

**1 YEAR**  
WARRANTY

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## **TF280-N/ TF280-P** **Tuning Fork Level Switch**



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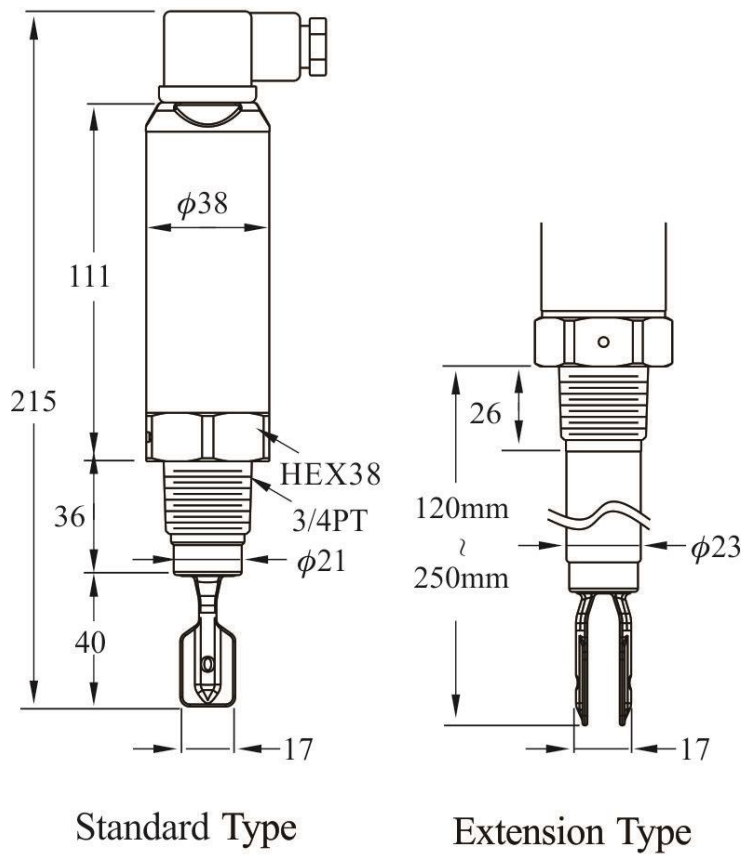
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The information contained in this document is believed to be correct, but OMEGA accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

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# 1. Models



## 【DIN Connector】

## 2. Wiring

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

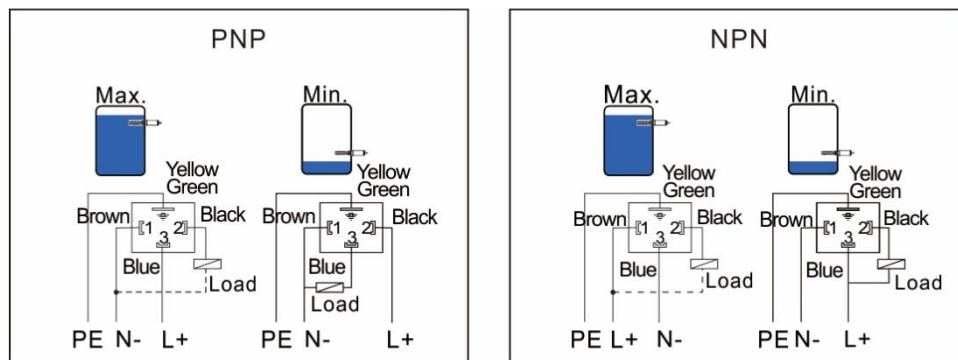
### DIN & Cable Wiring:

#### PNP Output:

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

#### NPN Output:

- High(Max.) Mode: No. 1 pin(Brown) is connected to L+. No.3 pin(Blue) is connected to N-. 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 N-. 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.



DIN 、 Cable Wiring Diagram

### 3. Fork Sensing Spot

TF280-N/TF280-P fork sensing spot is shown as Figure 3 below. Considering testing medium is water (S.G.=1 g/cm<sup>3</sup>), sensing spot is at the fillister about 23mm from the tip. If testing medium has S.G. lower than 1g/cm<sup>3</sup>, sensing spot would be above the fillister. In contrast, sensing spot will be below the fillister.

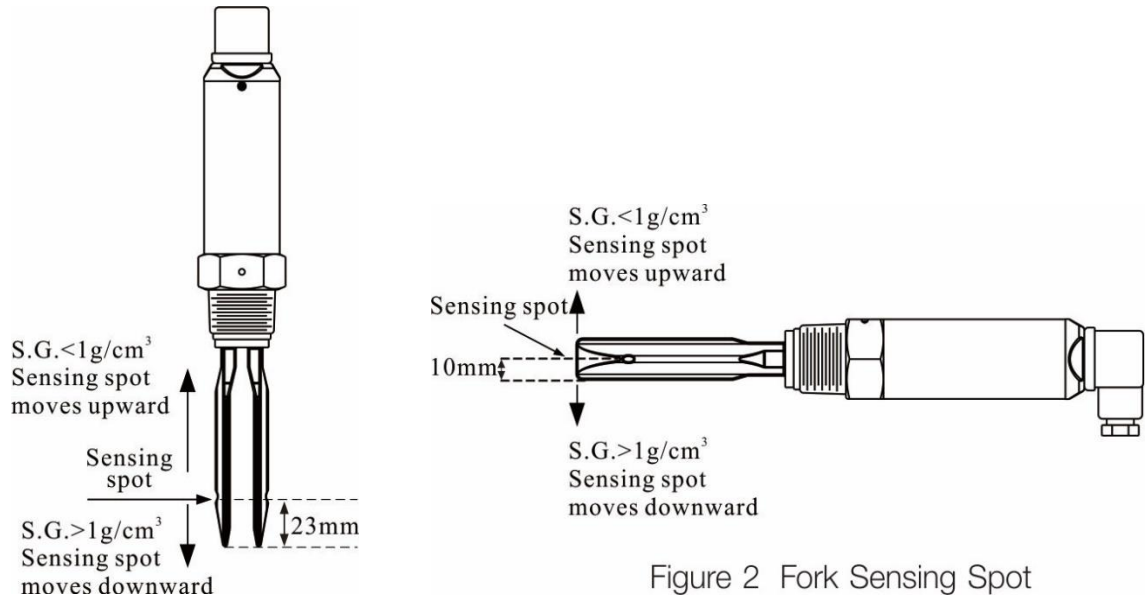


Figure 2 Fork Sensing Spot

### 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.

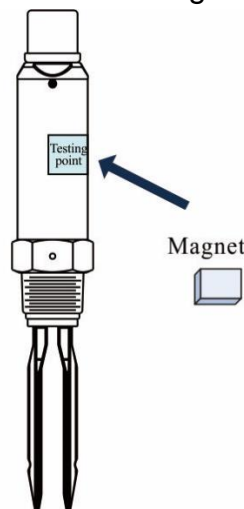


Figure 3 Magnetic Test Diagram

## 5. Output Status

TF280-N/TF280-P is equipped with 12~55 Vdc, top of housing would light up with green LED.

### DIN & Cable type:

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

	Min. Mode		Max. Mode		
Level					Instrument failure
PNP/NPN Output					
Red LED (DIN& Cable)					
Red LED (M12x 4Pin)					

It represents Blinking

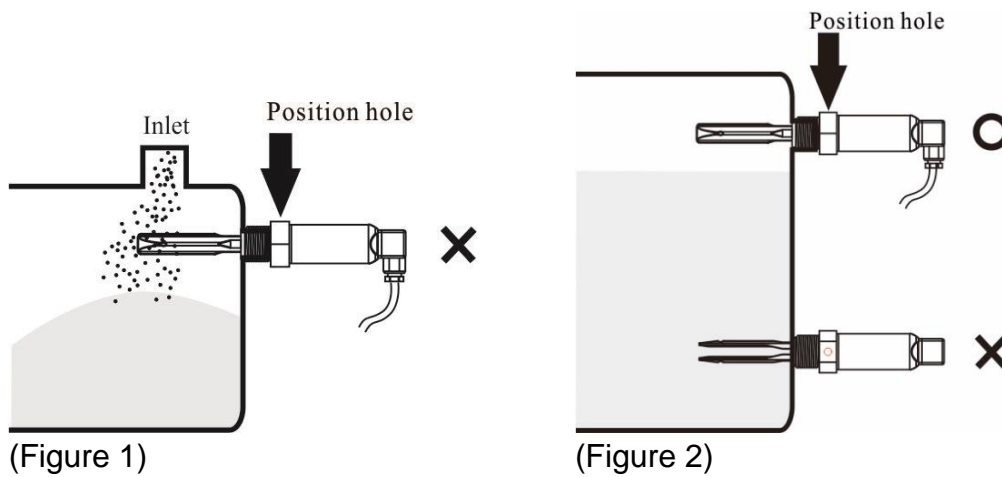
Figure 4 Min./ Max. Mode

## 6. Installation

### Horizontal Installation:

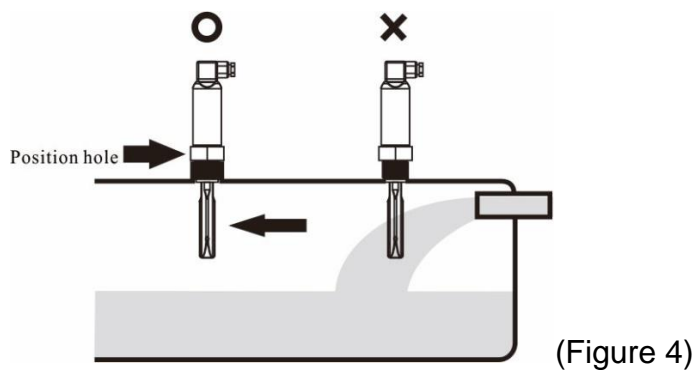
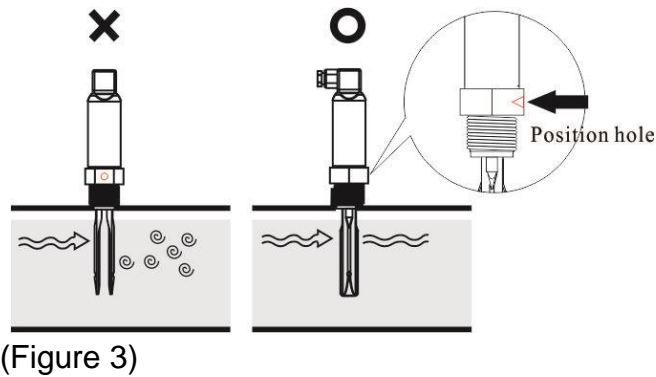
1. Can be applied in viscosity, powder and, liquid. Do not inst.( Figure 1)
2. When installing the product, The position hole plug must be upward direction.

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



### 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)





## 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

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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.

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