

New Battery Powered Flowmeters Arkon MAGB1

Right now it is possible to install reliable flowmeters in different places without missing accuracy and efficiency.

The accuracy of the system is $\pm 0.5\%$ and it does not need to the main power supply. This system is useful for irrigating, remote area and each places where it is hard or expensive to have access to the main supply.

Features:

- Electromagnetic battery power flowmeter
- Accuracy: $\pm 0.5\%$ of real amount
- Empty pipe detection, automatically turns off the excitation to prolong battery life
- Graphic display and keypad for simple operation and instant access to information about 4 totalizers: total +, total -, total, aux.
- Modbus RTU communication protocol via USB
- Standard USB interface for configuration and data collection using MAGB1 software
- Easy access to data on site
- Isolated binary output (pulse per liter or alarm or flowrate functions)
- Error detection
- Datalogger – 1820 records, selectable interval of logging (5min – 24 h)
- Internal diameter of flowmeter is same as its nominal diameter (contrary to some other flowmeters which try to reduce the size in center of the device to measure low currents which leads to pressure drop and high expenses)



Battery:

- Unit powered by 2x3.6 V batteries placed inside the transmitter (see drawing)
- Battery life up to 5 years
- Battery conservation when the pipe is empty
- Adjustable filter constant 1 – 30 samples

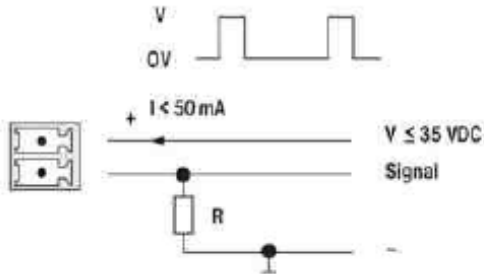


- Minimize inlet and outlet installation requirements
- Maintenance free
- CE certification
- Two build-in earthing electrodes
- No moving part in measuring tube
- All unites include a calibration certificate issued by an independent calibration rig, traceable to international standards, and calibration data is stored inside the instrument.

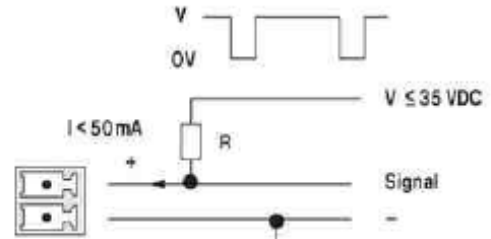


Binary output:

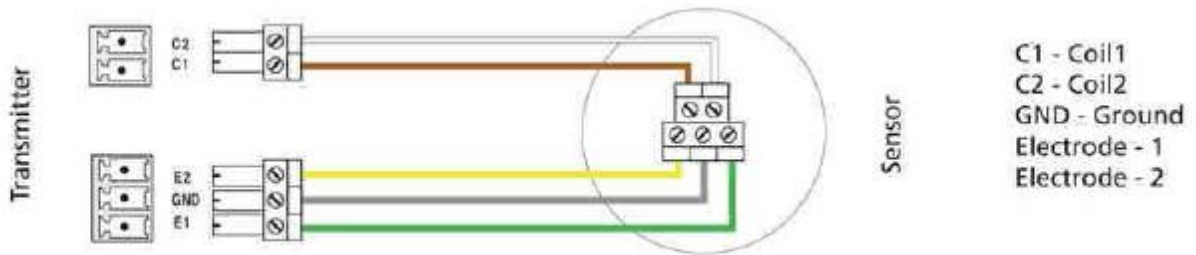
Positive Pulse



Negative Pulse



Sensor to transmitter connection cable:



Transmitter specifications: MAGB1



Measurable Media	Conductive fluids
Min. media electrical conductivity	$\geq 5\mu\text{S/cm}$ $\geq 20\mu\text{S/cm}$ for demineralised water
Flow range	0.1 to 10 m/s
Displayed values	Actual flow (m^3/h l/s, l/s, l/m, Us.gal/min, UK.gal/min) volume (m^3 , l, US.gal, UK.gal), positive, negative, total volume and auxiliary (clearable) volume
Accuracy	$\pm 0.5\%$ (0.5 to 10 m/s) of actual value
Power supply	3.6 V internal lithium battery – 38.000 mAh
Communication	Modbus RTU over USB
Flow direction	Bi-directional measurement
Ambient temperature	-20°C to 60°C (-4°F to 140)
Display	LCD 128x64 px graphical, contrast setup, sleep mode
Control	1 touch-bottom USB
Low flow cut-off	OFF, 0.5%, 1%, 2%, 5%, 10% of Flow on
Electronics weight (including housing)	1.5 Kg
Housing material	Aluminum + power coating
Housing dimensions	\varnothing 134 – 132 mm
Cable terminal	1+1xM16x1.5 IP68 cable glands
Electronic protection	Standard IP67 NEMA 5
Other features	Test of excitation coils Empty pipe detection Zero flow adjusting Flow simulator
Excitation frequency	1/60Hz, 1/30Hz, 1/15 Hz, 1/5 Hz, 1.5625 Hz, 3.125 Hz, 6.25 Hz
Real time	Clock function for datalogging
Outputs	Pulse output with programmable volume function and width
Adjustable filter constant	1 – 30 samples
Error logger	Logging last 10 records
Datalogger	1820 records, selectable interval of logging (5min to 24 h)

Sensor specifications: MAGB1



Connection types	DIN, ANSI, JIS flanged, Other types on request
Flange	Steel 1.0036 or higher, Dimensions according to DIN EN 1092-1, ASME B 16.5, JIS B 2239
Normal size	20 – 150 mm, other sizes on request
Maximum nominal pressure	PN 40/300 psi
Max. media temperature	70°C (158°F) for Hard Rubber liner, 130°C (266°F) for PTFE liner in remote version
Ambient temperature	-20 to 60°C (-4 to 140°F)
Sensor protection	Remote IP68 (NEMA 6), Compact IP67 (NEMA 5)
Liner	Hard Rubber, PTFE other material on request
Electrodes	Stainless Steel 1.4571 (316 Ti) Other material on request
Measuring tube	Stainless steel 1.4301 dimensions according to DIN 17457
Outer Casing	Carbon steel (1.0036) as standard
External coating	Lacquered finished (anti corrosive)
Accessories options	Earthing rings for plastic and lined pipes
Coils resistance	100 Ω
Other features	Earthing through 3 rd and 4 th electrodes

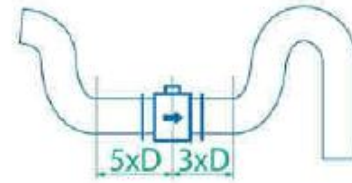
Recommened positions for sensor instalations:

Sensor instalation requirement:

Proper instalation is extremly important in order for your flowmeter to work correctly. There are minimum sensor instalation requirements that need to be respected at all times. Please note that Arkon cannot warranty any instalation which does not comply with these requirements.

Horizontal standard mounting:

The sensor tube must always remain full. The best way to achieve this is to locate the sensor in a low section of pipe, see the following picture.

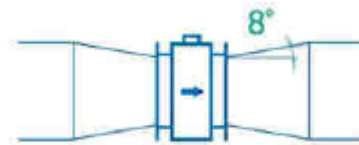


It is mandatory to install the sensor in a section of straight pipe with at least 5 times the pipe diameter before sensor and 3 times after sensor.



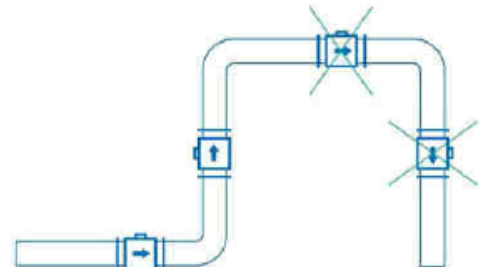
Pipe reducer:

If the pipe diameter is not the same as the diameter of sensor, the pipe reducers can be used. So as not to lose accuracy of the measurement, the slope of reducer should not exceed 8° .



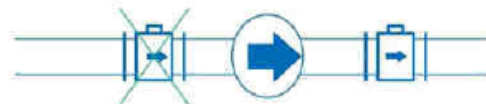
Vertical mounting:

When the sensor is mounted to the vertical part of one pipe, the flow direction must be upward. In the case of a downward flow direction, air bubbles can collect in the sensor and the measurement could be unstable and inaccurate.



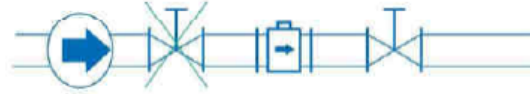
Pumps:

Never install a sensor on the suction site of the pump or on the section of pipe where a vacuum is possible.



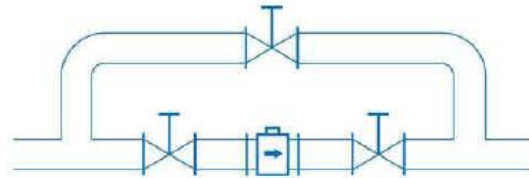
Valves:

Suitable location of a shutoff valve is downstream of a sensor.



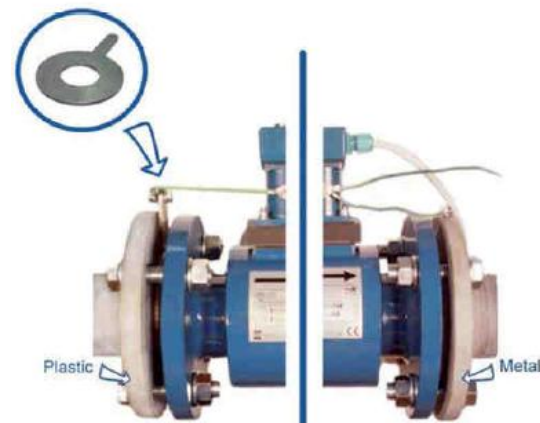
Removal during maintenance:

If the application requires removal of the sensor for periodic maintenance, it is recommended to install a bypass section as the drawing below.



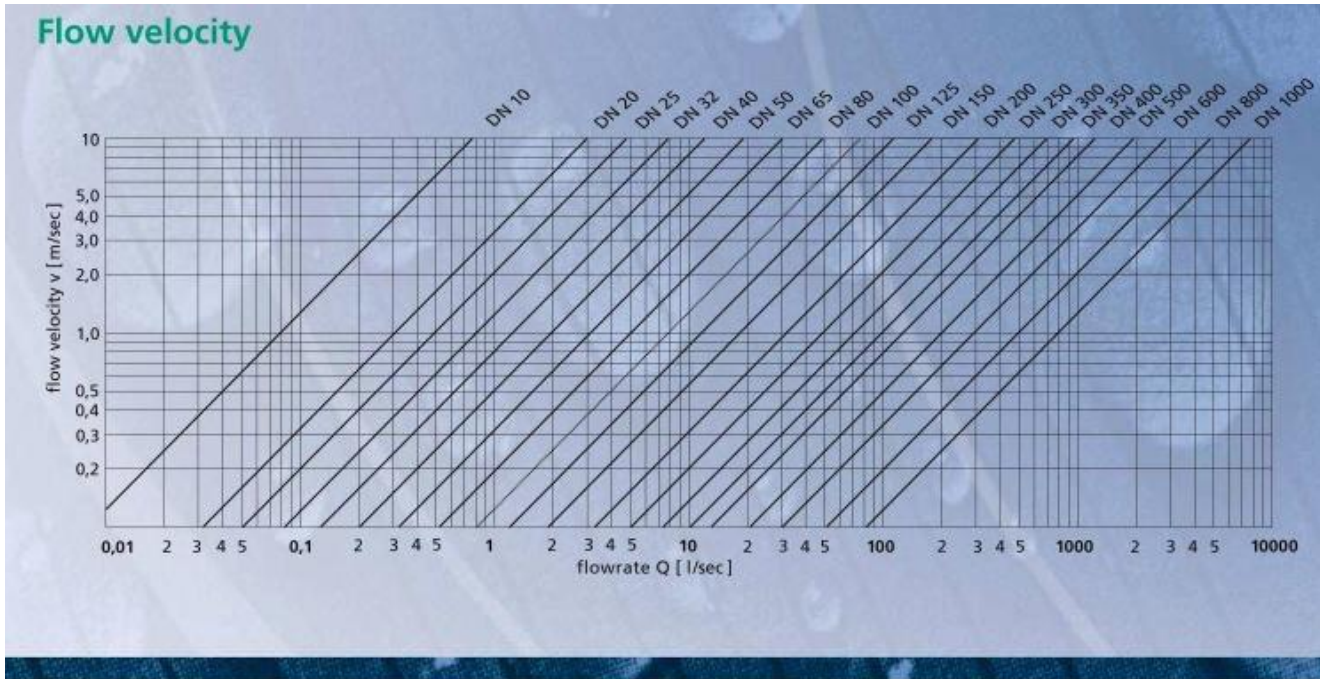
Earting:

All flowmeters must be earthed. Maximum resistance of the sensor to earth is < 1 ohm. All the components in the loop, including flowmeter, pumps (especially submersible) valves, pipe works, tanks and medium, should all be at the same earth potential. Problems can occur when different potentials are present which can happen, especially with submersible pumps. On applications with metal pipes and tanks it is enough to earth the flowmeter to the pipe's flanges. On applications where pipes and tanks are manufactured from plastic it is necessary that earthing rings are also installed to ensure the flowmeter works correctly.



Please note that any order placed without details regarding required flow-range (for example: 0-50 m³/h or 0-100 l/s) and Pulse Output (for example pulse/m³ or 1 pulse/l) will be processed with standard settings.

Please note for applications where all pipes and tanks are manufactured from plastic, earthing rings are recommended to ensure the accuracy of measurements.



Flow rate

Flow rates [l/s]

Flow rates [m³/h]

DN	Flow rates [l/s]						Flow rates [m³/h]					
	Q 1%	Q 5%	QN	QN 50%	QN 100%	Q MAX	QN 1%	QN 5%	QN	QN 50%	QN 100%	Q MAX
10	0,01	0,04	0,2	0,39	0,79	0,98	0,03	0,14	0,8	1,41	2,83	3,53
15	0,02	0,09	0,5	0,88	1,77	2,21	0,06	0,32	2	3,18	6,36	7,95
20	0,03	0,16	0,9	1,57	3,14	3,93	0,11	0,57	3,2	5,65	11,31	14,14
25	0,05	0,25	1,4	2,45	4,91	6,14	0,18	0,88	5	8,84	17,67	22,09
32	0,08	0,4	2,2	4,02	8,04	10,05	0,3	1,5	8	14,5	29	36,2
40	0,1	0,6	4	6,3	12,6	15,7	0,5	2,3	13	22,6	45,2	56,6
50	0,2	1	6	9,8	19,6	24,5	0,7	3,5	20	35,3	70,7	88,4
65	0,3	1,7	9	16,6	33,2	41,5	1,2	6	35	59,7	119,5	149,3
80	0,5	2,5	14	25,1	50,3	62,8	1,8	9	50	90,5	181	226,2
100	0,8	3,9	20	39,3	78,5	98,2	3	14	80	141	283	353
125	1	6	30	61	123	153	4	22	150	221	442	552
150	2	9	50	88	177	221	6	32	200	318	636	795
200	3	16	100	157	314	393	1	57	300	565	1131	1414
250	5	25	150	245	491	614	18	88	500	884	1767	2209
300	7	35	200	353	707	884	25	127	800	1272	2545	3181
350	10	48	300	481	962	1203	35	173	1000	1732	3464	4330
400	13	63	400	628	1257	1571	45	226	1300	2262	4524	5655
500	20	98	600	982	1963	2454	61	353	2000	3534	7069	8836
600	28	141	800	1414	2827	3534	102	509	3000	5089	10179	12723
700	38	192	1000	1924	3848	4811	139	693	4000	6927	13854	17318
800	50	251	1200	2513	5027	6283	181	905	5000	9048	18096	22620
900	64	318	1500	3181	6362	7952	229	1145	6000	11451	22902	28630
1000	79	393	2000	3927	7854	9817	283	1414	8000	14137	28274	35340

Q1% - Minimum applicable flowrate (with guaranteed accuracy) / Q5%- recommended minimum flowrate (minimum flowrate with best accuracy)
 QN recommended nominal flowrate (expected working flowrate) / Q50% recommended maximum flowrate (maximum flowrate for industrial use)
 Q100% maximum applicable flowrate (maximum flowrate with guaranteed accuracy) / QMAX maximum applicable overload (Q125%)(flowmeter is still measuring)

Certification

CE Conformity requirements MAGX2	EN 61010-1:2003
	EN 61326:1998 + A1.1:1999, cor. 1:1999 + A2:2002 + A3:2005, Table A.1
	EN 61326:1998 + A1.1:1999, cor. 1:1999 + A2:2002 + A3:2005, Class A
CE Conformity requirements MAGB1	EN 61326-1:2006 + rev.1:2007
	EN 55011 ed.2:2007, group 1, class B



New **MAGB1** modules are now available!

GPRS and GSM - SMS Communication Modules



Custom made solution for your projects!

Our new GPRS and GSM-SMS communication modules can give you a communication solution for your battery powered flowmeter in various applications.

GPRS and GSM-SMS Modules Features

- Baud 19200 baud
- Operating Systems Quad Band: 850/900/1800/1900 Mhz
- Multi-slot 10 (4 Rx / 2 Tx / 5 Sum)
- External antenna included

The modules fit inside the housing, without losing protection.

GPRS module

Control, monitor, set up your flowmeter from your office!

Wireless communication system, which is performed by the GPRS protocol.

- The measurement can be done anywhere in the world and read from your office.
- No need to visit site.

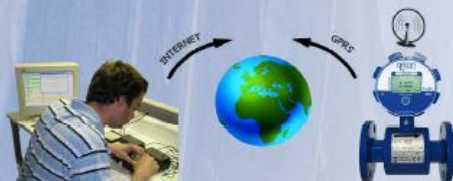
APPLICATIONS

- Wireless control of, and communication between transmitter and the PC or PLC systems.
- Any system requiring GPRS communication (for controlling remote sites: irrigation, water consumption of a city...)

SCADA over GPRS Example:



Several flowmeters beside require only one control room using SCADA system to read water consumption of a city



SMS module

Getting data from the flowmeter in your mobile phone number!

- Receive flow rate and total volume from MAGB1 by SMS in a specific interval.
- Specific interval of SMS transmissions is possible to set up through the MAGB1 SW.
- SMS is sent to a specific phone number or SMS server (up to 3 phone numbers)
- Authorization is according to the Unit number of MAGB1 unit and SIM phone number.



- The user can send SMS commands by a remote SMS server or phone.
- Datalogger contents will be sent by SMS to the phone or to the SMS server.

Those functions can be customised according to your request

