TECHNICAL INFO

Turbine Flow Meter
Techbine - RTB series

1. Summary.

2. The basic parameters and technical performance

(1) basic parameters: see table 1

Table 1

	LWGY□	□□□	□	□	□	Description
Type	RTBY					Basic type, +5-24 DVC power supply,
	RTBA					4 ~ 20mA two-wire current output
	RTBB					Battery-powered local LCD indicator
	RTBC					Local LCD indicator/4~20mA two-wire current output
DN(mm)		4				4mm, 0.04 ~ 0.25m3 / h
		6				6mm, 0.1 ~ 0.6m3 / h
		10				10mm, 0.2 ~ 1.2m3 / h
		15				15mm, 0.6~6m3 / h
		20				20mm, 0.8~8m3 / h
		25				25mm, 1 ~ 10m3 / h
		32				32mm, 1.6 ~ 16m3 / h
		40				40mm, 2 ~ 20m3 / h
		50				50mm, 4 ~ 40m3 / h
		65				65mm, 8 ~ 80m3 / h
		80				80mm, 10 ~ 100m3 / h
		100				100mm, 20 ~ 200m3 / h
		125				125mm, 25 ~ 250m3 / h
		150				150mm, 30 ~ 300m3 / h
		200				200mm, 80 ~ 800m3 / h
Explosion						non-explosion-proof type
			B			Explosion-proof type
Precision grade				B		1% accuracy

For DN4-DN40, process connection is thread type, Max pressure is 6.3Mpa.
For DN50-DN200, process connection is flange type. Max.pressure is 2.5Mpa;
For DN4-DN10, sensor was equipped with straight pipe and filter.
For sensor over DN15, straight pipe can be equipped per request.

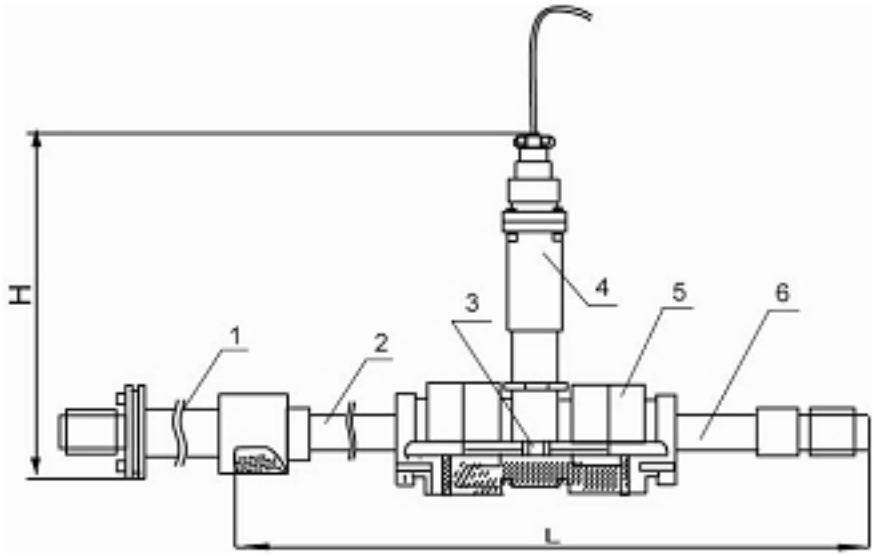
℃

1. T**he ambient temperature:** -20 ~ +55 ℃
2. **Power supply:** Voltage: +5-24 VDC, Current: ≤ 10mA
3. **Transmitting distance from sensor to display instrument up to 1000m.**
4. **Medium temperature:** -20 ~ +120

3. Installation, use and adjustment

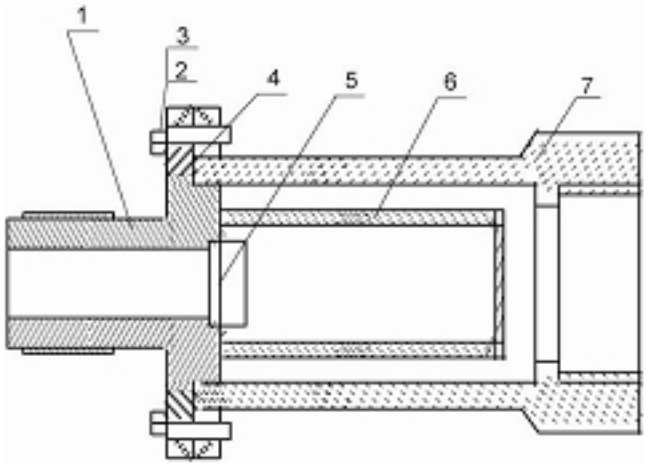
(1) Installation

The installation type of sensors can be thread or flange based on sensor size. Please view Figure 1, Figure 2, Figure 3, for installation. See table 2 for installation size.



1.Filter 2.Prior straight pipe 3. turbine 4.Pre-amplifier 5.body 6.rear straight pipe

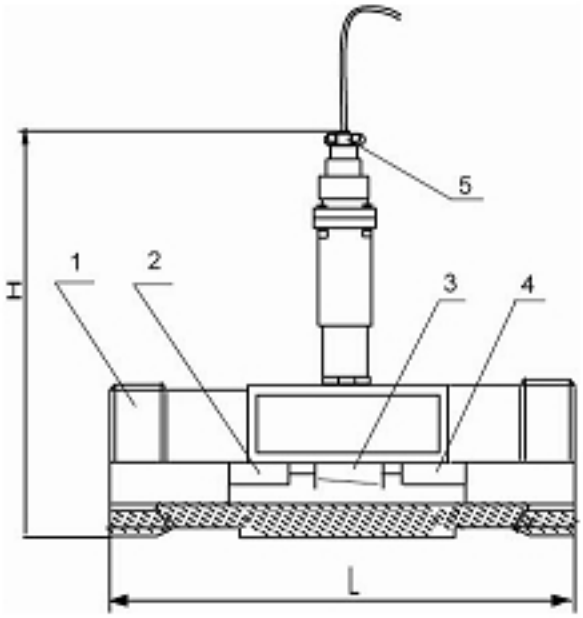
Overall structure



× **Filter** ×

RTBY -4~10 Sensors structure and Installation

1.pressing part, 2.Bolt 4 14, 3.washer, 4.Sealing gasket, 5.steel wire 1Cr18Ni9Ti-0.8 2.5, 6.Filter, 7.holder



1.body, 2.prior flow-guider, 3.turbine, 4.rear flow-guider, 5. amplifier

Figure 2 RTBY-15 ~ 40 sensors structure and installation

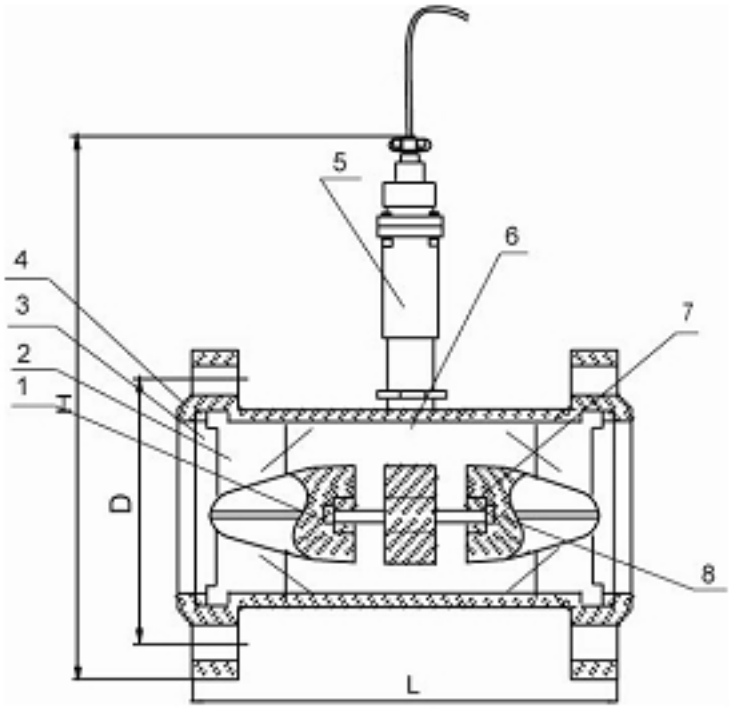


Figure 3 RTBY-50~200 Sensors Structure and Installation

1.Ball bearings, 2.prior flow-guider, 3.pressing part, 4.body, 5.amplifier, 6.turbine, 7. Bearings, 8. shaft

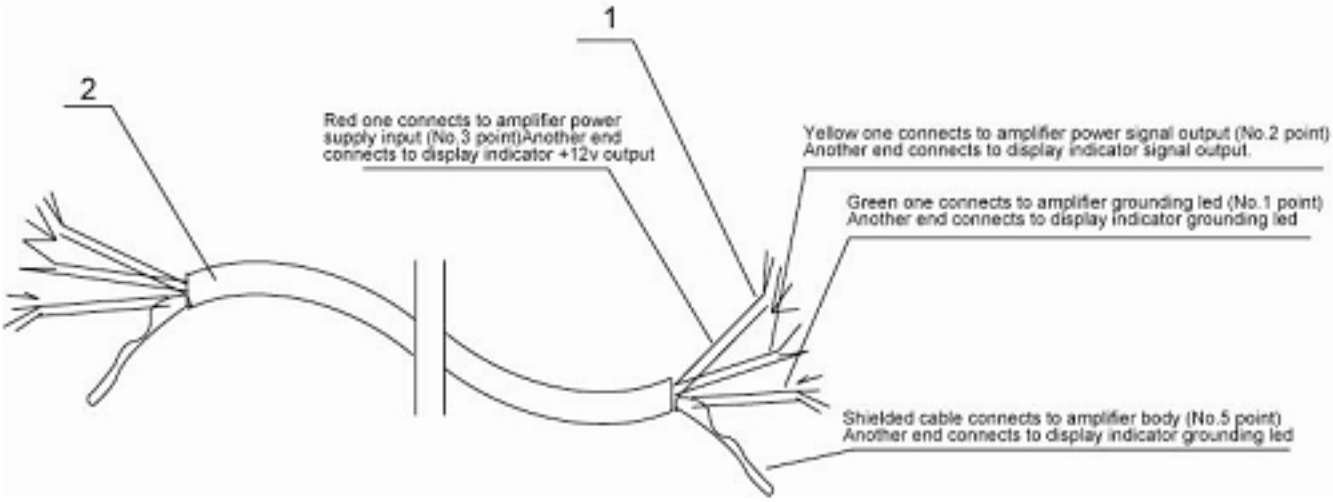


Figure 4 wiring between sensors and indicator

Table 2

	DN(mm)	L(mm)	H(mm)	G	L′ (mm)	D（mm)	d(mm)	Holes
RTBY -4	4	275	145	G1/2	215			
RTBY-6	6	275	145	G1/2	215			
RTBY-10	10	455	165	G1/2	350			
RTBY-15	15	75	173	G1				
RTBY-25	25	100	180	G5/4				
RTBY-40	40	140	178	G2				
RTBY-50	50	150	252			Φ125	Φ18	4
RTBY-80	80	200	287			Φ160	Φ18	8
RTBY-100	100	220	322			Φ180	Φ18	8
RTBY-150	150	300	367			Φ250	Φ25	8

◆Sensors can be installed horizontally or vertically. If the sensor was installed vertically, liquid shall flow upward. Pipe shall be filled fully with liquid and without bulb. The direction of liquid flow shall follow the arrow marked on the sensors. There shall be at least 20D straight pipe prior to the sensor and 5D straight pipe behind the sensors. The wall inside should be smooth and clean. There shall be no dents, fouling and furrow on wall inside. The axis of sensor should be aligned with the axis of adjacent pipeline. Sealing gaskets shall not rise over wall inside.

◆Sensor should stay away from outside world electric and magnetic fields. If necessary, please

take effective screening measures in order to avoid external interference.

◆If sensors were installed outdoor, please take water-proof measure to protect the amplifier.

◆By-pass pie was suggested to install so that liquid transference does not have to be stopped during overhaul.

◆If the fluid contains impurities, filter shall be installed. Filter mesh is up to the size of impurity. Generally mesh number 20-60 was suggested. When there's bulb in the fluid, air-eliminator should be installed. The entire pipeline system should be sealed will.

◆Users should fully aware of the corrosions of medium to protect sensor against corrosion.

(2) Operation and adjustment

◆To keep liquid clean and no fiber and impurity.

◆Please open valve slowly and fill the sensor gradually. High water hamper to the empty sensor was prohibited.

◆Normally sensor maintenance period is six months. During cleaning of sensor, please pay attention not to damage measurement cavity parts, especially the turbine. Before assembly, please pay attention to the relationship between the turbine and flow-guider.

◆For storage, please clean the liquid inside the sensor, and cover 2 ends of the sensor against impurity entering the sensor. Please keep the sensor in dry and clean place

◆For equipped filter, please clean it periodically. When it's not used, please clean and store it just as to sensor.

◆Sensor's transmission cable can be laid overhead or underground (please put the cable into metal pipe if it's buried underground.)

◆Before sensors installed, please connect electrically the sensor to indicator to see whether indicator shows flow when user rotates the turbine. If no flow displays on indicator, please check the relevant part to kill trouble before installation.

4. Maintenance and common fault

Sensors may have a general fault. Please shoot the trouble against table 3. Maintenance cycle should not exceed six months.

Table 3

No.	Fault phenomenon	Reasons	Elimination
1	Display instrument shows on flow	1. No powered or wrong voltage. 2. Fault with display instrument	1. Connected to power, according to requirements of a given voltage. 2. Check display instrument.
2	Display instrument works well but shows no flow.	1. Sensor and display instrument was connected wrongly (open-circuit, short circuit, poor contact, such as fault) 2. Fault with amplifier 3. Converters (coil) open or short circuit. 4. Turbine was stuck or no liquid flows in pipe.	1. Check wiring according to Figure 2. Repair or replace amplifier. 3. Repairing or replacing the coil. 4. Cleaning sensor and pipe. Opening valves or pumps to clean pipelines.
3	Display instrument does work steadily or measurement is not correct.	1. The actual flow exceeds sensor flow-range or not stable. 2. Instrument coefficient K setting is incorrect. 3. Sensor turbine was wrapped with impurities like fiber. 4. There's bulb in the liquid. 5. Sensor next to strong electromagnetic field interference. 6. Sensor bearings and shaft were seriously worn. 7. Sensor shielded cable or other grounding wires and lines disconnected or bad grounded. 8. Display Instrument fault.	1. the measured flow-range shall be suitable to the sensor flow-range, to keep flow steady. 2. To correct coefficient K. 3. Cleaning sensor. 4. Take measures to eliminate air bubbles. 5. As far as possible away from sources of interference or shielding measures. 6. Replace flow-guider or turbine shaft 7. Wire according to Figure 4 8. Repair display instrument.

5. Transportation、storage

Transportation and storage in accordance with the following conditions:

a, Rainproof dampproof place and package

b, No mechanical vibrations or shocks

c, Temperature range -20 ℃ ~ +55 ℃

d, Relative humidity of not more than 80%

e, The environment is non-corrosive gases.