



## Build your own flowmeter



MAG X2



MAG B1



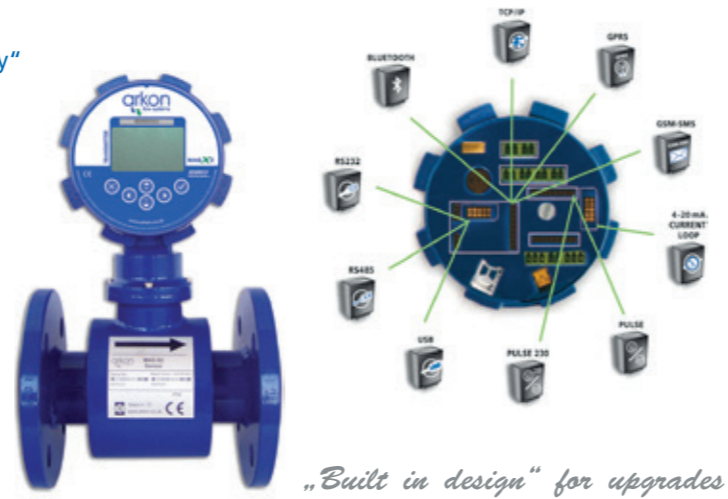
MAG S1



Agrimag

## MAGX2 : Modular design suitable from most basic to most advanced applications

- The MAGX2 has an innovative modular design „Plug & Play“
- Accuracy  $\pm 0.2\%$  of actual value
- Sizes from DN10 to DN1000
- Connection: DIN, ANSI, JIS, other on request
- Communication protocol: all communications via Modbus RTU
- Temperature sensor
- Graphic display with multi-language menu
- Intelligent sensor design: digital communication allows communication between the transmitter and the sensor up to 500m. Calibration data stored in the sensor
- GPRS, TCP/IP, GSM-SMS and Bluetooth communication available
- Data-logging on a standard micro-SD card
- 6 touch buttons to operate



### GPRS module

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

- Wireless communication system, which is performed by the GPRS network
- The measurement can be done anywhere in the world and read from your office
- No need to visit the site

#### APPLICATIONS

- Wireless control of, and communication between transmitter and the PC or PLC systems



### GSM - SMS module

Getting data from the flowmeter in your mobile phone number!

- Receives flow rate and total volume from MAGX2 by SMS in a specific intervals
- Specific interval of SMS transmissions can be set up through the MAGX2 software
- SMS is sent to a specific phone number or SMS server (up to 3 phone numbers)



## MAGB1 : Battery powered flowmeter

- Suitable for irrigation, remote applications, any other application where power supply lines are difficult or expensive to instal
- MODBUS RTU communication protocol via USB
- Data logger: 1820 records, selectable interval of logging (5min - 24h)
- Sizes from DN20 to DN250, other on request
- Connection: DIN, ANSI, JIS, other on request
- Accuracy  $\pm 0.5\%$  of actual value
- Empty pipe detection
- Battery life up to 5 years (up to 15 years with external battery pack)
- Graphic display and touch button for operation and instant access to information



## MAGS1 : Stand-alone flowmeter

- MAGS1 is a stand-alone version flowmeter, which does not need a transmitter and can be operated on its own
- Suitable for applications where the flowmeter is connected to a PLC on RS485 Modbus RTU protocol
- Powered with 24VDC, has a standard RS485 line with Modbus RTU protocol as a unique output/communication
- Connection: DIN, ANSI, JIS, other on request
- Liner: Hard Rubber, PTFE, other material on request
- Maximum nominal pressure: PN 40/300 psi



## Agrimag and AgrimagP : User friendly low cost plastic flowmeter for agricultural and multiple applications

- Available in 3 sizes (25, 50 and 80mm)
- Manifold clamping flanges connections, compatible with fitting kits for DIN, BSP, NPT and other common connections
- Accuracy:  $\pm 1\%$  from 10% to 100% of full scale range
- LCD display 128x64 PX graphical
- Empty pipe detection and battery saving mode
- Body material: glass filled polypropylene
- Working pressure 150psi or 10.3 bars



**Agrimag:** powered by 6 standard AA batteries, easily interchangeable

**AgrimagP:** powered by 9-35 VDC power supply, one frequency output

### Parshall flumes: for open channels measuring

- Arkon parshall flumes are primary flow devices with a wide range of applications, for measuring open channel flow
- They can be used for flow measurement in creeks, irrigation and/or drainage channels, sewer outfalls, waste water treatment plants
- Flowrates from 0.26 to 1841 l/s. Relatively low energy loss (3-4 times lower than in sharp-crested weirs)
- Velocities inside Parshall flumes are high enough to prevent them from the deposition of sediments or accumulation of debris
- Minimum maintenance requirements
- Long lifetime



### MQU ultrasonic flowmeter: easy solution to use combined with a flume to measure open channels

- Innovative and high-power transmitter for every applications
- Digital display, data logger for 2 month capacity, 4-20mA and pulse output and Modbus RTU via RS485
- Applications: Water treatment, Chemical, Food, Pharmaceutical industry, Power, Civil engineering, Agriculture
- Accuracy  $\pm 1.8\%$  to  $\pm 4\%$  of range



### MHU ultrasonic level meter

- For ranges from 0.5 to 6 meters
- Digital display, data logger for 2 month capacity, 4-20mA and pulse output and Modbus RTU via RS485
- Accuracy  $\pm 1.8\%$  to  $\pm 4\%$  of range

### Flow indicators: smart solution for high temperature, aggressive applications with low accuracy required

Ball flow indicators



Plain sight flow indicators



Paddle wheel flow indicators



Flap flow indicators



**Applications**

- Water & Wastewater** - distribution networks, irrigation, sludge/sewage, water treatment, leakage management, desalination, marine, checking of pumps and water wells
- Public utilities** - water supply system, sewage systems, wastewater, industrial water, sludge, human waste etc.
- Petrochemical/chemicals** - corrosive liquids, chemicals, industrial water, waste water
- Paper & Pulp** - low concentration of pulp, additives, bleaches, colourands, liquor
- Construction** - building material slurry, sediment slurry, cement slurry, industrial water, etc.
- Hygienic/Sanitary** - potable water metering, food & beverages, pharmaceutical, medium and high density fluids, blending, dosing, batching

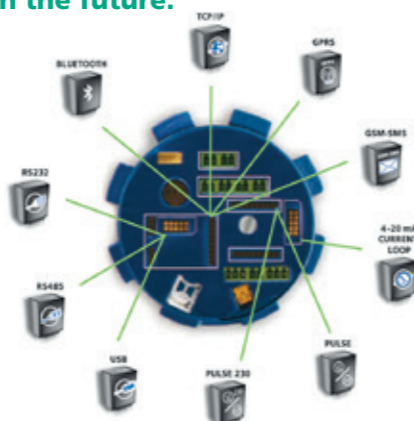
**Advantages**

The MAGX2 has an innovative modular design „Plug & Play“; it is a fit-all, flexible, low-cost flow meter all at the same time. The transmitter consists of the low-cost basic unit plus optional modules according to the end-user's requirements. Each module is in fact a small electronic board, the size of a large stamp, which can be freely installed and removed from the main board in seconds.

**You do not pay for options you do not want or need.  
You can build a flowmeter exactly as per your requirements.  
You can upgrade your flowmeter at anytime in the future.**

**STANDARD**

- Transmitter
- Power supply modules (12VDC/24VDC/90-250VAC)
- Sensor communication module
- CD + free Software
- Sensor



„Built in design“ for upgrades

**UPGRADES**

Choose your communication  
Choose your outputs  
Use SD card

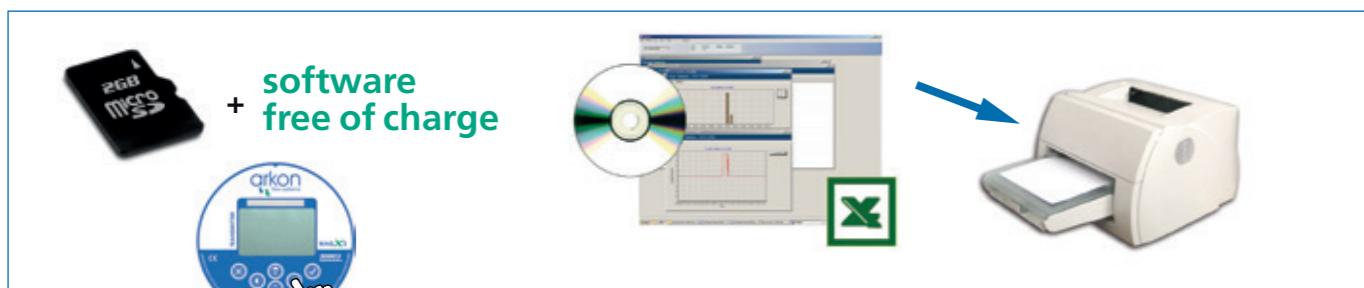


**Features**

- Accuracy** -  $\pm 0.2\%$  (0.5 - 10 m/s) of actual value
- Temperature sensor** - to measure temperature of the measured medium
- Communication protocol** - all communications via MODBUS RTU
- Autocleaning** - automatic electrodes cleaning
- Unique design** - any upgrade, extra features inside of the flowmeter, extra protection - „Built in design“
- Graphic display** - multi-language menu. Higher protection via lock-out system for touch buttons and 3 levels of passwords – User, Service, Factory settings.
- Intelligent sensor design** - digital communication allows communication between the transmitter and the sensor up to 500m. Calibration data are stored in the sensor communication module. If the transmitter is changed for whatever reason, all the calibration data will be taken from the sensor directly. No calibration download mistakes.

**Data logger**

The MagX2 uses a standard micro SD card for data-logging purposes, a 2GB micro SD card could be ordered with the flowmeter and a higher capacity card could be inserted as an upgrade if required. It can be easily installed and ejected from the data socket. Data is stored in \*.CSV format (compatible with Excel, Open Office & other programs). Record intervals are selectable from 1 minute to 24 hours.



**MAGX2 BASIC WORKING VERSION CONSISTS OF:**

**Transmitter**

**Power supply**  
You can choose from 3 options (12VDC, 24VDC or 230VAC)

**Sensor communication module**  
(calibration data are stored here)

**Sensor** (all sensors include 4 electrodes, auto cleaning electrodes system and empty pipe detection)

That is basic configuration for a MAGX2 working unit. It only allows communication with the flowmeter via keypad and does not include any output or data-logging function. Flowrate and totalizer can be checked on the display only.

Arkon offers a wide range of optional modules which are not necessary for a working unit but can be added to the basic configuration to add extra features.

**Currently the following optional modules are available:**

- Communication modules to allow communication via MODBUS.7 (except GSM-SMS - it has its own system using sms messages)



- Arkon offers two output options: one 4-20 mA and two pulse output option both options can be used separately or combined. Out of the two pulse options only one pulse option could be used or installed at any given time.



- Data-logging option  
MAGX2 motherboard includes a real time clock. For data-logging you just need a standard micro SD memory card. We can supply it for you or you can buy it yourself locally.



The most important advantage of Arkon's modular system is the flexibility for the customer to design his own solution for each application. Modular system also allows big savings by selecting and paying exactly for the required features on each application.

The MAGX2 flowmeter can be updated easily at any time by adding or exchanging modules.

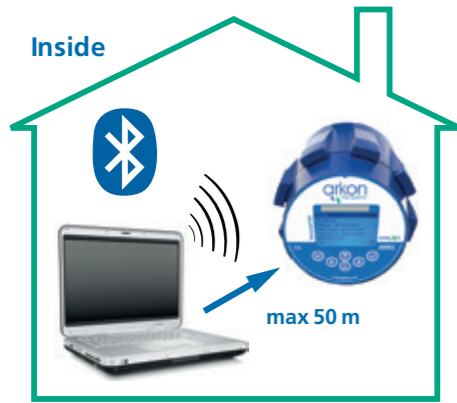
### Choose your communication

Modbus RTU can be used with all communication modules.



### BLUETOOTH

Cables are not required to check your flowmeter, within a 200 meter range. A mobile network is not required.



### RS232 or USB

„Old vs. new computer standard“



Outside



### GPRS

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

- The measurements can be evaluated from anywhere in the world
- You will always have your flowmeter under control
- Another communication module is required for setting up the GPRS module



### Standard solution for GPRS

Flowmeter plus communication cable plus mounting device for GPRS plus extra power supply.



Low Protection  
IP-65 WaterProof

VS

### Our solution for GPRS

3 step installation: open, plug in, close

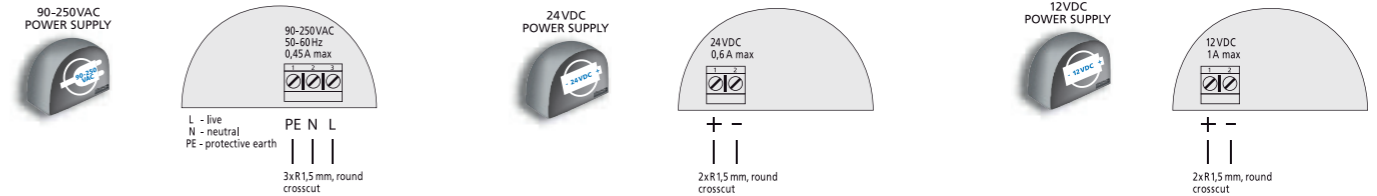


Without loosing protection

### Optional power supply modules

All power supply modules have an automatic electronic fuse. Max. 15VA

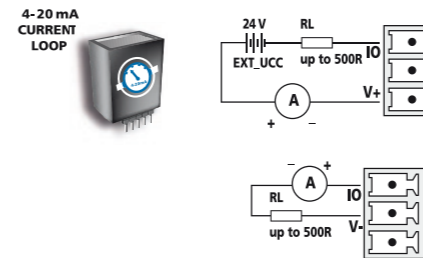
|            |                         |
|------------|-------------------------|
| 90-250 VAC | 90-250 VAC 50/60HZ      |
| 24 VDC     | 24VDC±5% (22.8-25.2VDC) |
| 12 VDC     | 12VDC±5% (11.4-12.6VDC) |



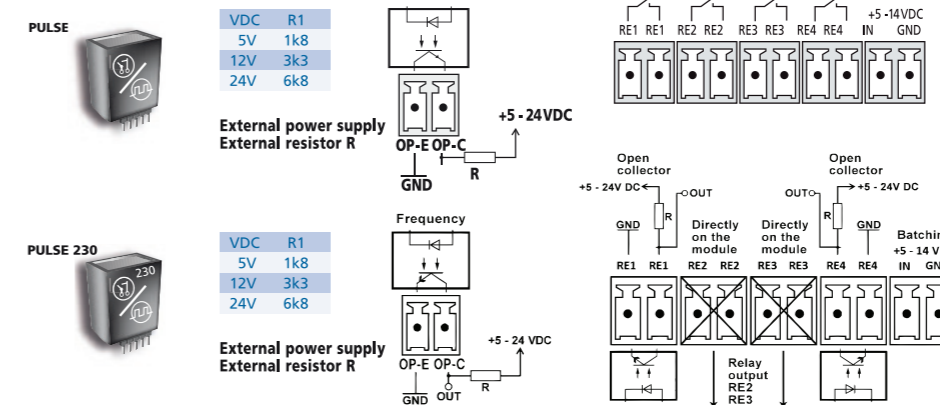
### Sensor to transmitter connection cable



### Optional analogue output modules



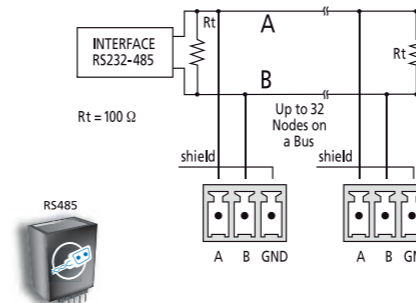
|                            |   |
|----------------------------|---|
| Current Loop output module | 4-20 mA, with programmable flowrate and function  |
| Pulse output module        | 4 output relays with programmable flowrate and function (max. 100 VDC/0.5A), Input signal for batching purposes (5-14V), Frequency output 2 – 1000Hz with adjustable duty cycle |
| Pulse 230                  | 2 output relays and 2 open collector outputs, max relay voltage (RE2, RE3) 250VAC/220VDC at 120VA/60W, output frequency 2-1000Hz, max input voltage (batching) +5-14V DC        |



### Optional digital outputs/communication modules

Only one of the following modules can be used/installed at the same time

|           |   |
|-----------|---|
| RS232     | Including RS232 cable                                   |
| RS485     | Terminators may be needed                               |
| USB       | Including USB cable                                     |
| BLUETOOTH | Outside up to 200 m / Inside up to 50 m                 |
| TCP/IP    | TCP/IP internet communication, amplifiers may be needed |
| GPRS      | GSM850, GSM900, DCS1800, PCS1900                        |
| GSM-SMS   | GSM850, GSM900, DCS1800, PCS1900                        |



Modbus RTU can be used with all communication modules, except GSM - SMS - it has its own system using sms messages.

Transmitter specifications  
MAGX2



|   |   |
|---|---|
| Measurable media                            | Conductive fluids   |
| Min. media electrical conductivity          | ≥5µS/cm or ≥20µS/cm for demineralized water   |
| Flow range                                  | 0.1 to 10 m/s   |
| Displayed values                            | Actual flow (m³/h l/s, l/m, US.gal/min, UK.gal/min), volume (m³, l, US.gal, UK.gal), positive, negative, total volume and auxiliary (clearable) volume, sensor temperature  |
| Accuracy                                    | ±0.2% (0.5 - 10 m/s) of actual value  |
| Power supply options                        | 90-250 VAC 50/60 Hz or 24 VDC or 12 VDC   |
| Power consumption                           | Max. 15VA   |
| Communication protocol                      | Modbus RTU can be used with all the communication modules i.e. RS232, RS485, USB, BLUETOOTH, TCP/IP, GPRS   |
| Flow direction                              | Bi-directional measurement  |
| Ambient temperature                         | -20°C to 60°C (-4°F to 140°F)   |
| Display                                     | LCD 128 x 64 PX graphical, contrast setup   |
| Controls                                    | 6 touch-buttons + communication modules (optional)  |
| Low flow cut-off                            | OFF, 0.5%, 1%, 2%, 5%, 10% of Flow Qn   |
| Adjustable filter constant                  | 1 - 120 samples; default value is 15 samples  |
| Max. electronics weight (including housing) | 2kg   |
| Housing material                            | Aluminium (powder coated)   |
| Housing dimensions                          | Ø 134 - 132 mm  |
| Cable terminal                              | 3+1xM16x1.5 IP68 cable glands   |
| Electronics protection                      | Standard IP67 / NEMA 5  |
| Other features                              | Auto-diagnostics<br>Multi-language options (English, Spanish or Russian, other languages possible)<br>Indicative temperature measurement up to 150°C<br>Test of excitation coils<br>Empty pipe detection<br>Zero flow adjusting<br>Flow simulator |
| Excitation frequency                        | 3.125 Hz or 6.25 Hz   |
| Real time                                   | Clock function for data-logging   |
| Analogue outputs                            | Optionals: Current 4-20 mA, Pulse, Pulse 230  |
| Digital outputs (communication)             | Optionals: USB, RS232, RS485, BLUETOOTH, GPRS, TCP/IP, GSM-SMS  |
| Data logger                                 | Micro SD card   |

Sensor specifications  
MAGX2



|                          |  |
|--------------------------|--|
| Connection types         | DIN, ANSI, JIS flanges. Other types on request   |
| Flange                   | Steel 1.0036 or higher, Dimensions according to DIN EN 1092-1, ASME B 16.5, JIS B 2239         |
| Nominal size             | 10-1000 mm (1/2" - 40")  |
| 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               | CrNi (Stainless) steel 1.4571 / 316Ti, other materials on request                              |
| Measuring tube           | Stainless steel 1.4301 dimensions according to EN 10027-2                                      |
| Outer casing             | Carbon steel (1.0036) as standard  |
| External coating         | Lacquered finish (anticorrosive)   |
| Accessories options      | Earthing rings for plastic and lined pipes   |
| Coils resistance         | 80 / 100 Ω   |
| Other features           | Earthing through 3 <sup>rd</sup> and 4 <sup>th</sup> electrode<br>Automatic electrode cleaning |

Technical Drawing Data-Sheet

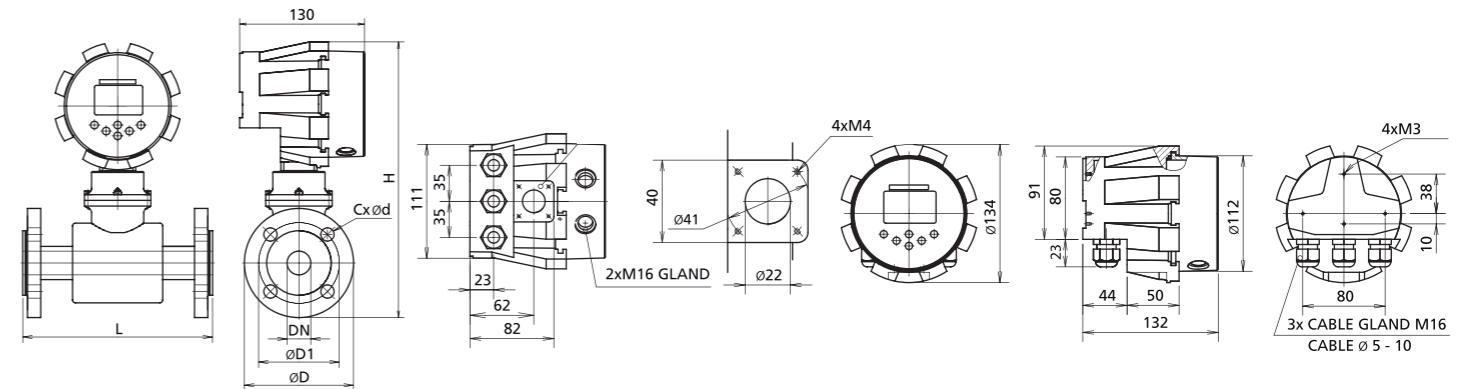
DIN

| DN  | ØD   | D1   | CxØd  | L    | H-compact | H-remote |
|-----|------|------|-------|------|-----------|----------|
|     | [mm] | [mm] | [mm]  | [mm] | [mm]      | [mm]     |
| 10  | 90   | 60   | 4x14  | 200  | 275       | 180      |
| 15  | 95   | 65   | 4x14  | 200  | 280       | 185      |
| 20  | 105  | 75   | 4x14  | 200  | 288       | 193      |
| 25  | 115  | 85   | 4x14  | 200  | 293       | 198      |
| 32  | 140  | 100  | 4x18  | 200  | 312       | 217      |
| 40  | 150  | 110  | 4x18  | 200  | 320       | 225      |
| 50  | 165  | 125  | 4x18  | 200  | 334       | 239      |
| 65  | 185  | 145  | 8x18  | 200  | 354       | 259      |
| 80  | 200  | 160  | 8x18  | 200  | 373       | 278      |
| 100 | 220  | 180  | 8x18  | 250  | 393       | 298      |
| 125 | 250  | 210  | 8x18  | 250  | 419       | 324      |
| 150 | 285  | 240  | 8x22  | 300  | 458       | 363      |
| 200 | 340  | 295  | 12x22 | 350  | 514       | 419      |
| 250 | 405  | 355  | 12x26 | 400  | 584       | 489      |
| 300 | 460  | 410  | 12x26 | 500  | 633       | 538      |
| 350 | 520  | 470  | 16x26 | 500  | 701       | 606      |
| 400 | 580  | 525  | 16x30 | 600  | 754       | 659      |
| 450 | 640  | 585  | 20x30 | 600  | 797       | 702      |
| 500 | 715  | 650  | 20x33 | 600  | 865       | 770      |
| 600 | 840  | 770  | 20x36 | 600  | 982       | 887      |

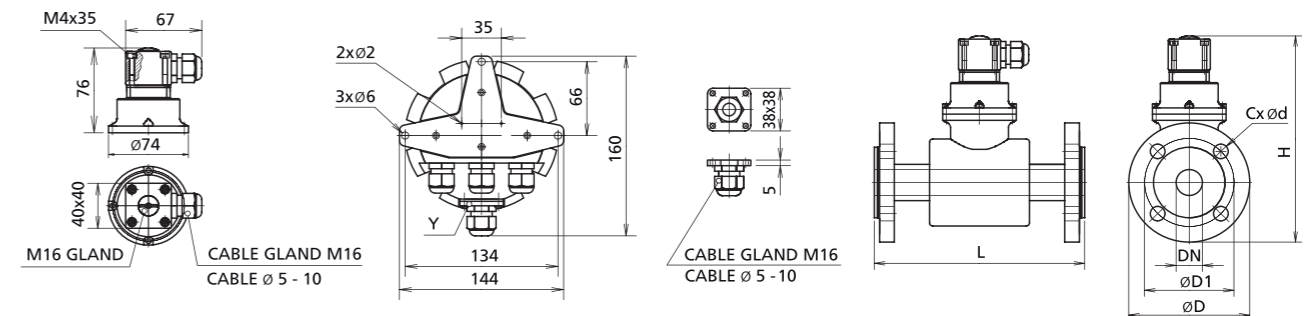
ANSI

| DN     | ØD    | D1    | CxØd  | L    | H-compact | H-remote |
|--------|-------|-------|-------|------|-----------|----------|
|        | [mm]  | [mm]  | [mm]  | [mm] | [mm]      | [mm]     |
| 1/2"   | 88.9  | 60.5  | 4x16  | 200  | 277       | 182      |
| 3/4"   | 98.6  | 69.9  | 4x20  | 200  | 284       | 189      |
| 1"     | 108   | 79.2  | 4x20  | 200  | 290       | 195      |
| 1.1/4" | 117.3 | 88.9  | 4x20  | 200  | 300       | 205      |
| 1.1/2" | 127   | 98.6  | 4x23  | 200  | 309       | 214      |
| 2"     | 152.4 | 120.7 | 8x20  | 200  | 328       | 233      |
| 2.1/2" | 177.8 | 139.7 | 4x20  | 200  | 350       | 255      |
| 3"     | 190.5 | 152.4 | 4x20  | 200  | 368       | 273      |
| 4"     | 228.6 | 190.5 | 8x20  | 250  | 397       | 302      |
| 5"     | 254   | 215.9 | 8x23  | 250  | 421       | 326      |
| 6"     | 279.4 | 241.3 | 8x23  | 300  | 455       | 360      |
| 8"     | 342.9 | 298.5 | 8x23  | 350  | 515       | 420      |
| 10"    | 406.4 | 362   | 12x26 | 400  | 584       | 489      |
| 12"    | 482.6 | 431.8 | 12x26 | 500  | 644       | 549      |
| 14"    | 533.4 | 476.3 | 12x29 | 500  | 708       | 613      |
| 16"    | 596.9 | 539.8 | 16x29 | 600  | 762       | 667      |
| 18"    | 635   | 577.9 | 16x32 | 600  | 795       | 700      |
| 20"    | 698.5 | 635   | 20x32 | 600  | 856       | 761      |
| 24"    | 812.8 | 749.3 | 20x35 | 600  | 968       | 873      |

Compact version:



Remote version:



|   |                               |
|---|-------------------------------|
| Max. electronics weight (including housing) | 2kg                           |
| Housing material                            | Aluminium + powder coating    |
| Housing dimensions                          | Ø 134 - 132 mm                |
| Cable terminal                              | 3+1xM16x1.5 IP68 cable glands |
| Electronics protection                      | Standard IP67 / NEMA 5        |

Tolerance of built-in length:  
DN 10 – DN 150 L ± 5 mm  
DN 200 – DN 1000 L ± 10 mm

Standard pressure:  
DN 10 – DN 50 PN 40 / 150 lbs.  
DN 65 – DN 150 PN 16 / 150 lbs.

## Applications

- Water & Wastewater** - distribution networks, irrigation, sludge/sewage, water treatment, desalination, marine, checking of pumps and water wells
- Petrochemical/chemicals/sanitary** - corrosive liquids, dosing of additives, chemicals, industrial water, waste water, potable water metering, food, pharmaceutical industry, medium and high density fluids, blending
- Paper & Pulp** - additives, bleaches, colourands, liquor

## Advantages

Possibility to install a reliable flowmeter virtually anywhere without sacrificing accuracy or performance. Top accuracy is  $\pm 0.5\%$  of actual value. No mains power required. Suitable for irrigation, remote applications any other application where power supply lines are difficult or expensive to install.

## Features

- Battery powered electromagnetic flowmeter
- Accuracy:  $\pm 0.5\%$  of actual value (DN20 - DN150)
- 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 liters or alarm or flowrate functions)
- Error detection
- Data logger: 1820 records, selectable interval of logging (5 min - 24 h)
- GSM-SMS module

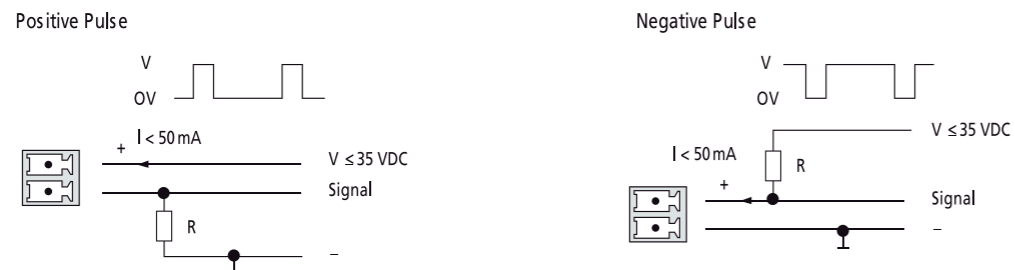


- Adjustable time constant 1–30 samples
- Maintenance free
- Two built-in earthing electrodes
- No moving parts in measuring tube

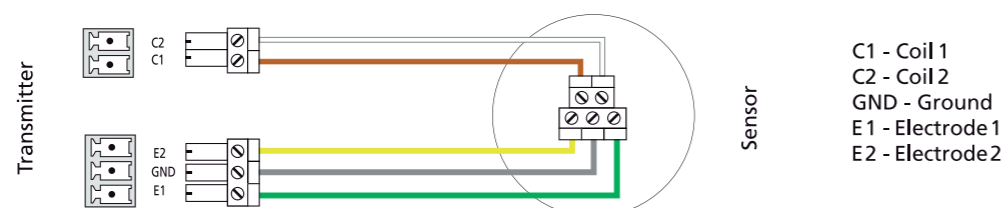
### Battery

- Unit powered by 2 x 3.6 V batteries placed inside the transmitter (see picture), 5x3.6 V battery pack optional
- Battery life up to 5 years (up to 15 years with external battery pack)
- Battery conservation when the pipe is empty

## Binary output



## Sensor to transmitter connection cable



- C1 - Coil 1
- C2 - Coil 2
- GND - Ground
- E1 - Electrode 1
- E2 - Electrode 2

## Transmitter specifications MAGB1



|  |  |
|--|--|
| Measurable media                       | Conductive fluids  |
| Min. media electrical conductivity     | $\geq 5\mu\text{S/cm}$ or $\geq 20\mu\text{S/cm}$ for demineralized water  |
| Flow range                             | 0.1 to 10 m/s  |
| Displayed values                       | Actual flow ( $\text{m}^3/\text{h}$ l/s, l/m, US.gal/min, UK.gal/min), volume ( $\text{m}^3$ , l, US.gal, UK.gal), positive, negative, total volume and auxiliary (clearable) volume |
| Accuracy                               | $\pm 0.5\%$ of actual value for sizes up to 150 mm and $\pm 2\%$ for 200 mm and bigger sizes   |
| Power supply                           | 3.6 V internal lithium battery - 38000 mAh   |
| Communication                          | Modbus RTU over USB  |
| Flow direction                         | Bi-directional measurement   |
| Ambient temperature                    | -20 to 60°C (-4 to 140°F)  |
| Display                                | LCD 128 x 64 PX graphical, contrast setup, sleep mode  |
| Control                                | Touch button   |
| Low flow cut-off                       | OFF, 0.5%, 1%, 2%, 5%, 10% of Flow Qn  |
| Electronics weight (including housing) | 1.5 kg   |
| Housing material                       | Aluminium (powder coated)  |
| Housing dimensions                     | $\varnothing$ 134 - 132 mm   |
| Cable terminals                        | 1+1xM16x1.5 IP68 cable glands  |
| Electronics protection                 | Standard IP67/ NEMA 5  |
| Other features                         | Test of excitation coils<br>Empty pipe detection<br>Zero flow adjusting<br>Flow simulator  |
| Excitation frequency                   | 1/60 Hz, 1/30 Hz, 1/15 Hz, 1/5 Hz, 1.5625 Hz, 3.125 Hz, 6.25 Hz  |
| Real time                              | Clock function for data-logging  |
| Outputs                                | Pulse output with programmable volume function and pulse width   |
| Adjustable filter constant             | 1 - 30 samples   |
| Error logger                           | Logging last 10 errors   |
| Data logger                            | 1820 records, selectable interval of logging (5min - 24h)  |

## Sensor specifications MAGB1



|                          |  |
|--------------------------|--|
| Connection types         | DIN, ANSI, JIS flanges. Other types on request   |
| Flange                   | Steel 1.0036 or higher, Dimensions according to DIN EN 1092-1, ASME B 16.5, JIS B 2239 |
| Nominal size             | 20-250 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               | CrNi (Stainless) steel 1.4571 / 316Ti, other materials on request                      |
| Measuring tube           | Stainless steel 1.4301 dimensions according to EN 10027-2                              |
| Outer casing             | Carbon steel (1.0036) as standard  |
| External coating         | Lacquered finish (anticorrosive)   |
| Accessories options      | Earthing rings for plastic and lined pipes   |
| Coils resistance         | 100 $\Omega$   |
| Other features           | Earthing through 3 <sup>rd</sup> and 4 <sup>th</sup> electrodes                        |

MAGB1 can be verified by VeriMAG device, which is a smart stand-alone field testing instrument, which has the capability to test the integrity of an installed flowmeter, for functionality of the connection between the sensor and the transmitter unit, and all other important internal components of the flowmeter.

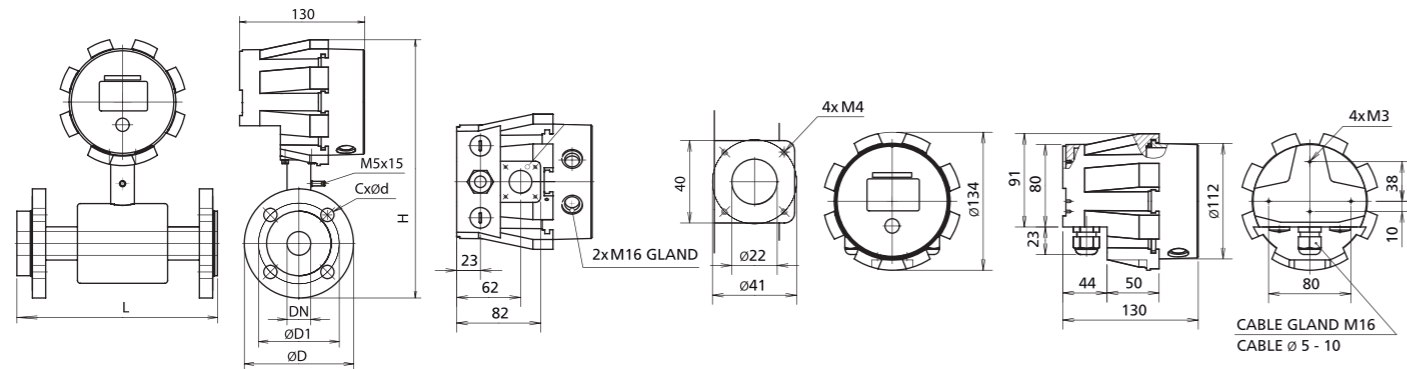
DIN

| DN   | ØD   | D1   | CxØd  | L    | H-compact | H-remote |
|------|------|------|-------|------|-----------|----------|
| [mm] | [mm] | [mm] | [mm]  | [mm] | [mm]      | [mm]     |
| 10   | 90   | 60   | 4x14  | 200  | 250       | 165      |
| 15   | 95   | 65   | 4x14  | 200  | 255       | 170      |
| 20   | 105  | 75   | 4x14  | 200  | 263       | 178      |
| 25   | 115  | 85   | 4x14  | 200  | 268       | 183      |
| 32   | 140  | 100  | 4x18  | 200  | 287       | 202      |
| 40   | 150  | 110  | 4x18  | 200  | 295       | 210      |
| 50   | 165  | 125  | 4x18  | 200  | 309       | 224      |
| 65   | 185  | 145  | 8x18  | 200  | 329       | 244      |
| 80   | 200  | 160  | 8x18  | 200  | 348       | 263      |
| 100  | 220  | 180  | 8x18  | 250  | 368       | 283      |
| 125  | 250  | 210  | 8x18  | 250  | 394       | 309      |
| 150  | 285  | 240  | 8x22  | 300  | 433       | 348      |
| 200  | 340  | 295  | 12x22 | 350  | 489       | 404      |
| 250  | 405  | 355  | 12x26 | 400  | 559       | 474      |
| 300  | 460  | 410  | 12x26 | 500  | 608       | 523      |
| 350  | 520  | 470  | 16x26 | 500  | 676       | 591      |

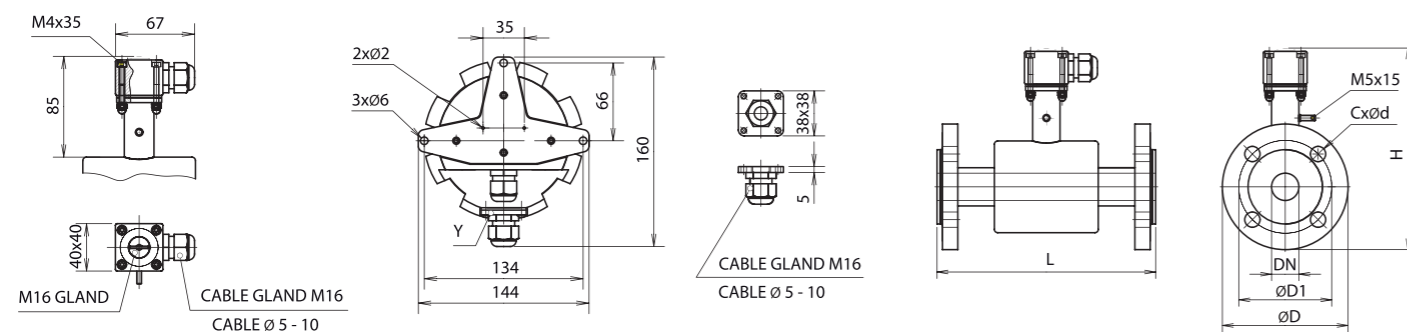
ANSI

| DN     | ØD    | ØD1   | CxØd  | L    | H-compact | H-remote |
|--------|-------|-------|-------|------|-----------|----------|
| [mm]   | [mm]  | [mm]  | [mm]  | [mm] | [mm]      | [mm]     |
| 1/2"   | 88.9  | 60.5  | 4x16  | 200  | 252       | 167      |
| 3/4"   | 98.6  | 69.9  | 4x20  | 200  | 259       | 174      |
| 1"     | 108   | 79.2  | 4x20  | 200  | 265       | 180      |
| 1.1/4" | 117.3 | 88.9  | 4x20  | 200  | 275       | 190      |
| 1.1/2" | 127   | 98.6  | 4x23  | 200  | 284       | 199      |
| 2"     | 152.4 | 120.7 | 8x20  | 200  | 303       | 218      |
| 2.1/2" | 177.8 | 139.7 | 4x20  | 200  | 325       | 240      |
| 3"     | 190.5 | 152.4 | 4x20  | 200  | 343       | 258      |
| 4"     | 228.6 | 190.5 | 8x20  | 250  | 372       | 287      |
| 5"     | 254   | 215.9 | 8x23  | 250  | 396       | 311      |
| 6"     | 279.4 | 241.3 | 8x23  | 300  | 430       | 345      |
| 8"     | 342.9 | 298.5 | 8x23  | 350  | 490       | 405      |
| 10"    | 406.4 | 362   | 12x26 | 400  | 559       | 474      |
| 12"    | 482.6 | 431.8 | 12x26 | 500  | 619       | 534      |
| 14"    | 533.4 | 476.3 | 12x29 | 500  | 683       | 598      |

Compact version:



Remote version:



Tolerance of built-in length:  
DN 10 – DN 150 L ± 5 mm  
DN 200 – DN 1000 L ± 10 mm

Standard pressure:  
DN 10 – DN 50 PN 40 / 150 lbs.  
DN 65 – DN 150 PN 16 / 150 lbs.

|  |                               |
|--|-------------------------------|
| Electronics weight (Including Housing) | 1.5 kg                        |
| Housing material                       | Aluminium + powder coating    |
| Housing dimensions                     | Ø 134 - 132 mm                |
| Cable terminals                        | 1+1xM16x1.5 IP68 cable glands |
| Electronics protection                 | Standard IP67 / NEMA 5        |

Applications

- Water & Wastewater** - distribution networks, irrigation, sludge/sewage, water treatment, leakage management, desalination, marine, checking of pumps and water wells
- Petrochemical/chemicals** - corrosive liquids, dosing of additives, chemicals, industrial water, waste water, pulp liquids
- Paper & Pulp** - colourands, bleaches, additives
- Construction** - building material slurry, industrial water
- Sanitary** - potable water metering, food & beverage, pharmaceutical, medium and high density fluids, blending, dosing, batching

Advantages

MAGS1 is a stand-alone version of flowmeter, which does not need a transmitter and can be operated on its own. If you need a low cost flowmeter without read out on display and outputs, this will be the right one!  
Inexpensive solution for application with existing PLC System with RS485 MODBUS RTU communication system.  
No display fully operational electromagnetic flowmeter.  
Cost-effective solution for installations where local display is not needed.

Features

The simple version is fed with 24VDC and has output/communication a standard RS485 line on MODBUS RTU protocol.

- Auto-diagnostics
- ±0.2% accuracy
- Cable length up to 500m

Technical specifications

|                                    |   |
|------------------------------------|---|
| Power supply                       | 24VDC ± 10% @ 0.5A max  |
| Communication                      | RS485 – MODBUS RTU  |
| Min. media electrical conductivity | ≥5µS/cm ≥20µS/cm for demineralized water  |
| Flow range                         | 0.1 to 10 m/s   |
| Accuracy                           | ±0.2% (0,5 to 10m/s) of actual value  |
| Connection types                   | DIN, ANSI, JIS flanged. Other types on request  |
| Flange material                    | Steel 1.0036 or higher, Dimensions according to DIN EN 1092-1, ASME B 16.5, JIS B 2239  |
| Nominal size                       | 25 – 250 mm (1"-10")  |
| Maximum nominal pressure           | PN40/300 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                  | IP68 (Nema 6), IP67 (Nema 5)  |
| Liner                              | Hard Rubber, PTFE, other material on request  |
| Electrodes                         | CrNi (Stainless) steel 1.4571 / 316Ti, other materials on request   |
| Measuring tube                     | Stainless steel 1.4301 dimensions according to EN 10027-2   |
| Outer casing                       | Carbon steel (1.0036) as standard   |
| External coating                   | Lacquered finish (anticorrosive)  |
| Accessories options                | Earthing rings for plastic and lined pipes  |
| Coils resistance                   | 80/100 Ω  |
| Other features                     | Earthing through 3rd and 4th electrode<br>Automatic electrode cleaning<br>Empty pipe detection<br>Auto-diagnostics<br>Test of excitation coils<br>Zero flow adjusting |



# AgrimagP

## Applications

Plastic flowmeter with power supply for multiple applications.

- Industrial wastewater discharge
- Water Recycling Systems
- Irrigation
- Water Well Pump Stations

## Advantages

AgrimagP is a user friendly low cost flowmeter. Rigid polypropylene casing powered by external power supply. Available in DN 25, 50, 80 mm (1", 2" and 3") sizes. Connections offered: Manifold clamping flanges. Compatible with fitting kits for DIN, BSP, NPT and other common connections. Accuracy rating of 1%.



- One frequency output – open collector
- External power supply
- No moving parts
- No earthing rings required

## Features

- Sizes available: 25, 50, 80 mm
- 4 stainless steel electrodes
- Accuracy: ±1% from 10 % to 100 % of full scale range
- Power supply range is 9-35VDC

## Applications

The battery powered flowmeter suitable for agricultural applications, usage monitoring, irrigation, well monitoring, industrial wastewater discharge, grey water, pulp plants, paper plants, turf and landscape applications.

- Industrial wastewater discharge
- Water Recycling Systems
- Irrigation
- Water Well Pump Stations

## Advantages

Agrimag is a user friendly low cost flowmeter. It is one piece built in polypropylene, powered by 6 AA batteries. Connections offered: Manifold clamping flanges compatible with fitting kits for DIN, BSP, NPT and other common connections. Available in DN 25, 50, 80mm (1, 2 and 3 inches) sizes. Accuracy of 1% and a battery life of 1-3 years

- User friendly low cost flowmeter
- 6x AA Battery powered
- No moving parts
- Fast and easy pipe connection

## Features

- Polypropylene body material
- Flange clamps connection
- Sizes available: 25, 50, 80 mm
- 4 stainless steel electrodes
- Battery life: 1 year with meter in use, 3 years on stock
- Empty pipe detection and battery saving mode



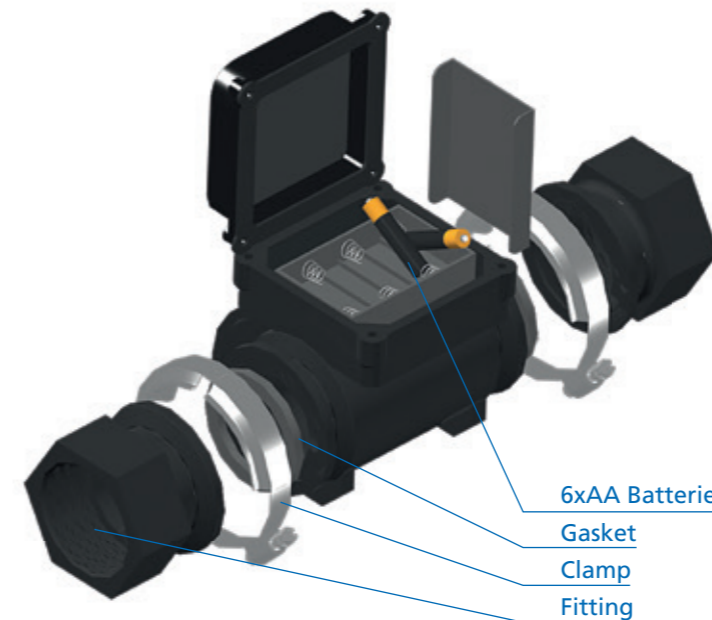
# Agrimag

# Agrimag Series technical specifications

# Agrimag

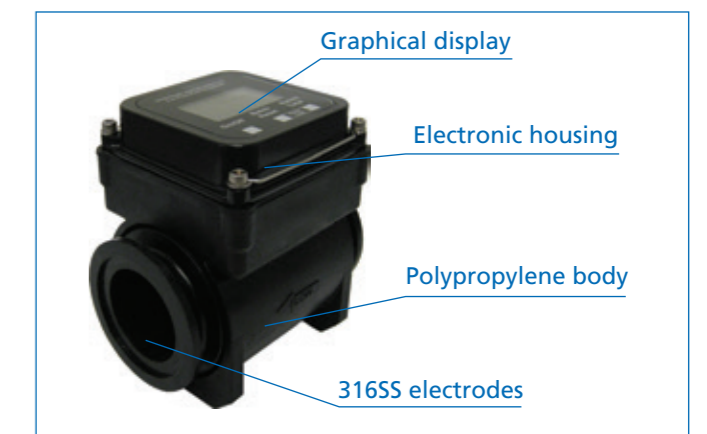
|                                    |   |   |                    |
|------------------------------------|---|---|--------------------|
| Measurable media                   | Conductive fluids   |   |                    |
| Min. Media electrical conductivity | ≥20µS/cm  |   |                    |
| Flow range                         | 0.1 to 10 m/s   |   |                    |
| Displayed values                   | LCD display 128x64 PX graphical, Flow range (m3/h, l/s, l/m, US gal/min, UK gal/min), Volume (m3, l, US Gal, UK Gal), Total, Batch volume |   |                    |
| Accuracy                           | ±1% of reading from 100% to 10% of full scale<br>±3% of reading from 10% of full scale to cut-off   |   |                    |
| Full scale                         | 1": 0.5 – 4.8 l/s   | 2": 1.9 – 18.9 l/s  | 3": 5.0 – 49.0 l/s |
| Power supply                       | <b>Agrimag:</b><br>6 AA alkaline batteries, expected lifetime 1 year  | <b>AgrimagP:</b><br>9-35VDC Power supply available in special connector |                    |
| Flow direction                     | Bi-directional measurement  |   |                    |
| Ambient temperature                | -12 to 50°C (10 to 130°F)   |   |                    |
| Media temperature                  | 0 to 60°C (32 to 140°F)   |   |                    |
| Working pressure                   | 150psi or 10,3 bars   |   |                    |
| Body material                      | Glass filled polypropylene  |   |                    |
| Connections                        | Flange clamps   |   |                    |
| Electrodes                         | 4x stainless steel electrodes   |   |                    |
| Display                            | LCD 128 x 64 PX graphical, sleep mode   |   |                    |
| Control                            | 3 touch buttons   |   |                    |
| Low flow cut-off                   | 2% of full scale  |   |                    |
| Electronics protection             | Nema 4X standard  |   |                    |
| Other features                     | Test of excitation coils, Earthing through 3rd and 4th electrodes, Empty pipe detection - battery conservation                            |   |                    |
| Excitation frequency               | 1/1.67s   |   |                    |
| Samples per Average                | 4 excitations   |   |                    |
| Coils resistance                   | 100Ω  |   |                    |
| Frequency output                   | Open collector proportional to flow 0-1000Hz for 0-Qmax<br>Max switching voltage 24VDC, max. current 50mA                                 |   |                    |

## Installation with fitting kit



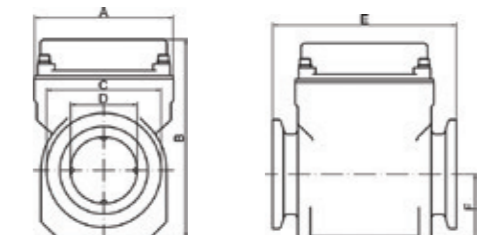
## Fitting kits available for Manifold

|                | 25 mm                        | 50 mm                  | 80 mm                  |
|----------------|------------------------------|------------------------|------------------------|
| Male BSP       | 1" Male BSP                  | 2" Male BSP            | 3" Male BSP            |
| Female NPT     | 1/2", 3/4" and 1" Female NPT | 2" Female NPT          | 3" Female NPT          |
| Male NPT       | 3/4", 1" and 1.1/4" Male NPT | 2" Male NPT            | 3" Male NPT            |
| Male NPT in SS | 1" Male NPT                  | 1.1/2" and 2" Male NPT | 1.1/2" and 2" Male NPT |



## Dimensions (in mm)

|       | A   | B   | C     | D    | E     | F      |
|-------|-----|-----|-------|------|-------|--------|
| 25 mm | 100 | 130 | 80    | 25.4 | 139.7 | 41.402 |
| 50 mm | 100 | 150 | 82.55 | 50.8 | 139.7 | 51.562 |
| 80 mm | 100 | 180 | 111   | 76.2 | 185   | 64.8   |





| MANIFOLD x MALE BSP  |                           |             |
|----------------------|---------------------------|-------------|
| Available for sizes: | Description               | Part number |
| 25mm MAN             | 1" Manifold x 1" Male BSP | M100BSP     |
| 50mm MAN             | 2" Manifold x 2" Male BSP | M220BSP     |
| 80mm MAN             | 3" Manifold x 3" Male BSP | M300BSP     |



| MANIFOLD x FEMALE NPT THREAD |                               |             |
|------------------------------|-------------------------------|-------------|
| Available for sizes:         | Description                   | Part number |
| 25mm MAN                     | 1" Manifold x 1/2" Female NPT | M100050FPT  |
| 25mm MAN                     | 1" Manifold x 3/4" Female NPT | M100075FPT  |
| 25mm MAN                     | 1" Manifold x 1" Female NPT   | M100FPT     |
| 50mm MAN                     | 2" Manifold x 2" Female NPT   | M220FPT     |
| 80mm MAN                     | 3" Manifold x 3" Female NPT   | M300FPT     |



| MANIFOLD x NPT THREAD |                               |             |
|-----------------------|-------------------------------|-------------|
| Available for sizes:  | Description                   | Part number |
| 25mm MAN              | 1" Manifold x 3/4" Male NPT   | M100075MPT  |
| 25mm MAN              | 1" Manifold x 1.1/4" Male NPT | M100125MPT  |
| 25mm MAN              | 1" Manifold x 1" Male NPT     | M100MPT     |
| 50mm MAN              | 2" Manifold x 2" Male NPT     | M220MPT     |
| 80mm MAN              | 3" Manifold x 3" Male NPT     | M300MPT     |



| MANIFOLD x MALE NPT THREAD – 316SS |                               |              |
|------------------------------------|-------------------------------|--------------|
| Available for sizes:               | Description                   | Part number  |
| 25mm MAN                           | 1" Manifold x 3/4" Male NPT   | M100MPTSS    |
| 25mm MAN                           | 1" Manifold x 1.1/4" Male NPT | M220150MPTSS |
| 25mm MAN                           | 1" Manifold x 1" Male NPT     | M220MPTSS    |
| 50mm MAN                           | 2" Manifold x 2" Male NPT     | M300220MPTSS |
| 80mm MAN                           | 3" Manifold x 3" Male NPT     | M300MPTSS    |



| MANIFOLD x MANIFOLD  |                                     |             |
|----------------------|-------------------------------------|-------------|
| Available for sizes: | Description                         | Part number |
| 25mm MAN             | 1" Manifold x 1" Manifold           | M100CPG     |
| 50mm MAN             | 2" Manifold x 2" Manifold           | M220CPG     |
| 50mm MAN             | 2" Manifold x 2" Manifold x 6" long | M220CPG6    |
| 80mm MAN             | 3" Manifold x 3" Manifold x 4" long | M300CPG     |
| 80mm MAN             | 3" Manifold x 3" Manifold x 7" long | M300CPG7    |



| MANIFOLD x FEMALE COUPIER QDC |                                     |             |
|-------------------------------|-------------------------------------|-------------|
| Available for sizes:          | Description                         | Part number |
| 50mm MAN                      | 2" Manifold x 2" Female coupler QDC | M220D       |



| MANIFOLD X FEMALE QDC |                           |             |
|-----------------------|---------------------------|-------------|
| Available for sizes:  | Description               | Part number |
| 25mm MAN              | 1" Manifold x 1" Male QDC | M100A       |
| 50mm MAN              | 2" Manifold x 2" Male QDC | M220A       |
| 80mm MAN              | 3" Manifold x 3" Male QDC | M300A       |



| MANIFOLD X HOSE BARB |                                |             |
|----------------------|--------------------------------|-------------|
| Available for sizes: | Description                    | Part number |
| 25mm MAN             | 1" Manifold x 3/4" Hose Barb   | M100075BRB  |
| 25mm MAN             | 1" Manifold x 1" Hose Barb     | M100BRB     |
| 25mm MAN             | 1" Manifold x 1.1/4" Hose Barb | M100125BRB  |
| 50mm MAN             | 2" Manifold x 1.1/4" Hose Barb | M220125BRB  |
| 50mm MAN             | 2" Manifold x 1.1/2" Hose Barb | M220150BRB  |
| 50mm MAN             | 2" Manifold x 2" Hose Barb     | M220BRB     |
| 80mm MAN             | 3" Manifold x 2" Hose Barb     | M300220BRB  |
| 80mm MAN             | 3" Manifold x 3" Hose Barb     | M300BRB     |



| CLAMP                |   |              |
|----------------------|---|--------------|
| Available for sizes: | Description                                 | Part number  |
| 25mm MAN             | 1" Manifold x 1" Socket weld fitting        | M100SWFSS    |
| 50mm MAN             | 2" Manifold x 2" Socket weld fitting        | M220SWFSS    |
| 50mm MAN             | 2" Manifold x 2" Socket weld fitting 3.3/4" | M220375SWFSS |
| 80mm MAN             | 3" Manifold x 3" Socket weld fitting        | M300SWFSS    |
| 80mm MAN             | 3" Manifold x 3" Socket weld fitting 3.3/4" | M300375SWFSS |



| GASKET               |                |             |
|----------------------|----------------|-------------|
| Available for sizes: | Description    | Part number |
| 25mm MAN             | 1" Gasket EPDM | M101G       |
| 50mm MAN             | 2" Gasket EPDM | M221G       |
| 80mm MAN             | 3" Gasket EPDM | M301G       |



| GASKET VITON TYPE    |                      |             |
|----------------------|----------------------|-------------|
| Available for sizes: | Description          | Part number |
| 25mm MAN             | 1" Gasket Viton type | M100GV      |
| 50mm MAN             | 2" Gasket Viton type | 200GV       |
| 80mm MAN             | 3" Gasket Viton type | 300GV       |

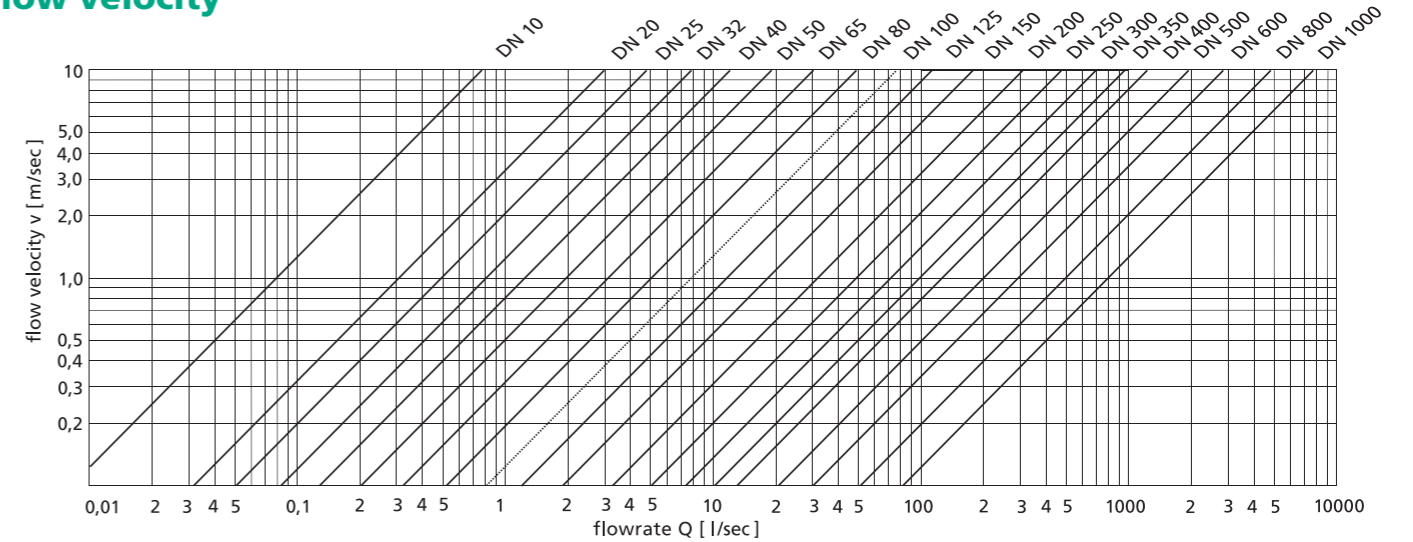


# Flow Indicators

| APPLICATION   | DESCRIPTION   | PARAMETERS   | IMAGE   |
|---|---|--|---|
| <b>Ball Flow</b><br>Maintaining demineralised water rinsing essential to electronics components manufacture. Showing the presence of condensate in steam return lines. Indicating chemical dosing on water treatment plant. Ensuring that flow of cooling water is maintained to specialised medical equipment. Detecting changes in colour and condition of liquids during processing. | The ball flow indicator is a single sided indicator. The white PTFE ball rises when there is flow of liquids or gasses and is clearly visible from a distance. Suitable for applications where a constant flow is required, such as cooling lines or for showing the presence of condensate in steam return lines.                        | Pressure: up to 16 bar.<br>Temperature: up to 200°C<br>Sizes: 15 to 40 mm<br>Material: Stainless steel<br>Connections: BSP and NPT                                 |    |
| <b>Spinner Flow</b><br>Pump, compressor and diesel engine protection. Ensuring that flow of cooling water is maintained to specialised welding equipment. Detecting changes in colour and condition of liquids during processing. Indication of air entrainment. Early warning of overheating, bearing or seal failure.   | The bright yellow spinner can be seen in the glass dome when there is flow. The Spinner flow indicator is a single sided indicator. The spinner starts to rotate when flow starts. The design offers low pressure losses and is suitable for installation in both horizontal and vertical pipework.                                       | Pressure: up to 10 bar.<br>Temperature: up to 100°C<br>Sizes: 15 to 40 mm<br>Material: Gunmetal<br>Connections: BSP and NPT  |    |
| <b>Paddle Wheel</b><br>Check the flow of a liquid in a pipeline. Flow monitoring in full pipes.   | Flow indicators with a highly visible PTFE paddle wheel to indicate the flow of liquids in the line. Suitable for clear and cloudy liquids. It can be used in vertical or horizontal lines and is ideal for flow monitoring in full pipes.  | Pressure: up to 60 bar.<br>Temperature: up to 250°C<br>Sizes: 15 to 200 mm<br>Materials: Carbon Steel, St. steel and Gunmetal<br>Connections: BSP, NPT and ANSI150 |   |
| <b>Plaint Sight Flow</b><br>Check for the presence of a liquid where there is intermittent flow, partially filled lines or entrained air. Leak detection.   | For viewing flow conditions in applications with intermittent flow, entrained air and partially filled pipes. A special version for use with steam and condensate uses borosilicate glass to ensure good long-term visibility. It can be used in vertical or horizontal lines.  | Pressure: up to 60 bar.<br>Temperature: up to 250°C<br>Sizes: 15 to 200 mm<br>Materials: Carbon Steel, St. steel and Gunmetal<br>Connections: BSP, NPT and ANSI150 |  |
| <b>Tube Flow</b><br>Check for the presence of a liquid where there is intermittent flow, partially filled lines or entrained air.   | The tube indicator allows a 360° visual indication of the flow and contents in the pipes. It has a plain straight through borosilicate glass tube with stainless steel flanged ends and is used to check for the presence of a liquid where there is intermittent flow, partially filled lines or entrained air.                          | Pressure: up to 10 bar.<br>Temperature: up to 150°C<br>Sizes: 15 to 200 mm<br>Material: Stainless steel<br>Connection: ANSI150                                     |  |
| <b>Flap Flow</b><br>Check the flow rate of a liquid in a pipeline. Plant safety device where you need to maintain a constant flow.  | The flap indicates flow on an easy to read scale. It is for use with liquids or steam. It is particularly suited for applications with low flow as the flow must move the flap to pass through the meter. It is ideal as a plant safety device where you need to maintain a constant flow, for example in lubricating or cooling systems. | Pressure: up to 60 bar.<br>Temperature: up to 250°C<br>Sizes: 15 to 200 mm<br>Materials: Carbon Steel, St. steel and Gunmetal<br>Connections: BSP, NPT and ANSI150 |  |
| <b>Window</b><br>Provide for viewing the contents of a vessel or tank.  | Circular sight glass for bolting or welding to tanks, vessels or pipes to allow viewing of the contents. This model is designed to provide a window for viewing the contents of a vessel or tank. Normally these are welded to the tank, but can be supplied suitable for bolting to a vessel or a pipe flange if required.               | Pressure: up to 40 bar<br>Temperature: up to 250°C<br>Sizes: 40 to 200mm<br>Materials: Carbon steel and Stainless steel  |  |

# Flow velocity, Flow rate, Certification

## Flow velocity



## Flow rate

| DN   | Flow rates [l/s] |      |        |         |       | Flow rates [m³/h] |      |        |         |       |
|------|------------------|------|--------|---------|-------|-------------------|------|--------|---------|-------|
|      | Q 5%             | QN   | QN 50% | QN 100% | Q MAX | QN 5%             | QN   | QN 50% | QN 100% | Q MAX |
| 10   | 0,04             | 0.2  | 0.39   | 0.79    | 0.98  | 0.14              | 0.8  | 1.41   | 2.83    | 3.53  |
| 15   | 0,09             | 0.5  | 0.88   | 1.77    | 2.21  | 0.32              | 2    | 3.18   | 6.36    | 7.95  |
| 20   | 0,16             | 0.9  | 1.57   | 3.14    | 3.93  | 0.57              | 3.2  | 5.65   | 11.31   | 14.14 |
| 25   | 0,25             | 1.4  | 2.45   | 4.91    | 6.14  | 0.88              | 5    | 8.84   | 17.67   | 22.09 |
| 32   | 0,4              | 2.2  | 4.02   | 8.04    | 10.05 | 1.5               | 8    | 14.5   | 29      | 36.2  |
| 40   | 0,6              | 4    | 6.3    | 12.6    | 15.7  | 2.3               | 13   | 22.6   | 45.2    | 56.6  |
| 50   | 1                | 6    | 9.8    | 19.6    | 24.5  | 3.5               | 20   | 35.3   | 70.7    | 88.4  |
| 65   | 1,7              | 9    | 16.6   | 33.2    | 41.5  | 6                 | 35   | 59.7   | 119.5   | 149.3 |
| 80   | 2,5              | 14   | 25.1   | 50.3    | 62.8  | 9                 | 50   | 90.5   | 181     | 226.2 |
| 100  | 3,9              | 20   | 39.3   | 78.5    | 98.2  | 14                | 80   | 141    | 283     | 353   |
| 125  | 6                | 30   | 61     | 123     | 153   | 22                | 150  | 221    | 442     | 552   |
| 150  | 9                | 50   | 88     | 177     | 221   | 32                | 200  | 318    | 636     | 795   |
| 200  | 16               | 100  | 157    | 314     | 393   | 57                | 300  | 565    | 1131    | 1414  |
| 250  | 25               | 150  | 245    | 491     | 614   | 88                | 500  | 884    | 1767    | 2209  |
| 300  | 35               | 200  | 353    | 707     | 884   | 127               | 800  | 1272   | 2545    | 3181  |
| 350  | 48               | 300  | 481    | 962     | 1203  | 173               | 1000 | 1732   | 3464    | 4330  |
| 400  | 63               | 400  | 628    | 1257    | 1571  | 226               | 1300 | 2262   | 4524    | 5655  |
| 500  | 98               | 600  | 982    | 1963    | 2454  | 353               | 2000 | 3534   | 7069    | 8836  |
| 600  | 141              | 800  | 1414   | 2827    | 3534  | 509               | 3000 | 5089   | 10179   | 12723 |
| 700  | 192              | 1000 | 1924   | 3848    | 4811  | 693               | 4000 | 6927   | 13854   | 17318 |
| 800  | 251              | 1200 | 2513   | 5027    | 6283  | 905               | 5000 | 9048   | 18096   | 22620 |
| 900  | 318              | 1500 | 3181   | 6362    | 7952  | 1145              | 6000 | 11451  | 22902   | 28630 |
| 1000 | 393              | 2000 | 3927   | 7854    | 9817  | 1414              | 8000 | 14137  | 28274   | 35340 |

Q5% recommended minimum flowrate / 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

|                                     |                      |
|-------------------------------------|----------------------|
| MAGX2                               | EMC and ES certified |
| MAGB1                               |                      |
| MAGS1                               | PED 92/23 EC         |
| Agrimag                             |                      |
| AgrimagP                            | CE certified         |
| GOST certification                  |                      |
| Company is ISO 9001: 2008 certified |                      |



## Quality management system & Traceability

Arkon quality management system is certified according to standard ISO 9001:2008. All main processes manufacturing, development, sale and services are certified and every year audited by Bureau Veritas Certification.

All manufactured flowmeters are carefully tested according to internal standards and calibrated in independent laboratories specialized to flow rate and flow volume calibration of liquids.

Arkon main standards are traceable directly to Czech national standards in the Czech Metrology Institute (CMI). CMI is the Czech national metrology body and is traceable to international standards. CMI laboratories are accredited by Czech institute for accreditation, a member of European co-operation for accreditation.

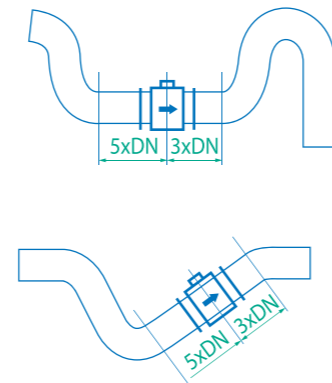
## Sensor installation requirements

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

### Horizontal standard mounting

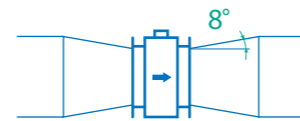
The sensor tube must always remain full. The best way to achieve this is to locate the sensor in a low section of pipe, see the following picture.

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.



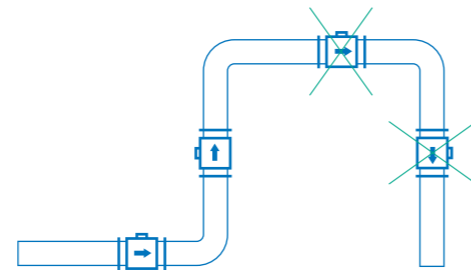
### Pipe reducers

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



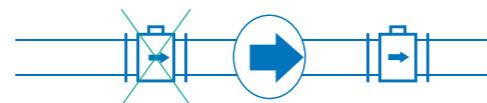
### Vertical mounting

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



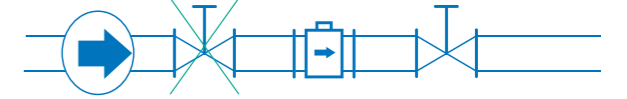
### Pumps

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



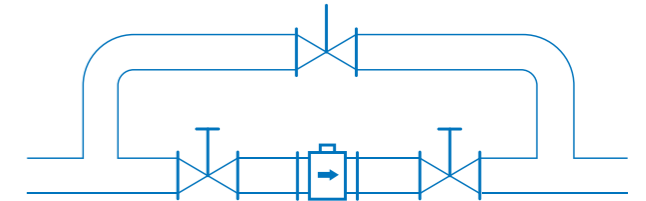
### Valves

Suitable location of a shut off valve is downstream of a sensor.



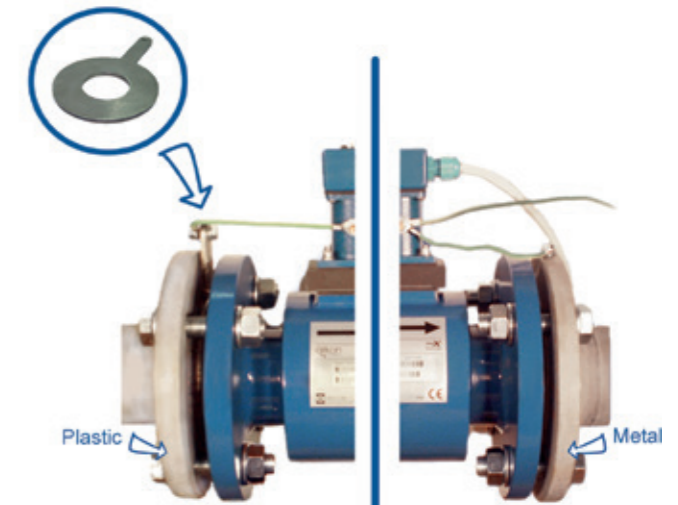
### Removal during maintenance

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



### Earthing

All flowmeters must be earthed. Maximum resistance of the sensor to earth is <math><1\text{ ohm}</math>. All the components in the loop, including flowmeter, pumps (especially submersible) valves, pipework, 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.



### Remote mounting system



### „Meeting your specific requirements“

|                         |  |
|-------------------------|--|
| Remote connection cable | UNITRONIC LiYCY (TP) 0035 830, 2x2x0.5 mm for MAGX2<br>UNITRONIC Li2YCY (TP) 0031 325, 2x2x0.34 mm for MAGB1 |
| Wall mounting           |  |
| DIN Rail mounting       |  |
| Panel mounting          | Max. Panel thickness 5 mm  |
| Sensor junction box     | 30x40x40 mm  |

| Model        | Ordering code |     |    |   |   |     |     | Description   |
|--------------|---------------|-----|----|---|---|-----|-----|---|
| MAGX2 Trans. | 1             | 2   | 3  | 4 | 5 | 6   | 7   |   |
| T            |               |     |    |   |   |     |     | MAGX2 main board, display, touch buttons control unit, Version V.7            |
|              |               |     |    |   |   |     |     | <b>Power supply module</b>  |
|              |               | 230 |    |   |   |     |     | Power supply module 90-250VAC - Version 4.                                    |
|              |               | 24  |    |   |   |     |     | Power supply module 24VDC - Version 4.  |
|              |               | 12  |    |   |   |     |     | Power supply module 12VDC - Version 4.  |
|              |               |     | CM |   |   |     |     | Sensor to transmitter communication module - Version 8                        |
|              |               |     |    |   |   |     |     | <b>Remote mounting kit</b>  |
|              |               |     |    |   |   |     |     | None  |
|              |               |     |    | N |   |     |     | WALL mounting kit (including 6 m cable)                                       |
|              |               |     |    | W |   |     |     | PANEL mounting kit (including 6 m cable)                                      |
|              |               |     |    | P |   |     |     | DIN-Rail mounting kit (including 6 m cable)                                   |
|              |               |     |    | D |   |     |     |   |
|              |               |     |    |   |   |     |     | <b>Output 1</b>   |
|              |               |     |    |   | N |     |     | None  |
|              |               |     |    |   | C |     |     | 4-20 mA current output signal module  |
|              |               |     |    |   |   |     |     | <b>Output 2</b>   |
|              |               |     |    |   |   | N   |     | None  |
|              |               |     |    |   |   | P   |     | Pulse output module   |
|              |               |     |    |   |   | P2  |     | Pulse 230   |
|              |               |     |    |   |   |     |     | <b>Communication</b>  |
|              |               |     |    |   |   | N   |     | None  |
|              |               |     |    |   |   | 232 |     | RS232 communication module, including 1,8 m cable                             |
|              |               |     |    |   |   | USB |     | USB communication module, including 1,8 m cable                               |
|              |               |     |    |   |   | BTO |     | Bluetooth communication module  |
|              |               |     |    |   |   | GPR |     | GPRS*   |
|              |               |     |    |   |   | 485 |     | RS485 communication module, distance up to 1 km                               |
|              |               |     |    |   |   | TCP |     | TCP/IP communication module, amplifiers might be necessary                    |
|              |               |     |    |   |   | SMS |     | GSM-SMS   |
| Example      |               |     |    |   |   |     |     | * Please note you need another communication module for setup the GPRS module |
| MAGX2 Trans. | T             | 230 | CM | N | C | N   | USB |   |

| Model        | Ordering code |            |           |    |    | Description            |
|--------------|---------------|------------|-----------|----|----|------------------------|
| MAGX2 Sensor | 1             | 2          | 3         | 4  | 5  |                        |
|              |               |            |           |    |    | Connection             |
|              |               |            |           |    |    | DIN                    |
|              |               |            |           |    |    | ANSI                   |
|              |               |            |           |    |    | DIN Flange St. St.     |
|              |               |            |           |    |    | DIN St. St. body       |
|              |               |            |           |    |    | ANSI Flange St. St.    |
|              |               |            |           |    |    | ANSI St. St. body      |
|              |               |            |           |    |    | DIN 11851              |
|              |               |            |           |    |    | DIN 11851 St. St. body |
|              |               |            |           |    |    | JIS                    |
|              |               |            |           |    |    | Table E                |
|              |               |            |           |    |    | Table D                |
|              |               |            |           |    |    | Tri-clamp              |
|              |               |            |           |    |    | Wafer                  |
|              |               |            |           |    |    | <b>Size</b>            |
|              |               | 10 / 1/2   | 200 / 8   |    |    | 10 mm / 3/8"           |
|              |               | 15 / 2/3   | 250 / 10  |    |    | 15 mm / 1/2"           |
|              |               | 20 / 3/4   | 300 / 12  |    |    | 20 mm / 3/4"           |
|              |               | 25 / 1     | 350 / 14  |    |    | 25 mm / 1"             |
|              |               | 32 / 1.1/4 | 400 / 16  |    |    | 32 mm / 1.1/4"         |
|              |               | 40 / 1.1/2 | 450 / 18  |    |    | 40 mm / 1.1/2"         |
|              |               | 50 / 2     | 500 / 20  |    |    | 50 mm / 2"             |
|              |               | 65 / 2.1/2 | 600 / 24  |    |    | 65 mm / 2.1/2"         |
|              |               | 80 / 3     | 700 / 28  |    |    | 80 mm / 3"             |
|              |               | 100 / 4    | 800 / 32  |    |    | 100 mm / 4"            |
|              |               | 125 / 5    | 900 / 36  |    |    | 125 mm / 5"            |
|              |               | 150 / 6    | 1000 / 40 |    |    | 150 mm / 6"            |
|              |               |            |           |    |    | <b>Liner</b>           |
|              |               |            |           |    |    | HR HARD RUBBER         |
|              |               |            |           |    |    | PT PTFE                |
|              |               |            |           |    |    | SR SOFT RUBBER         |
|              |               |            |           |    |    | NR HYGIENIC RUBBER     |
|              |               |            |           |    |    | CT E-CTFE              |
|              |               |            |           |    |    | <b>Pressure</b>        |
|              |               |            |           |    |    | 150 150 psi            |
|              |               |            |           |    |    | 300 300 psi            |
|              |               |            |           |    |    | 10 PN10                |
|              |               |            |           |    |    | 16 PN16                |
|              |               |            |           |    |    | 25 PN25                |
|              |               |            |           |    |    | 40 PN40                |
|              |               |            |           |    |    | <b>Electrodes</b>      |
|              |               |            |           |    |    | SS Stainless Steel     |
|              |               |            |           |    |    | HA Hastelloy C         |
|              |               |            |           |    |    | TA Tantalum            |
|              |               |            |           |    |    | TI Titanium            |
|              |               |            |           |    |    | PL Platinum            |
| Example      |               |            |           |    |    |                        |
| MAGX2 Sensor | D             | 100        | HR        | 16 | SS |                        |

Please note that on official orders and quotes each item is listed separately with individual price.

| Model   | Ordering code |   |     |    |    |    |   | Description  |
|---------|---------------|---|-----|----|----|----|---|--|
| MAGB1   | 1             | 2 | 3   | 4  | 5  | 6  | 7 |  |
|         |               |   |     |    |    |    |   | <b>Version</b>                                     |
|         |               |   |     |    |    |    |   | Compact  |
|         |               |   |     |    |    |    |   | Remote: WALL mounting kit (including 6m cable)     |
|         |               |   |     |    |    |    |   | Remote: PANEL mounting kit (including 6m cable)    |
|         |               |   |     |    |    |    |   | Remote: DIN-Rail mounting kit (including 6m cable) |
|         |               |   |     |    |    |    |   | <b>Connection type</b>                             |
|         |               |   |     |    |    |    |   | DIN  |
|         |               |   |     |    |    |    |   | ANSI   |
|         |               |   |     |    |    |    |   | <b>Connection type</b>                             |
|         |               |   |     |    |    |    |   | 20 / 3/4 20 mm / 3/4"                              |
|         |               |   |     |    |    |    |   | 25/1 25 mm / 1"                                    |
|         |               |   |     |    |    |    |   | 32 / 1.1/4 32 mm / 1.1/4"                          |
|         |               |   |     |    |    |    |   | 40 / 1.1/2 40 mm / 1.1/2"                          |
|         |               |   |     |    |    |    |   | 50 / 2 50 mm / 2"                                  |
|         |               |   |     |    |    |    |   | 65 / 2.1/2 65 mm / 2.1/2"                          |
|         |               |   |     |    |    |    |   | 80 / 3 80 mm / 3"                                  |
|         |               |   |     |    |    |    |   | 100 / 4 100 mm / 4"                                |
|         |               |   |     |    |    |    |   | 125 / 5 125 mm / 5"                                |
|         |               |   |     |    |    |    |   | 150 / 6 150 mm / 6"                                |
|         |               |   |     |    |    |    |   | 200 / 8 200 mm / 8"                                |
|         |               |   |     |    |    |    |   | 250 / 10 250 mm / 10"                              |
|         |               |   |     |    |    |    |   | <b>Liner material</b>                              |
|         |               |   |     |    |    |    |   | HR HARD RUBBER                                     |
|         |               |   |     |    |    |    |   | SR SOFT RUBBER                                     |
|         |               |   |     |    |    |    |   | PT PTFE  |
|         |               |   |     |    |    |    |   | NR HYGIENIC RUBBER                                 |
|         |               |   |     |    |    |    |   | <b>Pressure</b>                                    |
|         |               |   |     |    |    |    |   | 150 150 psi  |
|         |               |   |     |    |    |    |   | 300 300 psi  |
|         |               |   |     |    |    |    |   | 10 PN 10   |
|         |               |   |     |    |    |    |   | 16 PN 16   |
|         |               |   |     |    |    |    |   | 25 PN 25   |
|         |               |   |     |    |    |    |   | 40 PN 40   |
|         |               |   |     |    |    |    |   | <b>Electrodes</b>                                  |
|         |               |   |     |    |    |    |   | SS Stainless Steel                                 |
|         |               |   |     |    |    |    |   | HA Hastelloy C                                     |
|         |               |   |     |    |    |    |   | TA Tantalum  |
|         |               |   |     |    |    |    |   | TI Titanium  |
|         |               |   |     |    |    |    |   | PL Platinum  |
|         |               |   |     |    |    |    |   | <b>Communication</b>                               |
|         |               |   |     |    |    |    |   | SMS GSM-SMS  |
| Example |               |   |     |    |    |    |   |  |
| MAGB1   | C             | D | 100 | HR | 16 | SS |   |  |

| Model   | Ordering code |     |    |    |    | Description        |
|---------|---------------|-----|----|----|----|--------------------|
| MAGS1   | 1             | 2   | 3  | 4  | 5  |                    |
|         |               |     |    |    |    | <b>Connection</b>  |
|         |               |     |    |    |    | DIN                |
|         |               |     |    |    |    | ANSI               |
|         |               |     |    |    |    | <b>Size</b>        |
|         |               |     |    |    |    | 25-250 25-250 mm   |
|         |               |     |    |    |    | 1-10 1"-10"        |
|         |               |     |    |    |    | <b>Liner</b>       |
|         |               |     |    |    |    | HR HARD RUBBER     |
|         |               |     |    |    |    | PT PTFE            |
|         |               |     |    |    |    | SR SOFT RUBBER     |
|         |               |     |    |    |    | NR HYGIENIC RUBBER |
|         |               |     |    |    |    | <b>Pressure</b>    |
|         |               |     |    |    |    | 150 150 psi        |
|         |               |     |    |    |    | 300 300 psi        |
|         |               |     |    |    |    | 10 PN10            |
|         |               |     |    |    |    | 16 PN16            |
|         |               |     |    |    |    | 25 PN25            |
|         |               |     |    |    |    | 40 PN40            |
|         |               |     |    |    |    | <b>Electrodes</b>  |
|         |               |     |    |    |    | SS Stainless Steel |
|         |               |     |    |    |    | HA Hastelloy C     |
|         |               |     |    |    |    | TA Tantalum        |
|         |               |     |    |    |    | TI Titanium        |
|         |               |     |    |    |    | PL Platinum        |
| Example |               |     |    |    |    |                    |
| MAGS1   | D             | 100 | HR | 16 | SS |                    |

| Model            | Ordering code |     | Description        |
|------------------|---------------|-----|--------------------|
| Agrimag/AgrimagP | 1             | 2   |                    |
|                  |               |     | <b>Size</b>        |
|                  |               |     | 25 25 mm           |
|                  |               |     | 50 50 mm           |
|                  |               |     | 80 80 mm           |
|                  |               |     | <b>Connections</b> |
|                  |               |     | NPT NPT female     |
|                  |               |     | MAN Manifold       |
| Example          |               |     |                    |
| Agrimag          | 25            | NPT |                    |

Please note that any order placed without details regarding flow-range (for example: 0-50 m³/hr or 0-100 l/s) and Pulse Output (for example 1 pulse/litre) 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 the measurements.

When placing orders for applications, such as aggressive and corrosive liquids, please advise us about the specifics of the application and installation on your enquiry form or order. This will enable us to recommend or help you in choosing the best product for your application.

**Arkon Flow Systems, s.r.o.** is a Czech based company involved in the design, production, distribution of electromagnetic flowmeters & our range of products are complimented with ultrasonic flowmeters, level meters, Parshall flumes and flow indicators.

We offer a flexible approach to customers needs, by offering customized solutions for each application.

Arkon offers its products via a worldwide distributor network. Our products are used in over 20 countries with applications such as Water Treatment & Distribution, Waste Water Management, Irrigation, Mining & Chemical Industry as well as projects where efficiency and accuracy coupled with smart technology matters the most.

## OUR NETWORK

We offer our products to customer via worldwide distributors, some of the countries where we have official distributors are:

### EUROPE

Denmark, Finland, France, Greece, Ireland, Latvia, Norway, Poland, Portugal, Russia, United Kingdom

### NORTH AND SOUTH AMERICA

Argentina, Colombia, Chile, Mexico, Peru, Venezuela, USA

### ASIA PACIFIC

Australia, China, New Zealand, Philippines, South Korea, Sri Lanka, Taiwan, Thailand, Vietnam

### MIDDLE EAST

Bahrain, Egypt, Iraq, Jordan, Oman, Pakistan, Qatar, Saudi Arabia, Turkey, United Arab Emirates

### AFRICA

South Africa



Representative:

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