



Ω OMEGA™ **User's Guide**



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LTUM1 Series Tuning Fork Level Switch



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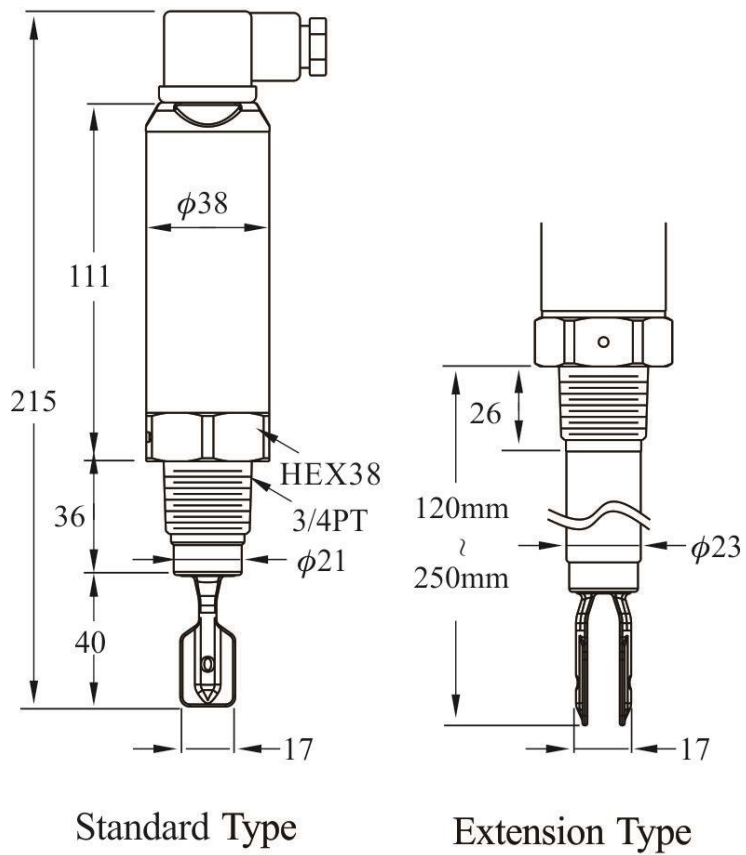
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1. Models



【DIN Connector】

2. Wiring

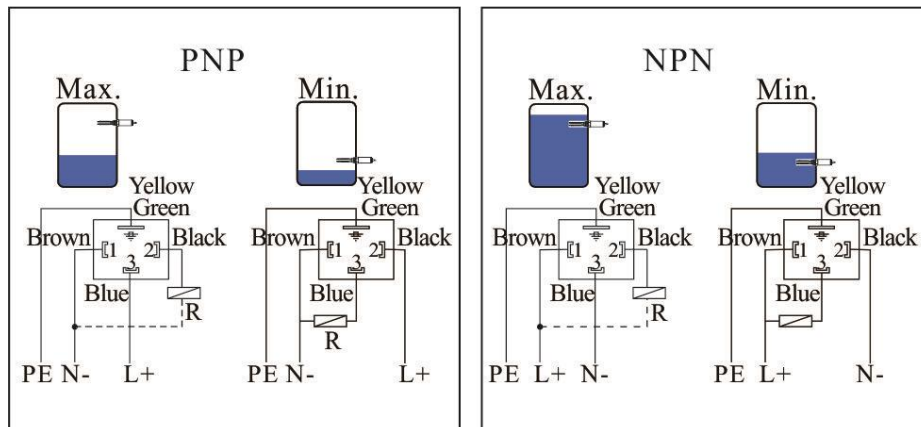
Power supply is DC. Output is PNP / NPN. Please see Figure 1.

PNP wiring:

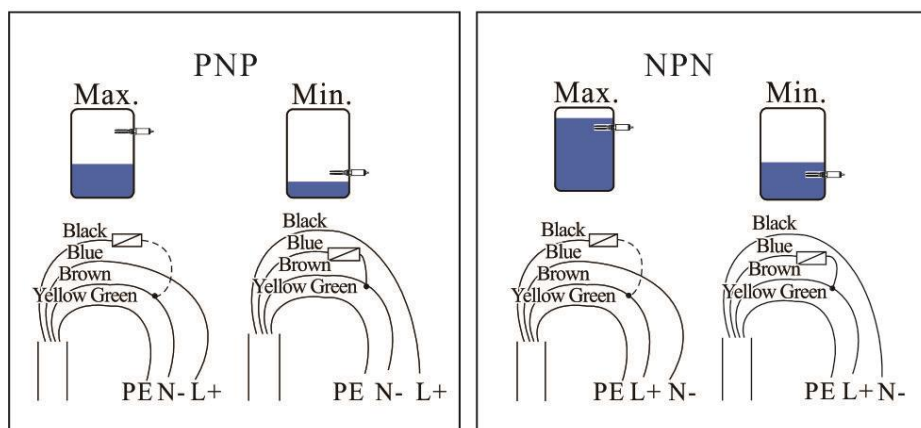
- High (Max.) Mode: No. 1 pin (Brown) is connected to L-. No.3 pin (Blue) is connected to L+. Output is connected to No. 2 pin (Black) , then connected to L-. No. 4 pin (Yellow Green) goes to ground.
- Low (Min.) Mode: number 1 pin (Brown) is connected to L-. No.2 pin (Black) is connected to L+.
- Output is connected to No. 3 pin (Blue), then connected to L-. No. 4 pin (Yellow Green) goes to ground.

NPN wiring:

- High (Max.) Mode: No. 1 pin (Brown) is connected to L+. No.3 pin (Blue) is connected to L-. Output is connected to No. 2 pin (Black) , then connected to L+. No. 4 pin (Yellow Green) goes to ground.
- Low (Min.) Mode: No. 1 pin (Brown) is connected to L+. No.2 pin (Black) is connected to L-. Output is connected to No. 3 pin (Blue) , then connected to L+. No. 4 pin (Yellow Green) goes to ground.



DIN Wiring Diagram



M12x1 Cable Wiring Diagram

Figure 1 PNP / NPN Output Wiring Diagram

3. Fork Sensing Spot

LTUM1 fork sensing spot is shown as Figure 3 below. Considering testing medium is water ($S.G.=1 \text{ g/cm}^3$), sensing spot is at the fillister about 23mm from the tip. If testing medium has S.G. lower than 1g/cm^3 , sensing spot would be above the fillister. In contrast, sensing spot will be below the fillister.

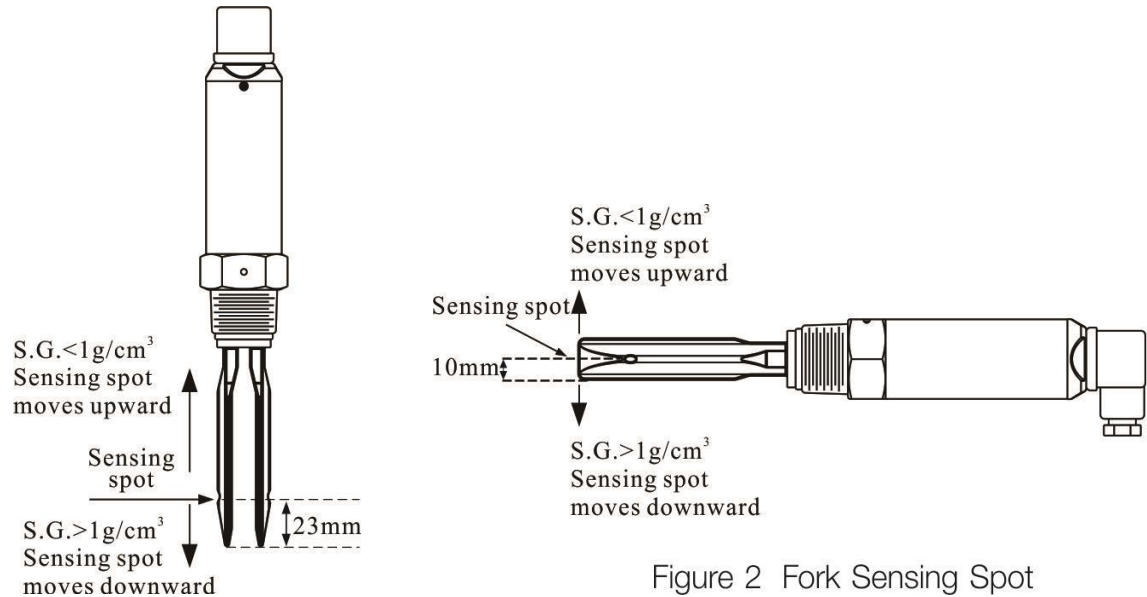


Figure 2 Fork Sensing Spot

4. Magnetic Test

After the switch is installed and powered, magnetic test function can be performed accordingly. The testing point is marked on the housing label. User holds the magnet and moves it close to testing point, the output status will switch from NO. to NC. or NC to NO. and red LED would switch ON or OFF while fork continues to vibrate. When magnet is pulled away from the testing point, the output status and red LED would return as default while fork continues to vibrate. The purpose of testing is to confirm the wiring and functioning are correct.

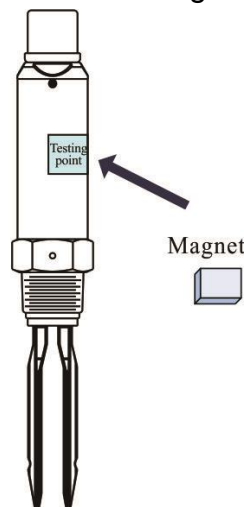


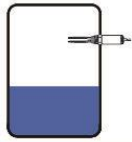

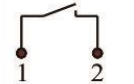
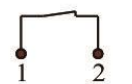
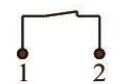
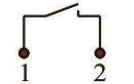








Figure 3 Magnetic Test Diagram

5. Output Status

LTUM1 is equipped with two wires power supply. Relay output is connected in two wiring power (L+/-), which offers Min./Max. modes according to different pin numbers. When powered with 20 to 250、50/60 Hz Vac / Vdc, top of housing would light up with blue LED.

- Low (Min.) Mode: Tuning fork switch will be actuated 3 seconds after the power is on. Relay is NO and red LED indication is off. When tuning fork is covered by testing medium, vibration stops and relay becomes NC. Red LED indication is on.
- High (Max.) Mode: Tuning fork switch will be actuated 3 seconds after the power is on. Relay is NC and red LED indication is on. When tuning fork is covered by testing medium, vibration stops and relay becomes numberR Red LED indication is on.
- Flashing red indicates abnormal: Possible causes overloads or short-circuit load back, equipment malfunction or wear tuning fork probe.

	Min. Mode		Max. Mode		
Level					Instrument faliure
Contactless electronic switch	 Switch open	 Switch closed	 Switch closed	 Switch open	 Switch open
Red LED					

 It represents Blinking

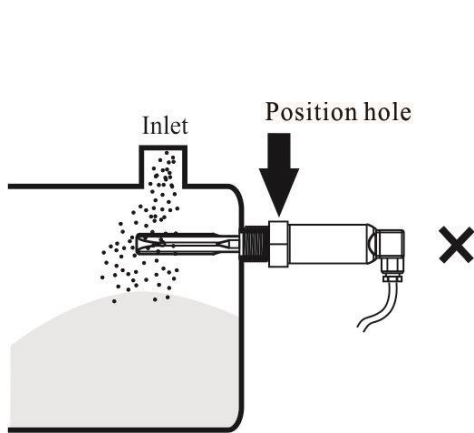
Figure 4 Min./ Max. Mode

6. Installation

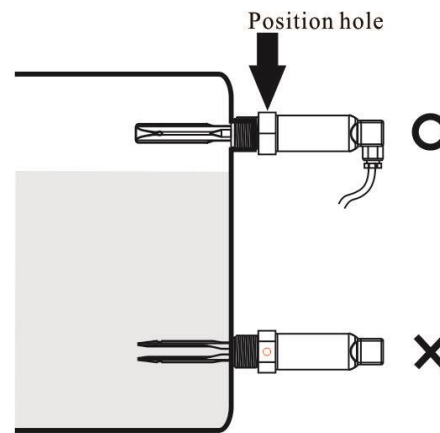
Horizontal Installation:

1. Can be applied in viscosity, powder and, liquid. Do not inst.(Figure 1)
2. When installing the product, The position hole plug must be upward direction.

If not, incorrect installation could be damage the product.(Figure 2)



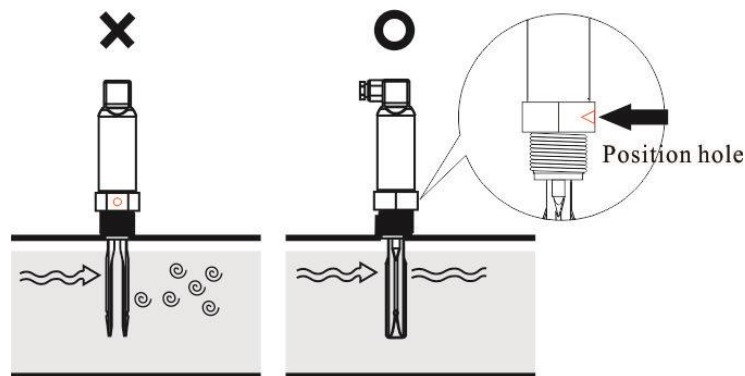
(Figure 1)



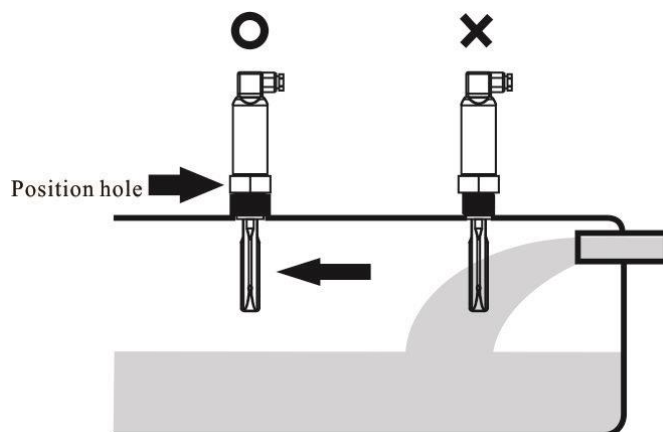
(Figure 2)

Vertical Installation:

1. Opening of the two fork blades is to be as the flow direction. (Figure 3)
2. Do not install near substance inlet. (Figure 4)



(Figure 3)



(Figure 4)

7. Simple Troubleshooting

Error	Cause	Solution
Power Supply indicator (Green Light) is off and the switch is not conductive.	No power supply.	Power on or check the wiring and repair.
	Power doesn't meet the specification.	Check the nameplate and power 12 to 55 Vdc
The signal lamp is normal and the switch output is incorrect.	The control circuit wiring is incorrect.	Check the wiring diagram and correct it.
	The wiring for high/low level is incorrect.	Check the wiring and repair.
Output Indicator (Red Light) is flashing.	The tuning fork is worn, deformed or damaged.	Contact with the local sales representative.
The tuning fork sensed the material, but the switch indicates it does not exist.	Liquid density sensed $< 0.7\text{g/cm}^3$, the selected model is not applicable to use	Contact with the local sales representative.
The tuning fork does not sense the material, but the switch indicates it exists.	The tuning fork is stuck or agglomerated by the material.	Check the tuning fork and remove the sediment.

WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

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The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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