TECHNOLOGY

HOLYKELL®

ELECTROMAGNETIC FLOW METER

4800E

4800

4880E

4880

Product description

Smart electromagnetic flow meter is a high-performance, high-reliability flow meter. It used to measure the volume flow of conductive liquid and slurry in closed pipelines. Widely used in steel, electricity, petroleum, chemical industry, coal, metallurgy, papermaking, water supply and drainage, food, pharmaceutical industry, etc.

Working principle

The measuring principle of electromagnetic flow meter is based on Faraday's law of electromagnetic induction. The sensor is mainly composed of a measuring tube with an insulating lining, a pair of electrodes installed by inserting the measuring tube wall, a pair of coils and an iron core to generate a working magnetic field. When a conductive fluid flows through the measuring tube of the sensor, a voltage signal proportional to the average flow rate of the fluid will be induced on the electrode. The signal is operationally amplified and processed to achieve various display functions.

Features

- ●Measurements are not affected by fluid density, viscosity, temperature, pressure and conductivity.
- ●No obstacles in the measuring tube, no pressure loss, low requirements for straight pipe section.
- ●The LCD backlight type converter can be easily displayed and read in the sun or in a dark room.
- ●In harsh environments, parameters can be set via infrared touch buttons without opening the cover of the converter (need to be customized).
- ●Flow meter with bidirectional measurement system, built-in three totalizers: positive total, reverse total and total difference.
- ●It has various forms of output: current 4-20mA, pulse, frequency, rs-485, HART.
- ●The converter has self-diagnosis alarm output, no-load detection alarm output, flow upper and lower limit alarm, batch control (need to be customized) and other alarm output functions.
- ●Not only for general processes, but also for the measurement of ore pulp, mud, coal slurry, paper pulp and paste liquid.
- ●High-pressure electromagnetic flow sensor with PFA lining technology, resistant to high pressure and negative pressure, especially suitable for petroleum, chemical and other industries.
- ● Explosion-proof instruments can be used in corresponding explosion-proof places.

Technical parameter

Item	Technical parameter	
Main power	AC220V 50HZ/DC24V/DC12V/3.3V battery power supply	
Power consumption	<15W (Supporting power consumption with sensors)	
Display and buttons	Display in Chinese and English, can display instantaneous flow, accumulated flow and alarm display (excitation open circuit alarm, empty pipe alarm, flow over limit alarm). Four membrane touch switches for data setting	
Counter	Forward total, reverse total	
Output signal	Analog output	Two-way, fully isolated 0~10mA/4~20mA
		Load resistance: 0~1.5kΩ when 0~10mA; 0~750Ω when 4~20mA
	Frequency output	Forward and reverse flow output, the upper limit of output frequency can be set within 1~5000Hz. Open collector bidirectional output of transistor with photoelectric isolation. The external power supply is not greater than 35V, and the maximum current of the collector when it is turned on is 50mA
	Alarm Output	Two-way open collector alarm output with photoelectric isolation transistor. The external power supply is not greater than 35V, and the maximum current of the collector when it is turned on is 250mA. Alarm status: fluid empty pipe, excitation disconnection, flow overrun
	Pulse output	Forward and reverse flow output, the output pulse upper limit can reach 5000CP/S. Pulse equivalent is 0.0001~1.0m³/P. The pulse width is automatically set to 20ms or square wave. Open collector output of transistor with photoelectric isolation. The external power supply is not greater than 35V, and the maximum current of the collector when conducting is 50mA
Matching accuracy	0.5%	
Damping time constant	Continuous variable from 0~100s (90%) time grading optional	
Communication	Optional RS232C or RS485 serial communication interface, HART communication protocol	
Loss of power	The internal design of the instrument has a power-off clock, which can store 16 power-off records (10 years) (need to be customized)	
Protection class	IP65(standard);IP68 can be customized for the split type(only for transmitter).	
Explosion-proof mark	Ex d ia [ia Ga] q IIC T6 Gb	

Model Code Selection Table:

Code No.	Meter Type				
4800	Segregate Type Electromagnetic Flow Meter,				
4800E	Integrated Type Electromagnetic Flow Meter				
4880	Sanitary Segregate Type Electromagnetic Flow Sensor				
4880E	Sanitary Type Integrated Electromagnetic Flow Meter				
Code No.	**Nominal Diameter**	**4800**	**4800E**	**4880**	**4880E**
10	DN10mm	●	●	○	○
15	DN15mm	●	●	●	●
20	DN20mm	●	●	●	●
25	DN25mm	●	●	●	●
32	DN32mm	●	●	○	○
40	DN40mm	●	●	○	○
50	DN50mm	●	●	○	○
…	…	●	●	○	○
150	DN150mm	●	●	○	○
200	DN200mm	●	●	○	○
250	DN250mm	●	●	○	○
300	DN300mm	●	●	○	○
…	…	●	●	○	○
1200	DN1200mm	●	●	○	○
2000	DN2000mm	●	●	○	○
Code No.	**Power Supply**	**4800**	**4800E**	**4880**	**4880E**
A	85V~265V AC	●	●	●	●
D	DC 24V	●	●	●	●
Code No.	**Nominal Pressure**	**4800**	**4800E**	**4880**	**4880E**
Y1	0.6MPa	●	●	●	●
Y2	1.0MPa	●	●	●	●
Y3	1.6MPa	●	●	●	●
Y4	2.5MPa	●	●	●	●
Y5	4.0MPa	●	●	●	●
Y7	16MPa(limited DN10-150)	●	●	○	○
Y8	20MPa(limited DN10-50)	●	●	○	○
Y9	25MPa(limited DN10-50)	●	●	○	○
Code No.	**Communication Output**	**4800**	**4800E**	**4880**	**4880E**
R	0~10mA.DC	●	●	●	●
M	4~20mA.DC	●	●	●	●
C	Pulse+4-20mA	●	●	●	●
T	RS485 MODBUS RTU	●	●	●	●
Q	RS-232C	●	●	●	●
A	4 ~ 20mA +RS485 MODBUS protocol	●	●	●	●

H	4 ~ 20mA.DC HART protocol	●	●	●	●
G	GPRS wireless communications	●	○	●	●
Code No.	**Lining Materials**				
X2	Soft rubber	●	●	○	○
X3	Polychloroprene rubber	●	●	○	○
X4	Polyurethane rubber	●	●	○	○
X5	Teflon	●	●	○	○
X6	F46 poly perfluoro ethylene ally	●	●	●	●
Code No.	**Electrode Materials**				
B1	Stainless steel containing molybdenum	●	●	●	●
B2	Hastelloy B alloy (HB)	●	●	●	●
B3	Hastelloy C alloy (HC)	●	●	●	●
B4	Titanium Ti	●	●	●	●
B5	Tantalum Ta	●	●	●	●
B6	Platinum Pt	●	●	●	●
Code No.	**Flange Materials**				
F1	Carbon steel	●	●	○	○
F2	Stainless steel	●	●	●	●
F3	Other materials	●	●	○	○
Code No.	**Electronic Shell Protection Grade (Optional)**				
P1	IP65(standard)	●	●	●	●
P2	IP68(By customized)	●	○	●	○
Code No.	**The Grounding Ring (Optional)**				
R	Three-electrode Type (Equal to ground ring)	●	●	●	●
Code No.	**Explosion Proof Type (Optional)**				
E	Explosion proof type(24v.DC)	○	●	○	●

Selection codes explanation

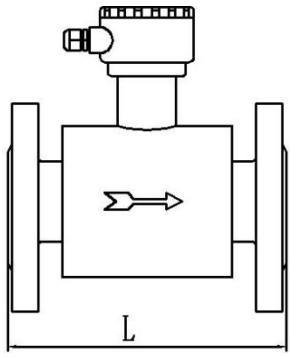
Model Code: 4800E50DY3MX5B1F1P1RE-L

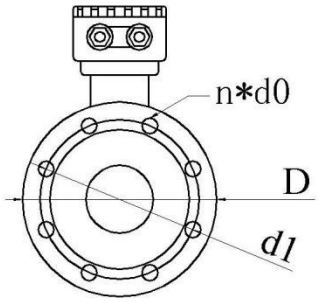
4800E	50	D	Y3	M	X5	B1	F1	P1	R	E	L
Type	Diameter	Supply	Pressure	Output	Lining	Electrode	Housing	Grade	Ground	Explosion Proof	Max Flow

Note: "●" on behalf of optional," ○" is mean not optional.

Flange connection structure and installation dimensions

Unit: mm





DN	L(PTFE)	L(Rubber/PFA/F46)	D	d1	n*d0
10	193	/	90	60	4*14
15	193	/	95	65	4*14
20	193	/	105	75	4*14
25	193	/	115	85	4*14
32	193	/	135	100	4*18
40	193	200	145	110	4*18
50	193	200	160	125	4*18
65	243	250	180	145	4*18
80	244	250	195	160	8*18
100	244	250	215	180	8*18
125	244	250	245	210	8*18
150	290	300	280	240	8*23
200	341	350	335	295	12*23
250	441	450	405	355	12*26
300	490	500	460	410	12*26
350	490	500	505	460	16*23
400	490	500	565	510	16*26
450	540	550	615	560	20*26
500	540	550	670	620	20*26
600	590	600	755	705	20*25
700	690	700	860	810	24*25
800	790	800	975	920	24*30
900	890	900	1075	1020	24*30
1000	990	1000	1175	1120	28*30
1200	1190	1200	1400	1340	32*34
1400	1390	1400	1620	1560	36*34
1600	1590	1600	1820	1760	40*34
1800	1790	1800	2046	1970	44*41
2000	1990	2000	2265	2180	48*48

（1）Instrument size error ± 2mm (2) The rated flange pressure of this table DN10-DN300: 1.6MPa DN350-DN500: 1.0MPa ,DN600-DN2200: 0.6MPa.（3）Other flange standards are customized.

Flow range table

Flow range and Flow rate table							
m/s / m3/h / mm	0.5	1	2	3	4	5	15(maximum)
10	0.14	0.28	0.27	0.85	1.13	1.41	4.24
10	0.14	0.28	0.27	0.85	1.13	1.41	4.24
15	0.32	0.64	1.27	1.91	2.54	3.18	9.54
20	0.57	1.13	2.26	3.39	4.52	5.65	16.96
25	0.88	1.77	3.53	5.30	7.07	8.84	26.51
32	1.45	2.90	5.79	8.69	11.58	14.48	43.43
40	2.26	4.52	9.05	13.57	18.10	22.62	67.86
50	3.53	7.07	14.14	21.21	28.27	35.34	106.03
65	5.97	11.95	23.89	35.84	47.78	59.73	179.19
80	9.05	18.10	36.19	54.29	72.38	90.48	271.43
100	14.14	28.27	56.55	84.82	113.10	141.37	424.12
125	22.09	44.18	88.36	132.54	176.71	220.89	662.68
150	31.09	63.62	127.23	190.85	254.47	318.09	954.26
200	56.55	113.10	226.19	339.29	452.39	565.49	1696.46
250	88.36	176.71	363.43	530.14	706.86	883.57	2650.72
300	127.23	254.47	508.94	763.41	1017.88	1272.35	3817.04
350	173.18	346.36	692.72	1039.08	1385.44	1731.80	5195.41
400	226.19	452.39	904.78	1357.17	1809.56	2261.96	6785.84
450	286.28	572.56	1145.11	1717.67	2290.22	2862.78	8588.33
500	353.43	706.86	1413.72	2120.58	2827.43	3534.29	10602.88
600	508.94	1017.88	2035.75	3053.63	4071.50	5089.38	15268.14
700	692.72	1385.44	2770.88	4156.33	5541.77	6927.21	20781.64
800	904.78	1809.56	3619.11	5428.67	7238.23	9047.79	27143.36
900	1145.11	2290.22	4580.44	6870.66	9160.88	11451.11	34353.32
1000	1413.72	2827.43	5654.87	8482.30	11309.73	14137.13	42411.50
1200	2035.75	4071.50	8143.01	12214.51	16286.02	20357.52	61072.56
1400	2770.88	5541.77	11083.54	16625.31	22167.08	27708.85	83126.54
1600	3617.11	7238.23	14476.46	21714.69	28952.92	36191.15	108573.44
1800	4580.44	9160.88	18321.77	27482.65	36643.54	45804.42	137413.26
2000	5654.87	11309.73	22619.47	33929.20	45238.93	56548.67	169646.00
2200	6842.39	13684.78	27369.56	41054.33	54739.11	68423.89	205217.66
2400	8143.01	16286.02	32572.03	48858.05	65144.07	81430.08	244290.24
2600	9556.72	19113.43	38226.85	57340.71	76453.71	95567.13	206701.40
2800	11083.54	22167.90	44334.15	66501.23	88668.31	110835.39	332506.16
3000	12723.45	25446.90	50893.80	76340.70	101787.60	127234.50	381703.50