

—— Sensor and controller ——

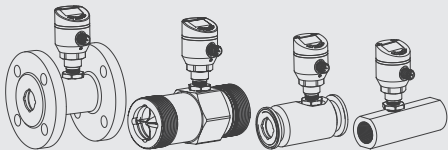
■ Flow ■ pressure ■ temperature ■ level ■ position

# OCTOGON

## Operation instruction

### Electronic turbine flow sensor

### QKA120 Series



## **Safety statement**

- Before installing this device, please read this document to ensure that the product is suitable for your application and is not limited in any way;
  - Failure to follow the operating instructions or technical data may result in personal injury or property damage;
  - Check the compatibility of the product material with the medium to be tested in all applications;
  - The equipment is only used as the medium to be tested, and it must only be ensured that the equipment is used correctly for long-term stable operation.
- Ensure that the tested medium will not cause damage to the tested part of the product;

! The responsibility for determining whether the measurement sensor is suitable for the application lies with the operator, and the manufacturer accepts no responsibility for the consequences of improper use by the operator. Improper installation and use of the sensor results in invalid claims under warranty.

Flow sensors monitor the medium flow of fluids

**Precautions: Beware of personal injury, overpressure danger!**

## **Product profile**

QKA120 series electronic flow sensor is a collection of flow measurement, display, output, control in one of the intelligent digital display flow measurement and control products. The product is A turbine body and electronic structure, the output pulse signal is amplified by a high-precision, low-temperature bleach-amplifier, sent to a high-precision A/D converter, converted into a digital signal that can be processed by the microprocessor, and the signal is remotely monitored and controlled by the arithmetic processing to measure and control the system flow. Flexible use, simple operation, easy debugging, safe and reliable. Widely used in hydropower, tap water, petroleum, chemical, mechanical equipment, hydraulic lubrication and other industries, to measure the flow of fluid media display and control.

## **Product characteristics**

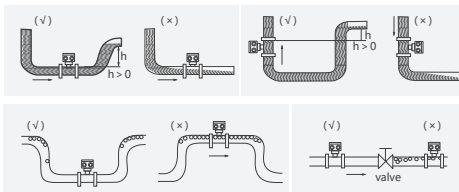
- Color crystal digital display instantaneous flow value, cumulative flow value
- Remote traffic detection and control
- Any calibration on site
- Arbitrary switch between measurement control mode and unit
- With switch alarm setting function
- Output signals can be generated according to the operating mode and parameter Settings
- Switch control PNP/NPN arbitrary switching, normally open/normally closed arbitrary switching

## **Installation instructions**

- ! Before installing or removing a sensor, ensure that no media exists in the system to prevent leakage.
- Connect the sensor device to the selected process port
  - Full tightening, recommended tightening torque range: 25 to 35Nm
  - Hose fastening is an option in critical applications such as severe vibration or shock Perform mechanical decoupling.

## **Installation precautions**

- The upstream and downstream of the flow meter must have a sufficiently long straight pipe section: the front straight pipe section is 5 times the caliber, and the back straight pipe section is 10 times the caliber.

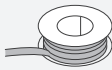


### 【Installation precautions】

- Please purge the new pipeline before installing the flowmeter to prevent foreign matter in the pipeline from damaging the flowmeter.
- Do not weld flanges with flowmeters; After the flange is welded, the welding slag burr in the pipe must be cleaned.
- Installation flow timing should pay attention to the direction, keep the flow meter arrow and the medium flow direction consistent.
- When installed outdoors, waterproof treatment should be done, if the position of the cable is higher than the position of the case, Before the signal line enters the case, it should be bent downward into the case to prevent rain from leaking into the case along the cable.
- Avoid installation in high temperature (above 50 ° C) and low temperature (below minus 20 ° C).
- Avoid installation in the case of strong electromagnetic interference (such as high-power frequency converter, motor, etc.), strong current and weak current should be separated during wiring.
- Avoid installation on pipes with mechanical vibration, if installation is necessary, vibration mitigation measures must be taken. Like a hose transition, or a shock pad.
- Avoid the installation on the overhead long pipe, the pipe sag caused the sealing between the flow meter and the flange leakage; If it must be installed, Pipe support points should be located near the upstream and downstream of the flow meter.



Metal/iron filings

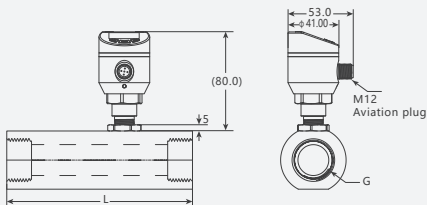


entangle

**Note: No foreign matter is allowed in the pipe**

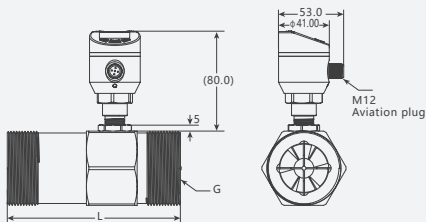
## Dimensions (mm)

### ■ Internal thread connection



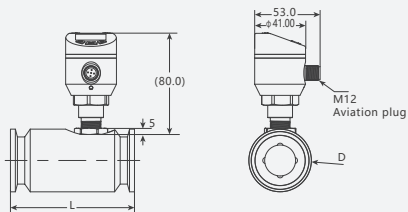
**Sealing method:** It is recommended to use card sleeve type ED sealing joint

### ■ External thread connection



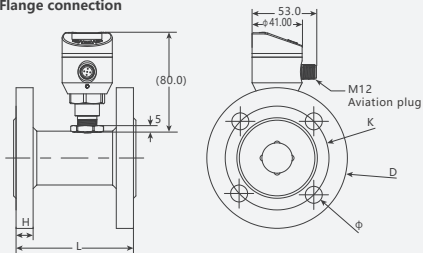
**Sealing method:** Flat gasket is recommended

## ■ Clamp connection



**Sealing method:** chuck type sealing gasket

## ■ Flange connection

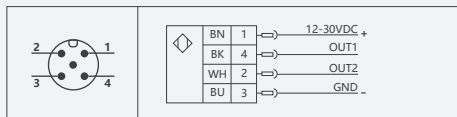


**Sealing method:** flange type sealing gasket

## Size table (mm)

caliber (mm)	Flange connection (1.6MPa)					male screw			Internal thread		Clamp connection	
	Outside diameter D	Center distance K	Hole diameter φ	Hole number N	thickness H	Body length L		Process connection	Body length L	Screw thread G	Outside diameter of chuck D	Body length L
						Straight pipe	No straight pipe					
6						345	65	G1/2	80	1/2	50.5	50
10						345	65	G1/2	80	1/2	50.5	50
12	95	65	14	4	14	65		G3/4	80	1/2	50.5	50
15	95	65	14	4	14	75		G1(33.2)	110	1/2	50.5	75
20	105	75	14	4	16	85		G1(33.2)	115	3/4	50.5	85
25	115	85	14	4	16	100		G1-1/4(41.9)	140	1	50.5	100
32	140	100	18	4	18	120		G1-1/2(47.8)	172	1-1/4	50.5	120
40	150	110	18	4	18	140		G2(59.6)	185	1-1/2	64	140
50	165	125	18	4	20	150		G2-1/2(75.1)	200	2	78	150
65	185	145	18	8	20	175		G3	235	2-1/2	91	175
80	200	160	18	8	20	200			260	3	106	200
100	220	180	18	8	22	220					119	220
125	250	210	18	8	22	250						
150	285	240	22	8	24	300						
200	340	295	22	12	26	360						
250	400	355	26	12	28	400						
300	460	410	26	12	32	500						

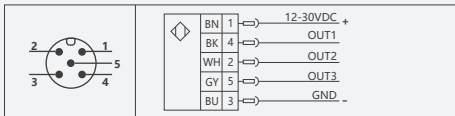
## Wiring diagram



SA: Switch/pulse/frequency /IO-Link/ analog		
color	stitch	Instructions
BN	1	power supply (+)
BU	3	power supply (-)
BK	4 (OUT1)	Flow switch PNP (Factory default) Flow switch NPN Linear pulse (full scale 100Hz) Original pulse Quantitative pulse (full scale *0.1) IO-Link
WH	2 (OUT2)	Flow: 4-20mA (factory default) Flow: 1-5v Flow: 0-10v

AT: Analog quantity (flow/temperature)		
color	stitch	Instructions
BN	1	power supply (+)
BU	3	power supply (-)
BK	4 (OUT1)	Temperature: 4-20mA (factory default) Temperature: 1-5v Temperature: 0-10v
WH	2 (OUT2)	Flow: 4-20mA (factory default) Flow: 1-5v Flow: 0-10v

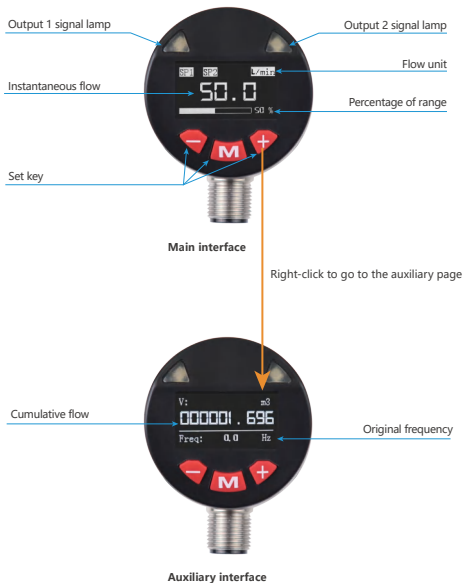




A3: Two switches + one analog		
color	stitch	Instructions
BN	1	power supply (+)
BU	3	power supply (-)
BK	4 (OUT1)	Flow switch PNP (Factory default) Flow switch NPN Linear pulse (full scale 100Hz) Original pulse Quantitative pulse (full scale *0.1)
WH	2 (OUT2)	Flow switch PNP (Factory default) Flow switch NPN
GY	5 (OUT3)	Flow: 4-20mA (factory default) Flow: 1-5v Flow: 0-10v

AR: RS485 Communication/analog		
color	stitch	Instructions
BN	1	power supply (+)
BU	3	power supply (-)
BK	4 (OUT1)	RS485(B)
WH	2 (OUT2)	RS485(A)
GY	5 (OUT3)	Flow: 4-20mA (factory default) Flow: 1-5v Flow: 0-10v

## Panel diagram



## Menu description

Level 1 menu	
SP1 Set	Switch 1 sets the value
RP1 Set	Switch 1 resets the value
SP2 Set	Switch 2 sets the value
RP2 Set	Switch 2 resets the value
F-URV	range
Menu 2 Set	Menu 2 Enter

Level 2 menu	
Factory Reset	factory data reset.
out1 Set	OUT1 Output mode
	W-NC: The window is always closed
	W-NO: The window is always open
	H-NC: hysteresis normally closed
	H-NO: normally open with hysteresis
out2 Set	Hz-OUT: indicates the pulse output
	OUT2 output mode
	W-NC: The window is always closed
	W-NO: The window is always open
	H-NC: hysteresis normally closed
	H-NO: normally open with hysteresis
ds1 Set	Switch 1 output delay
dr1 Set	Switch 1 Reset delay
ds2 Set	Switch 2 output delay
dr2 Set	Switch 2 Reset delay

unit Set	Unit setting
	L/min, mL/min, m <sup>3</sup> /h
PNP/NPN Set	PNP/NPN Settings
F-L-data	Historical minimum
F-H-data	Historical maximum
P-PACE	Filter damping
Low flow cut	Lower flow rate excision
A0-Mode	Analog output
	4-20mA
	0-20mA
	1-5V
	0-5V
	2-10V
	0-10V
d-P-set	Decimal place
digit colour	Master data color
BG colour	Main background color

## Menus and Settings

### ► Main Menu

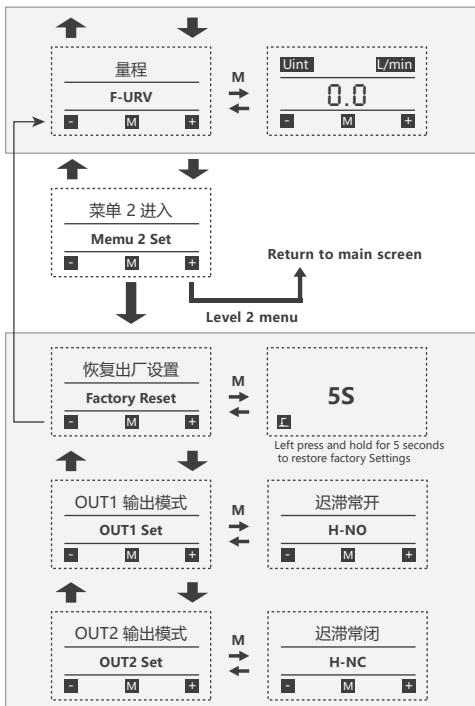
SP1	SP2	L/min
0.0		
<div></div>		0%

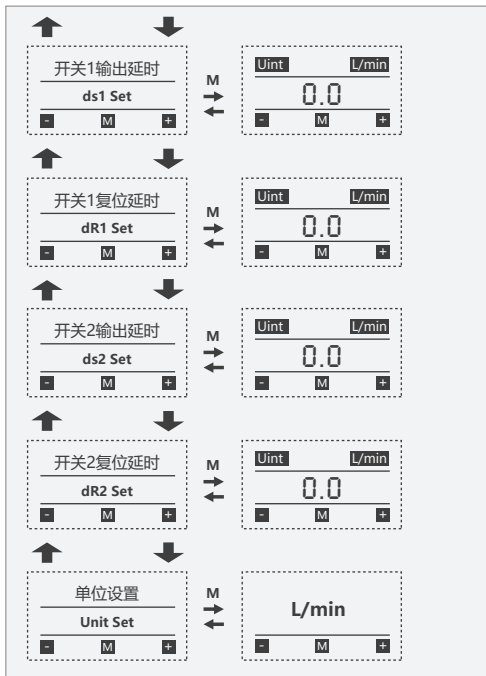


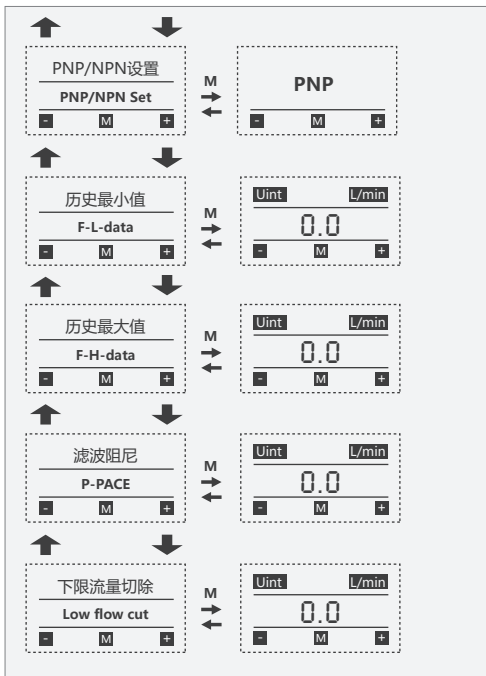
M

Level 1 menu

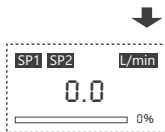
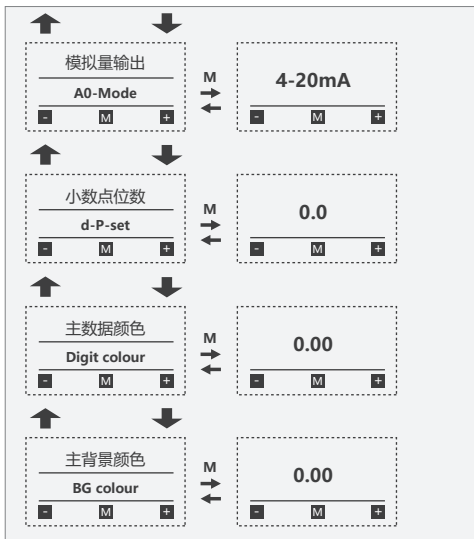
<div>开关1设定值 SP1 Set - M +</div>	M → ←	<div>Unit L/min 0.0 - M +</div>
<div>开关1复位值 RP1 Set - M +</div>	M → ←	<div>Unit L/min 0.0 - M +</div>
<div>开关2设定值 SP2 Set - M +</div>	M → ←	<div>Unit L/min 0.0 - M +</div>
<div>开关2复位值 RP2 Set - M +</div>	M → ←	<div>Unit L/min 0.0 - M +</div>












➤ Main interface


## Fault situation and handling method

Fault phenomenon	Possible cause	Elimination method
There is no output signal after the power is turned on	<ol style="list-style-type: none"> <li>1. No medium flow in the pipeline or the flow rate is lower than the starting flow rate;</li> <li>2. The power supply is incorrectly connected to the output cable.</li> <li>3. The display circuit is damaged</li> </ol>	<ol style="list-style-type: none"> <li>1. Increase the medium flow rate or change to a smaller diameter flowmeter to meet the requirements of the flow range;</li> <li>2. Connect cables correctly.</li> <li>3. Replace the flowmeter</li> </ol>
The flowmeter has signal output when there is no flow	<ol style="list-style-type: none"> <li>1. Poor grounding of the flowmeter and interference of strong electricity and other ground lines;</li> <li>2. The sensitivity of the amplifier is too high or produces self-excitation;</li> <li>3. The power supply is unstable.</li> </ol> Poor filtering and other electrical interference.	<ol style="list-style-type: none"> <li>1. Connect the ground correctly to eliminate interference;</li> <li>2. Replace the preamplifier;</li> <li>3. Repair and replace the power supply to eliminate interference.</li> </ol>
The instantaneous flow indicator is unstable	<ol style="list-style-type: none"> <li>1. The medium flow is unstable;</li> <li>2. The sensitivity of the amplifier is too high or too low, and there are multiple and missing pulse phenomena;</li> <li>3. There are debris in the shell;</li> <li>4. Poor grounding;</li> <li>5. The flow rate is lower than the lower limit;</li> <li>6. Foreign matter enters the pipe, forming a disturbance.</li> </ol>	<ol style="list-style-type: none"> <li>1. Test after the flow rate is stable;</li> <li>2. Replace the preamplifier;</li> <li>3. Remove dirt;</li> <li>4. Check the ground cable to ensure that it is normal</li> </ol>
The indicated cumulative flow does not match the actual cumulative flow	<ol style="list-style-type: none"> <li>1. Incorrect input of meter coefficient;</li> <li>2. The normal flow rate of the user is lower than or higher than the normal flow range of the selected flowmeter;</li> <li>3. The flow meter itself is out of tolerance</li> </ol>	<ol style="list-style-type: none"> <li>1. Enter the correct instrument coefficient after re-calibration;</li> <li>2. Adjust the flow rate of the pipeline to make it normal or choose a flowmeter of appropriate specifications;</li> <li>3. Recalibrate.</li> </ol>
Key exception	The converter key is in poor contact or locked.	Replace the display board.

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