FLOW SENSORS MANUAL

IP67 CE SGS RoHS

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Installation

1.It is suggested to install the sensor in the sides while installing it in the horizontal pipe.(Fig.1)
- It is supposed to clear up the sediments while installing the sensor in the bottom of the pipe.
- It is supposed to pay attention to the medium occupied the pipe while installing the sensor in the top of the pipe.

2.Install the sensor in the place which the medium flows upward while installing it in the vertical pipe.(Fig.2)

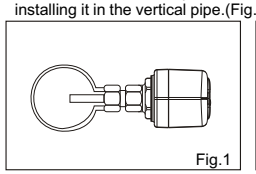


Fig.1

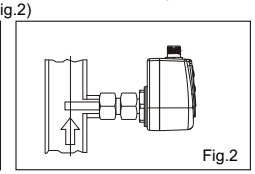
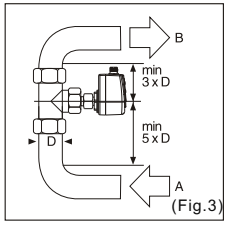
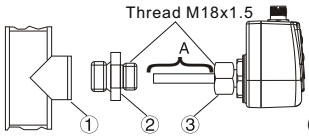


Fig.2

3.Avoiding damage, the user should watch out for the minimum distance between the sensor and the curve, the valve, and the cross section which changes. (Fig.3):
- Entrance (A)
- Exit (B)
- Diameter of the pipeline(D)



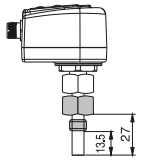
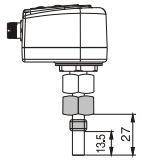
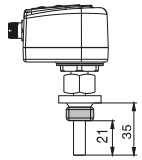
(Fig.3)



(Fig.4)

1.To screw the nut smoothly, please add the lubricant on the nut ③ and the threads. (Fig.4)
Notice: It is disallowed to add lubricant on the sensor.
2. Screw a suitable connector ② to the joint ①. (Fig.4)
3. Insert the sensor to the connector and then screw the nut ③ (The biggest screwing torque: 50Nm). (Fig.4)

The depth of insertion: The minimum depth inserting to the pipeline is 12mm. To insure the correct depth, the user can use a connector (Accessory; optional order).
Notice: The probe of sensor is not allowed to contact the wall of the pipe.

Mounting size M12 connector	Mounting size G1/4"connector	Mounting size G1/2 "connector
		

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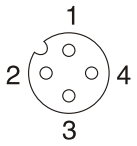
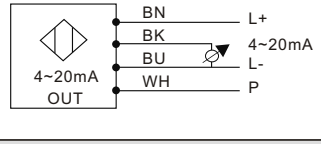
Pinout & Connection

■ Pinout(The following figure)



■ Pinout definition
PIN1: L+, Positive pole (BN)
PIN2: P, Programming wire (WH)
PIN3: L- ,Negative pole (BU)
PIN4: 4~20 output (BK)

■ Connection



Programming wire (for remote adjustment)
Core color:
1=BN (Brown) 2=WH (White)
3=BU (Blue) 4=BK (Black)

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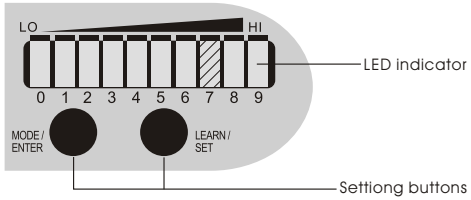
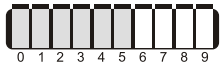
Menu setting and Indicator status

■ Controls and visual indication

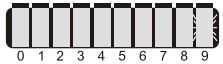


■ Button definition
MODE / ENTER: Selection / Confirmation
Learn/Set: Adjust to the biggest / smallest flow; value setting (Keep pressing button to scroll the display; Press button once to increase the value progressive.)

■ Display (Operation)



In the display range (LED bar Green)



Over the flow range (LED 9 Flash)

Current is too low (LED 0 Flash)

Switching point display (SP) :
LED Orange: Flow>SP; LED Red: Flow<SP

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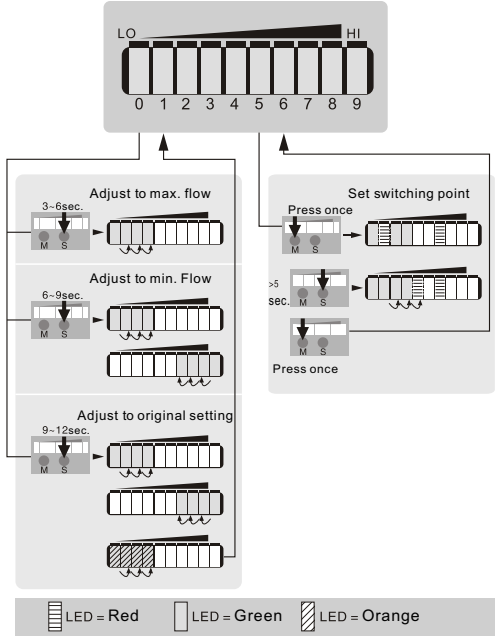
■Menu setting

1. Menu structure



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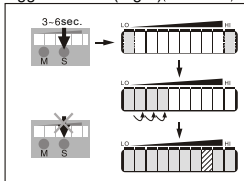
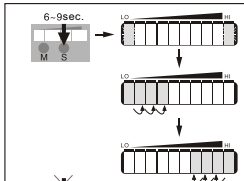
2. Sensing range setting
Adjust to the biggest flow.(HI-Teach) Connect up the power. The sensor is ready to run after 8 sec., and then makes the biggest flow required by the medium pass the system. The sensor detects the current flow and sets the value when the LED displays the biggest value. (Fig.6)(Iout:20mA)



Press LEARN/SET button, then the left and right green LED both flash.
3 sec. later, LED segments turn all green (green light) from left to right. (Loose the button at this moment.)
The light is extinct soon and the current flow will be record as the biggest one and then the sensor alters to operation mode (Iout:20mA).

・Adjust to the smallest flow / flow stop. The sensor detects the current flow and sets the value as the smallest display value of LED (Iout:4mA).In the normal operation, the first green LED (LED 0) flashes when the flow smaller than this value (or when the flow stops).
Notice: LO-Teach operation is only allowed to be done after HI-Teach.



Press LEARN/SET button, then the left and right green LED both flash.
3 sec. later, LED segments turn all green (green light) from left to right.
More 5 sec. later, LED segments turn all green again (green light) from right to (Loose the button at this moment.)
The light is extinct soon and the current flow will be record as the smallest one and then the sensor alters to operation mode (Iout:4mA).

It is allowed the medium to pass the system or stop flow by the least flow required.

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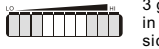
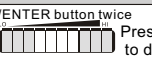
3. Start/Non-start remote adjustment

・On/off

On		3 green LED lights flash in both left and right sides.
Off		4 red LED lights flash in the center.

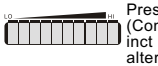
・Remote adjustment



Press MODE/ENTER button twice to display the current setting.

Press LEARN/SET button


The function changes in 5 sec. (The function is changing as press the LEARN/SET button.)


Press MODE/ENTER button. (Confirmation) The display is extinct soon and then the sensor alters to operation mode.

After actirating this function, connect PIN2 and L+ to run remote adjustment.

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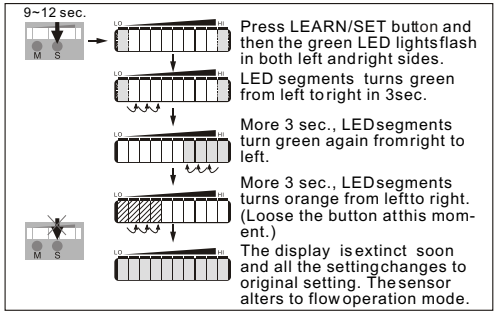
4. Original setting



5. Remote adjustment

Adjust to biggest flow (HI-Teach):
connected to power,the sensor is ready to run after 8 sec. and allowed the biggest flow required by medium to pass the system. After connect remote adjust wire (RED) to power L+,both left and right LED start flashing for 2-3 sec. LED segments turn all green (green light) from left to right. Loose the button during this procedure, the light extinct soon and the current rate of flow will be record as the biggest one and then this sensor alters to operation mode (Iout:20mA).

Adjust to smallest flow / flow stop（LO-Teach）:
The sensor detects the current flow and sets the value as the smallest display value of LED. In the normal operation, the first green LED (LED 0) flashes when the flow smaller than this value.(or when the flow stops)After connect remote adjust wire (RED) to power L+, both left and right LED start flashing for 2-3 sec. LED segments turn all green (green light) from left to right and then turn green again from left to right in 5-6sec. Loose the button during this procedure, the light is extinct soon and the current rate of flow will be record as the smallest one and then this sensor alters to operation mode(Iout:4mA).

6. Lock/Unlock

This sensor can be locked electrically to escape the parameter set from changed accidentally .The buttons are under lock while repower in.

・Lock：This sensor owns automatic button lock function. When there is no button being pressed in 2 minutes, it will lock the button automatically. Under locked the detection of changes of the flow rate is running regularly, outputting and warning remote adjusting.

・Unlock：Press two buttons simultaneously and keep pressing for 10sec. The user can adjust relevant parameters by the buttons. While the 2 greenLED in the center flash.

Technical parameter

	Operating Voltage [V]	20...36V DC
	Output	4~20mA
	Max.output load [ohm]	500
	Outputaccuracy	±10%(Standard under the normal temp. 25℃ of water)
	Reverse polarity protection	YES
	Current consumption [mA]	< 80
	Temperature gradient of medium [K/min]	300
	Pressure rating [bar]	300
Liquid medium	Temperature [℃]	-25...80
	Monitor range [cm/s]	3...60
Gas medium	Temperature [℃]	-25...80
	Monitor range [cm/s]	200...800
	Power-on delay time [s]	< 8
	Output response time [s]	< 2
	Protection classification	IP67(IEC 60529) / (UL50)
Operating environment	Temperature [℃]	-25...80
	Humidity	15...85%
	Resistance to shock [g]	50 (DIN / IEC 68-2-27, 11 ms)
	Resistance to vibration[g]	20 (DIN / IEC 68-2-6, 55-2000 Hz)
Storage	Temperature [℃]	-25...+70
	Humidity	15...95%
	Display LED	3 colors LED x 10
	Certification	CE; RoHS