

Electromagnetic flowmeters



Converter MC 308 C

DS230-0-ENG 

Converter MC 308C

Converter MC308C is part of the family of standard electronics available for all water cycle and process applications. It may be used with any EUROMAG electromagnetic flow sensor.

1. Case and assembly

Converter MC308C is provided with a robust cast aluminium enclosure that possesses an hermetic compartment that allows a protection degree IP68 if it is installed with appropriate cable glands. MC 308 C converters can be mounted both in the compact and separate version.

Compact version may be rotated by 90° around the junction box axis without opening it. In the separate version, MC308C converters are connected to the sensors by means of a pair of cables, whose maximum length depends on the liquid conductivity (see diagram fig. 1). The weight and dimensions are presented in Table 3.

2. Coupling with sensors

MC308C converter may be coupled with any EUROMAG sensor (Table 1) whose coefficients KA and KB are established during calibration and marked on the sensor plate at the factory.

The coupling is done by entering in the converter, via optic pen or keyboard, these two coefficients. Generally, this operation takes place in the factory, but it can also be done at site (see "10. Programming").

3. Network connection

Several flow meters equipped with the MC308C converter can be connected to a network (up to 32 devices). Therefore only one TRM200 or a PC equipped with an RS485 interface are able to communicate with each of the 32 flow meters both for carrying out the remote presetting and also for receiving and showing the 32 measurements on the display or video. The extension of this network must not exceed 1500m.

4. "Low consumption" rate

When low energy consumption is required (battery operation and/or solar source) it is possible to activate the MC308C on "low consumption" mode. The system cycles between two positions:

- 4.1. "standing time" which lasts 10 seconds during which the flow rate is measured.(at 10 samples per second);
- 4.2. "sleeping time" (programmable duration at 1'; 5'; 10') during which the system continues generating impulses, showing the readings, and if required, it gives the signal 4-20 mA corresponding to the average of the last readings.



MC 308 C in Alluminium Compact Version

5. Digital outputs

MC 308C converter has two DIGITAL outputs. The first one may be used in two different ways:

- a) generating pulses (one pulse per unit of volume passed) which can control a remote counter (electronic or mechanical);
- b) generating a frequency proportional to the flow rate. This frequency is generally used in a PLC or in a frequency- current converter.

The second DIGITAL output is reserved for one of the following alarms programmable through the keyboard:

- maximum flow rate
- minimum flow rate
- empty pipe
- out of scale
- reverse flow rate
- dose control.

Both outputs are a transistor based with collector and emitter available at the terminal board and protected from surge due to inductive loads. A 24 Vdc power supply, common to both outputs, is available in the terminal board. Should an external direct voltage be used it shall be between 5 and 40 V.

6. Dosage.

The MC 308C converter permits to dose any quantity of liquid. The dosed volumen is entered via the keyboard; the start command is given with the digital input (local or remote) in this way, on/off output N°2 commands the valve opening. Once the preset volumen is reached, output N°2 switches off the flowrate.

7. Empty pipe alarm.

The MC 308 C converter can be connected to sensors equipped with empty pipe electrodes to detect the empty pipe condition.

8. Precision

MC 308 C converter coupled to any EUROMAG sensor guarantees an accuracy of $\pm 0,2\%$ of actual reading if the installation and operating instructions are strictly followed.

Overall metering accuracy is then determined by the sensor model installed.

9. Main characteristics

MC 308 C electronic converter is adapted to all electromagnetic sensors produced by EUROMAG. The main characteristics of the MC308 C converters are listed in Table 1.

Maximum lenght of cables according to the liquid conductivity.

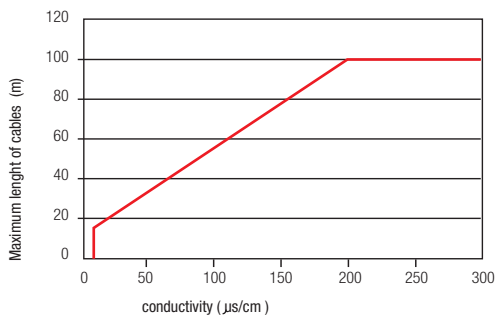


figure 1

10. Programming

MC 308 C converter are very versatile devices thanks to their programmability, that can be done in different ways:

The native system is constituted by an optic pen to infrared. The pen is used to send infrared impulses to the appropriate receivers simulating the pressure of the corresponding key.

This method allows to do the programming of the converter without having to open the cover, therefore it reduces the risk of entrance of humidity in the electronic part.

It is available, located under the previous mask, an emergency keyboard in case it is necessary to operate in absence of the optic pen.

The converter MC308C is also totally programmable at distance if it is on net with a TRM200.

The ease of menu programming by means of one of the above mentioned devices makes MC308C converter very flexible .

Main parameters to be programmed are:

- KA and KB values.
- Volume corresponding to one pulse.
- ND of the sensor.
- Setting and threshold of alarms.
- Full scale flow rate.
- Dosage volume.

Default values of these and other parameters, if not specified by the Client, are assigned at the factory. These values are shown on the presetting sheet delivered with the flow meter.

The user may change the preset parameters at any significant value. In order to avoid accidental modifications, some parameters are protected by a "password" or a personal key-word.



MC 308 C in Alluminium Separate Version

Characteristics of MC308C Converter

Power supply	HV-90...264 Vac	LV - 24 Vac/dc
Low consumption	●	●
Output 1 DIGITAL Impulse/Frequency 24 Vdc	●	●
Output 2 DIGITAL 24 Vdc (alarms) [1]	●	●
Output analogue 4(0) - 20 mA [2]	●	●
Digital input [3]	●	●
Electrical connections M20x1.5	●	●
Direct/reverse flowrate	●	●
Universal empty pipe alarm	●	●
Interface RS 485 for network connection [4]	●	●
Output 4(0) - 20 mA	●	●
Autoranging	●	●
Display 2 lines and 16 characters	●	●
Metric System: decimal, English, American	●	●
Degree of protection IP 68 (with special cable glands)	●	●
Language: Italian, English, Spanish	●	●
Operation environmental temperature -20 °C a + 60 °C	●	●

[1] In Table 2 the available alarms are shown.

[3] In Table 2 all the possible functions of the digital input are shown.

table 1

[2] Maximum load 800 Ohm

[4] Interface MODBUS RS232/485 and PROFIBUS P.A. are available on request.

Devices

Available Functions

Digital input	- Totalizer reset
	- Totalizer stop via internal and external
	- External calibration system (if certified)
	- Scale exchange
	- Start/stop dosage
Output 4 (0) , 20 mA	Maximum load 800 Ohm
Output pulse/ frequency	Maximum frequency output 1kHz
	Pulses duration 0,5...9999 ms

table 2

Overall dimensions

MC308C Dimensions and weight

MC308C version	Width	Height	Depth	Weight
MC 308 C in Aluminium [1]	117.0 mm	181.0 mm	175.0 mm	2600g

[1] Figure 2

table 3

Fig. 2 - MC 308 C in Alluminium Compact Version

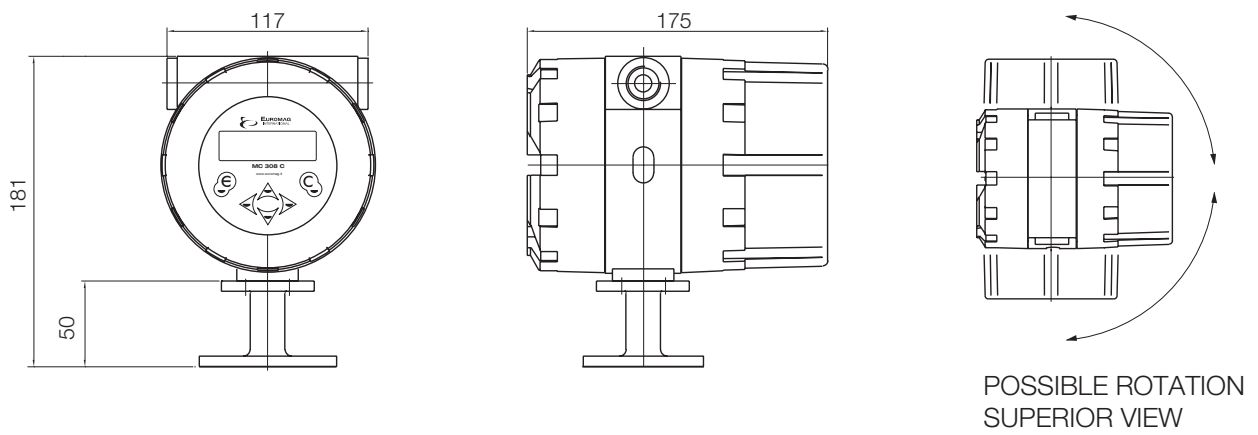


Fig. 3 - MC 308 C in Alluminium Separate Version

