

Battery-powered Electromagnetic Flow Meter





Description

QTL D battery-powered electromagnetic flow meter is an ideal flow measurement device for water and wastewater systems located at remote sites. Various signal and communication are available like, pulse, RS485, all real-time flow data can be monitored on computer or mobile phone by GPRS. Beside flow, it also can measure temperature or pressure. With 5 pcs of 3.6V lithium battery, lifespan is up to 8 years, and battery can be changed when it's used up. The transmitter shell is SS304 and the protection grade is IP68, which is available to be buried or submerged in the water.



Industries

- | | |
|--|------------------------------------|
| ● Effluent Treatment Plant | ● Chemical & Fertilizer Industries |
| ● Sewage Treatment Plant Water Supply Scheme | ● Dairy Industries |
| ● Steel & Aluminum Industries | ● Sugar Industries |
| ● Food & Drug Industries | ● Textile Processing Industries |



Applications



Features

- 01 It has a long life span, standard battery can work for 3-8 years, determined by the excitation current.
- 02 Dual power supply: it's equipped with external power supply interface, which can be powered by external 12-24VDC power supply, enabling users to have a variety of power options.
- 03 Multiple work mode: QTL D/D has 'Flow Only' mode, 'Flow + Pressure' mode, 'Flow + Temperature' mode for users.
- 04 Multiple network interfaces: QTL D/D has GPRS, RS485, HART and other network communication for users.
- 05 3.6V lithium battery can be changed if its used up.
- 06 Infrared remote control display and operation.



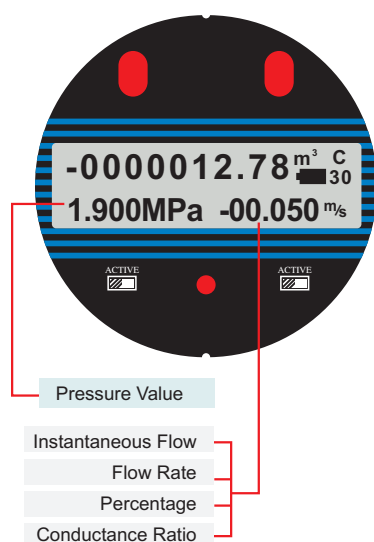
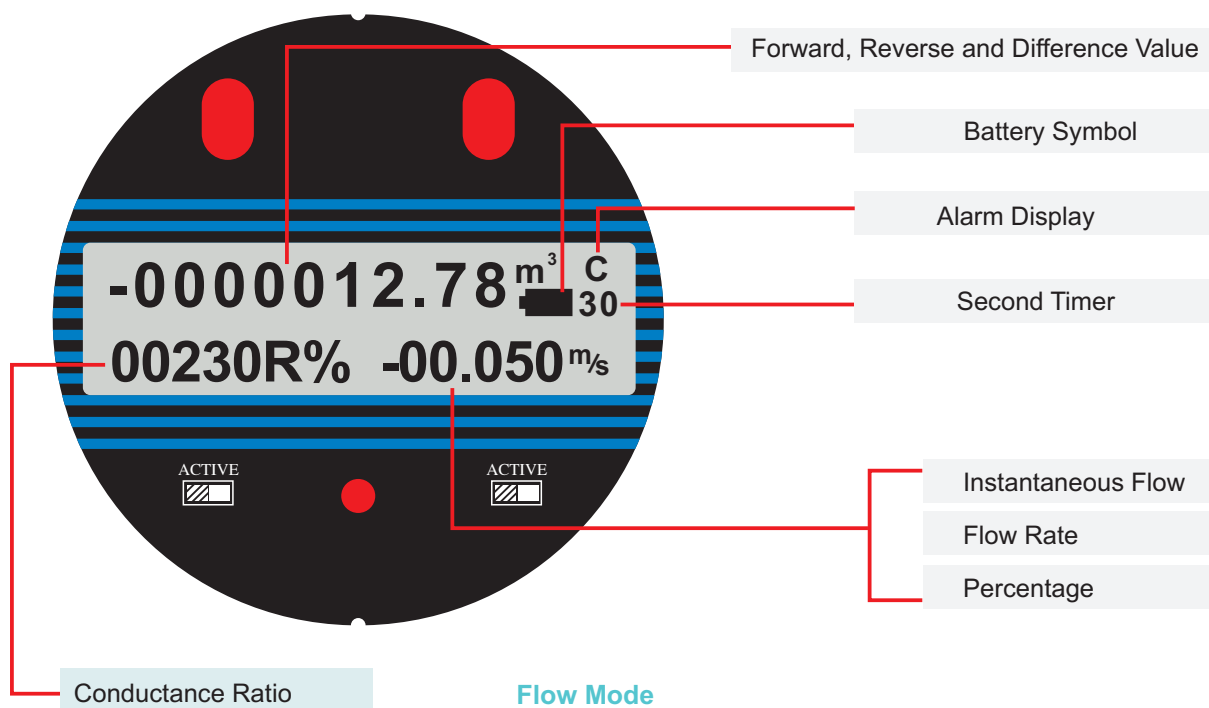
Technical Data

Size	DN10-DN2000 (3/8"~80")
Accuracy	$\pm 0.5\%$ of reading at flow velocity $\geq 0.5\text{m/s}$, $\pm 0.2\%$ optional at flow velocity $\geq 0.5\text{m/s}$
Velocity	0.1~15 m/s
Repeatability	$\leq 0.17\%$
Structure	Compact / remote, cable length 10m standard, 100m max

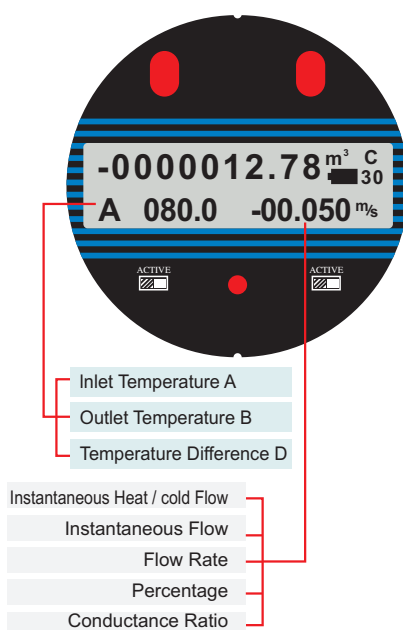
Conductivity	> 5 μ S/cm, demineralized water > 20 μ S/cm	
Protection Grade	Transmitter: IP65 standard, IP68 optional	
	Sensor: IP65 standard, IP68 (submersible, only available for remote type)	
Electrode	SS316L, Hastelloy C, Hastelloy B, Titanium, Tantalum, Platinum-iridium	
Power Supply	3.6V lithium Battery	
Power Consumption	<20W	
Signal Output	4 ~ 20 mA, Pluse	
Communication	RS485 MODBUS standard, HART, GPRS, PROFIBUS optional	
Display	LCD Display, 128X128mm, three lines, 4 buttons	
Ambient Temperature	-20°C~60°C	
Fluid Temperature	Compact: -20°C~80°C, Remote: -20°C~120°C	
Liner Material	PTFE (-20°C~150°C, DN15-DN1600)	
	FEP (-20°C~120°C, DN3-DN1800)	
	PFA (-20°C~160°C, DN3-DN800)	
	Polyurethane (-10°C~60°C, DN40-DN1600)	
	Neoprene (-10°C~80°C, DN40-DN3000)	
	Hard Rubber (-10°C~80°C, DN 40-DN3000)	
	Ceramic (-20°C~180°C, DN15-DN200)	
Process connection	Flange, tri-clamp, wafer, thread, insertion	
Sensor Material	Measuring tube: SS304	
	Flange & housing: carbon steel (standard), SS304 / SS316 optional	
Transmitter Material	SS304	
Nominal Pressure	Flange	PN10 / PN16 / PN25 / PN40 DIN 10K / 20K / 30 K JIS 150# / 300# / 600# ANSI Others
	Insertion, tri-clamp, wafer, thread	PN16
Display	Instantaneous flow, total flow, flow velocity	
Function	High and low alarm, empty pipe alarm, exciting alarm, self-diagnosis	
Totalizer	Three built-in totalizers: forward flow, reverse flow and net flow	
Display Unit	L/s, L/m, L/h, m ³ /s, m ³ /m, m ³ /h, UKG, USG, gal/s, gal/m, gal/h, kg/s, kg/m, kg/h, t/s, t/m, t/h	



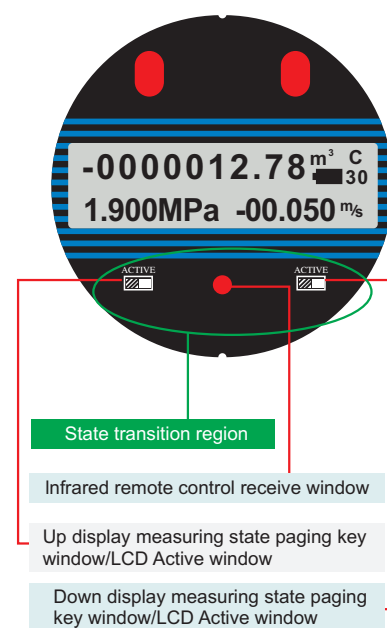
Measuring Mode



Flow + Pressure Mode



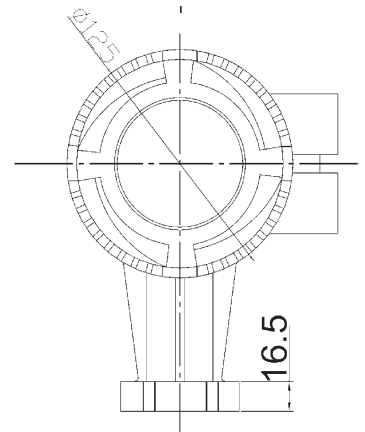
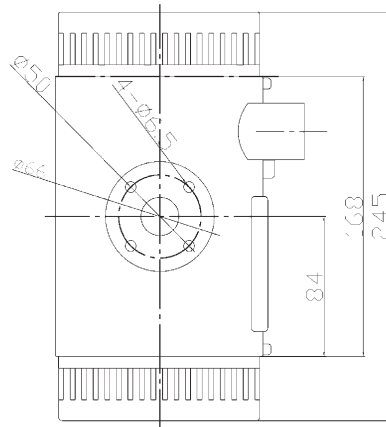
Flow + Temperature Mode



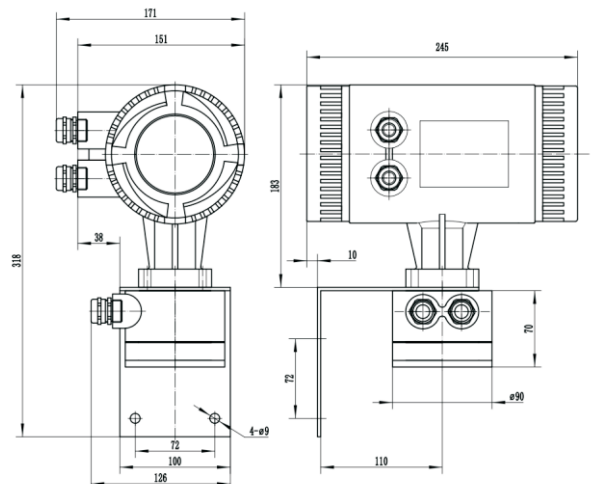
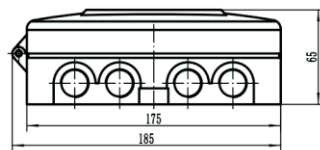
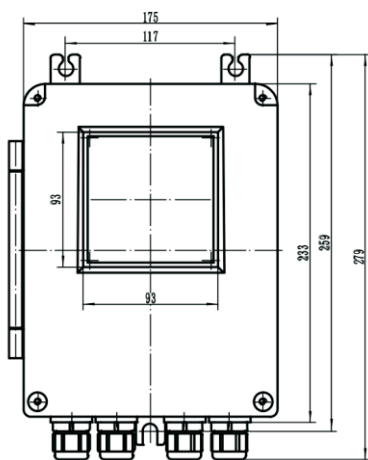
Magnetic Key Operational Position



Transmitter Drawing



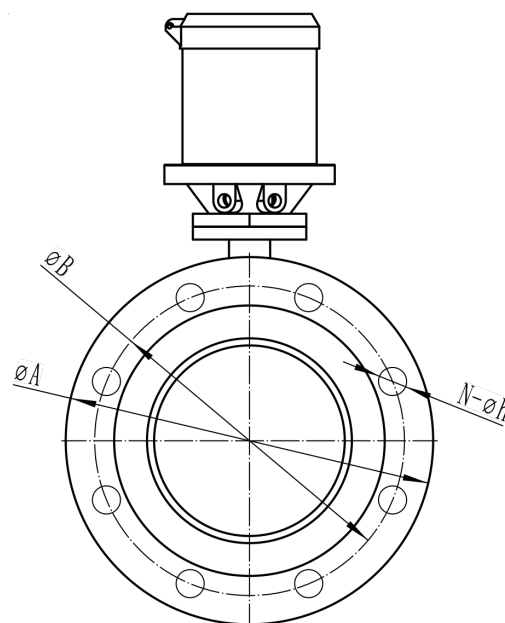
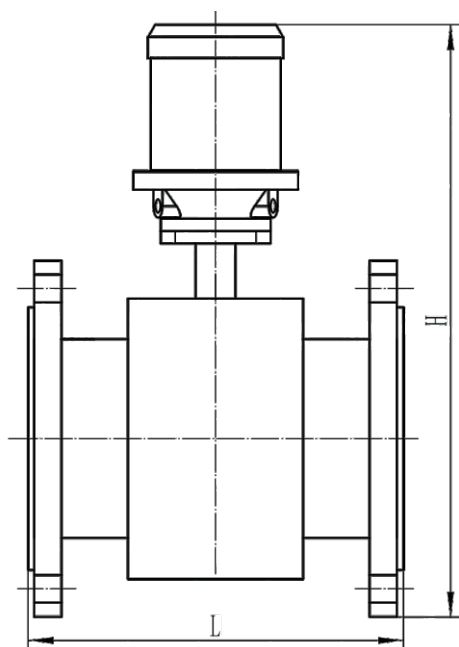
Compact Transmitter



Remote Transmitter



Dimension



Size		Flange Standard	Nominal Pressure	H (mm)	L (mm)	φA (mm)	φB (mm)	φh (mm)	N (mm)
mm	mm								
DN15	1/2"	DIN	PN16	315	200	95	65	14	4
DN20	3/4"	DIN	PN16	320	200	105	75	14	4
DN25	1"	DIN	PN16	325	200	115	85	14	4
DN32	1 1/4"	DIN	PN16	337	200	140	100	18	4
DN40	1 1/2"	DIN	PN16	347	200	150	110	18	4
DN50	2"	DIN	PN16	363	200	165	125	18	4
DN65	2 1/2"	DIN	PN16	380	200	185	145	18	4
DN80	3"	DIN	PN16	396	200	200	160	18	8
DN100	4"	DIN	PN16	415	250	220	180	18	8
DN125	5"	DIN	PN16	440	250	250	210	18	8
DN150	6"	DIN	PN16	473	300	285	240	22	8
DN200	8"	DIN	PN16	530	350	340	295	22	12
DN250	10"	DIN	PN16	606	450	405	355	26	12
DN300	12"	DIN	PN16	659	500	460	410	26	12
DN350	14"	DIN	PN16	715	550	520	470	26	16
DN400	16"	DIN	PN16	770	600	580	525	30	16
DN450	18"	DIN	PN16	826	600	640	585	30	20
DN500	20"	DIN	PN16	889	600	715	650	33	20
DN600	24"	DIN	PN16	1007	600	840	770	36	20
DN700	28"	DIN	PN16	1093	700	910	840	36	24
DN800	32"	DIN	PN16	1201	800	1025	950	39	24
DN900	36"	DIN	PN16	1301	900	1125	1050	39	28
DN1000	40"	DIN	PN16	1426	1000	1255	1170	42	28



Communication



Standard Battery-powered Without Output Signal



Battery-powered with Pulse



Battery-powered with RS485 MODBUS



Battery-powered with external GPRS



Process Connection



Flange



Insertion



Tri-clamp



Thread



Remote



Main Performance of Electrode Material

Electrode Material	Application
SS316L	Applicable to industrial and municipal water, wastewater and low corrosive mediums. Widely used in petroleum, chemical industries.
Hastelloy B	Strong resistance to hydrochloric acids below the boiling point. Resist against oxidable acids, alkali and non-oxidable salts, like vitriol, phosphate, hydrofluoric acids and organic acids.
Hastelloy C	Exceptional resistance to strong solutions of oxidizing salts and acids, like Fe^{+++} , Cu^{++} , Nitric acids, mixed acids.
Titanium	Titanium can withstand corrosive mediums such as seawater, chloride salt solutions, hypochlorite salts, oxidable acids (including fuming nitric acids), organic acids, and alkali. Not resistant to high purity reducing acids such as sulphuric acids, hydrochloric acids.
Tantalum	Highly resistant to corrosive mediums. Applicable to all chemical mediums except Hydrofluoric Acids, Oleum and Alkali.
Platinum-iridium	Applicable to all chemical mediums except for Ammonium salts and Fortis.



Main Performance of Liner Material

PTFE	Best chemical resistance, withstand boiling hydrochloric acid, sulfuric acid, nitric acid, alkali and a variety of organic solvents. Poor wear resistance and poor adhesion.
PFA	Highly resistant to chemicals. Performance well under vacuum pressure condition.
Neoprene	Excellent elasticity, good abrasion resistance. Withstand the corrosion of low-concentration acid, alkali, salt and other media. Not resistant to corrosion by oxidizing medium.
Polyurethane	Strong abrasion resistant, applicable for slurries and muds. Poor corrosion resistance, can't be used for corrosive medium.
Hard Rubber	Withstand the corrosion of hydrochloric acid, acetic acid, oxalic acid, ammonia water, phosphoric acid and 50% sulfuric acid, sodium hydroxide, potassium hydroxide. Use for general acid, alkali, and salt solutions, not resistant to the corrosion of strong oxidants.
Ceramic	Withstands high temperature, corrosion and wear Smooth inner Totally vacuum resistant



Selection Table

QTLD/D		X	X	X	X	X	X	X	X	X
Caliber size	DN10-DN2000 (3/8"-80")									
Structure	Compact		1							
	Remote		2							
Lining Material	PTFE			1						
	FEP			2						
	PFA			3						
	Neoprene			4						
	Polyurethane			5						
	Hard Rubber			6						
	Ceramic			7						
	Others			8						
Electrode Material	SS316L				1					
	Hastelloy B				2					
	Hastelloy C				3					
	Titanium				4					
	Tantalum				5					
	Platinum-iridium				6					
	Stainless steel covered with tungsten carbide				7					
	Others				8					
Sensor Material	Carbon Steel					1				
	SS304					2				
	SS316					3				
Power Supply	3.6 V lithium battery						1			
	3.6 V lithium battery and 12~24 VDC						2			
	3.6 V lithium battery and 85~265 VAC						3			
Signal Output /Communication	Pulse							P		
	RS485							R		
	GPRS							G		
	4~20 mA (need external power)							4		
Process Connection	Flange	DIN D10: DIN PN10, D16: DIN PN16, D25: DIN PN25, D40: DIN PN40							D**	
		ANSI A15: ANSI 150#, A30: ANSI 300#, A60: ANSI 600#							A**	
		JIS J10: JIS 10K, J20: JIS 20K, J30: JIS 30K							J**	
		Others							O	
	Insertion	G2" thread ball valve							IT	
		DN50 flange ball valve							IF	
	Tri-clamp								TC	
	Wafer								W	
	Thread								T	
Measuring Mode	Flow									1
	Flow + Temperature									2
	Flow + Pressure									3



Flow Range Table

Size		Flow Range & Velocity Table							
mm	Inch	0.1 m/s	0.2 m/s	0.5 m/s	1 m/s	4 m/s	10 m/s	12 m/s	15 m/s
DN3	1/8"	0.003	0.005	0.013	0.025	0.102	0.254	0.305	0.382
DN6	1/4"	0.01	0.02	0.051	0.102	0.407	1.017	1.221	1.526
DN10	3/8"	0.028	0.057	0.141	0.283	1.13	2.826	3.391	4.239
DN15	1/2"	0.064	0.127	0.318	0.636	2.543	6.359	7.63	9.538
DN20	3/4"	0.113	0.226	0.565	1.13	4.522	11.304	13.56	16.956
DN25	1"	0.177	0.353	0.883	1.766	7.065	17.663	21.2	26.494
DN32	1¼"	0.289	0.579	1.447	2.894	11.575	28.938	34.73	43.407
DN40	1½"	0.452	0.904	2.261	4.522	18.086	45.216	54.26	67.824
DN50	2"	0.707	1.413	3.533	7.065	28.26	70.65	84.78	10.598
DN65	2½"	1.19	2.39	5.97	11.94	47.76	119.4	143.3	179.1
DN80	3"	1.81	3.62	9.04	18.09	72.35	180.86	217	271.3
DN100	4"	2.83	5.65	14.13	28.26	113.04	282.6	339.1	423.9
DN125	5"	4.42	8.83	22.08	44.16	176.63	441.56	529.9	662.34
DN150	6"	6.36	12.72	31.79	63.59	254.34	635.85	763	953.78
DN200	8"	11.3	22.61	56.52	113.04	452.16	1130.4	1356	1696
DN250	10"	17.66	35.33	88.31	176.53	706.5	1766.25	2120	2649
DN300	12"	25.43	50.87	127.2	254.34	1017	2543.4	3052	3815
DN350	14"	34.62	69.24	1731	3461.9	1385	3461.85	4154	5193
DN400	16"	45	90	2261	452	1809	4522	5426	6782
DN450	18"	57	114	2861	572	2289	5723	6867	8584
DN500	20"	71	141	3533	707	2826	7065	8478	10598
DN600	24"	102	203	5087	1017	4069	10174	12208	15260
DN700	28"	138	277	6924	1385	5539	13847	16617	20771
DN800	32"	181	362	9043	1809	7235	18086	21704	27130
DN900	36"	229	458	1145	2289	9156	22891	27469	34336
DN1000	40"	283	565	1413	2826	11304	28260	33912	42390
DN1200	48"	407	814	2035	4069	16278	40694	48833	61042
DN1400	56"	554	1108	2769	5539	22156	55390	66468	83084
DN1600	64"	723	1447	3617	7235	28938	72346	86815	108518
DN1800	72"	916	1831	4578	9156	36625	91562	109875	137344
DN2000	80"	1130	2261	5652	11304	45216	113040	135648	169560
DN2200	88"	1368	2736	6839	13678	54711	136778	164134	205168
DN2400	96"	1628	3256	8139	16278	65111	162778	195333	244166
DN2600	104"	1910	3821	9552	19104	76415	191038	229245	286556
DN2800	112"	2216	4431	11078	22156	88623	221558	265870	332338
DN3000	120"	2543	5087	12717	25434	101736	254340	305208	381510

Remark: Recommend flow velocity range 0.5 ~ 15 m/s



Q&T Instrument Co.,Ltd