

# MUT2300-Engineering

The MUT2300 sensors represent the state of the art of BERMAD production for water cycle and process applications. The innovative inner part of the sensor that increase considerably the liquid flow rate and the reading accuracy of signal generated to the electrodes, enables an extremely wide range of measurement. These performances allow to measure also low flow rates precisely and repeatable, even in difficult/problematic applications with solid parts. This flanged sensor series bases its operation on the Faraday Principle, by which a conductor crossing a magnetic field generates an electrical potential perpendicular to the field itself. On the top and on the lower side of the stainless steel AISI 304 flow tube, two coils are installed; the magnetic field generated by the electric current crossing the coils, induces in the electrodes a potential difference proportional to the flow rate. With the aim of measuring such potential of very low values, the interior of the flow tube is electrically insulated, thus the process liquid is no longer in contact neither with the material of the flow tube nor with that of the flanges. The converter used generates the current supplying the coils, acquires the electrodes potential difference, process the signal to calculate the flowrate and manages all the communications. The entire sensor has an IP68 protection degree suitable for a permanent immersion in water up to a depth of 1.5m.



The electromagnetic flowmeter designed for the toughest applications



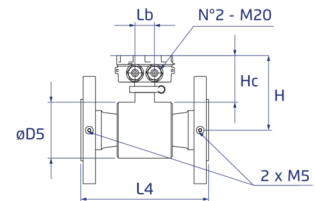
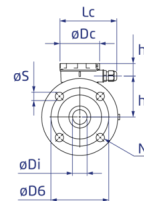
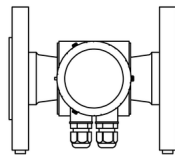
**Modbus**

**Bluetooth**

## Sensor Specifications

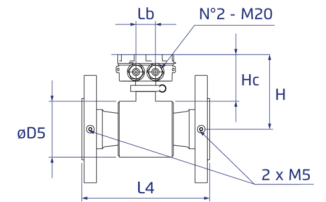
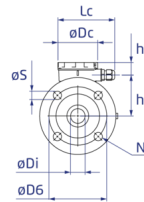
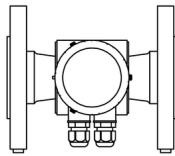
Available size inches/mm	1" - 12" Inch / DN25 - 300 mm
Flanges Connections Available	EN1092-1 PN 10/16, ANSI 150, AS 2129 (table D, E, F), AS 4087, KS10K, Others on request
Pressure	21 bar - 305 psi
Temperature	Operating: -104°F/+176°F (-40°C/+80°C) Storage: -22°F/+158°F (-30...+70°C)
Accuracy	0,2% +/- 2mm/s • 0,2% +/- 0.08inch/s
Linear Material	Hard rubber (Ebonite)
Electrodes Materials	AISI316L (standard), Hastelloy C, Hastelloy B, Titanium, Tantalum, Platinum
Protection Degree	IP68 (EN 60529) permanents submersion at 1,5m (4,92ft)
Pressure Drop Class	DN≤80 ΔP10 (<0.10 bar) • DN≥100 ΔP16 (<0.16 bar) DN≤ 3" ΔP150 (<1.5 psi) • DN≥ 4" ΔP250 (<2.5 psi)
Digital filters	Damping - cutt-off (0,05 m/s • 0,16 ft/s default) - bypass - peak cut
Conformity	EMC: EN 61010 - LVD: EN 61326 ; EN/IEC 60529 IP68

## MUT2300 - ANSI 150



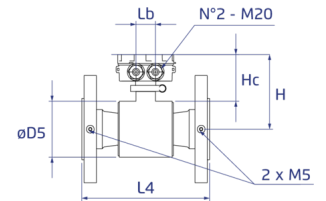
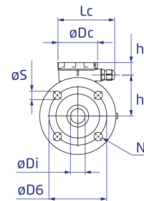
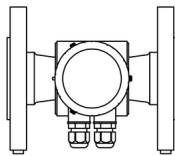
Size	L4 (In)	D5 (In)	Di (In)	D6 (In)	Lc (In)	Dc (In)	Lb (In)
2" ; DN50	7.87(+0/-0.12)	3.35	1.2	4.75	4.84	3.39	1.18
2½" ; DN65	7.87(+0/-0.12)	3.35	1.35	5.5	4.84	3.39	1.18
3" ; DN80	7.87(+0/-0.12)	4.06	1.82	6	4.84	3.39	1.18
4" ; DN100	9.84(+0/-0.12)	4.65	2.44	7.5	4.84	3.39	1.18
5" ; DN125	9.84(+0/-0.12)	6.77	2.95	8.5	4.84	3.39	1.18
6" ; DN150	11.81(+0/-0.12)	6.42	3.94	9.5	4.84	3.39	1.18
8" ; DN200	13.78(+0/-0.12)	10.04	6.07	11.75	4.84	3.39	1.18
10" ; DN250	17.72(+0/-0.2)	12.28	8.07	14.25	4.84	3.39	1.18
12" ; DN300	19.69(+0/-0.2)	14.76	10.2	17	4.84	3.39	1.18

#### MUT2300 - EN 1092 - PN 16



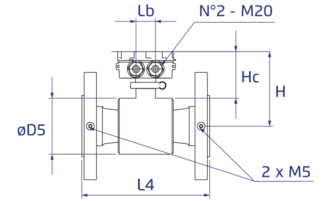
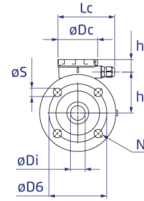
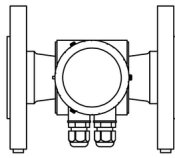
Size	L4 (In)	D5 (In)	Di (In)	D6 (In)	Lc (In)	Dc (In)	Lb (In)
2" ; DN50	7.87(+0/-0.12)	3.35	1.2	4.92	4.84	3.39	1.18
2½" ; DN65	7.87(+0/-0.12)	3.35	1.35	5.71	4.84	3.39	1.18
3" ; DN80	7.87(+0/-0.12)	4.06	1.82	6.3	4.84	3.39	1.18
4" ; DN100	9.84(+0/-0.12)	4.65	2.44	7.09	4.84	3.39	1.18
5" ; DN125	9.84(+0/-0.12)	6.77	2.95	8.27	4.84	3.39	1.18
6" ; DN150	11.81(+0/-0.12)	6.42	3.94	9.45	4.84	3.39	1.18
8" ; DN200	13.78(+0/-0.12)	10.04	6.07	11.61	4.84	3.39	1.18
10" ; DN250	17.72(+0/-0.2)	12.28	8.07	13.98	4.84	3.39	1.18
12" ; DN300	19.69(+0/-0.2)	14.76	10.2	16.14	4.84	3.39	1.18

#### MUT2300 - AS 2129 / Table D



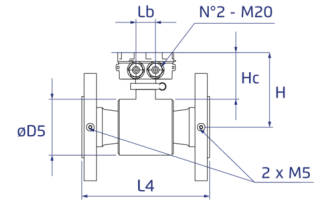
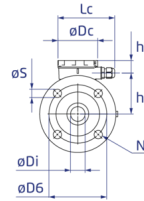
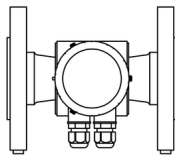
Size	L4 (In)	D5 (In)	Di (In)	D6 (In)	Lc (In)	Dc (In)	Lb (In)
2" ; DN50	7.87(+0/-0.12)	3.35	1.2	4.5	4.84	3.39	1.18
2½" ; DN65	7.87(+0/-0.12)	3.35	1.35	5	4.84	3.39	1.18
3" ; DN80	7.87(+0/-0.12)	4.06	1.82	5.75	4.84	3.39	1.18
4" ; DN100	9.84(+0/-0.12)	4.65	2.44	7.01	4.84	3.39	1.18
5" ; DN125	9.84(+0/-0.12)	6.77	2.95	8.27	4.84	3.39	1.18
6" ; DN150	11.81(+0/-0.12)	6.42	3.94	9.25	4.84	3.39	1.18
8" ; DN200	13.78(+0/-0.12)	10.04	6.07	11.5	4.84	3.39	1.18
10" ; DN250	17.72(+0/-0.2)	12.28	8.07	14.02	4.84	3.39	1.18
12" ; DN300	19.69(+0/-0.2)	14.76	10.2	15.98	4.84	3.39	1.18

#### MUT2300 - AS 2129 / Table E



Size	L4 (In)	D5 (In)	Di (In)	D6 (In)	Lc (In)	Dc (In)	Lb (In)
2" ; DN50	7.87(+0/-0.12)	3.35	1.2	4.5	4.84	3.39	1.18
2½" ; DN65	7.87(+0/-0.12)	3.35	1.35	5	4.84	3.39	1.18
3" ; DN80	7.87(+0/-0.12)	4.06	1.82	5.75	4.84	3.39	1.18
4" ; DN100	9.84(+0/-0.12)	4.65	2.44	7.01	4.84	3.39	1.18
5" ; DN125	9.84(+0/-0.12)	6.77	2.95	8.27	4.84	3.39	1.18
6" ; DN150	11.81(+0/-0.12)	6.42	3.94	9.25	4.84	3.39	1.18
8" ; DN200	13.78(+0/-0.12)	10.04	6.07	11.5	4.84	3.39	1.18
10" ; DN250	17.72(+0/-0.2)	12.28	8.07	14.02	4.84	3.39	1.18
12" ; DN300	19.69(+0/-0.2)	14.76	10.2	15.98	4.84	3.39	1.18

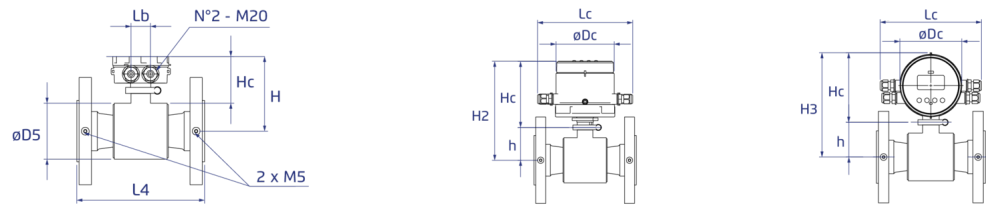
#### MUT2300 - AS 4087 / PN 16



Size	L4 (In)	D5 (In)	Di (In)	D6 (In)	Lc (In)	Dc (In)	Lb (In)
2" ; DN50	7.87(+0/-0.12)	3.35	1.2	4.5	4.84	3.39	1.18
2½" ; DN65	7.87(+0/-0.12)	3.35	1.35	5	4.84	3.39	1.18
3" ; DN80	7.87(+0/-0.12)	4.06	1.82	5.75	4.84	3.39	1.18
4" ; DN100	9.84(+0/-0.12)	4.65	2.44	7.01	4.84	3.39	1.18
5" ; DN125	9.84(+0/-0.12)	6.77	2.95	8.27	4.84	3.39	1.18
6" ; DN150	11.81(+0/-0.12)	6.42	3.94	9.25	4.84	3.39	1.18
8" ; DN200	13.78(+0/-0.12)	10.04	6.07	11.5	4.84	3.39	1.18
10" ; DN250	17.72(+0/-0.2)	12.28	8.07	14.02	4.84	3.39	1.18
12" ; DN300	19.69(+0/-0.2)	14.76	10.2	15.98	4.84	3.39	1.18

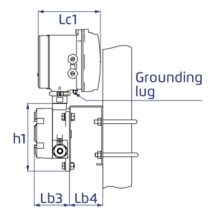
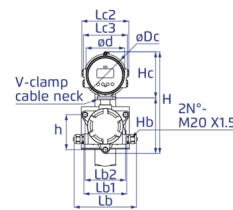


### MUT2300-MC406



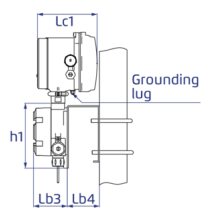
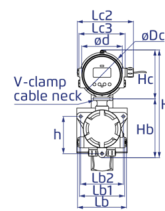
Size	H (In)	H2 (In)	H3 (In)
2" ; DN50	4.51	8.23	7.83
2½" ; DN65	4.51	8.31	7.91
3" ; DN80	4.86	8.58	8.19
4" ; DN100	5.16	8.9	8.5
5" ; DN125	6.22	9.29	8.9
6" ; DN150	6.04	9.76	9.37
8" ; DN200	7.85	10.87	10.47
10" ; DN250	8.98	12.13	11.73
12" ; DN300	10.22	13.23	12.83

### MC406 Standard Separate



H (In)	Hc (In)	Lc1 (In)	Lc2 (In)	Lc3 (In)	Dc (In)	d (In)	Hb (In)	Lb (In)	Lb1 (In)	Lb2 (In)	Lb3 (In)	Lb4 (In)	h1 (In)	Weight (Lb)
11.65	5.28	5.12	5.04	5.39	4.84	4.41	6.36	7.13	4.92	4.65	2.89	2.76	5.55	1.32

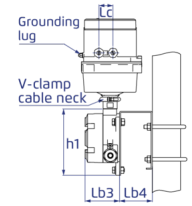
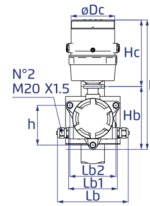
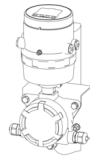
### MC406 Military connectors



H (In)	Hc (In)	Lc1 (In)	Lc2 (In)	Lc3 (In)	Dc (In)	d (In)	Hb (In)	Lb (In)	Lb1 (In)	Lb2 (In)	Lb3 (In)	Lb4 (In)	h1 (In)	Weight (Lb)
11.65	5.28	5.12	6.1	5.04	4.84	4.41	6.36	5.35	4.92	4.65	2.89	2.76	5.55	1.32

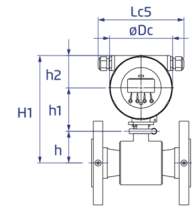
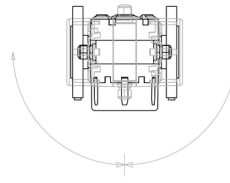
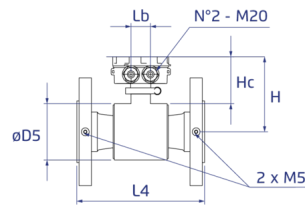


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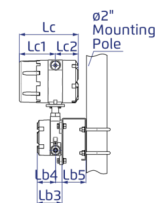
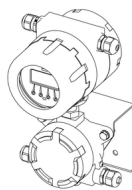
H (In)	Hc (In)	Lc (In)	Dc (In)	Hb (In)	Lb (In)	Lb1 (In)	Lb2 (In)	Lb3 (In)	Lb4 (In)	h1 (In)	Weight (Lb)
13.07	6.71	1.18	4.41	6.36	7.13	4.92	4.65	2.89	2.76	5.55	1.98

### MUT2300-MC608



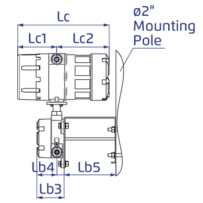
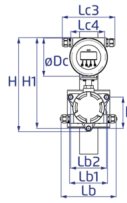
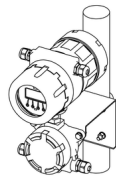
Size	H (In)	H1 (In)
2" ; DN50	4.51	11.65
2½" ; DN65	4.51	12.8
3" ; DN80	4.86	14.02
4" ; DN100	5.16	8.31
5" ; DN125	6.22	8.31
6" ; DN150	6.04	8.66
8" ; DN200	7.85	8.98
10" ; DN250	8.98	10.04
12" ; DN300	10.22	9.84

### MC608A



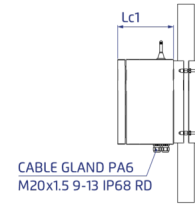
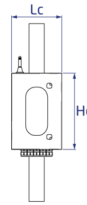
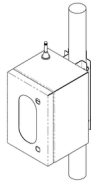
H (In)	H1 (In)	Lc (In)	Lc1 (In)	Lc2 (In)	Lc3 (In)	Lc4 (In)	Dc (In)	Lb (In)	Lb1 (In)	Lb2 (In)	Lb3 (In)	Lb4 (In)	Lb5 (In)	h1 (In)	h2 (In)
12.09	11.65	6.81	4.15	2.66	6.81	4.37	4.92	7.13	4.92	4.65	2.91	2.13	2.76	0.48	0.46

### MC608B/R



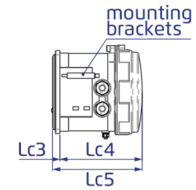
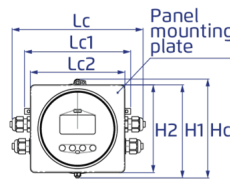
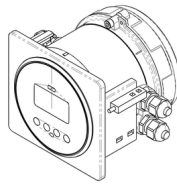
H (In)	H1 (In)	Lc (In)	Lc1 (In)	Lc2 (In)	Lc3 (In)	Lc4 (In)	Dc (In)	Lb (In)	Lb1 (In)	Lb2 (In)	Lb3 (In)	Lb4 (In)	Lb5 (In)	h1 (In)	h2 (In)
12.09	11.65	9.72	4.15	5.57	6.81	4.37	4.92	7.13	4.92	4.65	2.91	2.13	5.91	0.48	0.46

### MC608I



Hc (In)	Lc (In)	Lc1 (In)
11.81	7.87	7.87

### MC608P



H1 (In)	H2 (In)	Hc (In)	Lc (In)	Lc1 (In)	Lc2 (In)	Lc3 (In)	Lc4 (In)	Lc5 (In)	h2 (In)	h3 (In)
5.02	4.72	5.33	7.09	5.75	5.12	0.41	4.70	5.12	0.20	0.19

### Flow Rate

Size Q @ (gpm)	DN50 2"	DN65 2½"	DN80 3"	DN100 4"	DN125 5"	DN150 6"	DN200 8"	DN250 10"	DN300 12"
Q1 Minimum Flow	0.55	0.88	1.39	2.2	3.52	5.5	13.87	22.01	35.22
Q2 Transitional Flow	0.88	1.41	2.22	3.52	5.64	8.81	22.19	35.22	56.36
Q3 Permanent Flow	110.07	176.11	277.38	440.29	704.46	1,100.72	2,773.81	4,402.87	4,402.87
Q4 Maximum Flow (Short Time)	137.59	220.14	346.73	550.36	880.57	1,375.90	3,467.26	5,503.58	5,503.58

## Installation Recommendations

- The water meter can be installed in any orientation without interfering with metrological performance.
- The arrow on water meter body must be in the same direction with the flow.
- Prior to installation, flush the line to remove debris.
- The water meter must be filled with water to operate.

