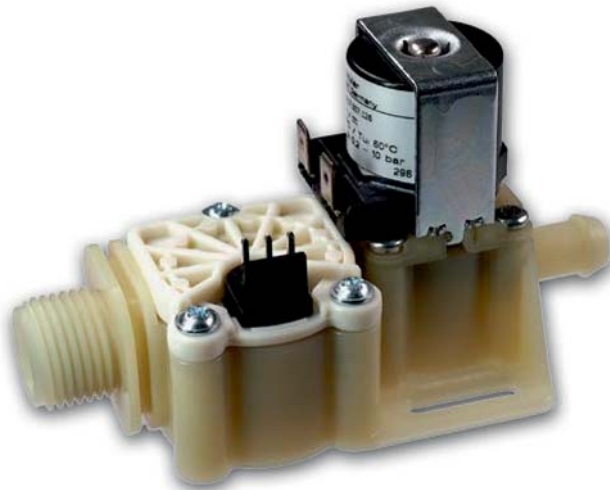
Solenoid valves
Control valves
Special valves and systems

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Series 17.007



Characteristics

Flow meter turbine

- high degree of accuracy
- different measuring ranges configurable
- shut off via downstream solenoid valve

Valve

- servo controlled
- normally closed
- solenoid replaceable while medium circuit remains untouched, solenoid coil snaps into place
- minimized water hammer characteristic by low noise emission according to EN 60730

Applications

- liquid dosing
- volume recording
- laboratory equipment
- vending machines
- dispensing equipment
- washing machines

Description

The combination of a flow meter and a solenoid valve in one compact unit enables, with suitable electronics, the accurate metering of a liquid together with the ability to interrupt the flow.

A servo controlled valve avoids water hammer when connected to the mains supply.

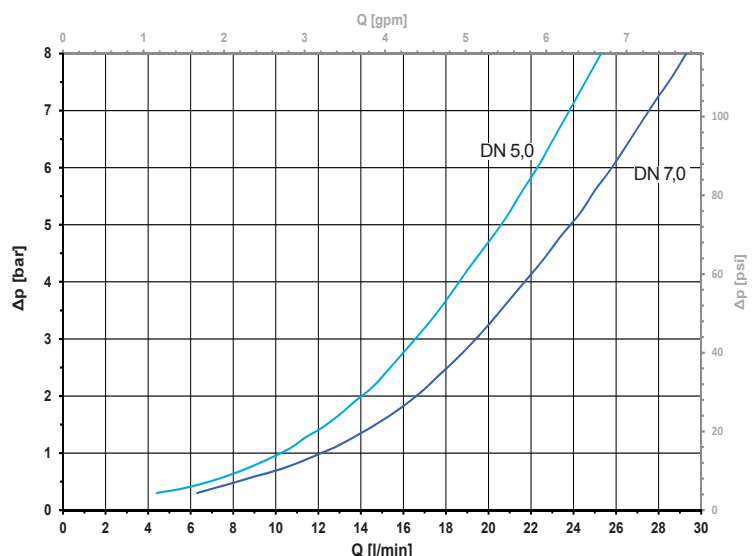
This unit can be used for measuring, feedback control or dosing as it ensures accurate measurement of liquid volumes. The simple internal pulse transmitter offers a long life time without risk of failure.

To avoid air entry causing inaccurate measurements, the flow meter is sited upstream from the solenoid valve.

The flow meter's output are pulses, where the frequency or the number of pulses are equivalent to flow rate or volume. Depending of the orifice used different measuring ranges can be achieved.

(for calculation see page 4)

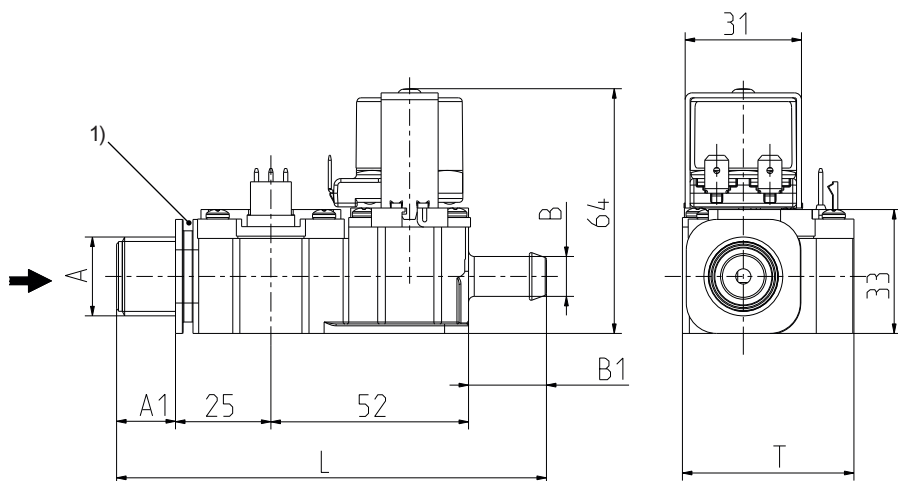
Typical performance curve
(orifice DN 5,0 on request)





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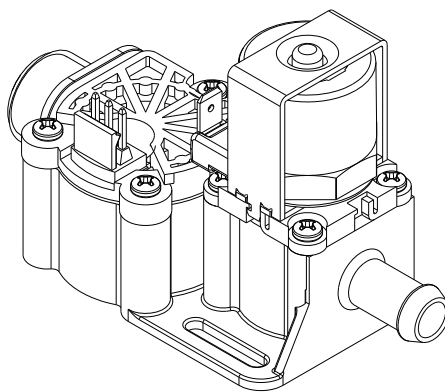
1) Fixing groove

Technical Data

| | | |
|-------------------------|--|---------|
| Type | flow meter turbine with shut-off device | |
| Construction | flow meter, 2/2-way single chamber straight valve, servo-controlled optional: inlet ninety degree to outlet | |
| Function | volume/flow rate determination valve normally closed (NC) | |
| Fitting position | solenoid pointing upwards, for best results the flow meter should always be filled with liquid | |
| Media | cold and heated potable water and physically and chemically similar media | |
| T-Medium | 60 | °C max. |
| T-Ambient | 60 | °C max. |
| DN | 7 | mm |
| p-Operating | 0,2 - 8 | bar |
| Cv-value | 12 | l/min |
| Flow regulator | on request | |
| Pressure surge | according to EN 60730 | |

Materials

| | |
|------------------------------|--|
| Valve body | PA 66 glass fibre reinforced PPE on request |
| Plunger guide | stainless steel |
| Plunger and spring | stainless steel |
| Membrane and sealings | EPDM NBR (on request) VMQ (on request) |
| Coil coating | PBT, PET or epoxy resin |
| Filter (inlet) | stainless steel |
| Flow meter cover | PBT |
| Slide bearing pin | 1.4305 (18/8) 1.4571 on request |
| O-ring | EPDM MVQ on request FPM on request |
| Turbine | PVDF |
| Magnet | SrFeO |



Options

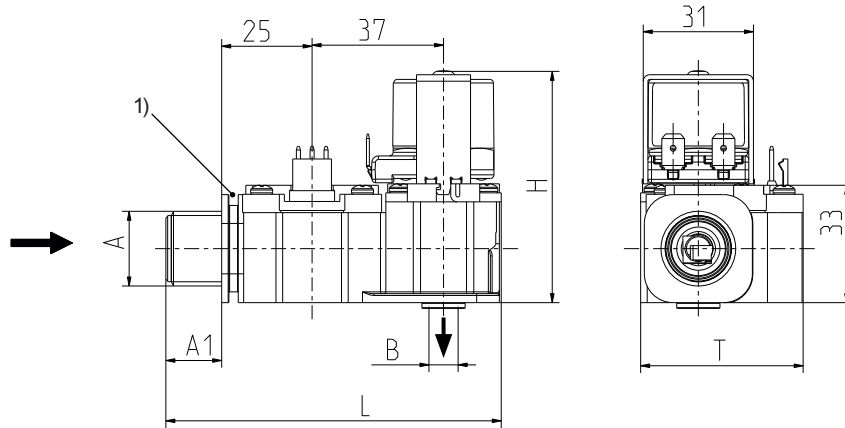
| Material | Inlet | | Outlet | | Length | Height | Depth | |
|----------|---------------|------|--------------|------|--------|--------|-------|----|
| | Ø A | A1 | Ø B | B1 | L | H | T | |
| PA 66 | G 3/4 | 20,5 | G 3/4 | 15,5 | 113 | 64 | 46 | *) |
| PA 66 | G 1/2 | 15,5 | 10,5 nozzle | 15,5 | 108 | 64 | 46 | |
| PA 66 | G 1/2 | 15,5 | G 1/2 | 15,5 | 108 | 64 | 46 | |
| PA 66 | 12 John Guest | 18,0 | 8 John Guest | 15,5 | 111 | 64 | 46 | *) |
| PA 66 | G 3/8 | 15,5 | G 3/8 | 15,5 | 108 | 64 | 46 | *) |

*) on request



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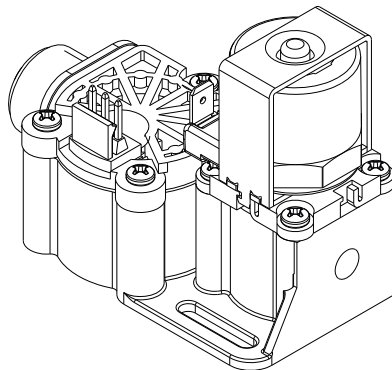


1) Fixing groove

Options

| Material | Inlet | | Outlet | Length | Height | Depth | |
|----------|---------------|------|--------------|--------|--------|-------|----|
| | Ø A | A1 | Ø B | L | H | T | |
| PA 66 | G 1/2 | 15,5 | 8 John Guest | 96 | 64 | 46 | *) |
| PA 66 | G 1/2 | 15,5 | 6 John Guest | 96 | 64 | 46 | |
| PA 66 | G 1/2 | 15,5 | 5 John Guest | 96 | 64 | 46 | *) |
| PA 66 | 12 John Guest | 18,0 | 8 John Guest | 99 | 64 | 46 | *) |
| PA 66 | 12 John Guest | 18,0 | 6 John Guest | 99 | 64 | 46 | *) |
| PA 66 | 12 John Guest | 18,0 | 5 John Guest | 99 | 64 | 46 | *) |

*) on request





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Technical Data

| Valve | | | |
|-------------------|--|-----------------------|----------|
| Coil type | MS.026 | | |
| Nominal voltages | 220 - 240 | V AC | 50-60 Hz |
| | 110 | V AC | 50 Hz |
| | 110 - 127 | V AC | 60 Hz |
| | 24 | V AC | 50/60 Hz |
| | 12 | V AC | 50/60 Hz |
| | 24 | V DC | |
| | 12 | V DC | |
| | other voltages on request | | |
| Voltage tolerance | +10% -15% | | |
| Duty cycle | 100% | | |
| Nominal power | 6,5 W | 7,5 VA (AC only) | |
| Protection Type | IP 00 | | |
| Coil connections | flat tabs 6,3 x 0,8 mm | | |
| Insulation class | F | according to EN 60730 | |
| Protection class | I according to EN 60730 (for incorporation in class I) | | |

| Flow meter turbine | |
|----------------------|--|
| Flow rate | 30,0 l/min max. |
| Nominal voltages | 4,5 - 24 V DC |
| Current consumption | 5 - 13 mA |
| Signal connection | open collector NPN |
| Signal voltage | 0 V GND |
| Signal | square-wave output |
| Duty factor of pulse | 50% +/- 5% |
| Signal load | 20 mA max. |
| Leakage current | 10 µA max. |
| Connections | PANCON MAS-CON 156 MLSS (3 x AMP 2,8 x 0,8 mm) |

Please note the following advice for optimum results of the flow meter:

- avoid rapid pulsating delivery of the medium
- avoid pressure surges
- avoid air trapped in flow meter or pipes
- take fitting position of the flow meter into account
- min/max flow rate should be within the linear measuring range for each selected orifice
- regular cleaning at reasonable intervals

| | orifices Ø mm | constant pulses / l *) | metering accuracy | Q min l/min | Q max l/min | p-Operating bar |
|------------|------------------|---------------------------|----------------------|----------------|----------------|--------------------|
| | 7,0 | 94 | ± 3,0% | 6,3 | 29,0 | 0,2 - 8 |
| on request | 5,0 | 262 | | 4,4 | 25,3 | |

The constant (pulses/litre) are approximated values and may differ depending on installation and medium. It is recommended to evaluate the pulses/l within the actual installation more accurately.

Orifice sizes could be customized on request.

*) With ... constant [Pulse / Litre]
...you determine volume or flow rate.

- Volume determination via count of pulses

$$\text{volume [Litre]} = \frac{\text{number of pulse}}{\text{constant}}$$

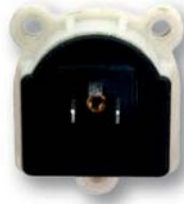
- Flow rate determination via measurement of pulse frequency

$$\text{flow rate [Litre/Second]} = \frac{\text{frequency [Hz]}}{\text{constant}}$$

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Connecting options

PANCON MAS-CON 156 MLSS



3 x AMP 2,8 x 0,8 mm

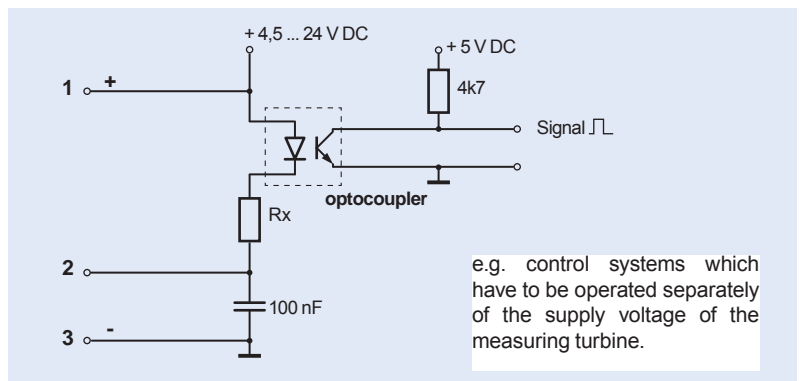
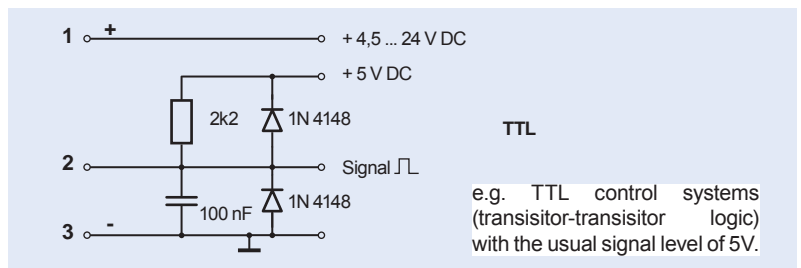
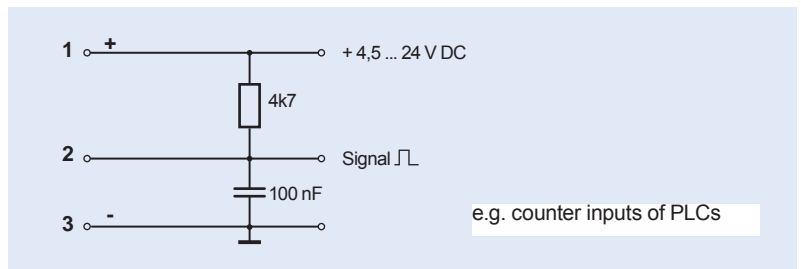
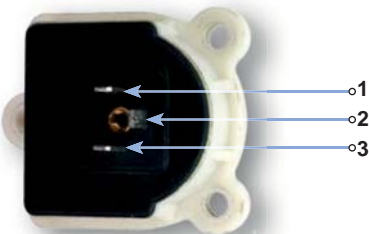
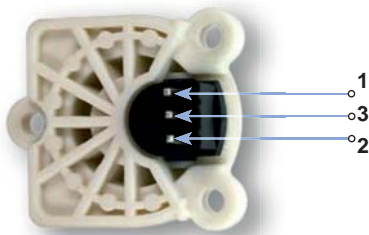
Display



Please note the following advice for optimum results of the flow meter:

- avoid peaks of current
- incorrect polarity of voltage supply (+), signal and ground may destroy the flow meter
- don't apply mechanical load on electrical terminals
- avoid humidity on electrical terminals
- avoid inductive interferences via cable (cable should not run parallel to power supply cables of appliances with high power consumption)

Connecting examples



The flow meter turbine does not provide an output voltage on its own, but switches an external power supply to 0V ground (actuated) or leaves it open (not actuated).

Depending on the electronic evaluation system a pull-up resistor has to be applied between the supply voltage (+) and signal terminal (to avoid short circuit)!

