

# EL 2200

## Electromagnetic Flow Meter

### Description

The EL 2200 series of electromagnetic sensors represent the state of the art for the accurate measurement for water cycle and process applications. Flow meters are available in line sizes from 1" through 16". This new generation sensor incorporates improvements to the signal protection as well as the magnetic distribution elements to create a unique electromagnetic field profile that ensures accuracy not only in turbulent flow, but also during the transitional and laminar flow regimes.

An electromagnetic flow meter bases its operation on the Faraday Principal, by which a conductor crossing a magnetic field generates a potential. The resultant potential is directly proportional to the flow velocity. The EL 2200 series flow meters utilize 304 stainless steel flow tube with carbon or stainless flanges, four Hastelloy C 22 electrodes are standard, with one electrode being used for ground to eliminate the need for costly grounding rings required by other manufactures. The standard liner materials are Ebonite or PTFE, with PTFE available as an option on 5" and larger meters. The flange and sensor exterior surface is coated with acrylic paint, providing excellent resistance to water.

Electronics available for the EL 2200 series consists of the versatile 608 transmitter that can either be AC, DC or battery powered. Electronics can be mounted directly on the flow meter or remotely mounted. Electronics can be mounted directly on the flow meter or remotely mounted. When the electronics are remotely mounted the entire flow meter meets IP 68 suitable for permanent immersion in water up to a depth of 10 meters.

### Features

- No moving parts
- Hastelloy C 22 electrodes standard
- Grounding electrode eliminates ground rings
- Sealed electrode and coil assembly provides immunity to humidity variation and IP68 protection
- Wide rangeability with a single unit
- No pressure drop
- Bidirectional capability



**Model EL 2200  
Electromagnetic Flow Meter**

### Specifications

Accuracy	±0.2% of reading plus zero stability
Zero stability	±0.1% of full scale
Repeatability	±0.1%
Max Fluid Velocity	10 m/s
Tube Material	304 Stainless steel
Line Sizes	1" to 16"
Flange Material	Stainless steel or carbon steel
Electrode Material	Hastelloy C 22 (standard)
Liner Material	Ebonite or PTFE PTFE optional 5" and above
Max Temp Range	Dependent on liner material when electronics remotely mounted Ebonite: -40° to 176° F PTFE: -40° to 356° F Note: Please contact factory if temperatures above 284° F (140° C) are required.
Max Operating Pressure	Dependent on flange rating
Max Cable Length	100 meters
Min Conductivity	5 µS/cm, 20 µS/cm for DI water
Rating	IP 68 up to a depth of 10 meters
CE Declaration	EN 61326:1997 to EN 61326/A3:2003
Straight Run	5D upstream and 3D downstream minimum
NSF Certification	Standard 61 Drinking Water System Components

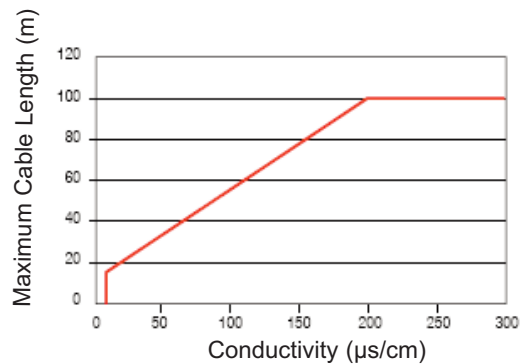
## Specifications (cont'd)

Flow Tube Material	Flange Material	Electrode Material
304 stainless steel (std)	Acrylic painted carbon steel (std)	Hastelloy C-22 (std)
	316 stainless steel	Titanium

Lining Material	Temperature Rating
Ebonite	-40° to 176° F, ( -40° to 80° C)
PTFE	-40° to 356° F, ( -40° to 180° C) <sup>Note 1</sup>

Note 1: PTFE standard operating temperature is -40 to 284 °F. Optional high temperature configuration is available for up to 356 °F.

Maximum cable length per liquid conductivity



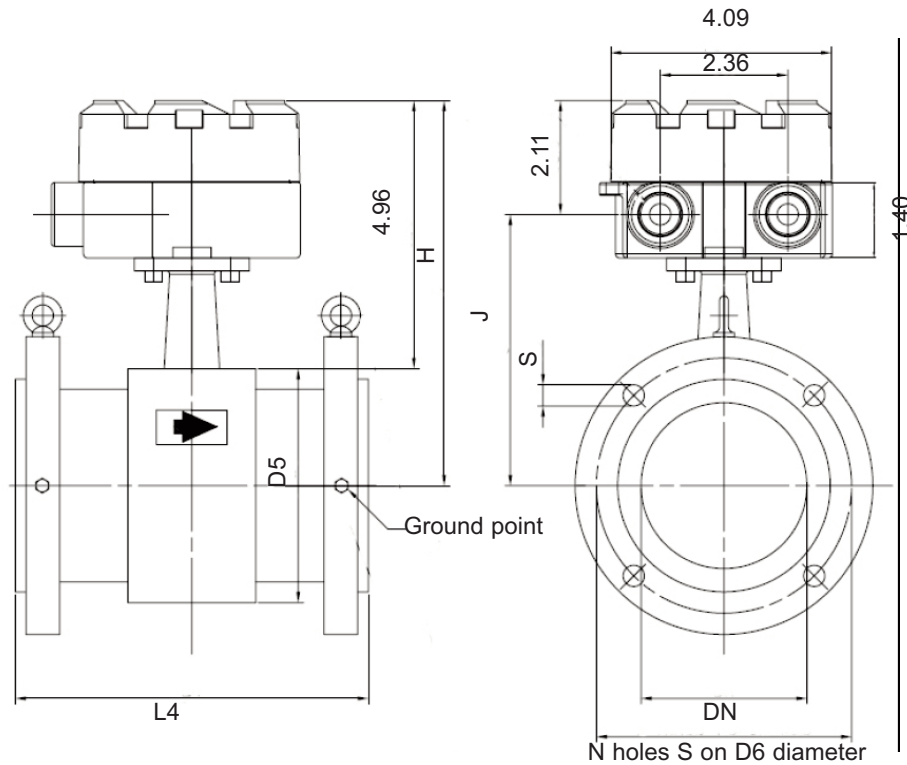
## Meter Flow Range

Meter Model	Meter I.D. (inch)	Minimum Flow Rate (GPM)	Maximum Flow Rate (GPM)
EL2200-025	1.00	1.38	69.21
EL2200-032	1.25	2.44	122.22
EL2200-040	1.50	3.48	173.76
EL2200-050	2.00	5.57	278.30
EL2200-065	2.50	9.92	496.23
EL2200-080	3.00	13.96	796.74
EL2200-100	4.00	24.41	1220.70
EL2200-125	5.00	38.29	1914.25
EL2200-150	6.00	57.52	2875.79
EL2200-200	8.00	102.60	5130.19
EL2200-250	10.00	164.45	8222.44
EL2200-300	12.00	236.19	11809.44
EL2200-350	14.00	283.75	14187.54
EL2200-400	16.00	375.58	18778.79

\*Flow rate chart based on a velocity range of 0.2 to 10 m/s. The meter will function at a turndown of 1000:1 at reduced accuracy

**Note:** Flow meter sizes up to 80" are available. Please contact factory for specifications.

## Dimensions



**EL 2200 with ANSI 150 RFF**

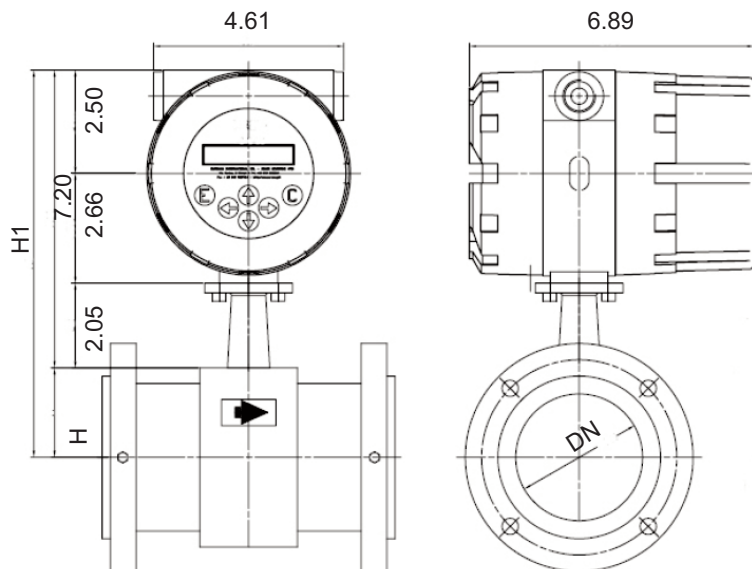
**EL 2200 with ANSI 300 RFF**

DN	D5	L4	J	D6	N	S	H	DN	D5	L4	J	D6	N	S	H
Inch	Inch	Inch	Inch	Inch	#	Inch	Inch	Inch	Inch	Inch	Inch	Inch	#	Inch	Inch
1.00	2.52	7.87 0/- .12	4.11	3.12	4	0.626	6.22	1.00	2.52	7.87 0/- .12	4.11	3.50	4	0.748	6.22
1.25	3.03	7.87 0/- .12	4.37	3.50	4	0.626	6.48	1.25	3.03	7.87 0/- .12	4.37	3.87	4	0.748	6.48
1.50	3.23	7.87 0/- .12	4.47	3.87	4	0.626	6.57	1.50	3.23	7.87 0/- .12	4.47	4.50	4	0.748	6.57
2.00	3.86	7.87 0/- .12	4.78	4.75	4	0.748	6.89	2.00	3.86	7.87 0/- .12	4.78	5.00	8	0.874	6.89
2.50	4.49	7.87 0/- .12	5.10	5.50	4	0.748	7.20	2.50	4.49	7.87 0/- .12	5.10	5.87	8	0.874	7.20
3.00	5.00	7.87 0/- .12	5.35	6.00	4	0.748	7.46	3.00	5.00	7.87 0/- .12	5.35	6.63	8	0.874	7.46
4.00	5.98	9.84 0/- .12	5.85	7.50	8	0.748	7.95	4.00	5.98	9.84 0/- .12	5.85	7.87	8	0.874	7.95
5.00	7.01	9.84 0/- .12	6.36	8.50	8	0.874	8.46	5.00	7.01	9.84 0/- .12	6.36	9.25	8	0.874	8.46
6.00	8.11	11.81 0/- .12	6.91	9.50	8	0.874	9.02	6.00	8.11	11.81 0/- .12	6.91	10.63	12	0.874	9.02
8.00	10.12	13.78 0/- .12	7.91	11.75	8	0.874	10.02	8.00	10.12	13.78 0/- .12	7.91	13.00	12	1.000	10.02
10.00	12.24	17.72 0/- .19	8.98	14.24	12	1.000	11.08	10.00	12.24	17.72 0/- .19	8.98	15.25	16	1.126	11.08
12.00	14.25	19.69 0/- .19	9.98	17.00	12	1.004	12.09	12.00	14.25	19.69 0/- .19	9.98	17.75	16	1.248	12.09
14.00	15.51	21.65 0/- .19	10.61	18.75	12	1.126	12.72	14.00	15.51	21.65 0/- .19	10.61	20.25	20	1.248	12.72
16.00	17.48	23.62 0/- .19	11.59	21.25	16	1.126	13.70	16.00	17.48	23.62 0/- .19	11.59	22.50	20	1.374	13.70

Note: DIN flanges are available, please contact factory for information.

## Dimensions & Weights

### EL 2200 with MC 608A mounted



Meter Model	Size	ANSI	ANSI	H	H1
		150	300		
	Inch	lb	lb	Inch	Inch
EL2200-025	1.00	15	18	1.26	8.46
EL2200-032	1.25	10	22	1.52	8.72
EL2200-040	1.50	22	29	1.61	8.82
EL2200-050	2.00	22	29	1.93	9.13
EL2200-065	2.50	33	37	2.24	9.45
EL2200-080	3.00	35	49	2.50	9.70
EL2200-100	4.00	46	66	2.99	10.20
EL2200-125	5.00	64	88	3.50	10.71
EL2200-150	6.00	71	123	4.06	11.26
EL2200-200	8.00	154	176	5.06	12.26
EL2200-250	10.00	159	240	6.12	13.33
EL2200-300	12.00	223	320	7.13	14.33
EL2200-350	14.00	249	399	7.76	14.96
EL2200-400	16.00	309	556	8.74	15.94

## MC 608 Electronics

The MC 608A/B transmitter is our most versatile transmitter capable of displaying rate and total flows as well as providing multiple digital and analog outputs. The battery powered version, MC608B, provides 3 to 6 years of operation. The unit can be configured either directly using the 4 programming buttons on the front of the display, or using the Windows based programming software interfacing via MODBUS RTU on RS485. The new generation converter extends the use of electromagnetic flowmeters allowing better control of liquid flow at every point of installation.



- Available in powered version 12/24 VAC/DC or 90-264 VAC (MC608A)
- Available in battery powered version with a useful life of 3 to 6 years (MC608B)
- Compatible with all standard FTI Electromagnetic standard sensors
- Built-in data logger.
- Large graphics display with totalizer indications greater than 8mm
- Total management of power consumption with automatic sleep function
- Batteries can be replaced on site.
- MODBUS RTU interface for communication on RS 485.
- Submersible IP 68 case available
- All configuration, totalizer and data logger values are stored even in case of power failure
- Multi-level password system to guarantee accessibility and confidentiality

## EL2200 System Model Number



Size	Code
1"	68701
1.25"	68702
1.5"	68703
2"	68704
2.5"	68705
3"	68706
4"	68707
5"	68708
6"	68709
8"	68710
10"	68711
12"	68712
14"	68713
16"	68714

Fitting	Code
CS 150# Flange	A
CS 300# Flange	B
CS 600# Flange	C
CS UNI PN10	D
CS UNI PN16	E
CS UNI PN25	F
CS UNI PN40	G
SS 150# Flange	H
SS 300# Flange	J
SS 600# Flange	K
SS UNI PN10	L
SS UNI PN16	M
SS UNI PN25	N
SS UNI PN40	P

Transmitter & Power	Code
MC608A 90-264VAC	A
MC608A 24VAC-DC	B
MC608B Battery Powered	L

Integral or Remote	Code
Integral	A
Remote, 5m	B
Remote, 7m	C
Remote, 10m	D
Remote, 15m	E
Remote, 20m	F
Remote, 30m	G
Remote, 40m	H
Remote, 50m	J
Remote, 75m	K

Liner & Electrode Material	Code
PTFE / Hastelloy C	A
PTFE / Titanium	C
Ebonite / Hastelloy C	G
Ebonite / Titanium	J
PTFE/Hastelloy C, NSF Certified	N
Ebonite / Hastelloy C, NSF Certified	P

IP68 Depth	Code
1.5 Meters	A
High Temp Configuration	B Note 1
10 Meters	C

**Note:** Flow meter sizes up to 80" are available. Please contact factory for specifications.

Note 1: High temperature configuration only available with PTFE liner.



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