



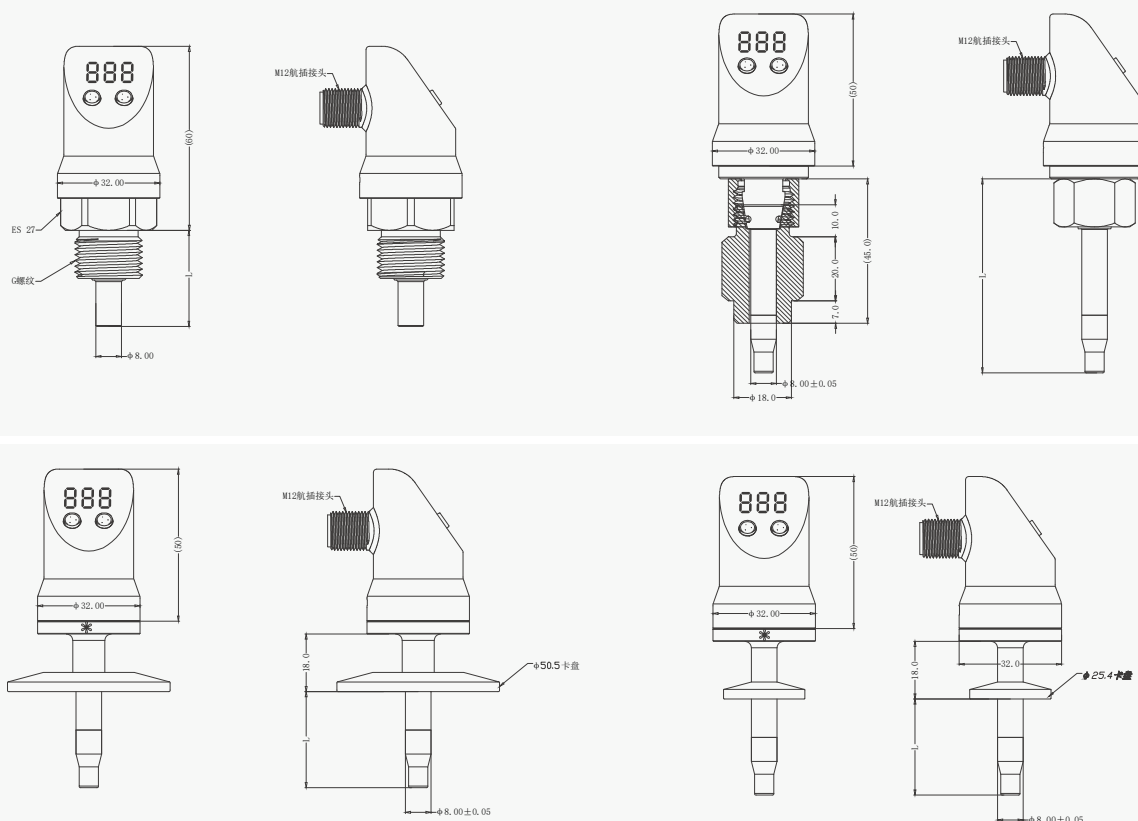
Principle structure

The FS220 series electronic flow switch/sensor has its signal processed by the post-processing circuit and converted into a standard industrial electrical signal for output and display. The one-piece injection molded shell design enables this series of products to be used in various industrial Settings. Key setting, simple operation, high-brightness LED can digitally display real-time measurement values. Multiple connection methods can fully meet various specific installation requirements.

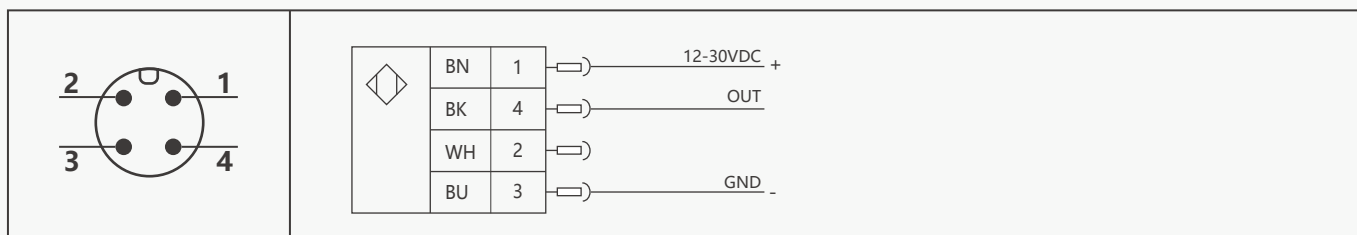
Technical parameters

- ◇ Measured medium: Water/Oil/air
- ◇ Supply voltage: 12... 30Vdc
- ◇ No-load current consumption: Maximum 30mA, powered by 24Vdc
- ◇ Output type: PNP/NPN can be set, and normally open/normally closed can be set
- Switching load: <200mA
- Response time: 1-13 seconds
- ◇ Wiring protection: Reverse phase, overload, short circuit protection
- ◇ Temperature
- Medium temperature: -20... 85°C
- Ambient temperature: -20... 80°C
- Storage temperature: -30... 80°C
- ◇ Materials:
- Induction probe: Stainless steel 304
- Process connection: Stainless steel 304
- Shell: Engineering plastic
- ◇ Protection grade: IP67
- ◇ Cable exit method: M12x1 connector

尺寸图 (mm)



Wiring diagram



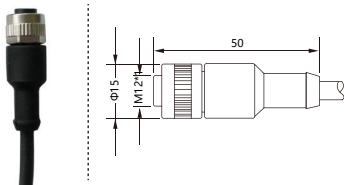
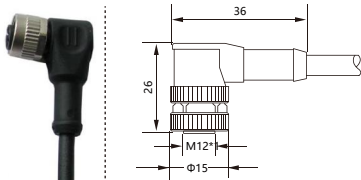
1-channel Switch

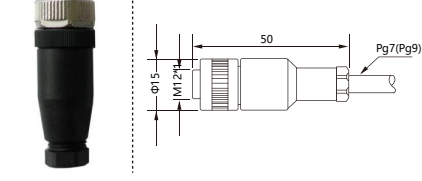
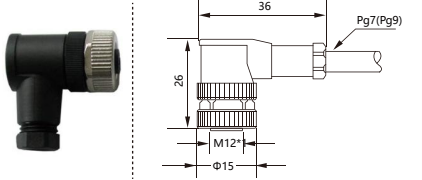
color	stitch	Instructions	color	stitch	Instructions
BN	1	power supply (+)	BU	3	power supply (-)
BK	4 (OUT)	SP1 Switch PNP (Factory default) SP1 Switch NPN	WH	2	/

Selection Table

FS220-	G12M	L030	-	Detailed description	
FS220-				FS220 Electronic flow switch	
	G12M			Interface thread: G1/2 external thread	
	G14M			Interface thread: G1/4 external thread	
	R12M			Interface thread: R1/2 external thread	
	R14M			Interface thread: R1/4 external thread	
	M18K			Process connection: M18×1.5 internal thread It is convenient to use in conjunction with the installation accessories for on-site installation. The direction can be adjusted by rotation.	
	H25			Process connection: Outer diameter 25.4mm, 1/2 chuck connection (National standard: ISO2852-1993)	
	H50			Process connection: Outer diameter 50.5mm, 1.5-inch chuck connection (National standard: ISO2852-1993)	
		L030		The length of the probe rod L=30mm	It is recommended to choose only the chuck type
		L050		The length of the probe rod L=50mm	
		L060		The length of the probe rod L=60mm	It is recommended to choose the M18K internal thread type ≤DN32
		L070		The length of the probe rod L=70mm	It is recommended to choose M18K internal thread type ≥DN40
		L080		The length of the probe rod L=80mm	It is recommended to choose the M18K internal thread type with a diameter of ≥DN50
		L100		The length of the probe rod L=100mm	
			-	Output signal: 1-channel switch	

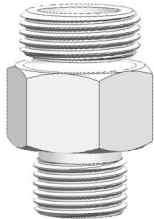
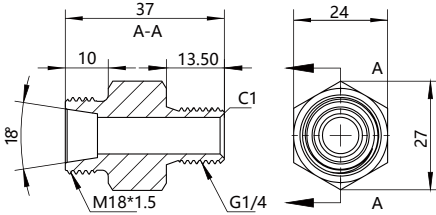
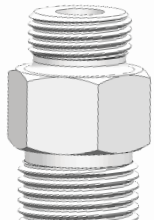
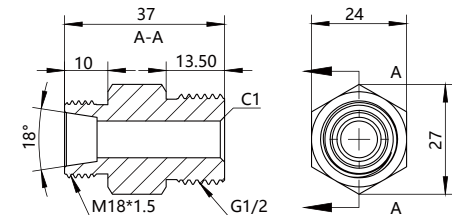
Factory standard: ZL03-PC02G

name	Outline drawing/dimension drawing (mm)	material	model
M12*1-4Pin (2m cable)		PUR	ZL03-PU02G
M12*1-4Pin (5m cable)			ZL03-PU05G
M12*1-4Pin (10m cable)			ZL03-PU010G
		PVC	ZL03-PC02G
			ZL03-PC05G
			ZL03-PC010G
M12*1-4Pin (2m cable)		PUR	ZL03-PU02W
M12*1-4Pin (5m cable)			ZL03-PU05W
M12*1-4Pin (10m cable)			ZL03-PU010W
		PVC	ZL03-PC02W
			ZL03-PC05W
			ZL03-PC010W

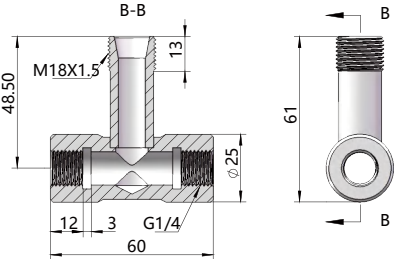
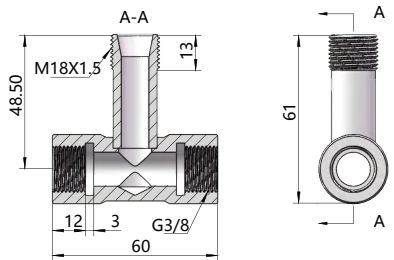
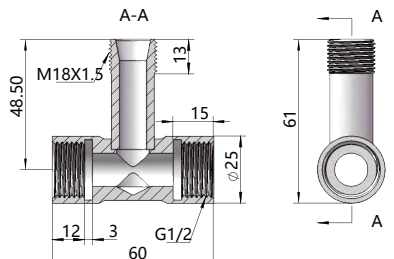
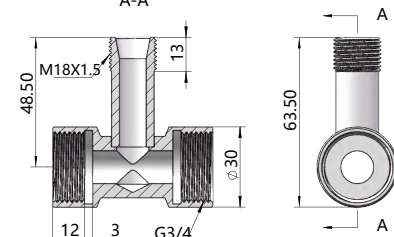
M12* 1-4pin self-connector/size drawing (mm)	model
	GL04 (4Pin joint)
	WL04 (4Pin joint)

name	External drawing	Size drawing (unit :mm)	model
G1/4 Welded base			FA002-G14 (Material: 304 stainless steel)
G1/2 High pressure welded base			FA002-G12H (Material: 304 stainless steel)
G1/2 Welded base			FA002-G12 (Material: 304 stainless steel)
Rc1/4 Welded base			FA002-R14 (Material: 304 stainless steel)
Rc1/2 Welded base			FA002-R12 (Material: 304 stainless steel)
M12*1 Welded base			FA002-M12 (Material: 304 stainless steel)

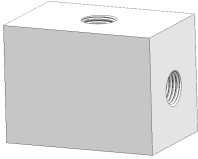
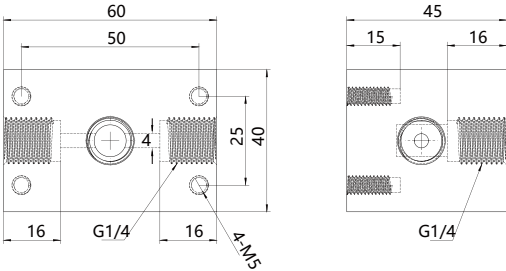
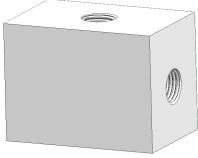
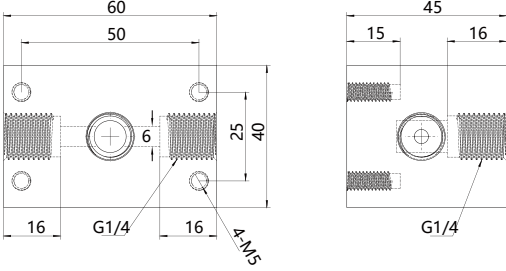
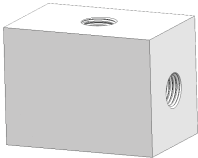
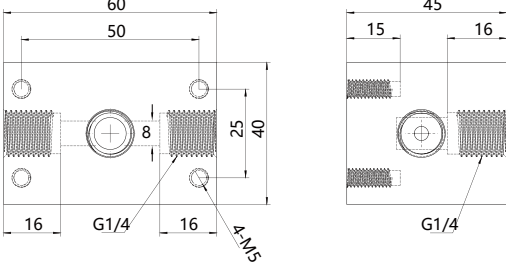
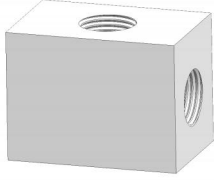
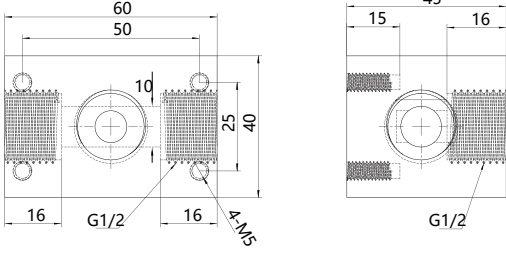
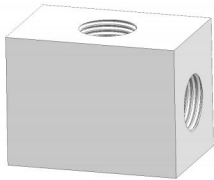
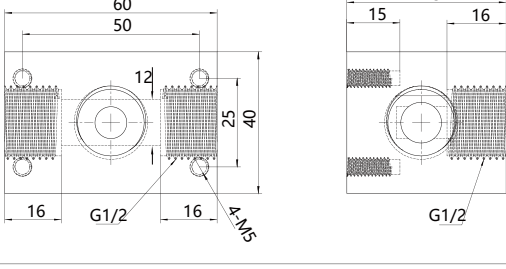
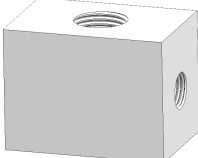
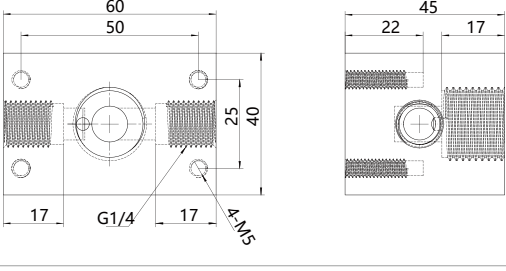
Adapter (M18 internal thread only optional)

name	External drawing	Size chart (mm)	model
M18 * 1.5 internal thread To g1/4 male thread, Probe insertion depth 15mm			FA004-M18G14S (Material: 304 stainless steel)
			FA004-M18G14T (Material: brass)
M18 * 1.5 internal thread To g1/2 male thread			FA004-M18G12S (Material: 304 stainless steel)
			FA004-M18G12T (Material: brass)

Tee (stainless steel) (M18 internal thread only optional)

name	External drawing	Size chart (mm)	model
M18 * 1.5 internal thread Equipped with G1/4 tee			FA003-M18G14 (Material: 304 stainless steel)
M18 * 1.5 internal thread With G3/8 tee			FA003-M18G38 (Material: 304 stainless steel)
M18 * 1.5 internal thread Equipped with G1/2 tee			FA003-M18G12 (Material: 304 stainless steel)
M18 * 1.5 internal thread With G3/4 tee			FA003-M18G34 (Material: 304 stainless steel)

Tee (PP) (external thread only optional)

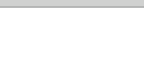
name	External drawing	Size chart (mm)	model
Type G1/4 small flow tee			FA010-04G14 (material: PP)
Type G1/4 straight hole tee			FA010-06G14 (material: PP)
Type G1/4 small flow tee			FA010-08G14 (material: PP)
Type G1/2 straight hole tee			FA010-10G12 (material: PP)
Type G1/2 straight hole tee			FA010-12G12 (material: PP)
G1/4 gas only Tee adapter			FA012-01 (material: PP)

Tee (conventional stainless steel :40bar) (external thread only optional)

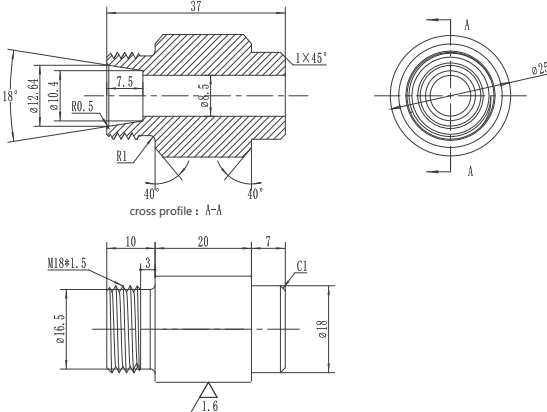


External drawing		Size table			
Conventional tee					
Diameter of thread	Inch code	Pipe thread (R)	Model number		
DN15	4 points	1/2	FA013-R12K		
Reducing tee					
Diameter of thread	Inch code	Pipe thread left (R)	Pipe thread center (R)	Pipe thread right (R)	Model number
DN20	6 points×4 points	3/4 "	1/2"	3/4 "	FA013-R12KR34K
DN25	1 inch x 4 points	1"	1/2"	1"	FA013-R12KR1K
DN32	1.2 inches x 4 points	1.2 "	1/2"	1.2 "	FA013-R12KR1.2K

Tee (high pressure stainless steel :200bar) (external thread only optional)

External drawing	Size table					
	Conventional tee					
	Diameter of thread	Inch code	Pipe thread (G)	Model number		
	DN15	Four points	1/2	FA014-G12K		
	Reducing tee					
	Diameter of thread	Inch code	Pipe thread left	Pipe thread center	Pipe thread right	Model number
	DN20	6 points x 4 points	G 3/4 "	G 1/2"	G 3/4 "	FA014-G12KG34K
	DN25	1 inch x 4 points	G 1"	G 1/2"	G 1"	FA014-G12KG1K

Welded base (M18 internal thread only optional)

name	External drawing	Size drawing (unit :mm)	model
M18*1.5 Welded base			FA002-M18 (Material: 304 stainless steel)

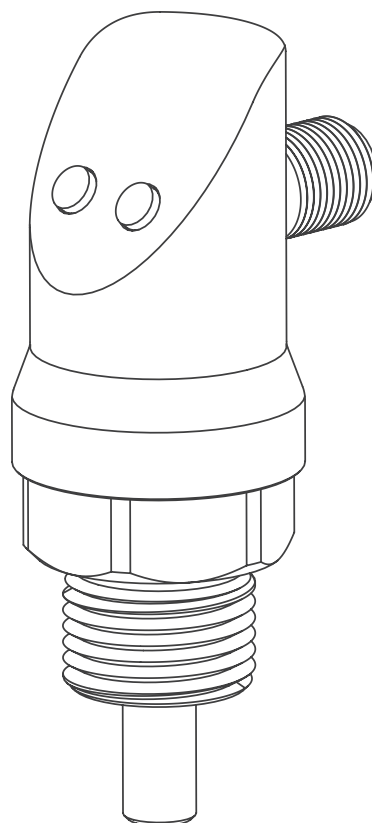
—— Sensor and controller ——
■ Flow ■ pressure ■ temperature ■ level ■ position

KATU 卡图

Operation instruction

Digital display Flow switch

FS220 series



Purpose of product application



danger

The sensor (switch) can only be used in the specified application range.

The temperature range must be within the permissible range. Do not exceed the rated pressure and power load value.

Assembly, commissioning and operation must be carried out in accordance with applicable national and local safety instructions.

The switch is designed to be used as a safety device for pressurizing the system in accordance with "Pressure Equipment Directive 97/23 / EC(PED)".

Standard

The standards applied during development, manufacturing and configuration are listed in the CE Compliance and manufacturer declarations.

Quality assurance

Our scope of delivery and service is subject to legal warranties and warranty periods.

Warranty clause

We guarantee that the functions and materials of the dual pressure switch meet the statutory requirements under normal operation and maintenance conditions.

Security of loss

Such as:

- Incorrect use,
- Incorrect installation
- Incorrect operation or operation in violation of the provisions of this operation manual.

No liability shall be assumed for any damage resulting therefrom or consequential.

Safety instruction

Safety instructions are intended to protect users from dangerous situations and /or prevent material damage.

In the operating instructions, the severity of the potential risk can be indicated by the following signal words:



danger

An imminent danger to the user. Failure to comply may result in fatal injury.



warning

An identifiable hazard.

Failure to comply may result in fatal injury and damage to equipment or plant parts.



caution

It means a danger.

Non-compliance may result in minor injury and material damage to the sensor (switch) and/or plant.



important

Information that is important to the user.

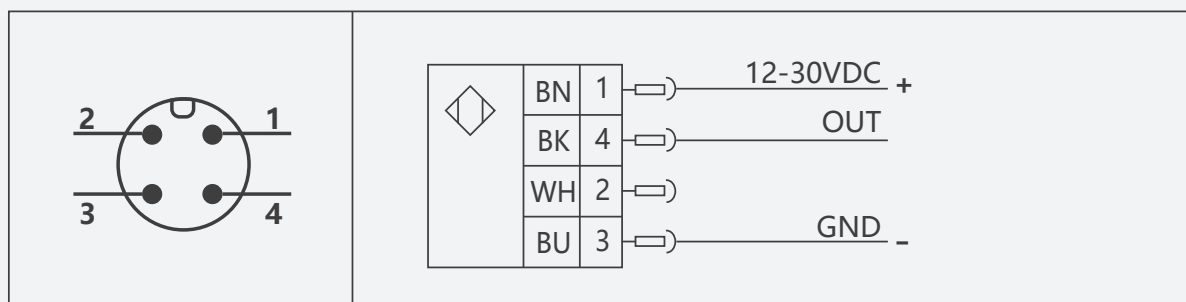


Deal with

Sensors (switches) must be handled correctly in accordance with national or local regulations for electrical/electronic equipment.

Sensors (switches) cannot be disposed of with household waste!

Electrical connection

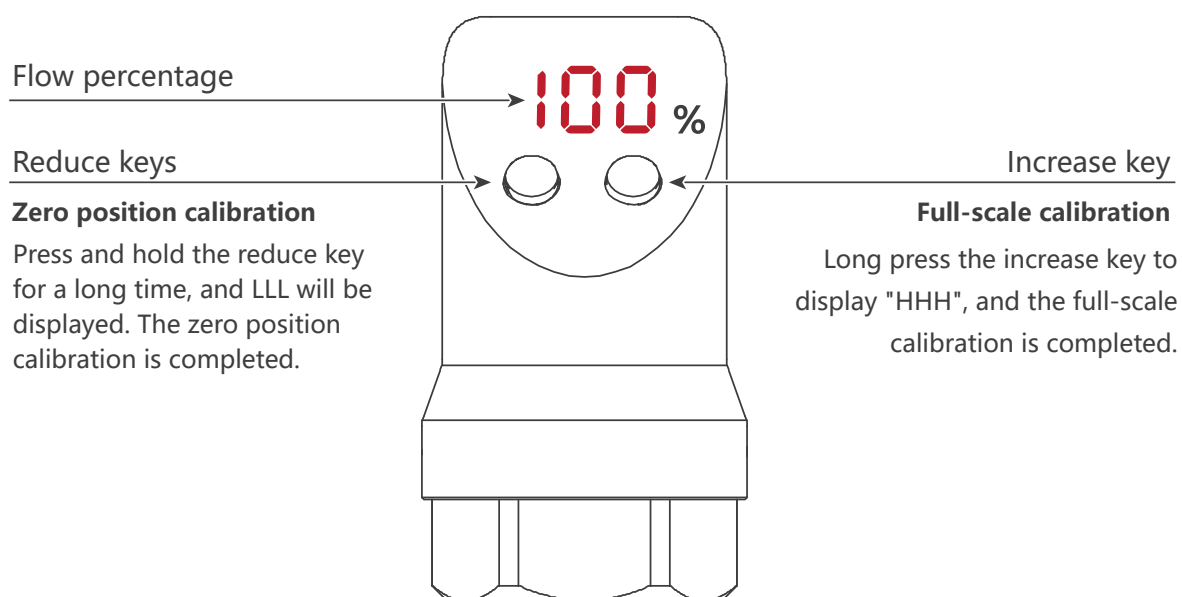


1-channel Switch

colour	stitch	Instructions
BN	1	power supply (+)
BU	3	power supply (-)
BK	4 (OUT)	SP1 switch PNP (factory default) SP1 switch NPN

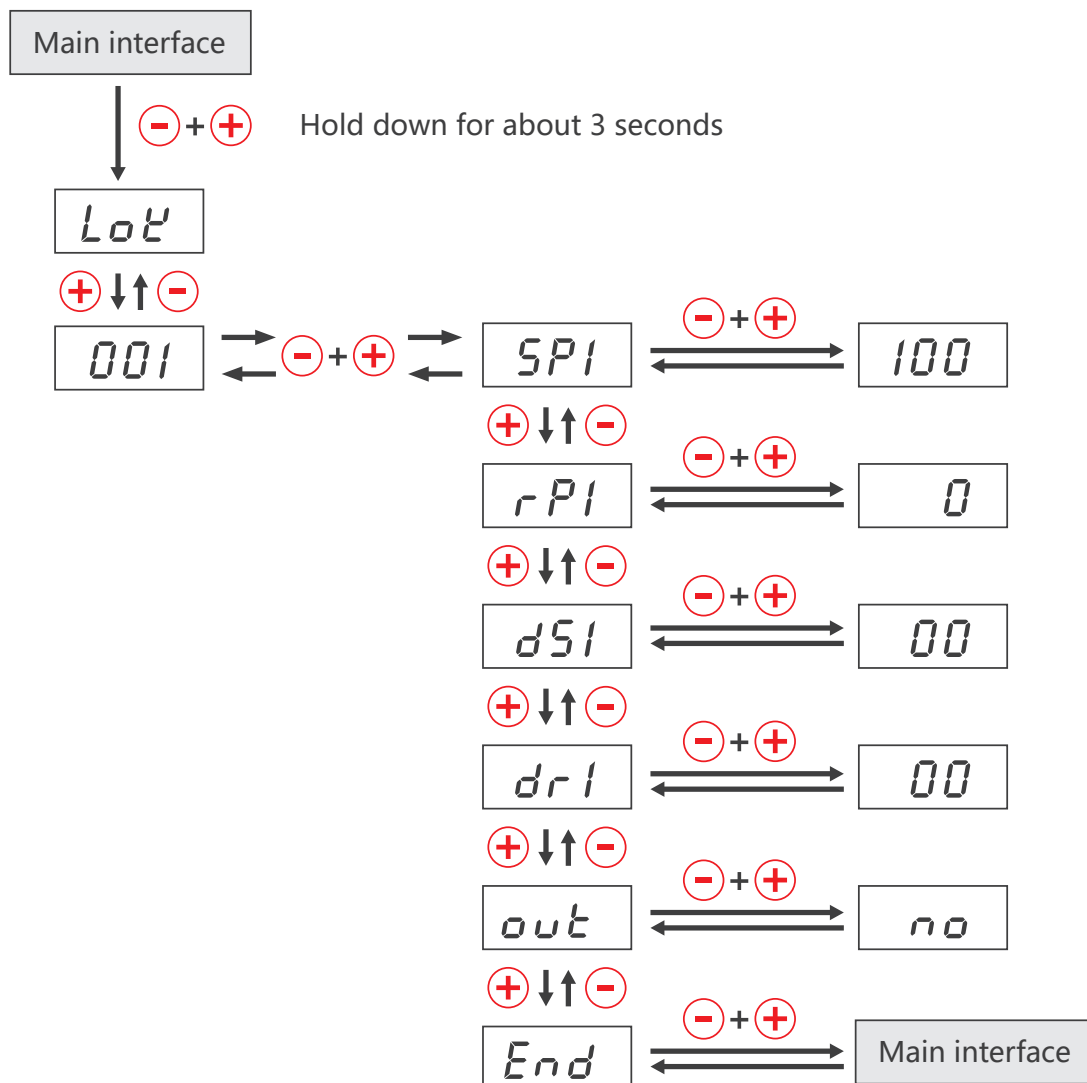
Debugging/Operation

■ Convenient calibration operation mode



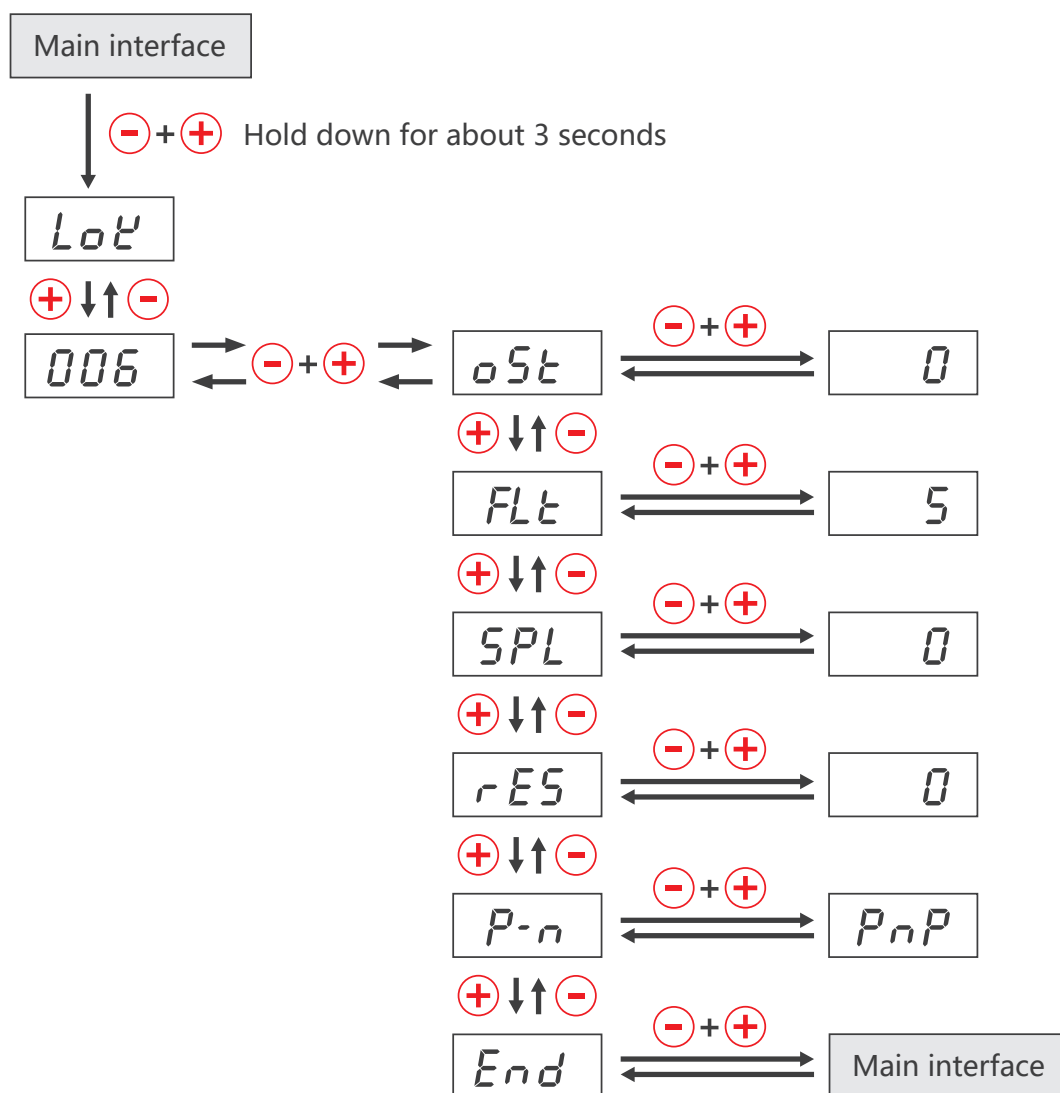
001Menu	
sp1	Switch alarm value (factory default value is 50% of the range)
rp1	Switch reset value (factory default value is SP1-5%)
ds1	The activation delay of OUT (factory default is 0s)
dr1	The shutdown delay of OUT (factory default is 0s)
out	Switch output signal NO: Normally open NC: Normally closed
end	Confirm save and exit

■ 001 Menu debugging (non-professional personnel do not operate)



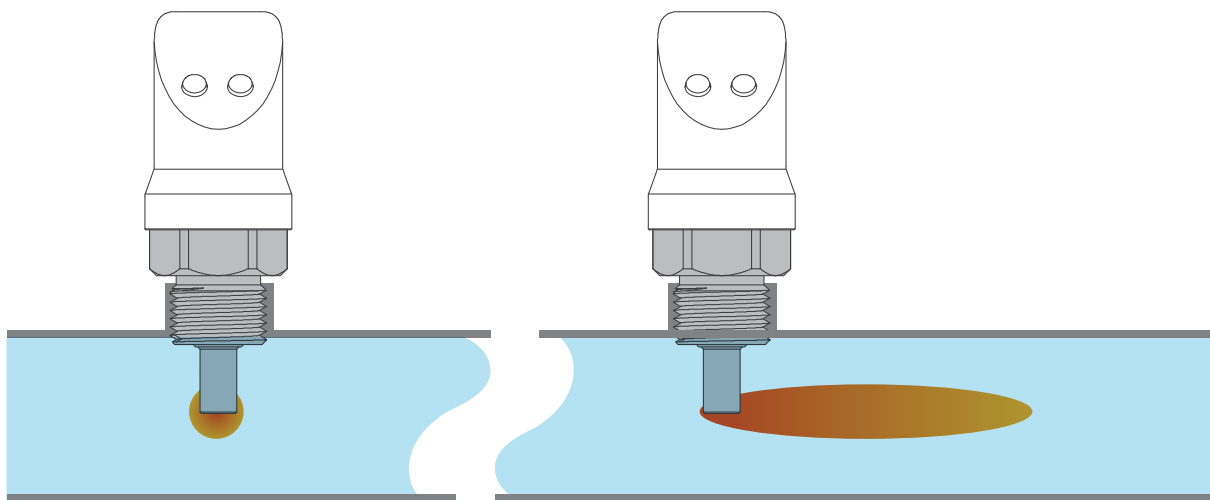
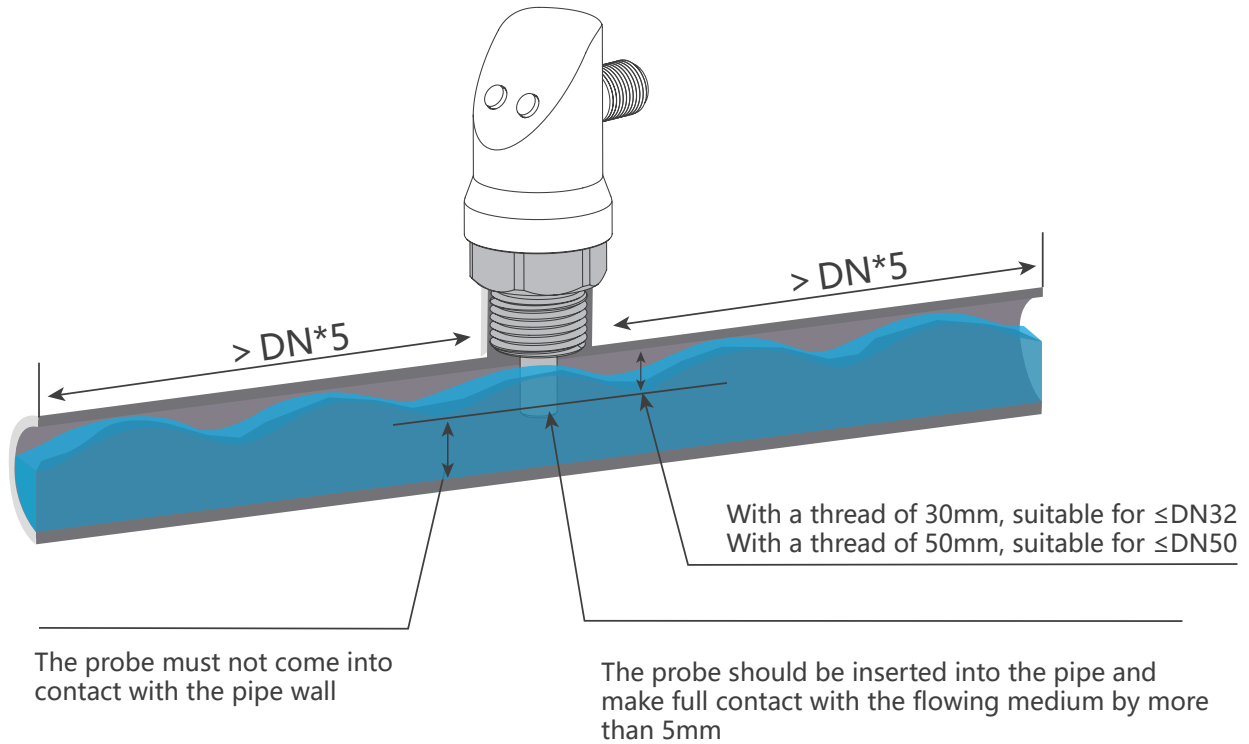
006 menu	
ost	Display value compensation, the default is 0, increase and decrease the value, the actual display value corresponds to the increase or decrease of the corresponding value
flt	The filter coefficient is adjustable from 1 to 25. The default value is 5
spL	Display value The reaction rate increases/decreases
res	factory data reset.
p-n	PNP/NPN switchover
end	Confirm to save and exit

■ 006 Menu debugging (non-professional personnel do not operate)



Installation Precautions

When installed vertically, it should be placed on a pipe section that flows from bottom to top. When installed horizontally, the probe should be kept away from air and sediment.



The water flow remains still.

The water flow movement →

Maintenance/cleaning

Sensors (switches) do not require maintenance.



warning

Periodically check whether the switch is working properly.

If the switch does not work properly, stop the operation immediately.



caution

Use of improper cleaning agent may damage the switch.

The following cleaning agents can be used to clean polycarbonate: mild soap or detergent Isopropyl alcohol

Immediately after cleaning, rinse with water. Do not leave cleaner on the surface of the product. Do not clean products in high heat or direct sunlight.

The following cleaning agents are known to affect the integrity of polycarbonate components and should not be used: ZEP Fast 505, Pinesol, Formula 409

Halogenated solvents (benzene, gasoline, acetone or carbon tetrachloride)

Strong alkalinity

Methyl ethyl ketone

Abrasive substance

disassemble



danger

Only remove the switch in case of power failure (electrical, hydraulic/pneumatic).

Switch disconnection from pressure and power supply must be performed by trained or directed personnel in accordance with the most advanced standards.



warning

Be aware that the surface of the shell may become very hot if the operating temperature is higher!

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