

# MAG VIEW

The high quality, economic and solid state magnetic inductive flow sensor for measuring water and aqueous solutions

## > Introduction

Mass Flow ONLINE B.V., sells flow measuring and controlling products through the internet. From the website [www.massflow-online.com](http://www.massflow-online.com) flow meters or controllers can be ordered 24 hours a day 7 days a week. Most products are on stock and will be shipped world wide within two working days.

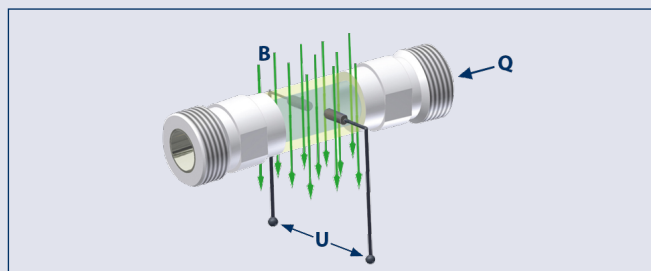
## > Description

The new MAG-VIEW™ series flow meters offer a high quality, economic and solid state solution for measuring flow in areas where flow sensors with moving parts cannot be applied. Its interference free operation, combined with a long-life cycle and the wide independence to the inlet and outlet pipes makes MAG-VIEW™ the perfect solution even in compact machines with cramped confines. The meter is intended for continuously measuring of flow rates or for dosing / batching of electrically conductive liquids with a minimum conductivity of 20  $\mu\text{S}/\text{cm}$ .

## > MAG-VIEW™ series

The MAG-VIEW™ series operate on magnetic inductive principle. The measuring pipe is in a magnetic field (B). If an electrically conductive medium (Q) passes through the measuring pipe and thus right-angled to the magnetic field, a voltage (U) will be induced into the medium which is proportional to the average flow velocity and picked up by the two electrodes.

MAG-VIEW™ flow meters can be supplied in three metal models 0.5 .. 30 l/min, 1 .. 60 l/min and 5 .. 250 l/min and 6 cost-optimized plastic models 0,1 .. 2 l/min, 0,25...5 l/min, 1...20 l/min, 2,5 .. 50 l/min, 5 .. 200 l/min and 12,5 .. 250 l/min. The frequency of the pulse signal and the optional analog output are proportional to the flow.



## > MAG-VIEW™ features

- ◆ Make liquid flows visible by:
  - Pulse output
  - Analog output
  - Blinking LED
- ◆ No mechanical wear
- ◆ No moving parts
- ◆ Ease of mounting and operation
- ◆ Free pipe cross section
- ◆ No additional pressure drop
- ◆ Fast response
- ◆ Insensitive with contaminated liquids
- ◆ Ideal solution for interference free operation combined with a long-life cycle
- ◆ Can be used in areas where flow sensors with moving parts cannot be applied
- ◆ Wide independence to the inlet and outlet pipes create the advantage to be able to install in compact machines with cramped confines.
- ◆ Lightweight and compact design
- ◆ Suitable for mobile applications
- ◆ Sustainable product design:
  - Maintenance free
  - Low power consumption

## > Technical specifications MVM-P Series

Performance	MVM-030-P	MVM-060-P	MVM-250-P
Flow range	0.5...30 l/min	1...60 l/min	5...250 l/min
Accuracy	$\pm 1.5\%$ RD, $\pm 0.3\%$ FS (incl. factory calibration certificate)		
Reproducibility	1 %		
Rangeability	1:60	1:60	1:50
Signal output starting from	~ 0,4 l/min	~ 0.9 l/min	~ 4 l/min
Medium	Water and other conductive liquids		
min. conductivity of the medium	50 $\mu\text{S}/\text{cm}$ (lower conductivity affects the accuracy)		
Medium temperature	-20...90 °C		
Nominal pressure	PN 16		
Nominal diameter	DN 7	DN 10	DN 20
Process connection	$\frac{1}{2}$ " BSP male thread		1" BSP male thread
Flow indication	LED green, flow proportional flashing		
Response time	frequency: < 500 ms frequency + analog (optional): < 800 ms		

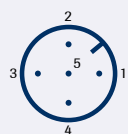
### Mechanical specifications

Ingress protection	IP 65		
Materials			
Housing	Aluminium pressure diecasted		
Wetted parts	Electrodes:	Stainless Steel 1.4571	
	Process connections:	Stainless Steel 1.4571	
	Measuring pipe:	PEEK-GF30	
	Gasket:	EPDM	

### Electrical specifications

Frequency output			
Pulse rate / K-factor	1000 pulses/l	500 pulses/l	100 pulses/l
Resolution	1 ml/pulse	2 ml/pulse	10 ml/pulse
Signal shape	Square wave signal • duty cycle 50:50 Push-Pull • NPN open collector [o.c.] • PNP o.c.		
Signal current	$\leq 100\text{mA}$ , current limited		
Analog output (optional)			
Signal current	4...20 mA		
Max. load	250 $\Omega$ to GND		
Electrical connection	5-pin-plug M12x1		
Power supply	24 VDC $\pm 10\%$		
Power consumption	$\leq 150\text{ mA}$		

### Pin assignment



PIN 1: +U  
PIN 2: analog output 4...20 mA (optional)  
PIN 3: GND  
PIN 4: frequency output  $\neg$   
PIN 5: do not connect

All information is subject to change without notice.

## > Model number identification - P series

MVM - N N N - PA

#### Max flow

030	30 l/min
060	60 l/min
250	250 l/min

#### Output

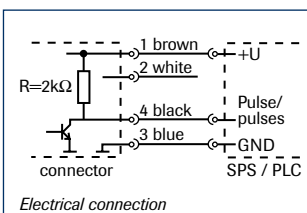
PN	output pulse, no analog
PA	output pulse + 4...20 mA

## > Connection to a Programmable Logic Controller (PLC)

Most digital PLC inputs are designed for connection to PNP signals. The MVM has an NPN frequency signal with an integrated  $2\text{k}\Omega$  pull-up resistor. Its signal current of  $\sim 12\text{ mA}$  is recognised as a signal by the current PLC.

Thus, operating a MVM with a PLC should not present any problems. The frequency output of the MVM should be attached to a digital input of the PLC.

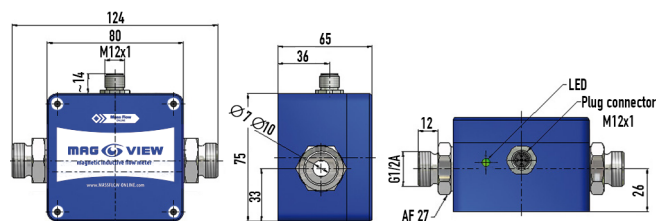
**Important!** Please ensure that your PLC is able to process the high frequencies of the MVM output signal.



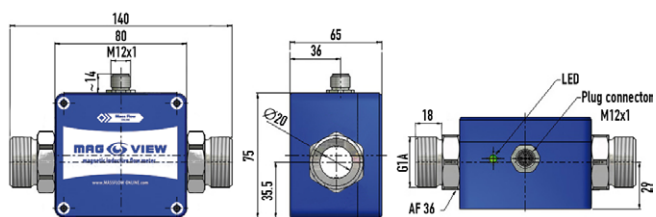
Electrical connection

## > Dimensional drawing (mm)

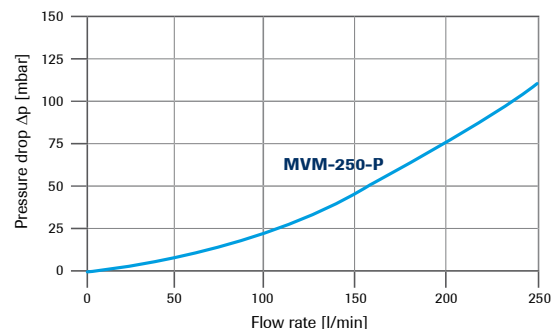
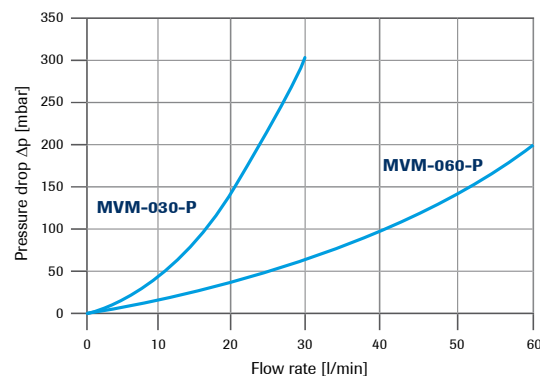
### MVM-030-P and MVM-060-P



### MVM-250-P



## > Pressure drop



## > Technical specifications MVM-QA Series

Performance						
Model <b>MVM-xxx-QA</b>	<b>002</b>	<b>005</b>	<b>020</b>	<b>050</b>	<b>200</b>	<b>250</b>
Flow range (l/min)	0.1...2	0.25...5	1...20	2.5...50	5...200	12.5...250
Max. flow rate (l/min)	2.5	6	25	60	240	300
Accuracy*	±1 %RD (incl. factory calibration certificate)					
Repeatability	1 %					
Rangeability	1:20	1:20	1:20	1:20	1:40	1:20
Signal output starting from (l/min)	~ 0.05	~ 0.1	~ 0.25	~ 1	~ 4	~ 5
Medium	Water and other conductive liquids					
min. conductivity of the medium	20 µS/cm (lower conductivity affects the accuracy)					
Operating temperature	Medium -10...60 °C, Ambient 5...60 °C, not freezing					
Nominal pressure	max. 10 bar at 20 °C, 8 bar at 40 °C, 6 bar at 60 °C					
Nominal diameter	DN 3	DN 6	DN 8	DN 15	DN 20	DN 25
Process connection (male thread)	¾" BSP	½" BSP	½" BSP	¾" BSP	1" BSP	1¼" BSP
Flow indication	LED green, flow proportional flashing					
Response time	< 100 ms					

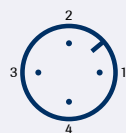
### Mechanical specifications

Ingress protection	IP 65					
Materials						
Housing	ABS					
Wetted parts	Electrodes and grounding rings : Stainless Steel 316L Measuring pipe : PVDF Process connections : PVDF					

### Electrical specifications

Frequency output						
Pulse rate / K-factor (pulses/l)	10000	4000	1000	400	200	80
Resolution (ml/pulse)	0.1	0.25	1.0	2.5	5	12.5
Signal shape	Square wave signal • duty cycle 50:50 Push-Pull					
Signal current	≤ 100 mA					
Electrical connection	4-pin-plug M12x1					
Power supply	12...24 VDC (±10 %)					
Power consumption	Max. 3.6 W					
Electrical protection measures	short-circuit proof, protected against polarity reversal					

### Pin assignment



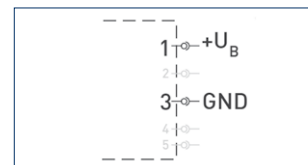
PIN 1: +U<sub>B</sub>  
 PIN 2: Analogue I  
 PIN 3: GND  
 PIN 4: Frequency

All information is subject to change without notice.

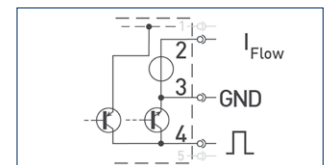
\* Test conditions: Water 23 °C.

## > Wirings and use of frequency/analogue output

### Supply voltage

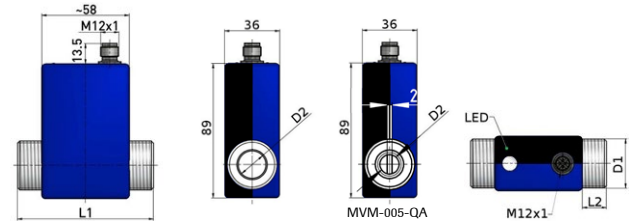


### Use of frequency and analogue output



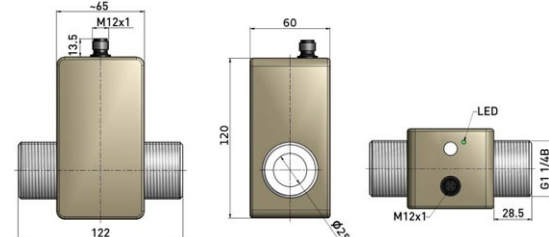
## > Dimensional drawing (mm)

### MVM - 002 / 005 / 020 / 050 / 200 - QA

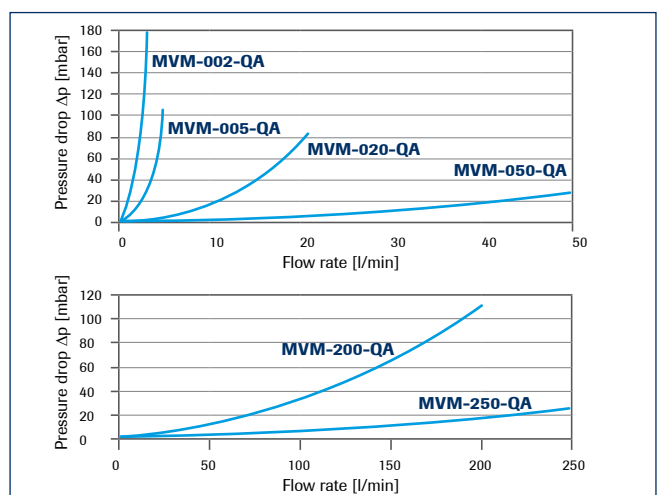


Type	L1	L2	D1	D2
<b>MVM-002-QA</b>	85	13.3	G ¾ B	ø 3
<b>MVM-005-QA</b>	85	13.3	G ½ B	ø 8 x 2
<b>MVM-020-QA</b>	85	13.3	G ½ B	ø 8
<b>MVM-050-QA</b>	90	15.5	G ¾ B	ø 14
<b>MVM-200-QA</b>	90	15.5	G 1 B	ø 18

### MVM-250-QA



## > Pressure drop



## > Model number identification - QA series

### MVM - N N N - QA

Max flow	Output
002 2 l/min	QA output pulse + 4...20mA analog
005 5 l/min	
020 20 l/min	
050 50 l/min	
200 200 l/min	
250 250 l/min	