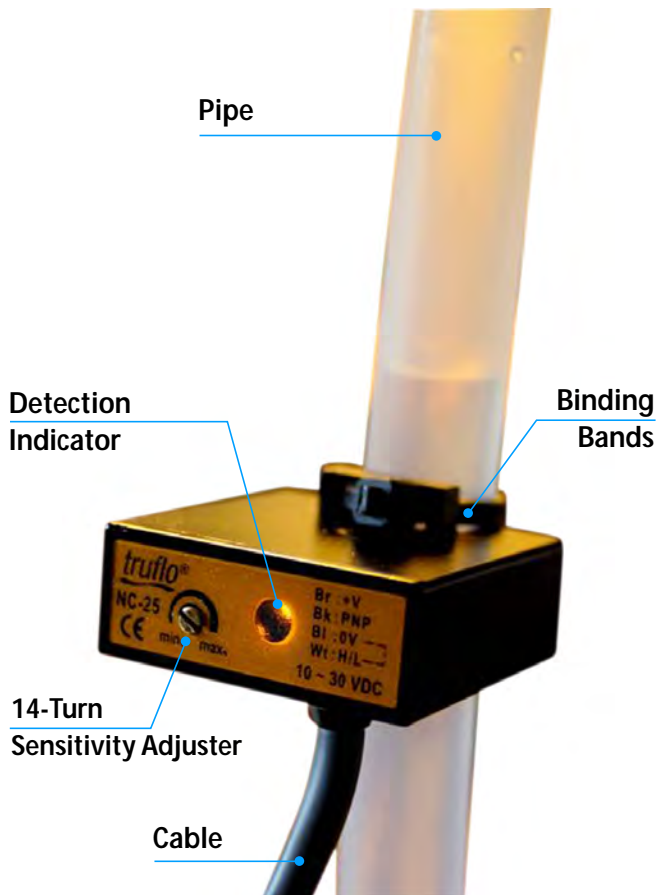


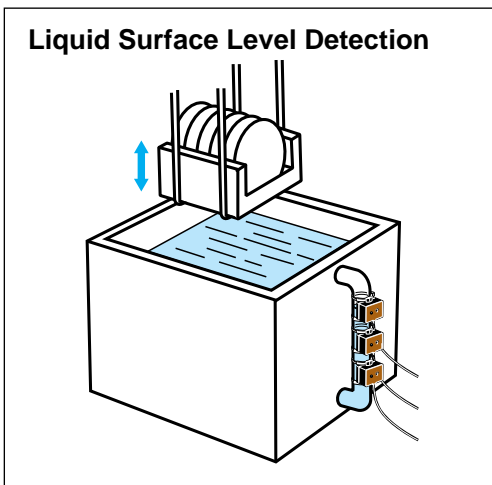
Flow & Level Switch Non Intrusive - All Plastic Design

Features

- Fit a Wide Range of Pipe Diameters - 7 to 13 mm 3/8-1/2"
- Built-in Amplifiers to Save Space
- Flow - No Flow
- Non - Intrusive Design
- Mounting Bracket
- All Plastic Design
- Simple to Install
- Easy to Calibrate
- Low Voltage
- Light weight
- Very Accurate



Applications



Ordering Information

| Sensing Method | Applicable Pipe Diameters | Appearance | Output Configuration |
|-------------------------------|---------------------------|------------|---------------------------|
| Electrostatic Capacity Method | 3/8"-1/2" 7 to 13 mm | | NPN Open Collector Output |



Ratings and Specifications

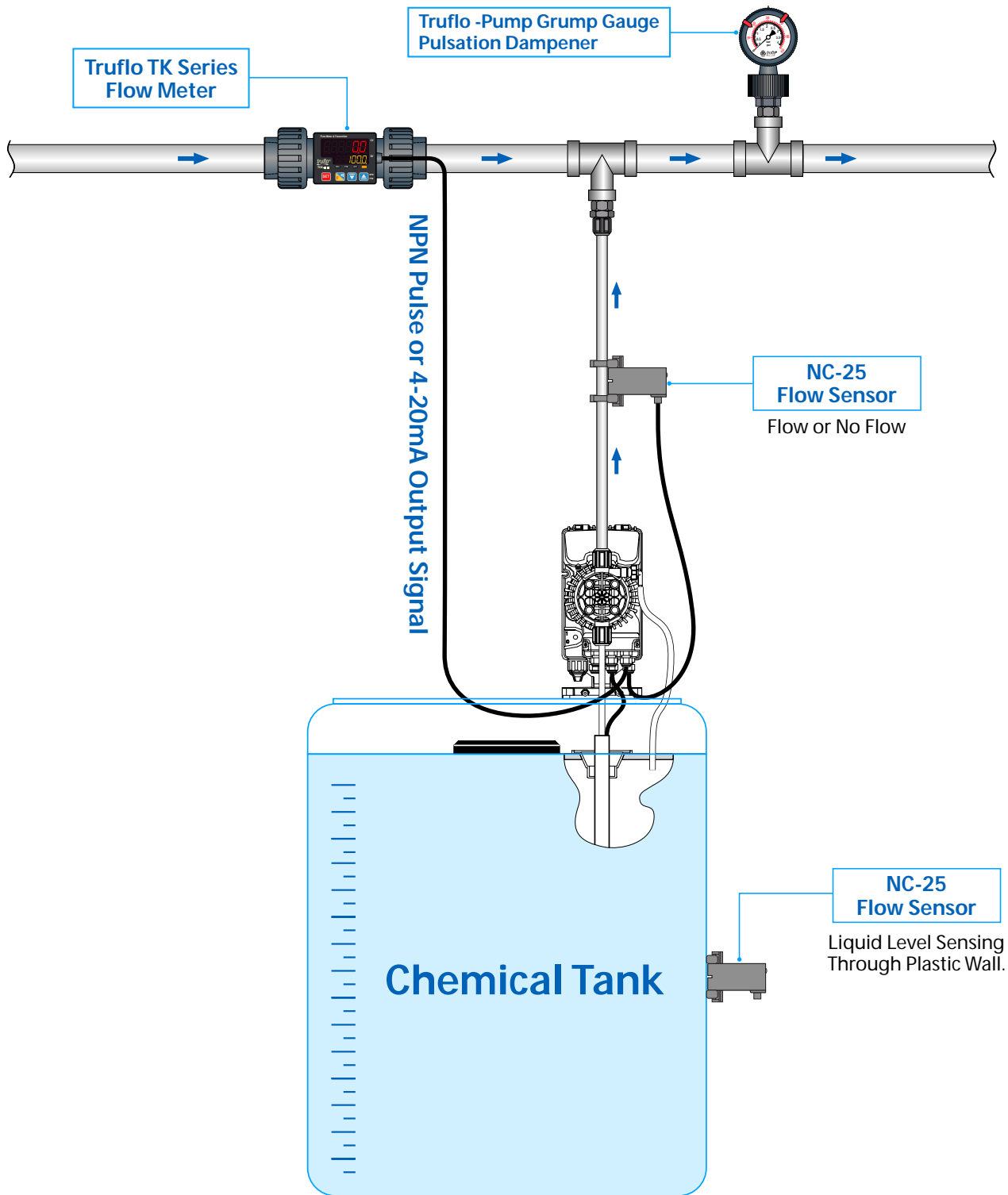
| | | |
|--|------------------|---|
| Applicable Pipes Size | Materials | PP |
| | Diameter | 3/8-1/2" (7 to 13 mm) |
| | Wall thickness | 0.25" |
| Sensing Object | | Liquid |
| Repeat accuracy | | ±0.2 mm max. |
| Power supply voltage (operating voltage range) | | 12 to 24 VDC, 10% max. ripple (10.8 to 30 VDC) |
| Current consumption | | 12 mA max. |
| Control output | Load current | 100 mA max. |
| | Residual voltage | 1 V max. (Load current: 100 mA, Cable length: 2 m) |
| Sensing liquid position | | Indented mark position |
| Indicators | | Detection indicator (orange) |
| Ambient temperature range | | Operating: 0 to 55° C (with no icing or condensation), Storage: -10 to 65° C (with no icing or condensation) |
| Ambient humidity range | | Operating/Storage: 25% to 85% (with no condensation) |
| Temperature influence | | ±4 mm of detection level at 23° C in the temperature Range of 0 to 55° C (with pure water or 20% saline solution) |
| Voltage influence | | ±0.5 mm of detection level at the rated voltage in rated voltage ±10% range |
| Insulation resistance | | 50 M Ω min. (at 500 VDC) between current-carrying parts and case |
| Dielectric strength | | 500 VAC, 50/60 Hz for 1 min between current-carrying parts and case |
| Vibration resistance | | Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions |
| Shock resistance | | Destruction: 500 m/s ² 3 times each in X, Y, and Z directions |
| Degree of protection | | IP66 (IEC) |
| Connection method | | Pre-wired Models (Standard cable length: 2 m) |
| Weight (packed state) | | Approx. 70 g |
| Materials | Case, Cover | Heat-resistant PP |
| | Cable clamp | Nylon |
| Accessories | | Two bands |

* Stable detection will not be possible in the following cases. Confirm detection capability with the Sensor installed before actual application.







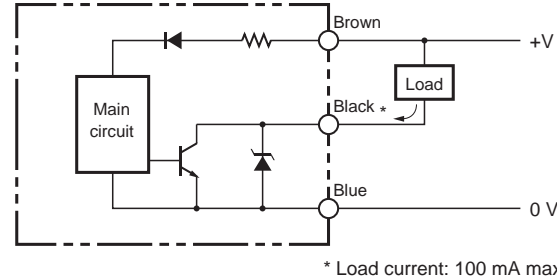
1. If the specific inductive capacity or the specific electric conductivity of the liquid is too low, the liquid position may not be detected since this sensor is a capacitive sensor.
2. If the quantity of liquid is too low or the change in quantity is too low in comparison to the change in liquid level because the pipe is too thin or the walls of the pipe are too thick
3. If there is a viscous film on the inner pipe wall, large quantities of foam or air bubbles, or excessive buildup of dirt on the inner pipe wall



Typical application



Wiring Diagrams

| Operation Mode | Timing Chart | Output circuit |
|----------------|---|--|
| No | <p>Liquid level</p> <p>Present </p> <p>None </p> <p>Load (between brown and black leads)</p> <p>Operate </p> <p>Reset </p> <p>Detection indicator (orange)</p> <p>ON </p> <p>OFF </p> |  <p style="text-align: right;">* Load current: 100 mA max.</p> |

Safety Precautions

Refer to Warranty and Limitations of Liability.



WARNING

This product is not designed or rated for ensuring safety of persons either directly or indirectly.

Do not use it for such purposes.



Power Supply

- If the load and Sensor are connected to different power supplies, always turn ON the Sensor power first.
- Switching noise can cause operating mistakes if a commercial switching regulator is used. When using a switching regulator, always ground the frame ground terminal and the ground terminal.

Precautions for Correct Use

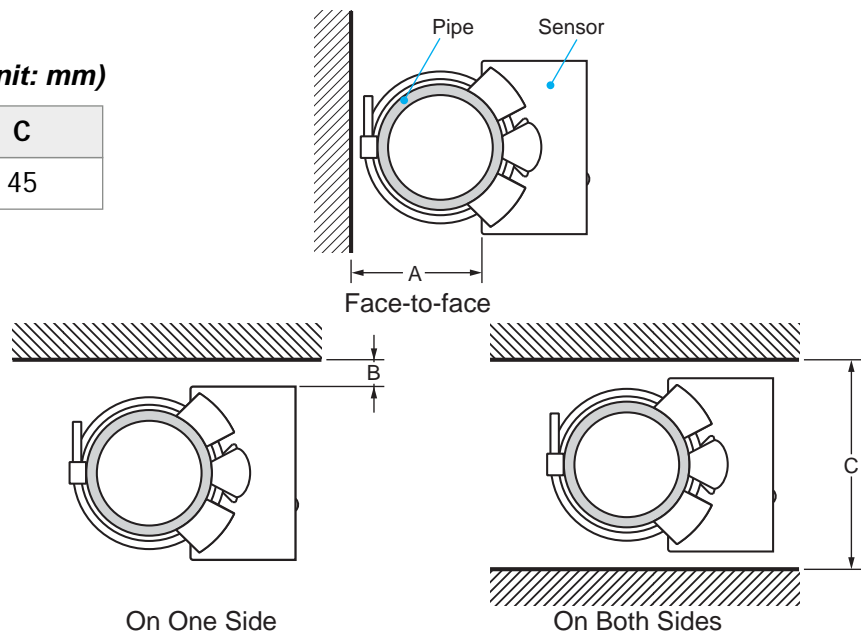
Do not use this Product Under Ambient Conditions that Exceed the Ratings.

Influence of Surrounding Objects

When mounting the Sensor, maintain at least the distances in the following diagrams from surrounding metal objects or other conductors to prevent the Sensor from being affected by objects other than the sensing object.

Influence of Surrounding Objects (Unit: mm)

| Distance | A | B | C |
|----------|----|---|----|
| | 25 | 5 | 45 |



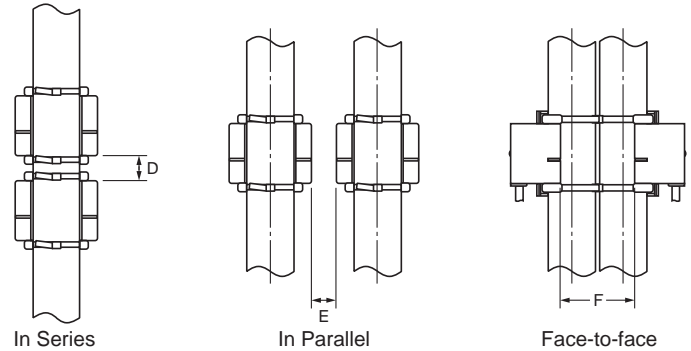
Influence of Surrounding Objects

When installing Sensors in series, in parallel, or face-to-face, ensure that the minimum distances given in the following table are maintained.

Mutual Interference (Unit: mm)

| Distance | D | E | F |
|----------|----|----|----|
| | 10 | 10 | 25 |

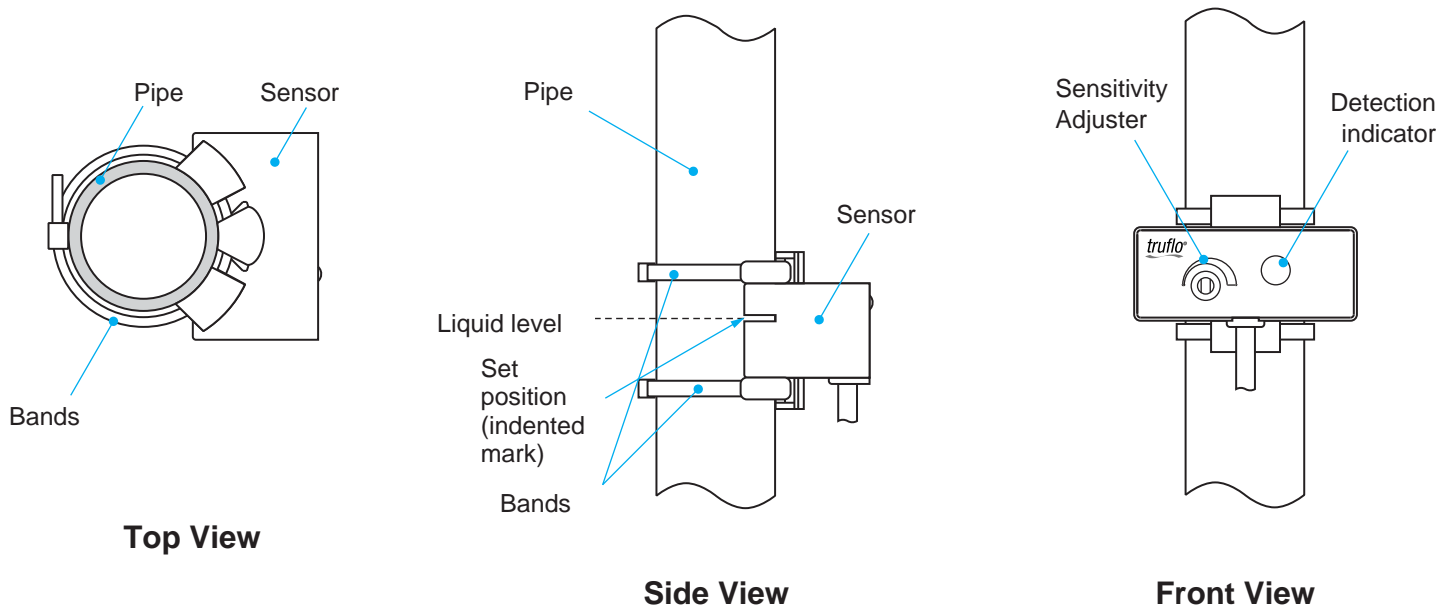
Also, always adjust the bottom Sensor first because adjusting the bottom Sensor may affect the detection level of the top Sensor.



Mounting

Mount the Sensor securely to the pipe using the enclosed two bands and four slip-proof tubes (two tubes used for each band) as shown in the following diagram.

When mounting the Sensor, be sure the entire Sensor is tight against the pipe along the sensing surface.



Sensitivity Adjustment

For information on the sensitivity adjustment, refer to Technical Guide for Operation for information for Proximity Sensor.