

HNL120-A

TUNING FORK LEVEL GAUGE

HNL120-A MAIN PARAMETERS

Liquid level type: Tuning fork type

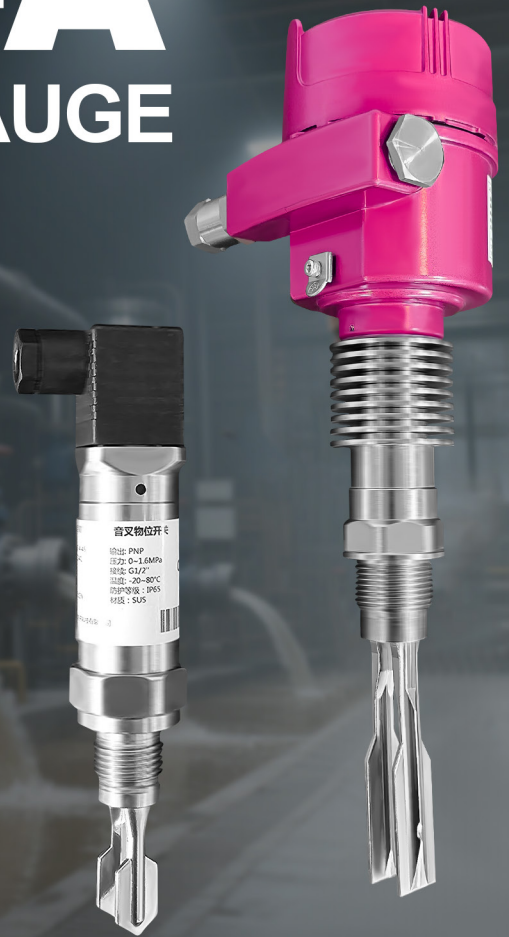
Range of measurement: 0-3000mm, Refer to the selection table for details

Output signal: Relay, PNP

Measurement medium: Water, oil, and flowable powder or granular media

Application scenarios: Tap water, mineral water, pulp, liquids that can produce gases, etc

Authentication: 



PRODUCT INTRODUCTION

The working principle of HNL120-A tuning fork type liquid level switch is to vibrate the tuning fork at a certain resonance frequency through a pair of piezoelectric crystals installed on the tuning fork base.

When the tuning fork comes into contact with the measured medium. The amplitude and frequency of the tuning fork will undergo a sudden change, and the intelligent circuit will detect this and convert this change into a switch signal.

- 1 Strong adaptability: Different electrical parameters and densities of the tested material do not affect the measurement.
- 2 Maintenance free: As the detection process of the tuning fork limit switch is completed by electronic circuits without moving parts, it does not require maintenance once installed and put into operation.

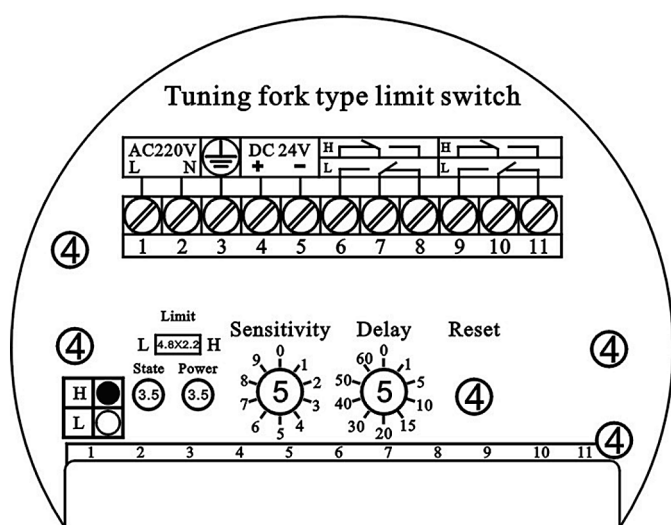
- ③ No need for calibration: As the detection of tuning fork limit switches is not affected by the electrical parameters and density of the measured medium, no on-site calibration is required for any type of liquid being measured.
- ④ Through high-frequency excitation, achieve excellent anti noise interference capability.
- ⑤ The operation of a switch is independent of the conductivity, dielectric constant, viscosity, pressure, and temperature of the medium.
- ⑥ Different probe lengths can adapt to media of various densities.
- ⑦ Suitable for liquid level alarm of various liquids, powders, granular solids inside tanks, pipelines, etc
- ⑧ Suitable for measuring water, oil, and flowable powder or granular media, widely used in tap water, mineral water, pulp, glue, dyes, mud, alkaline solutions, acid solutions, beer, beverages, gas producing liquids, and flowable solid powders or particles

TECHNICAL PARAMETER

NAME	SPECIFICATION	
Repeatability	Switch type	1mm (typical)
		2mm (maximum)
Response time	When the fork is covered by a medium, it takes 0.5 seconds (response time can be adjusted from 0.5 to 60 seconds)	
Maximum switching frequency	150 times/min	
Quantity of switch quantity	1 piece	
Allowable work pressure	10bar, 25bar, 40bar	
Density requirements	> 0.5g/cm ³ (solid particle diameter of the tested medium is less than 10mm)	
Viscosity requirements	Maximum 10000mm ² /s	
life	>1 million times	
Signal output	Relay or PNP	
Maximum voltage	48Vdc/220Vac	
Electric current	6A (power consumption ≤ 2W)	
Working temperature range	40-80°C, -40-150°C, -40-200°C	
Transportation/storage temperature range	-40-85°C	

Vibration stability	Sine: 20 g, 25 Hz-2 kHz	IEC 68-2-6
	Sine: piston type 4.4g, 25-200	IEC 60068-2-27
Impact resistance	Impact resistance: 50 g/6ms	IEC 60068-2-27
	Free fall: 1 meter	IEC 60068-2-32
Protection level (With matching connectors, the achievable level of protection)	IP65, IEC 529	
Explosion proof grade	Exd IICT6	
Mechanical properties	Terminal wiring	
Mechanical connection	Threads, flanges, clamps	
Contact with liquid components, material	304/316/PTFE coating	
Shell material	Aluminium	
Weight	3.5kg	

ELECTRICAL CONNECTION



The 1st and 2nd terminals of the instrument are powered by AC220V AC, the 3rd terminal is grounded, the 4th and 5th terminals are powered by DC24V DC, and the 6th, 7th, 8th, 9th, 10th, and 11th terminals are relay output terminals.

Red light - tuning fork working status

Green light - SSR relay output status indication

PNP normally open output terminal:
4, 5, 6 (dip code at H end)

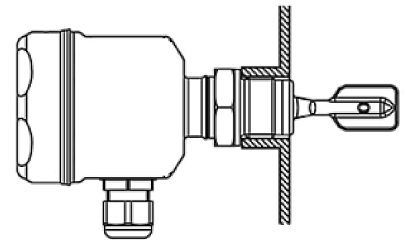
PNP normally closed output terminal:
4, 5, 8 (dip code at H end)

INSTALLATION PRECAUTIONS

Firstly, regarding high viscosity media, the perpendicular fork makes the medium prone to detachment

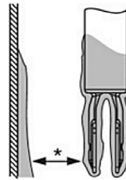


Top vertical installation

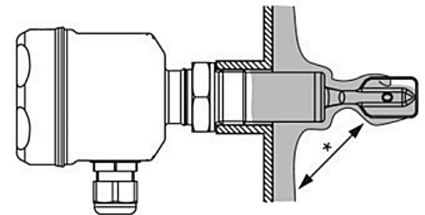


Side wall flush installation

Secondly, when there is adhesion to the wall, it is necessary to ensure that there is sufficient space between the fork and the wall

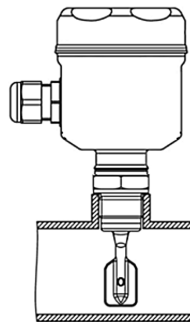


Top vertical installation

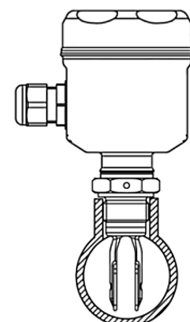


Side wall flush installation

Thirdly, pipeline installation (flow rate < 5m/s, viscosity 1mm²/s, density 1g/cm³)

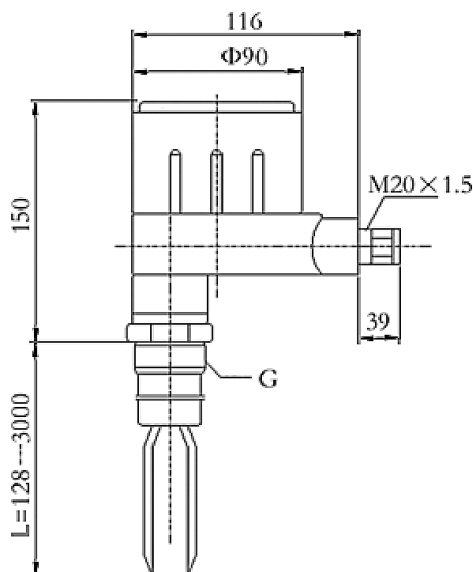


Top vertical installation

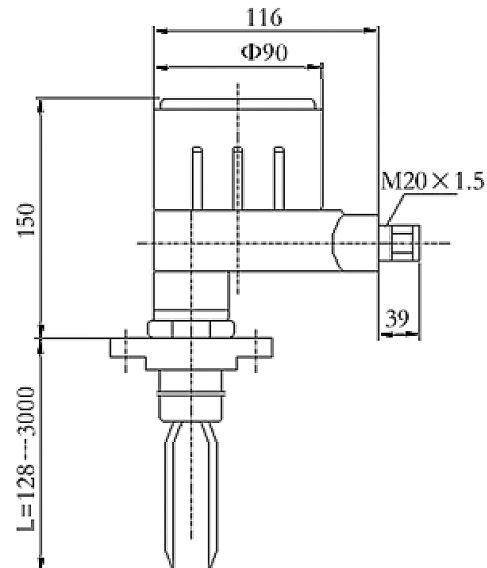


Side wall flush installation

DIMENSIONAL DRAWING (MM)

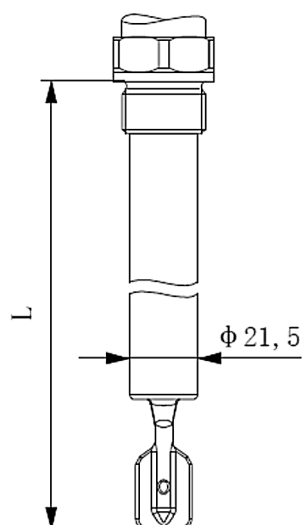


Threaded connection



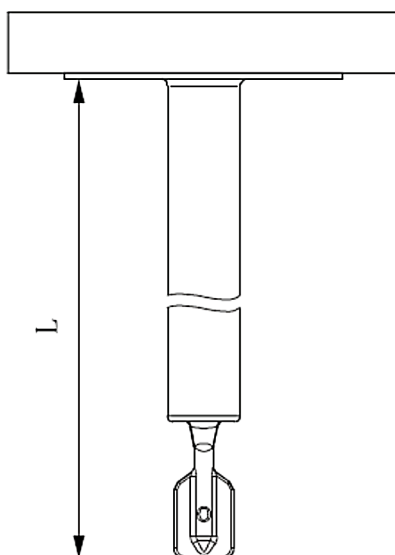
Flange connection

SPECIFIC PROCESS CONNECTION METHOD

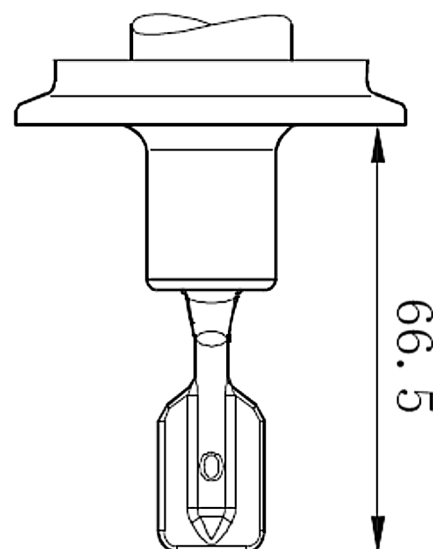


Threaded connection

Thread specifications:
G3/4, G1, NPT3/4, NPT1



Flange connection



Clamp connection

1 1/2" = $\Phi 50.5\text{mm}$
2" = $\Phi 64.0\text{mm}$

FLANGE SIZE SPECIFICATIONS

Flange size mm				Bolt hole			Insertion depth
Nominal flange size	Outer diameter of flange D	B	Sealing surface C	Number n	Diameter d (mm)	Center distance of screw hole D1 (mm)	Insertion depth L (mm)
2" (150LB)	152	---	92	4	19	121	---
2" (300LB)	165	---	92	4	19	127	---
3" (150LB)	190	65.5	127	4	19	152	---
3" (300LB)	210	65.5	127	8	22	168.5	---
4" (150LB)	228	89	157	8	19	190	---
4" (300LB)	254	89	157	8	22	200	---
DN50(PN2.5/40)	165	---	92	4	18	125	---
DN80(PN2.5/40)	200	65.5	127	8	18	160	---
DN100(PN2.5/40)	235	89	157	8	22	190	---

HNL120-A TUNING FORK TYPE LIQUID LEVEL GAUGE SELECTION TABLE

NAME	CODE	CODE DESCRIPTION
Product type	00	Standard
	01	Anti corrosion type (with PTFE coating)
Voltage reference	A	Pressure resistance 10bar
	B	Pressure resistance 25bar
	C	Pressure resistance 40bar
Insertion depth	10	0.....128mm
	11	0.....250mm
	12	0.....300mm
	13	0.....400mm
	14	0.....500mm
	15	0.....1000mm
	16	0.....1500mm
	17	0.....2000mm
	18	0.....2500mm
	19	0.....3000mm
	X	Specially customized range, write the range directly after x
Supply voltage	A	DC 24VDC
	B	Exchange 220VAC
Signal output	1	Relay output
	2	PNP output
Process threaded connection	A01	G3/4 (external thread)
	A02	G1 (external thread)
	A03	NPT3/4 (external thread)
	A04	NPT1 (external thread)
	A05	1-1/2 "(clamp connection)
	A06	2 "(clamp connection)
	A07	Flange DN50
	A08	Flange DN80
	A09	Flange 2"
	A10	Flange 3"
	X	Special customization
Electrical connection	1	Terminal wiring
Temperature range	1	Standard type: -40... 80°C
	2	Chinese version: -40... 150°C
	3	High temperature type: -40... 200°C
Is it explosion-proof	1	Non explosion proof type
	2	Explosion proof type