



Electromagnetic Meter Type BTU METER

DN3 - 3000

eFlow 900H SERIES



1. Introduction

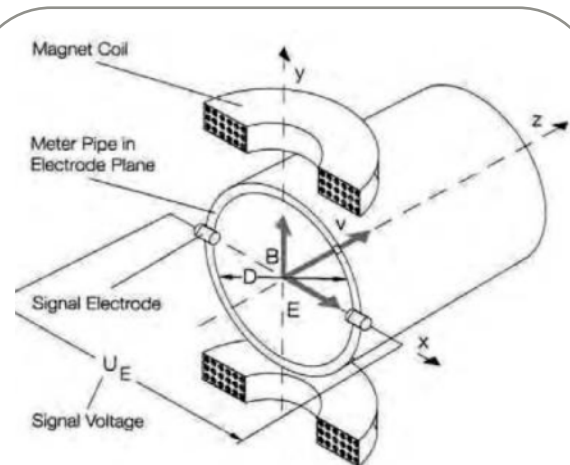
The **eFlow 900H series** electromagnetic heat meter is a high performance smart meter that features the latest technology. From design structure, manufacturing process, testing & etc are being controlled to ensure product's quality like high accuracy, good performance, wide range and etc. The eFlow 900 will not fail over time as there is no moving parts, therefore, maintenance-free. Furthermore, the technology using electromagnetic field to measure the flow of the medium allows the eFlow 900 to perform well regardless of the quality of liquid.

2. Features

- Accuracy: $\pm 0.5\%$ of flow rate for (>DN3)
- Excellent & accurate small flow measurement
- Pipe connection: JIS 10K, JIS 20K, ANSI 150, ANSI 300, DIN PN10, DIN PN16;
- Cold, heat energy measurement;
- Build-in ground electrode, grounding ring not needed;
- Designed according to PED Directive 97/23 EC
- Double frequency excitation, stable zero point

3. Application

- District heat / cooling
- Energy management
- Green energy management
- HVAC



Electromagnetic flow meter schematic

U_E = Signal Voltage (V)

B = Magnetic Induction (T)

D = Electrode Spacing (m)

V = Average Flow Velocity (m/s)

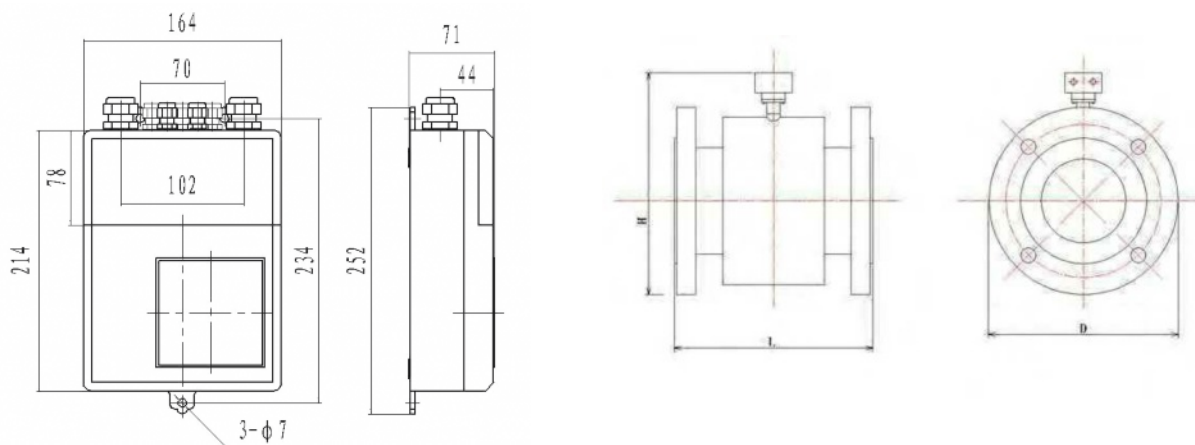
* Q_v = Volume flowrate (m³/s)

K = Ratio factor

$U_E \sim B \cdot D \cdot V \cdot K$

$Q_v = (\pi D / 4KB) U_{Ei}$

4. Dimensions



External and installing dimension						
Nominal Diameter	Nominal Pressure	External Dimension				Reference Weight
		L of PTFE Liner	L of Neoprene Liner	D	H	
3	4.0	200(PFA)		90	220	4
6		200(PFA)		90	220	5
10		200	/	90	220	6
15		200	/	95	220	8
20		200	/	105	220	10
25		200	/	115	223	12
32		200	/	140	240	13
40		200	200	150	250	14
50		200	200	165	263	15
65		200	200	185	283	18
80		200	200	200	290	20
100		250	250	235	318	25
125		250	250	270	350	28
150		300	300	300	380	30
200	1.6	350	350	340	430	50
250		450	450	405	495	70
300		500	500	460	547	95
350		550	550	520	602	120
400		600	600	580	665	140
450		600	600	640	720	160
500		600	600	715	783	200
600	600	600	840	897	280	
700	1.0	700	700	895	982	350
800		800	800	1015	1092	400
900		900	900	1115	1192	480
1000		1000	1000	1230	1299	550
1200	0.6	1200	1200	1405	1488	660
1400		1400	1400	1630	1700	750
1600		1600	1600	1830	1924	850
1800		1800	1800	2045	2134	980
2000		2000	2000	2265	1344	1200
2200		2200	2200	2475	1549	1600
2400		2400	2400	2685	1754	2000
2600		2600	2600	2905	3169	2400
2800		2800	2800	2905	3169	2700
3000		3000	3000	3315	3369	2900

Nominal Pressure	Flange Dimension					
	Caliber	D	K	Φ	n	C
4	3	90	60	14	4	14
	6	90	60	14	4	14
	10	90	60	14	4	14
	15	95	65	14	4	14
	20	105	75	14	4	16
	25	115	85	14	4	16
	32	140	100	18	4	18
	40	150	110	18	4	18
	50	165	125	18	4	20
	65	185	145	18	8	22
	80	200	160	18	8	24
	100	235	190	22	8	26
	125	270	220	26	8	28
150	300	250	26	8	30	
1.6	200	340	295	22	12	26
	250	405	355	26	12	28
	300	460	410	26	12	32
	350	520	470	26	16	35
	400	580	525	30	16	38
	450	640	585	30	20	42
	500	715	650	33	20	46
	600	840	770	36	20	52
1	700	895	840	30	24	30
	800	1015	950	33	24	32
	900	1115	1050	33	28	34
	1000	1230	1160	36	28	34
0.6	1200	1405	1340	33	32	28
	1400	1630	1560	36	36	32
	1600	1830	1760	36	40	34
	1800	2045	1970	39	44	36
	2000	2265	2180	42	48	38
	2200	2475	2390	42	52	42
	2400	2685	2600	42	56	44
	2600	2905	2810	48	60	46
	2800	2905	3020	48	64	48
3000	3315	3220	48	68	50	

Flow Rate - Flow Range Comparison																
Size (mm)	Flow rate (m/s)	Range (m ³ /h)	Flow rate (m/s)	Range (m ³ /h)	Flow rate (m/s)	Range (m ³ /h)	Flow rate (m/s)	Range (m ³ /h)	Flow rate (m/s)	Range (m ³ /h)	Flow rate (m/s)	Range (m ³ /h)	Flow rate (m/s)	Range (m ³ /h)	Flow rate (m/s)	Range (m ³ /h)
3	0.1	0.003	0.2	0.005	0.5	0.013	1	0.025	4	0.102	10	0.254	12	0.305	15	0.382
6	0.1	0.01	0.2	0.02	0.5	0.051	1	0.102	4	0.407	10	1.017	12	1.227	15	1.526
10	0.1	0.028	0.2	0.057	0.5	0.141	1	0.283	4	1.13	10	2.826	12	3.391	15	4.239
15	0.1	0.064	0.2	0.127	0.5	0.318	1	0.636	4	2.543	10	6.359	12	7.63	15	9.538
20	0.1	0.113	0.2	0.226	0.5	0.565	1	1.13	4	4.522	10	11.304	12	13.56	15	16.956
25	0.1	0.177	0.2	0.353	0.5	0.883	1	1.766	4	7.065	10	17.663	12	21.2	15	26.494
32	0.1	0.289	0.2	0.579	0.5	1.447	1	2.894	4	11.575	10	28.938	12	34.73	15	43.407
40	0.1	0.452	0.2	0.904	0.5	2.261	1	4.522	4	18.086	10	45.216	12	54.26	15	67.824
50	0.1	0.707	0.2	1.413	0.5	3.533	1	7.065	4	28.26	10	70.65	12	84.78	15	105.98
65	0.1	1.19	0.2	2.39	0.5	5.97	1	11.94	4	47.76	10	119.4	12	143.3	15	179.1
80	0.1	1.81	0.2	3.62	0.5	9.04	1	18.09	4	72.35	10	180.86	12	217	15	271.3
100	0.1	2.83	0.2	5.65	0.5	14.13	1	28.26	4	113.04	10	282.6	12	339.1	15	423.9
125	0.1	4.42	0.2	8.83	0.5	22.08	1	44.16	4	176.63	10	441.56	12	529.9	15	662.34
150	0.1	6.36	0.2	12.72	0.5	31.79	1	63.59	4	254.34	10	635.85	12	763	15	953.78
200	0.1	11.3	0.2	22.61	0.5	56.52	1	113.04	4	452.16	10	1130.4	12	1356	15	1696
250	0.1	17.66	0.2	35.33	0.5	88.31	1	176.53	4	706.5	10	1766.25	12	2120	15	2649
300	0.1	25.43	0.2	50.87	0.5	127.2	1	254.34	4	1017	10	2543.4	12	3052	15	3815
350	0.1	34.62	0.2	69.24	0.5	173.1	1	346.19	4	1385	10	3461.85	12	4154	15	5193
400	0.1	45	0.2	90	0.5	226.1	1	452	4	1809	10	4522	12	5426	15	6782
450	0.1	57	0.2	114	0.5	286.1	1	572	4	2289	10	5723	12	6867	15	8584
500	0.1	71	0.2	141	0.5	353.3	1	707	4	2826	10	7065	12	8478	15	10598
600	0.1	102	0.2	203	0.5	508.7	1	1017	4	4069	10	10174	12	12208	15	15260
700	0.1	138	0.2	277	0.5	692.4	1	1385	4	5539	10	13847	12	16617	15	20771
800	0.1	181	0.2	362	0.5	904.3	1	1809	4	7235	10	18086	12	21704	15	27130
900	0.1	229	0.2	458	0.5	1145	1	2289	4	9156	10	22891	12	27469	15	34336
1000	0.1	283	0.2	565	0.5	1413	1	2826	4	11304	10	28260	12	33912	15	42390
1200	0.1	407	0.2	814	0.5	2035	1	4069	4	16278	10	40694	12	48833	15	61042
1400	0.1	554	0.2	1108	0.5	2769	1	5539	4	22156	10	55390	12	66468	15	83084
1600	0.1	723	0.2	1447	0.5	3617	1	7235	4	28938	10	72346	12	86815	15	108518
1800	0.1	916	0.2	1831	0.5	4578	1	9056	4	36625	10	91562	12	109875	15	137344
2000	0.1	1130	0.2	2261	0.5	5652	1	11304	4	45216	10	113040	12	135648	15	169560
2200	0.1	1368	0.2	2736	0.5	6839	1	13678	4	54711	10	136778	12	164134	15	205168
2400	0.1	1628	0.2	3256	0.5	8139	1	16278	4	65111	10	162778	12	195333	15	244166
2600	0.1	1910	0.2	3821	0.5	9552	1	19104	4	76415	10	191038	12	229245	15	286556
2800	0.1	2216	0.2	4431	0.5	11078	1	22156	4	88623	10	221558	12	265870	15	332338
3000	0.1	2543	0.2	5087	0.5	12717	1	25434	4	101736	10	254340	12	305208	15	381510

5. Technical Specification

SPECIFICATIONS - Calculator	
Display	Heat energy, Supply & Return Temperature, Instantaneous flow alarm display, percentage, velocity, forward and reverse integrated flow and total integrated flow
Blackout data protection	Data will be stored by EEPROM without backup battery
Language	English
Low-frequency square wave exciting	1/16 power frequency, 1/20 power frequency, 1/25 power frequency
High-frequency square wave exciting	½ power power frequency
Exciting current	125mA, 187.5mA, 250mA, 500mA
Speed range	0.1 - 15m/s
Speed resolution	0.5mm/s
Ambient temperature range	-10°C ~ +60°C
Relative humidity	5%~90%
Communication	MODBUS, GPRS, PROFIBUS, HART
Power supply	24VDC, 240VAC
IP rating	IP65, IP68(upon request)
Accuracy	±0.5%, ±0.3
Power rating	< 20W (After connecting sensor)

SPECIFICATIONS - Flange	
Nominal diameter	DN15 ~ DN3000
Nominal Pressure	0.5~4MPa (special pressure can be made upon request)
Accuracy	±0.5%, ±0.3% or ±0.2% are selectable
Liner Material	Teflon, pfa, f46, Neoprene, Poly
Electrode Type	General type, Scraper type and replaceable type
Electrode Material	Stainless stell SU316, Hastelloy C, Titanium, Tantalum Platinum-iridium, etc
Ambient Temperature	-25°C ~ +60°C
Ambient Humidity	5~100%RH (relative humidity)
Measuring Range	1500:1, <15m/s
Structure Type	Integral type, remote type, submersible type, ex-proof type
Protection Class	IP65, IP68(optional)
Ex-proof	Exmd II T4
Production Standard	JB/T 9248-1999 Electromagnetic Flowmeter

6. Order Information

Model Number, Example and Option										Description	
	ES	-900H	- 1 -	DN150	- 1	3	1	2	1		Sample ordering information
Calculator Type	ES										Electromagnetic Separated Type
Series	-900H										BTU Meter
Flow Sensor Type	1										Flange Type
Meter Size	DN XXX										Please specify required size
Electrode Material	1										Stainless Steel 316L (V)
	2										Hastelloy C (Hc)
	3										Hastelloy B (Hb)
	4										Titanium (Ti)
	5										Tantalum (Ta)
	6										Tungsten Carbide
	7										Platinum-iridium alloy (Pt)
Liner Material	1										Ne
	2										FEP
	3										PTFE
	4										PU
	5										PFA
Output Interface Option	1										RS485 (Modbus)
	2										RS485 (ASCII)
	2										Active Pulse
	3										Passive Pulse
	4										4-20mA
	5										0-10mA
	7										4-20mA (HART)
	8										Others(Please specify)
Power Supply	1										24V DC
	2										240V AC
	3										220VAC
	4										110VAC
	5										Built-in battery
	6										Others (Please specify)
Ex-proof	0										Without Ex-proof
	1										With Ex-proof
Connection Standard	1										DIN PN10
	2										DIN PN16
	3										DIN PN25
	4										DIN PN40
	A										ANSI 150#
	B										ANSI 300#
	C										ANSI 600#
	D										JIS 10K
	E										JIS 20K
	F										JIS 40K
G										Others (Please specify)	

Optional Selection	
1	Grounding Ring
2	Matched Flange
3	Entrance Protection Flange
4	Scraper Type Electrode
5	Others

Example:

ES-900H-1-DN50 - 131203 calls for size DN50 electromagnetic BTU meter with remote type calculator (Flange connection; Electrode material:Stainless Steel 316L; Liner Material: PTFE; Power Supply: 220V AC; Without Ex-proof; DIN PN25) with RS485(modbus) interface.



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