

MAGF1

User Guide



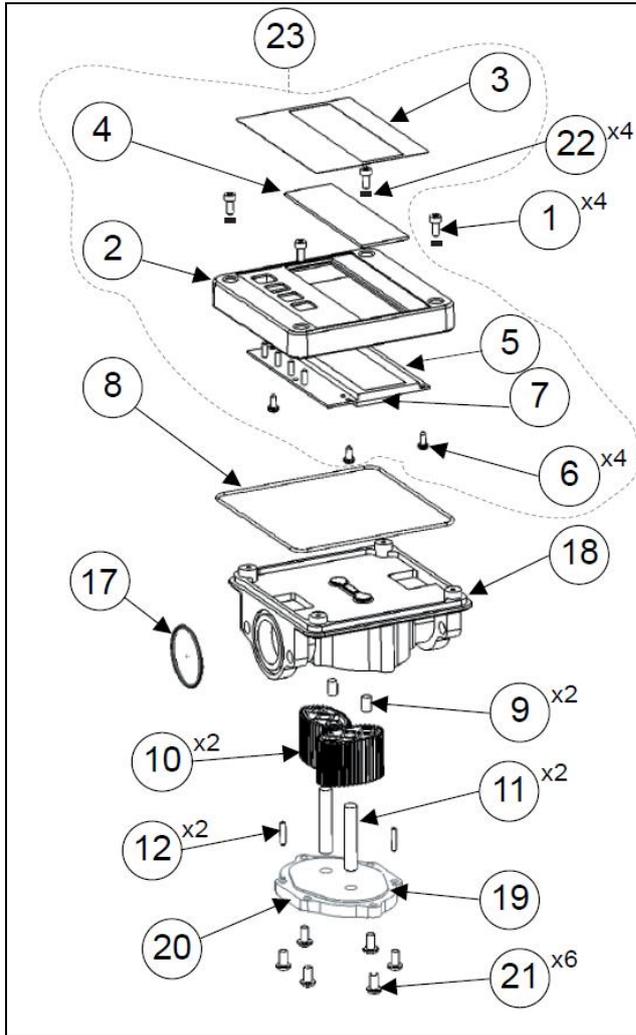
Arkon Flow Systems

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1 EXPLOSIONVIEW DRAWING



No.	Description	Code
1	M-4x10 mm DIN. 912 GALVANIZED SCREW	805400015
2	MAGF1 PP PLASTIC COVER	326001003
3	MAGF1 FACING PLATE	326004008
4	111.4x34.9x2 mm TRANSPARENT METHACRYLATE	803802013
5	TROPICALISED ELECTRONIC BATTERY BOARD	326004021
6	D. 3.5x9.5 mm DIN.7981 SHEET SCREW	805404002
7	DL2450 or CR2450 BUTTON BATTERY	322209002
8	D.138.94x1.78 mm JOINT	020602007
9	D.6x10 mm GEAR MAGNET	322001008
10	MAGF1 GEAR	326002000
11	D.8x45 mm STAINLESS GEAR SHAFT	326001002
12	DIN. 6325 D.3x16 mm PIN	804000021
17	D.38x2.5 mm NBR JOINT	803100056
18	MAGF1 ALUMINIUM BODY	326001000
19	D. 74x2 mm NBR JOINT	803100076
20	MAGF1 ALUMINIUM METER COVER	326001001
21	M-5x16 mm DIN. 912 BLACK SCREW	805400044
22	D.3.69x1.78 mm JOINT	803100023
23	MAGF1 FACEPLATE KIT (2+3+4+5+6+7)	32604-CF00000

2 TECHNICAL SPECIFICATIONS

The meter has an aluminium measuring chamber and 2 high accuracy oval gears. It is suitable for the transfer of mineral oil, diesel, heating oil, motor oil up to SAE-140 (please, ask for other liquids).

It is inserted into the fuel and oil distribution line and its operation is private. The calibration parameters and the litre totalizer are saved in a PERMANENT memory.

The MAGF1 model has two keys and a big LCD-Display in order to make easier its display.

Flow	5-110 l/min (diesel) 5-80 l/min (lubricant)
Channels	2
Phase-out channel	180°
Pulses per channel	20.5 pulses x litre and channel
Max. pressure loss	0.3 bar (diesel)
Max. pressure	55 bar
Temperature	- 10 / +50 °C
Max. humidity	95 H.R.
Viscosity	2-2000 cSt
Accuracy	0.5%
Noise	LEQA < 70 dBA
Repetitivity	0.2%
Inlet-outlet connections	1" BSP flange
Battery life	4 years (approx.)
Dimensions (mm)	123 x 68 x 123
Net Weight (kg)	0.850
Packaging dimensions	147 x 85 x 140
Gross Weight (kg)	0.900

3 WARNINGS

Please read all the instructions carefully before using the product. The people who do not know the instructions must not use it.

This manual describes how to use the meter according to the project hypothesis, the technical features, the types of installation, the use, the maintenance and the training relating to the possible dangers.

The operation manual must be considered as a part of the electronic meter and keep it for future inquiries during all its working life. We suggest keeping it in a dry and protected place.

The manual reflects the technical situation at the moment of the meter sale and cannot be considered inadequate for the reason of being updated afterwards according to the new experiences. The manufacturer reserves the right to update the production and the manuals without being forced to update the production and previous manuals.

4 SECURITY INSTRUCTIONS

The meter security with regard to the material quality and reliability is determined by the EC Directive Regulations and is endorsed by the quality controls of the enterprise leaders in the sector, and it also guarantees the toxicity absence and the negative ecological effects.

To avoid the possible accidents, it is advisable to read the following warnings and cautions carefully:

	<p>4.1. ATTENTION:</p> <p>A wrong meter installation or use can cause serious effects both physical and material. It is advisable to install a filter in order to avoid the solid inlet in the measuring chamber.</p>
	<p>4.2. ATTENTION:</p> <p>When transferring flammable liquids (hydrocarbon), do not smoke in the work environment. A FIRE CAN BE CAUSED.</p>
	<p>4.3. ATTENTION:</p> <p>Make sure of the correct installation of the hydraulic circuit, checking the leak absence.</p>

5 INSTALLATION

5.1. The fluid direction makes no difference when the meter is installed. It must be assembled in the delivery, after the pump.

5.2. The meter is assembled in such a way that the digit reading and its keys are lined up with the tube inlet/outlet holes.

When turning 90° the frontal cover to make easier its reading and key handling, unscrew the 4 screws (1) with an Allen screwdriver and put the cover in the desired position.

Before closing the cover, check that the joint (8) is well-positioned and screw again the screws (1) in its holes.

5.3. It is necessary to use sealing components on the installation pipes and threads, which are resistant to the products to be transferred.



5.4. ATTENTION:

Use sealing elements with care. Please take care no remains go into the measuring chamber. This can cause a meter breakdown.

6 OPERATION INSTRUCTIONS

6.1. User Mode

6.1.1. Counter

RESET: equivalent to NO: not to accept, exit (it depends on the selection).

TOTAL: equivalent to YES: accept, enter.

The device is always ready to make a volume measurement, when the liquid passes through the meter body. This counts it. It does not have a starting system.

It is always connected, ready to count.

The display shows the volume with 2, 1 or no decimal, according to the number that is displayed. For example, if the number is among 0.00 and 999.99, two decimals are displayed; if it is among 1000.0 and 9999.9, it shows only one decimal; if it is equal to or higher than 10,000, no decimal will be displayed. Every time the liquid passes through the meter, the 2 counters increase, both the partial and the total.

6.1.2. Partial Counter Deletion

To delete the partial counter, press only the RESET key; when released, the display shows 0.00, and it is ready to count again.

6.1.3. Total Counter Reading

To see the Total counter, press the TOTAL key, and the display will show the litre total. When released, the display shows the partial counter again.

6.1.4. Serial Number and Battery State

When pressing the RESET key continuously, after 2 seconds the serial number is shown. Once it is released, if the battery has a voltage lower than 2.3 V, the display shows the message 'bAt'.

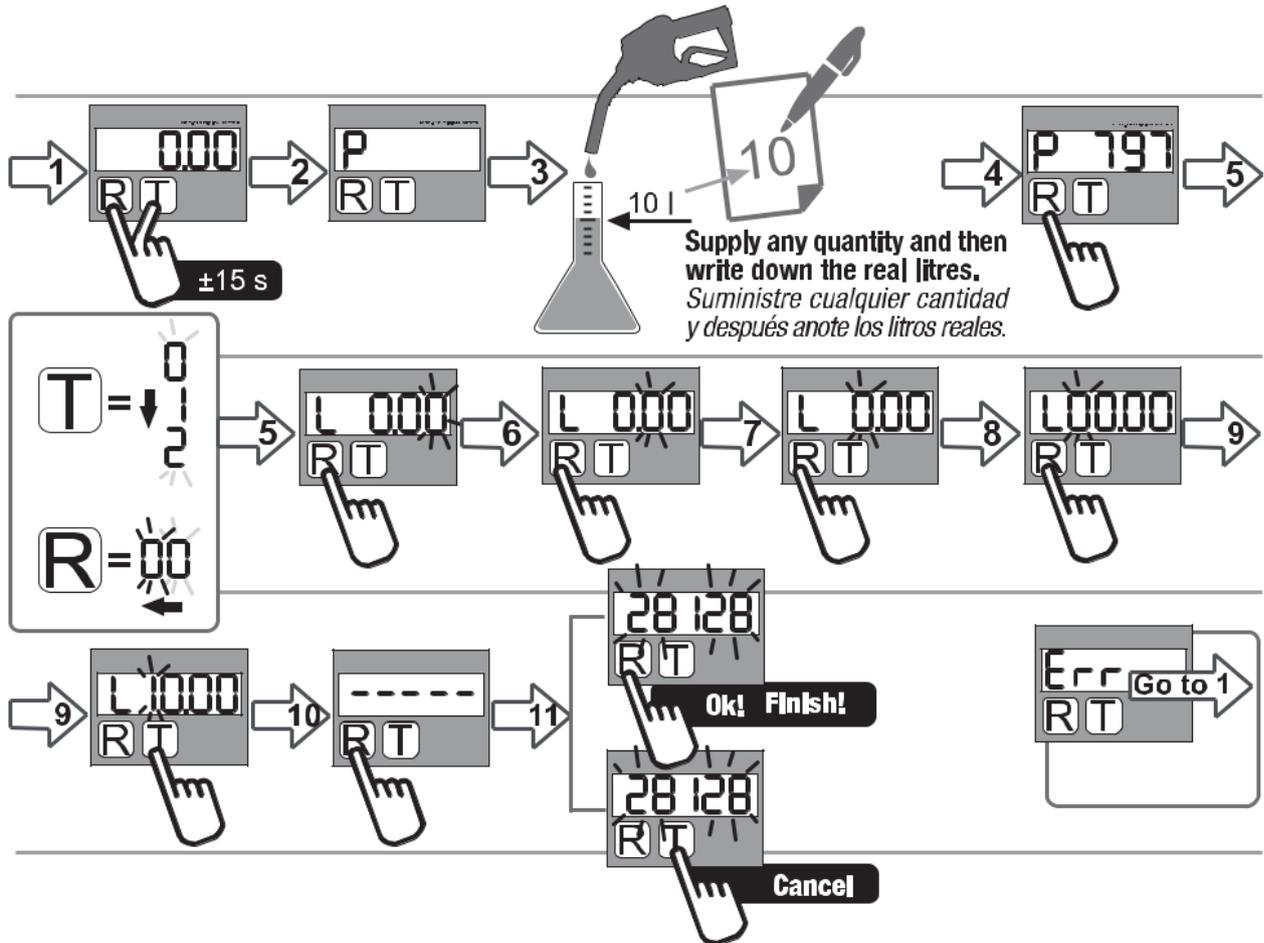
6.2. Calibration



	<p>ATTENTION:</p> <p>The meters are precalibrated in factory approximately.</p> <p>CALIBRATE AGAIN THE METER in the installation.</p>
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	<p>ATTENTION: The calibration process must be made with the meter at its maximum flow or the nominal operation flow of the installation. Otherwise, the calibration will not be the correct one.</p>
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Press TOTAL and RESET (15 s). The display will show: 'P'. If it does not show 'P', it means that



the meter is blocked. Then call the Technical Service.

Fill an amount of liquid into a calibrated recipient. Maximum of litres: 99.99. Then press RESET to accept. Write down the liquid volume in litres (or in the corresponding volume to be measured) and decimals with the maximum resolution it is possible.

The display shows 'L 0.00' with the right digit blinking. The TOTAL key makes the digit move forward. The RESET key validates it and goes to the next digit. After the fourth digit, accept it pressing RESET. The calculated calibration factor will be shown blinking. Press RESET to accept and end the calibration process or press TOTAL to cancel and not to save the calibration.

Err C: Calculation error · Err P: without pulses

Err L: value 0.00

When it shows 'Err', it means it has not been calibrated correctly. Try calibrating it again.

6.3. Battery replacing operation

The MAGF1 meter works with a lithium button battery, DL2450 or C2450 model. Its estimated duration is approx. 4 years (according to its application).

To replace the battery, remove the screws (1), open the cover and remove the screws (6) that are holding the electronic board.

With the help of a little screwdriver, push the battery to one side.

Replace the old battery with the new one. The correct battery position is the negative pole (-), placed looking at the bottom (touching the board).



ATTENTION

Do not put the battery upside down. This can damage the electronics. It is important to follow the battery manufacturer's instructions. Do not throw it to the general rubbish; throw it to a recycling centre or where the batteries are picked up.

Once the battery is changed, follow the above steps to reassemble the meter top. It is not necessary to make any other operation. The electronics remembers the total counter and saves the last calibration factor.

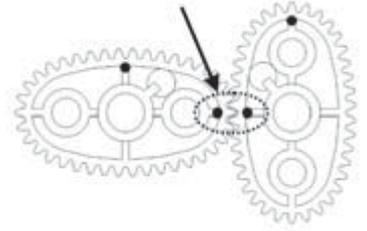
7 METER ASSEMBLY / DISASSEMBLY

TO GO TO THE GEARS (10) or THE MEASURING CHAMBER:

7.1. Unscrew the screws (21) of the bottom cover and remove them. Remove the back meter cover (20), be careful because there are the gears (10) of the measuring device in its inner.

7.2. Before removing the gears, take into account where the magnet gear is assembled. If you assemble it the other way round, the meter will not work correctly. The two points in the drawing must be lined up.

7.3. For its assembly, please follow the above described steps inversely, taking into account the correct meter body screw, pin and joint placing.



REMARK: Please be careful the magnets must be in the gear bottom, not visible before closing the cover.

8 MAINTENANCE

It is possible that some liquids are dried up in the measuring chamber inner, and block it. If this happens, this meter must be cleaned carefully and when it is going to be mounted, you have to make sure that it is correctly done. Please follow the instructions from the above Meter Assembly / Disassembly no.7 Section.

If you decide to store the meter for a long time, clean it conscientiously. It will remain protected and ready for a new starting.

9 REPAIR

Please go to the place where you have bought it. There you will be advised of what the best is. The meters must be cleaned and dried up before its delivery to be repaired. If the meters are not used with oil or diesel, they must be rinsed as many times as it is necessary, enclosing a note indicating the chemical substances supplied with this unit. When ordering spare parts, make sure that you give the part number and its correct description. This will guarantee the correct supply of the requested spare part.

10 PROBLEM GUIDE

Breakdown	Possible cause	Solution
It counts too fast or too slow.	<ul style="list-style-type: none"> - wrong calibration - air inlet - blocked gears 	<ul style="list-style-type: none"> - calibrate the meter (please refer to Section 6.2.). - look for and repair the possible leaks or air inlets in the system. - clean and replace the gears.
Low flow	<ul style="list-style-type: none"> - impurities in the measuring chamber 	<ul style="list-style-type: none"> - clean the measuring chamber.
The display is not switched on.	<ul style="list-style-type: none"> - dead battery 	<ul style="list-style-type: none"> - replace the battery (please refer to Section 6.3.).
The litres are passing, but the numeration does not count.	<ul style="list-style-type: none"> - dead battery - REED problem 	<ul style="list-style-type: none"> - replace the battery (please refer to Section 6.3.). - call the TECHNICAL SERVICE.
Loss of liquid	<ul style="list-style-type: none"> - damaged joints 	<ul style="list-style-type: none"> - replace the joints.

11 APPENDIX

11.1 Country of Origin

MAGF1 is manufactured in European Union.

11.2 EU Declaration of Conformity

MAGF1 is in accordance with the following legislative and/or normative documents:

DIRECTIVES	No. and issue date of the rules
2006/42/UE: Machines	EN-ISO 12100:2010
2014/30/UE: Electromagnetic Compatibility	EN 55014-1:2006
	EN 55014-2:2015

The pumps, the meters and the nozzles as nearly machines must not be on service while the machine, where these are placed, has not been declared of conformity with the 2006/42/EC (Machines) Directive requirements.

This Declaration will lose its validity in case that any modification is made without the explicit manufacturer's consent.

11.3 Warranty

The warranty conditions are covered by Arkon Flow Systems, s.r.o. Terms & Conditions of Sale and by Arkon Flow Systems, s.r.o Return Regulations and Warranty Conditions. The Arkon Flow Systems, s.r.o Terms & Conditions of Sale and the Arkon Flow Systems, s.r.o Return Regulations and Warranty Conditions are an integral part of the Resellers contract and of any Order Confirmation. Please see your Resellers contract or www.arkon.co.uk; Support section. The Warranty sheet is part of the Packing note of any new goods sent. For the claim or return procedure, please consult our web site www.arkon.co.uk or call the Arkon Flow Systems, s.r.o sales office.

The warranty does not cover: the inadequate use, the use out of the specific regulations, the negligence, the corrosion, the abuse, the manipulation or the wrong installation of the products, a use of non-original spare parts or not concerning to the specific model, the non-authorized modifications or interventions, the total or partial instruction unfulfillment.

All the manufactured and/or commercialized equipment must be installed according to the manufacturer's instructions.

The accessories and the products not manufactured by Arkon Flow Systems, s.r.o. are liable for their original manufacturer's warranty.

Because of the constant innovations and development, Arkon Flow Systems, s.r.o. reserves the right to modify the specifications of its products and publicity, without prior notice.

11.4 Contact



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Skype: support.arkon

Sales office: arkon@arkon.co.uk

Office hours:
8:30 – 18:00 (GMT+1)

Direct technical support:
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