

# FREQUENTLY ASKED QUESTIONS

## MAGX2 Modular Design Flowmeter

### QUESTION ANSWER

#### ***What are MAGX2 advantages?***

The modular design allows you to create your own configuration, customized to each application. It also offers the latest communication options as USB, TCP/IP or 3G/GPRS/GSM, all via MODBUS RTU communication. Data-logger free of charge (SD card), internal relays for PULSE output, RTC clocks

### QUESTION ANSWER

#### ***What is MAGX2 warranty life?***

2 years

### QUESTION ANSWER

#### ***What sizes is the MAGX2 available in?***

From DN 25 to DN 600, other sizes on request

### QUESTION ANSWER

#### ***Which standard is followed for the flowmeter length?***

The flowmeter length follows the ISO 13359:1998 standard. Customized lengths are available upon request.

### QUESTION ANSWER

#### ***Is the transmitter waterproof?***

The transmitter comes with an IP68 rating. Customers must follow the user guide to maintain this rating while performing wiring and termination.

### QUESTION ANSWER

#### ***Is battery backup available?***

Yes, a rechargeable battery backup providing 20 hours of power is available upon request.

### QUESTION ANSWER

#### ***What applications, are recommended for the MAGX2?***

MAGX2 is suitable for any application for magnetic flowmeters, from the simplest ones to the most technologically demanding ones.

### QUESTION ANSWER

#### ***What features has the MAGX2?***

Outputs available are pulse and current output.

One communication from RS232, RS485, USB, Bluetooth, MBUS, TCP/IP, 3G/GPRS/GSM, LoRaWAN or Wi-Fi can be selected

### QUESTION ANSWER

#### ***What sensor material and sensor connections are available for MAGX2?***

Standard sensor material is carbon steel. For some sizes Stainless steel 1.4301 is available for flanges or sensor body. DIN, ANSI, JIT, Tri-clamp, wafer, DIN 11851, table E and table D connections are available on request.

### QUESTION ANSWER

#### ***What liner and electrodes materials are available for the MAGX2?***

PTFE, hard rubber, soft rubber and E-CTFE are available for the liner. Other materials can be supplied on request. Hastelloy C, tantalum, titanium and platinum are available for electrodes materials.

### QUESTION ANSWER

#### ***Which is the standard material for MAGX2 electrodes?***

Hastelloy C-276

### QUESTION ANSWER

#### ***How many electrodes have MAGX2 and which functions have these electrodes?***

MAGX2 has 4 electrodes (2 electrodes for measurement and 2 electrodes for earthing).

### QUESTION ANSWER

#### ***Is there a separate electrode available for empty pipe detection?***

There are no separate electrodes for empty pipe detection. The existing four electrodes monitor situations with an empty pipe and generate an error code.

**QUESTION**  
**ANSWER**

**What is the MAGX2 accuracy?**  
0.2% of actual values for a velocity of 0.5-10 m/s.

**QUESTION**  
**ANSWER**

**How many digits have MAGX2 display? How many decimals can be shown?**  
MAGX2 display has 10 digits for totalizer and for flowrate.  
Totalizer can show from 3 to 0 decimals, depending on the total value. Number of decimals shown is not possible to be set by user.  
Flowrate can show from 3 to 0 decimals. Number of decimals shown can be set by user.

**QUESTION**  
**ANSWER**

**Does the MAGX2 installation require any special technical knowledge?**  
For correct installation and performance, a minimum knowledge about electromagnetic flowmeter technology is required.

**QUESTION**  
**ANSWER**

**Is the MAGX2 available in compact and remote versions? What is the maximum length of the cable for the remote version?**  
Yes. MAGX2 is available in both versions. Due to intelligent sensor, we can offer maximum cable length up to 500 meters depending on the application.

**QUESTION**  
**ANSWER**

**Can be MAGX2 powered by 4-20mA loop?**  
The Arkon flowmeters are 4 wire system that means they cannot be powered by 4-20mA loop. Therefore the power supply is always needed to power the flowmeter.

**QUESTION**  
**ANSWER**

**Is the 4 to 20 mA loop active or passive?**  
Both options are available. The choice between active and passive depends on the method of wiring.

**QUESTION**  
**ANSWER**

**Which temperatures can resist MAGX2?**  
For ambient temperature: -20° to +60°.  
For medium temperature: 0° to +70°.  
For high medium temperature: PTFE liner and transmitter on remote version: 0° to 130°.

**QUESTION**  
**ANSWER**

**Is the MAGX2 version approved for Hazardous Area?**  
No, currently Arkon does not offer any flowmeter approved for Hazardous Area.

**QUESTION**  
**ANSWER**

**For which installations is it necessary to use earthing rings?**  
It is necessary to use them for all installations in non-conductive pipes (i.e. plastic, concrete, rubber lined pipes, etc).

**QUESTION**  
**ANSWER**

**How many analogue outputs modules can be used at the same time?**  
MAGX2 offers 2 different output modules, 4-20mA current loop module and Pulse module. They are compatible and can be used at the same time.

**QUESTION**  
**ANSWER**

**Is the 4-20mA current output factory set?**  
No, you need to set the current output in flowmeter's menu yourself:  
Go to User settings->Current Loop->Setting Signal and set "Direct driving"  
Then go to User settings->Current Loop->Direct driving and specify needed range (note that it is independent of the min. and max. flows of the flowmeter).

**QUESTION**  
**ANSWER**

**What is the maximal totalizer value?**  
The max value of the totalizer is 999 999 999 m3. After that the totalizer will be zero and it starts count from zero again.

**QUESTION**  
**ANSWER**

**Is the totalizer of the MAGX2 always counting?**  
No, in the menu is possible to select if the totalizer should count or not.  
Also when the cleaning electrodes function is activated the totalizer is not counting.

**QUESTION**  
**ANSWER**

**How many totalizers have MAGX2 and how do they work?**  
It has 4 totalizers:  
- *Positive volume*: It only counts the flow going in the direction set as "flow direction". It can only be reset to zero using the service settings password.  
- *Negative volume*: It only counts the flow going in the opposite direction to the "flow direction" set. It can only be reset to zero using service settings password.  
- *Total volume*: it counts any flow regardless of the direction. So that value will be the addition of  
- *Total+* and *Total-*. It can only be reset to zero using service settings password.  
- *Auxiliary volume*: It counts as *Total volume* but it can be reset to zero in user settings.

**QUESTION**  
**ANSWER**

***What is Totalizer Cycling?***

This function is changing the bottom line on the display every 3 seconds - Total - Total+ - Total- - AUX - Temperature....

Imagine you have meter installed in a cabinet with see-through glass on the display. You cannot press button to change the bottom line of the display. This function if is on will one-by-one show you all the informations the bottom-line display offers.

**QUESTION**  
**ANSWER**

***Can MagX2 be dry calibrated using software?***

A flowmeter from its basics doesn't require recalibration (no moving parts, no aging electronic parts). The meter can be only wet calibrated by comparison to master meter in certified laboratory.

**QUESTION**  
**ANSWER**

***Is it possible to set the electrodes cleaning at a predefined time, for example, to activate cleaning every 10 days or 100 hours?***

It is not possible to set it periodically.

**QUESTION**  
**ANSWER**

***What is electrode cleaning and how does auto-electrode cleaning work?***

If mechanical cleaning is not possible, MAGX2 has an electrolytic method to clean electrodes. An electrolytic method is advantageous for its simplicity; however it can only be applied for the contamination that can be removed by electrolysis (Low contamination and deposit).

24VAC voltage is applied directly to sensor electrodes to clean them. The time that the voltage is applied, is selectable for user from 1 to 9999 seconds.

Recommended setting time for electrode cleaning is 3 seconds.

It is possible to set it on User settings>Electrode cleaning>

There are three possibilities

- It is possible to set the flowmeter for automatic cleaning of the electrodes for a selected time at any time that the unit is powered on. Go to User settings>Electrode cleaning>clean time and set the time required for cleaning, in seconds. Then go to User settings>Electrode cleaning>power and set "on start".
- It is possible to start and stop manually the cleaning process: go to User settings>Electrode cleaning>power and set "on" for the cleaning to start and "off" to stop the cleaning.
- It is possible to set the time that cleaning will last, and then start the cleaning manually. The cleaning will stop automatically once the cleaning time is past. Go to User settings>Electrode cleaning>clean time and set the time that the cleaning should last. Then go to User settings>Electrode cleaning>Start now and click "yes". This is the preferred way.

**QUESTION**  
**ANSWER**

***How many communication modules can be used at the same time?***

Only one communication module can be used/installed at the same time.

**QUESTION**  
**ANSWER**

***Is it possible to remotely download files to an SD card?***

Yes, it is possible using only a USB module, with the assistance of our software.

**QUESTION**  
**ANSWER**

***How can I get the data via TCP/IP module as described in Modbus manual?***

The TCP module is not capable of working on MODBUS TCP. It works as a serial tunnel through TCP port. The protocol name is MODBUS RTU over TCP/IP. It can be used with many SCADA SW - for example with SCADA SW Promotic.

**QUESTION**  
**ANSWER**

***Can I use the micro USB port that is embedded to the board to download the CSV file or is the USB module mandatory ?***

It is possible, but you need USB module and our SW.

**QUESTION**  
**ANSWER**

***How do I physically connect a data logger to the pulse output on a MAGX2?***

MAGX2 has the output for pulses what you may know as a "dry contact". It is in fact a relay switch. Same way as you would have a standard switch to create pulse. For pulse counting you can use RE3 or RE4 with following settings:

User settings - Pulse output - RE3&RE4 - RE3 Function = Pulse/Litre+

User settings - Pulse output - RE3&RE4 - Volume Plus = your desired volume per one pulse (usually 1000l = 1 pulse for each 1m3 pass the meter in positive direction)

**QUESTION**  
**ANSWER**

***How does the communication to the computer works using the WIFI module?***

In the link you will find the procedure for the WiFi module, where you will find all the necessary information for installation.

[https://www.arkon.co.uk/dokumenty/technical-procedures-\(6\).zip](https://www.arkon.co.uk/dokumenty/technical-procedures-(6).zip)

Basically WiFi module connects to an existing AP structure – to an existing WiFi network – you access the flowmeter by its IP address.

**QUESTION**

***Is it possible to use software such as ARKON.TRACK linked to or gathering information via WiFi module?***

**ANSWER**

Nowadays Arkon.Track is usable only for GPRS modules of our meters, it cannot be used by WiFi module.

**QUESTION**

***What is the accuracy below 0,5m/s?***

**ANSWER**

0.33m/s-0.50m/s will still be  $\pm 0.2\%$ . 0.1m/s-0.33m/s might be higher but will not exceed  $\pm 1\%$ . Below 0.1m/s is unspecified. The fact is, lower velocity means worse accuracy.

**QUESTION**

***Is the current 4-20mA output module delivered calibrated from factory?***

**ANSWER**

Current 4-20mA is pre-calibrated from factory however is possible to trim the calibration it by customer according to his needs.

First we recommend to check if the accuracy of the module is enough for you applications:

The flowmeter possess a possibility of flow simulator. Service settings ->Flow simulation->ON;

Service settings ->simulated flow - set value according to expected flows.

Then connect your device that is reading 4-20mA - PLC or any other loop reader. If the accuracy is enough for you - you do not have to calibrate the output.

In the case you need to calibrate it:

Lets imagine that you need an output according to  $Q_n$  of 5m<sup>3</sup>/hr

you set the Current output for Direct Driving and constants as:

4mA - 0m<sup>3</sup>/hr

20mA - 5m<sup>3</sup>/hr

then when the flow is 2,5m<sup>3</sup>/hr you should get 12mA.

Set simulator to 2,5m<sup>3</sup>/hr and check the output.

You may measure i.e. 12,071mA - the calibration serves you to trim the output to 12mA

(0,591% different than calculated). Depends on sensitivity of connected device you can leave it as it is or you can calibrate it.

(user guide page 17).

**QUESTION**

***Where are MAGX2 calibrated?***

**ANSWER**

All MAGX2 are calibrated on external calibration rigs traceable to international standards.

**QUESTION**

***Why is MAGX2 calibrated externally?***

**ANSWER**

To guarantee the impartiality of the calibrations.

**QUESTION**

***Is it possible to order a MAGX2 without calibration?***

**ANSWER**

No, calibration has to be made as a quality control and verification of meters functionality. The calibration certificate is the proof of accuracy of the flowmeter and it is also the last verification of the flowmeter.

**QUESTION**

***What does Arkon recommend to do when the MAGX2 needs to be calibrated?***

**ANSWER**

All MAGX2 are delivered calibrated and does not need to be calibrated again. However, if you want to calibrate them again Arkon has available an explanatory video. Please contact Arkon sales office for more details.

**QUESTION**

***Is the MAGX2 suitable for use with all liquids?***

**ANSWER**

No, as all electromagnetic flowmeter, MAGX2 is only suitable to be use with liquids with a minimum conductivity of 5 $\mu$ S.

**QUESTION**

***What is the acceptable level of solid content?***

**ANSWER**

The acceptable level of solid content is up to 10% of the total content.

**QUESTION**

***What types of mounting kits are available for MAGX2?***

**ANSWER**

Wall, Panel, DIN rail.

**QUESTION**  
**ANSWER**

***Is it possible to measure in other units than the flowmeter offers?***

By default this option is not included in the FW. It is possible to add this particular unit on request.

**QUESTION**  
**ANSWER**

***Is it possible to use a flowmeter with hastelloy electrodes for higher ph applications?***

Hastelloy is a very durable material, but the answer is not so simple. The durability of a material is not determined by just one parameter. It depends on several properties of the liquid being measured

**QUESTION**  
**ANSWER**

***Does MAGX2 have OIML certification?***

Yes, it does. A link to certificate: [https://www.oiml.org/en/oiml-cs/en/files/pdf\\_c/r049-2013-cz1-2016-04-rev1.pdf](https://www.oiml.org/en/oiml-cs/en/files/pdf_c/r049-2013-cz1-2016-04-rev1.pdf)

**QUESTION**  
**ANSWER**

***Does MAGX2 have MID certification?***

Yes, it does. A link to certificate: [https://typover.cmi.cz/typover\\_pdf/B/5502.pdf](https://typover.cmi.cz/typover_pdf/B/5502.pdf)