

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, three 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 2" 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 a base transmitter with optional panel mounted display, as well as a multiple output converter with integral display. 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
- Unique field generation structure providing 1000:1 turndown
- Wide rangeability with a single unit
- No pressure drop
- Bidirectional capability



**Model EL 2200
Electromagnetic Flow Meter**

Specifications

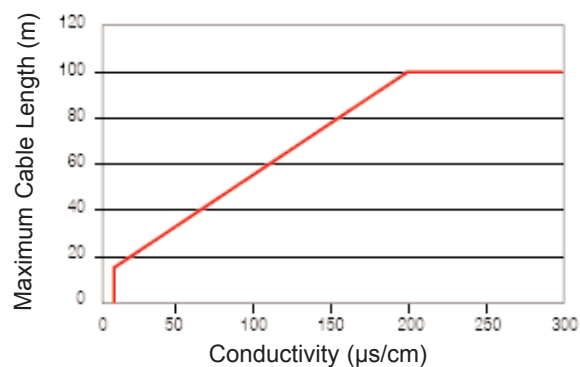
Accuracy	±0.2% of reading plus zero stability
Zero stability	±0.1% of full scale
Repeatability	±0.1%
Max Fluid Velocity	10 m/s
Tube Material	304 Stainless steel
Line Sizes	1" to 16"
Flange Material	Stainless steel or carbon steel
Electrode Material	Hastelloy C 22 (standard)
Liner Material	Ebonite or PTFE PTFE optional 2" 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

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	Platinum
		Titanium
		Tantalum

Lining Material	Temperature Rating
Ebonite	-40° to 176° F, (-40° to 80° C)
PTFE	-40° to 356° F, (-40° to 180° C)

Maximum cable length per liquid conductivity



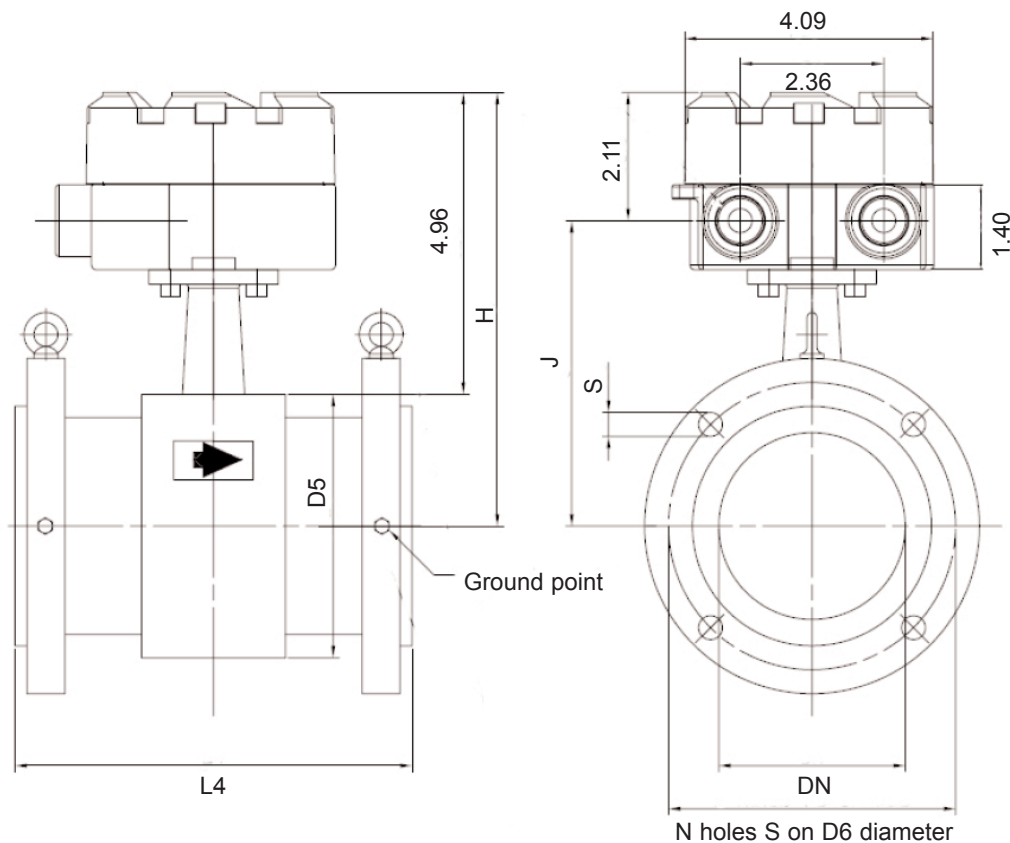
Meter Flow Range

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 - 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

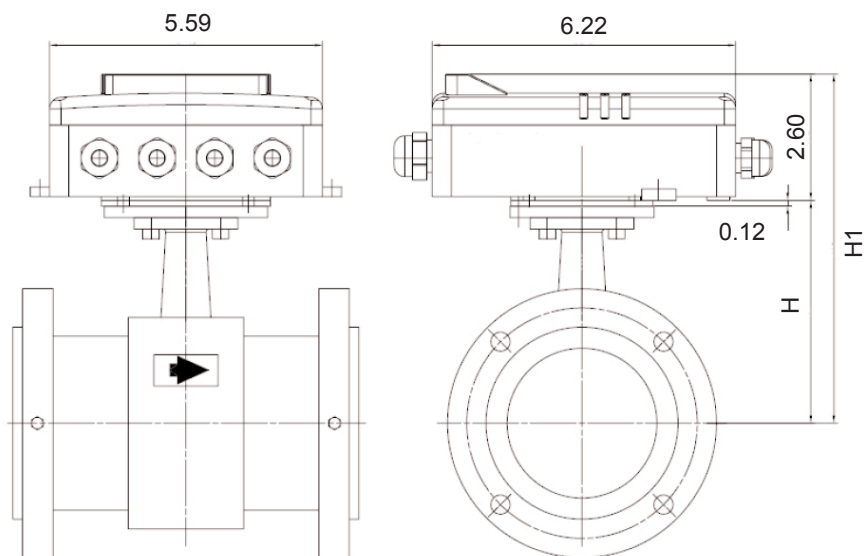
EL 2200 with ANSI 300 RFF

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.

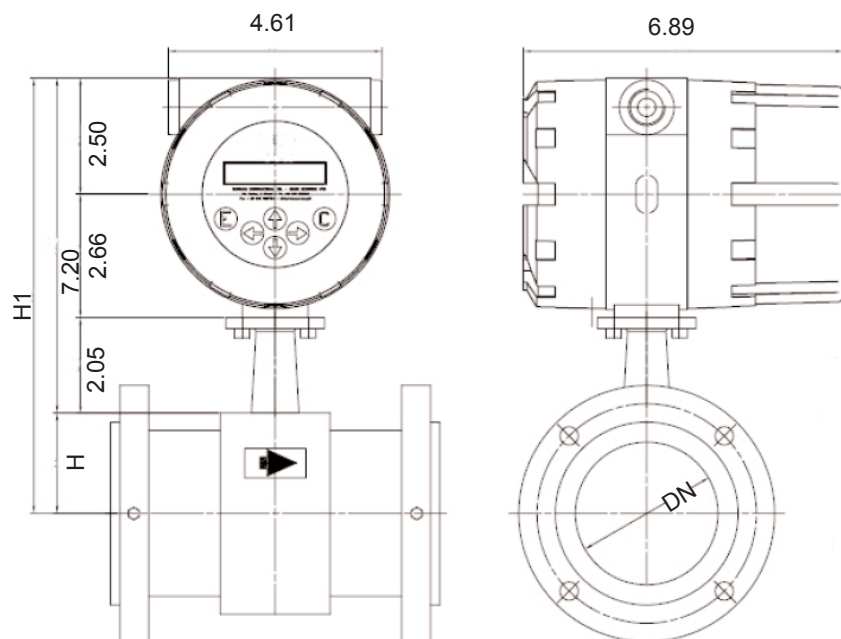
Dimensions

EL 2200 with MC 106 mounted

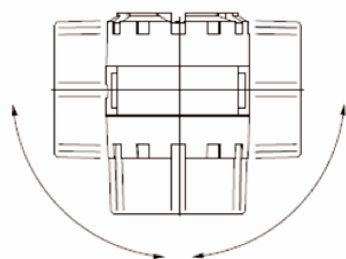


Size	H	H1
Inch	Inch	Inch
1.00	3.66	6.26
1.25	3.92	6.52
1.50	4.02	6.61
2.00	4.33	6.93
2.50	4.65	7.24
3.00	4.90	7.50
4.00	5.39	7.99
5.00	5.91	8.50
6.00	6.46	9.06
8.00	7.46	10.06
10.00	8.52	11.12
12.00	9.53	12.13
14.00	10.16	12.76
16.00	11.14	13.74

EL 2200 with MC 608A mounted



Size	H	H1
Inch	Inch	Inch
1.00	1.26	8.46
1.25	1.52	8.72
1.50	1.61	8.82
2.00	1.93	9.13
2.50	2.24	9.45
3.00	2.50	9.70
4.00	2.99	10.20
5.00	3.50	10.71
6.00	4.06	11.26
8.00	5.06	12.26
10.00	6.12	13.33
12.00	7.13	14.33
14.00	7.76	14.96
16.00	8.74	15.94



Possible Rotation Angle

Weights (without packing)

Meter Model	Size	ANSI 150	ANSI 300
	Inch	lb	lb
EL2200-025	1.00	15	18
EL2200-032	1.25	10	22
EL2200-040	1.50	22	29
EL2200-050	2.00	22	29
EL2200-065	2.50	33	37
EL2200-080	3.00	35	49
EL2200-100	4.00	46	66
EL2200-125	5.00	64	88
EL2200-150	6.00	71	123
EL2200-200	8.00	154	176
EL2200-250	10.00	159	240
EL2200-300	12.00	223	320
EL2200-350	14.00	249	399
EL2200-400	16.00	309	556

Compatible Electronics

MC 608A/B Series Features



- High end controller
- Bi directional functionality
- AC and DC versions
- Battery powered version (6 to 10 Year life)
- Internal Data logging
- Low power consumption mode
- Large graphics display
- Digital outputs
- Analog outputs
- Alarm outputs
- Windows based programming tool

MC 106 Series Features



- Base level transmitter
- Frequency output
- Analog output
- AC and DC versions
- 2 line 16 character display
- Alarm output

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
MC106A 90-264VAC, Disp	C
MC106A 24VAC-DC, Disp	D
MC106A 90-264VAC, No Disp	E
MC106A 24VAC-DC, No Disp	F
MC106B 90-264VAC, Disp & KB	G
MC106B 24VAC-DC, Disp & KB	H
MC106B 90-264VAC, Disp, KB & Flap	J
MC106B 24VAC-DC, Disp, KB & Flap	K
MC608B Battery Powered	L

Liner & Electrode Material	Code
PTFE / 3 Hast C	A
PTFE / 3 Platinum	B
PTFE / 3 Titanium	C
PTFE / 3 Tantalum	D
PTFE / 4 Hast C	E
PTFE / 4 Titanium	F
Ebonite / 3 Hast C	G
Ebonite / 3 Platinum	H
Ebonite / 3 Titanium	J
Ebonite / 3 Tantalum	K
Ebonite / 4 Hast C	L
Ebonite / 4 Titanium	M

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
Remote, 100m	L

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

IP68 Depth	Code
1.5 Meters	A
10 Meters	B

Coating	Code
No conf. coat	A
Conf. coat	B



8930 S. Beck Avenue, Suite 107, Tempe, Arizona 85284 USA
 Tel: (480) 240-3400 • Fax: (480) 240-3401 • Toll Free: 1-800-528-4225
 E-mail: ftimarket@ftimeters.com • Web: www.ftimeters.com



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