

# EL 4000

## Engine Coolant Electromagnetic Flow Meter

### Description

The EL 4000 is a custom designed state of the art electromagnetic flow meter for measurement of engine coolant flow. The small footprint, lightweight device is ideal for on board automotive applications where accuracy, no moving parts and low (zero) pressure drop are essential requirements in this demanding environment. In order to optimize performance and meter stability the excitation coils are totally isolated & shielded from the electrodes.

The meter and transmitter are supplied as a matched pair with 20 feet of pre-wired cable; LEMO connectors are used to enable easy installation and ensure that optimum electronic shielding is maintained over the entire cable length.

An electromagnetic flow meter bases its operation on the Faraday Principle, by which a conductor crossing a magnetic field generates a potential. The resultant potential is directly proportional to the flow velocity. The EL 4000 series flow meters utilize a SST flow tube with a Hose Barb or NPT fitting.

### Features

- Compact design
- No pressure drop
- High accuracy
- Wide temperature range
- Viscosity independent
- IP66 NEMA 4X
- Lightweight flow tube
- No moving parts
- No grounding rings required due to third electrode
- 12 VDC powered for on-board mounting



### Specifications

Accuracy	±0.5% of reading plus zero stability
Zero Stability	±0.1% of full scale
Repeatability	±0.2%
Max Fluid Velocity	5 m/s (to maximize performance, size meter to operate as high up in its flow range as possible)
Nominal Line Sizes	1/2", 5/8", 3/4", 1", 1-1/4", 1-1/2", 2"
Tube Material	304/316SS with: Electrophoretic liner up to 3/4" PTFE liner 1" and larger
Electrode Material	316L up to 3/4" Hastelloy C-276 1" and larger
Temperature Range	-25 to 120°C (-13 to 248°F) with remote electronics
Max Pressure	10bar (145psi)
Cable Length	6.1 meters (20 feet)
Min Conductivity	5 µS/cm, 20 µS/cm for DI water
Rating	IP 66 (NEMA 4X)
Straight Run	5D upstream and 3D downstream minimum
End Connections	Hose barb
Power	12-24 VDC
EMC/CE Approvals	2004/108/CE (EMC) 2006/95/CE (LVD) EN 61326-1 (Industrial Environment) EN 61010-1 EN 60529
Outputs	4-20mA. Pulse (open collector) (easily converted to 1-5 VDC with installation of 250 ohm resistor)



## EL 4000 Flow Range

Line Size	Minimum Flow	Maximum Flow
1/2"	0.5 gpm	18gpm
5/8"	0.7 gpm	22gpm
3/4"	0.8 gpm	27gpm
1"	1.6 gpm	53gpm
1-1/4"	2.6 gpm	75gpm
1-1/2"	4.0 gpm	176gpm
2"	6.9 gpm	308gpm

## Weight

Line Size	Weight
1/2"	1.76lb (0.8kg)
5/8"	1.76lb (0.8kg)
3/4"	1.76lb (0.8kg)
1"	3.75lb (1.7kg)
1-1/4"	3.75lb (1.7kg)
1-1/2"	3.53lb (1.6kg)
2"	4.20lb (1.9kg)

## EL 4000 Sensor Dimensions

Line Size	Hose Barb Diameter	Length
1/2"	13mm	144mm
5/8"	16mm	144mm
3/4"	20mm	144mm
1"	26mm	151mm
1-1/4"	32mm	155mm
1-1/2"	41mm	158mm
2"	52mm	174mm

## Ordering Information

Line Size	Model (Hose Barb)	Model (Male NPT)
1/2"	01-102209-AAA-ABA	01-102209-BAA-ABA
5/8"	01-102210-AAA-ABA	01-102210-BAA-ABA
3/4"	01-102211-AAA-ABA	01-102211-BAA-ABA
1"	01-102212-AAA-ABA	NA
1-1/4"	01-102213-AAA-ABA	NA
1-1/2"	01-102214-AAA-ABA	NA
2"	01-102215-AAA-ABA	NA

## MC 608 Transmitter



### Features

- 12 to 24VDC
- 4-20mA output (1-5VDC with use of 250 Ohm resistor)
- Digital active frequency output 0 to 10KHz
- Digital pulse output maximum 1000Hz
- Programmable open collector status output
- Programmable input
- MODBUS RTU interface on RS 485
- Temperature range -20°C to 80°C (-4°F to 176°F)
- Display: Graphic LCD - 128x64 pixels, 50x25mm area
- Light weight plastic housing (mounting bracket included)
- IP66 NEMA 4X
- Programming via push buttons or by MODBUS protocol



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