

## RSA Electromagnetic Flowmeter



### Description

Intelligent electromagnetic flowmeter consists of two parts, the sensor and converter. It is based on the work of Faraday's law of electromagnetic induction, used to measure the conductivity is greater than  $5\mu\text{S} / \text{cm}$  conductive liquid volumetric flow rate, is a measure of the volume flow of conductive medium for induction meter. In addition to measure the volume flow of conductive liquid, it can also be used to measure the volume of a homogeneous liquid-solid two-phase flow of a liquid suspension of acid and alkali and other strong corrosive liquids and slurries, pulp and paper

pulp.

Widely used in flow measurement of petroleum, chemical, metallurgy, textile, paper, environmental protection, food and other industrial and municipal administration, water conservancy construction, river dredging and other fields.

### Parameter

Nominal Diameter (mm) (Special specifications can be customized)	pipeline tetrafluoroethylene lining : DN10~DN2600
	Pipeline rubber lining : DN40~DN2600
Flow direction:	positive and negative, the net flow
Turndown ratio:	1500 : 1
Repeatability error	$\pm 0.1\%$ of measured value
Accuracy :	Pipeline : 0.5, 1.0
Measured medium temperature:	ordinary rubber lining: $-20\sim +60^{\circ}\text{C}$
	High-temperature rubber lining: $-20\sim +90^{\circ}\text{C}$
	PTFE lining: $-30\sim +120^{\circ}\text{C}$
	High temperature tetrafluoroethylene lining: : $-20\sim +180^{\circ}\text{C}$
Rated working pressure: (High voltage can be customized)	DN6—DN80 : $\leq 2.5\text{MPa}$
	DN100—DN250 : $\leq 1.6\text{MPa}$
	DN300—DN2600 : $\leq 1.0\text{MPa}$
Flow rate range:	0.1—15m/s

Conductivity range:	the measured fluid conductivity $\geq 5\mu\text{s}/\text{cm}$	
Current output :	load resistance	0~10mA : 0~1.5k $\Omega$
		4~20mA : 0~750 k $\Omega$
Digital frequency output:	transistor output frequency limit can be set with optical isolation within 1 ~ 5000HZ bidirectional open-collector output. External power supply is turned $\leq 35\text{V}$ maximum collector current of 250mA	
Power supply :	AC220V or DC24V	
Length of straight pipe requirements	upstream $\geq 5\text{DN}$ , downstream $\geq 2\text{DN}$	
Connection:	are used between the meter and piping flange connection, flange dimensions shall comply with the provisions of GB11988	
Explosion levels	mdIIBT4	
Protection class:	IP65, special order up to IP68	
Ambient temperature:	-25~+60°C	
Relative humidity:	5%~95%	
Total power consumption:	less than 20W	

#### Features :

- Fully digital processing, anti-interference ability, reliable measurement, high accuracy flow measurement range up to 1500: 1
- Ultra-Low EMI switching power supply for supply voltage variation range, anti-EMI performance.
- 16-bit embedded microprocessors, computing speed, high precision, programmable low-frequency square wave excitation frequency and improve the stability of the flow measurement, low power consumption.
- using SMD devices and surface mount (SMT) technology, circuit reliability.
- No moving parts inside the pipe, unimpeded flow of parts, measuring almost no additional pressure loss.

- range in the field can be modified online according to the actual needs.
- measurements and velocity distribution, the physical parameters of the fluid pressure, temperature, density, viscosity and the like.
- High-resolution backlit LCD display, full Chinese menu, easy to use, simple to operate, easy to understand.
- have RS485, RS232, Hart, and Modbus and other digital communication signal output. (Optional)
- has a self-test and self-assertion.
- total hourly recording function to record the total flow in units of hours for hourly metering system (optional)
- have three internal totalizer can show the cumulative amount of forward and reverse cumulative amount of the difference between the volume totalizer, the internal power-down features not always, can record 16 power-down times. (Optional)
- IR handheld operator, 115KHZ communication speed, long-distance non-contact operation of all functions converter (optional)

Measurement range:

Inner diameter (mm)	10	15	20	25	32	40	50	65
Qmin (m3/h)	0.0283	0.0636	0.12	0.176	0.29	0.452	0.7	1.19
Qmax (m3/h)	4.24	9.54	16.96	26.5	43.42	67.85	106.0	179.0
Inner diameter (mm)	80	100	125	150	200	250	300	350
Qmin (m3/h)	1.8	2.82	4.41	6.36	11.3	17.6	25.4	34.6
Qmax (m3/h)	271.0	424.0	662.0	954.0	1690	2650	3810	5190
Inner diameter (mm)	400	450	500	550	600	700	800	900
Qmin (m3/h)	45.2	57.2	77.6	85.5	101.0	138.0	180.0	229.0
Qmax (m3/h)	6780	8570	10600	12800	15200	20700	27100	34300
Inner diameter (mm)	1000	1100	1200	1400	1600	1800	2000	2200

Qmin (m3/h)	282.0	342.0	407.0	554.1	732.7	916.0	1131.0	1368.4
Qmax (m3/h)	42400	51300	61000	83121	108566	137404	169635	205258

Select the lining material

Should be based on the measured medium temperature corrosive wear and to select the lining material

Lining material	corrosion resistance	Working temperature	Application
Ne	General resistance to low concentrations of acid salt corrosion	-20~70°C	lower industrial water effluent pH and salt concentration
PO	Has an excellent wear resistance, abrasion resistance slurry dedicated to strong, not decay	-10~60°C	Liquids containing solid particles (slurry pulp, etc.)
FEP	1 corrosion resistant and quite PTFE 2 high mechanical strength, good wear resistance 3 table smooth, easy adhesion precipitate 4 have strong abrasive media fluid good resistance to outside negative, anti-vacuum effect	-40~180°C	except mortar. Like with PTFE can be used for drinks and other health requirements of the media
PTFE	Almost all of the corrosion resistant chemical media, poor wear resistance	-40~180°C	Not be used for pipes and wear strong negative fluid

Selective Electrode Materials

Should be based on the measured fluid corrosive to select material of the electrodes, check the manual for special fluids should be corrosion test

Material	Code	corrosion resistance
316L stainless steel	V	1 applies to a neutral solution of industrial, domestic water, raw water wells, urban sewage 2 weak corrosive acids, bases, salts medium such as carbonic acid, acetic acid, etc.
Hastelloy C	HC	1 applies to anti-oxidizing acids, such as a mixture of nitric acid, mixed acid, chromic acid and sulfuric acid 2 oxidation resistance salt or other corrosive environments, such as the oxidant Fe, Cu 3 Sea water, alkali solution, the oxide solution has excellent corrosion resistance 4 NA: hydrochloric acid
Hastelloy B	HB	1 for the non-oxidizing acids, bases, salts such as sulfuric acid, phosphoric acid, hydrofluoric acid has good corrosion 2 NA: nitrate
Titanium	Ti	seawater resistant, various chlorides suddenly hypochlorite and a variety of corrosion hydroxide
Ta	Ta	except hydrofluoric acid, almost all corrosive chemical media capability. But expensive
Platinum	Pt	salt solution applicable to all of the acid (fuming sulfuric acid and nitric acid)
Tungsten	W	has excellent wear resistance, dedicated to the mud, pulp and other abrasive media

Selectable :

Model number										Directions
RSA —	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Path										10-2600mm
Combination	S									SpliT
	C									Compact
Electrode material	M									SS
	T									Ti
	D									Ta
	H									Hastelloy
	P									Pt
	N									Ni



Output mode	0						No output
	1						4-20mA/1-5KHz
	2						4-20mA
Lining material	X						Rubber
	F						Teflon
	P						Polyethylene
	J						Polyurethane
Local display	0						no
	1						yes
Communication	0						no
	1						RS485
	2						RS232
	3						Mobdus
	4						Hart
Ground	0						No grounding ring
	1						grounding ring
	2						The ground electrode
Limit traffic						(n)	Limit the flow (range) m3 / h

Example: use of a local display type electromagnetic flowmeter sewage pipes for user DN50, require rubber lining, stainless steel electrodes, 4 ~ 20mA output, no communication, limit the flow of 30m3 / h. Models should be: RSA-50S-M1X100-30

#### Installation site selection:

In order to make the transmitter stable, when selecting the mounting location requires attention to the following aspects:

- 1) Try to avoid specific ferromagnetic objects and strong electromagnetic fields (such as large electric motors and transformers, etc.), so as not to affect the work of magnetic field sensors and traffic information.
- 2) should be installed in a dry and ventilated place, not in the wet, where water easily installed.
- 3) should try to avoid the sun and rain, to avoid ambient temperature is above 45 °C and relative humidity greater than 95%
- 4) Select the ease of maintenance, easy activities take place
- 5) meter should be installed in the rear end of the pump must not be installed on the suction side; valve it should be installed in the downstream side of the meter.

#### How to correctly select the installation node:

Correct choice of mounting points and the meter is a very important part is correctly installed, if

the installation link failure, the light affect the measurement accuracy, weight will affect the life of the meter, or even damage the meter.

When selecting the installation location in need of special attention:

Non-measuring electrode axis must be approximately horizontal direction;

- Must be completely filled with liquid measuring pipe;
- Meter front will need at least  $5 * D$  (D for meter diameter) length of straight pipe, the rear will need at least  $3 * D$  (D for meter diameter) length of straight pipe sections;
- Fluid flow direction and the direction of the arrow flowmeter is consistent;
- Have a vacuum inside the pipeline will damage the lining meter, need special attention;
- There should be no meter in the vicinity of strong electromagnetic fields;
- Near the meter should be plenty of space for installation and maintenance;
- If the measurement pipe vibration, mixing liquid should be fixed on both sides of the flowmeter to measure different media bearing the distance between the mixing point and the meter will need at least  $30 \times D$  (D for meter diameter) length for convenience flowmeter future cleaning and maintenance, you should install a bypass pipe;

RSA SENSORS - ATENDIMENTO



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