

Vibrating Fork **LEVEL SWITCH**

The economical version

ETRANS – PNP **Datasheet**

Precise Measurement,
Ultimate Control

www.enelean.com



Vibrating Fork Level Switch

MODEL Etrans-PNP



Application Areas

- Powder and Granular Materials
 - Milk powder, Sugar, Salt, Flour
 - Plastic granules, Polystyrene powder
 - Cement, Sand, Gravel, Lime
 - Coffee beans, Tea, Spices
 - Animal feed and pellets
- Liquids
 - Water and wastewater solutions
 - General-purpose solvents
 - Heavy oils, Petroleum, and Lubricants
 - Chemical and corrosive liquids
 - Fruit juice, Beverages, and Cream

Features

- Wide supply voltage range: 12-36 VDC
- Compact size
- Fast switching response 0.5 to 2 sec
- Low power consumption
- Calibration-less operation
- Durable Construction
- Immune to External Vibrations
- Suitable for side as well as top mounting
- Minimum and maximum failsafe field selectable
- Process temperature max 130°C
- Process pressure max.30 bar
- 1/2" threaded mountings available
- Threaded / flanged / customized process connections

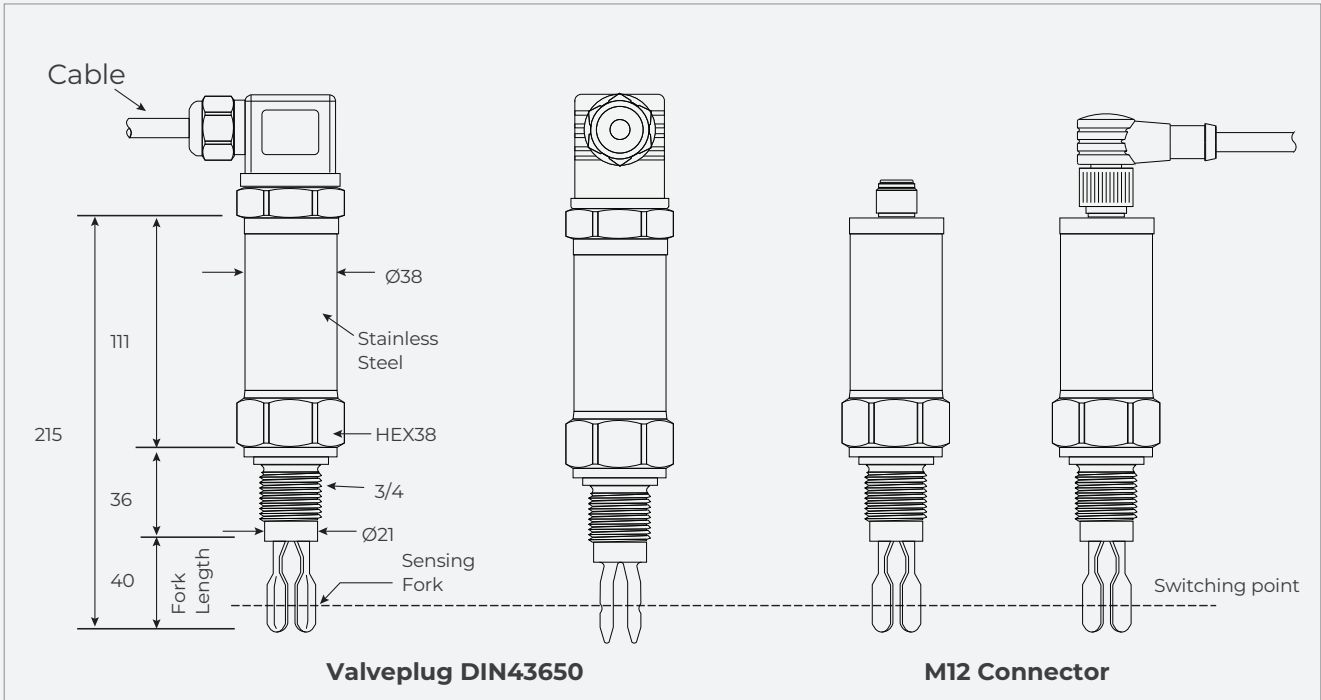
Description

The Enelsan Etrans-PNP is an industrial-grade vibrating fork (tuning fork) point level sensor specifically designed for minimum and maximum level detection in tanks, silos, and pipelines. By detecting the presence of fluid or solid materials with high precision, it maximizes process safety and efficiency. The Etrans-PNP uses piezoelectric crystals and solid-state electronics technology to generate a vibration at a specific frequency within the tuning fork element.

When the fork probe comes into contact with the targeted material, the vibration frequency is dampened. The electronic module instantly detects this feedback and changes the sensor output state (relay or transistor), indicating the presence of the material. Once the fork is completely free from the material, the vibration returns to its free frequency, and the output reverts to its normal state.



Structure



Product Features

Measuring Medium / Usage	Solid and Liquid
Measuring/Probe Length	50mm
Ambient Temperature	-20...+60°C
Operating Temperature	-20...+130°C
Supply Voltage	12-36 Vdc
Output Signal	NPN , PNP DC
Maximum Load / Output Limit	250mA Max
Pressure Range	30 Bar Max.
Sensor Material / Wet Parts	316 Stainless Steel
Instruction Mode / LED	Green LED (Energy), Red LED (Alarm)
Protection Class	IP67
Process Connection	Thread R1", (optional 1" NPT Thread and Flange)

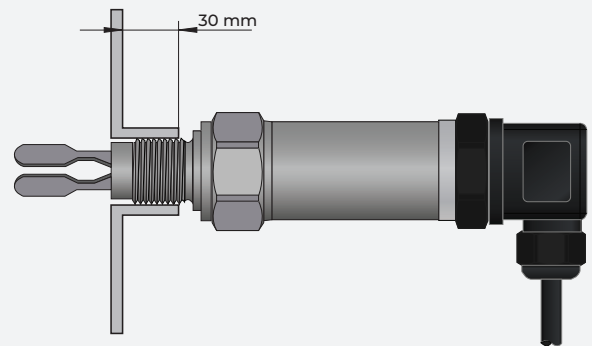
Vibrating Fork Level Switch MODEL Etrans-PNP

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We Measure

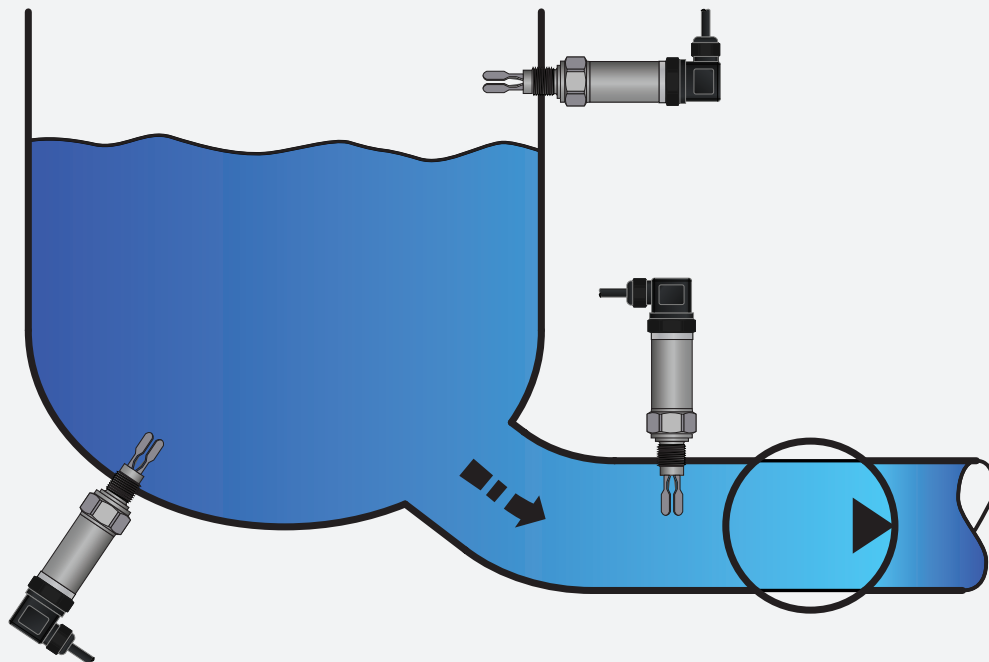
Mounting

In case of horizontal mounting in adhesive and viscous media, the surfaces of the tuning fork should be vertical in order to reduce buildup on the tuning fork. The position of the tuning fork is indicated by a marking on the hexagon of the Etrans-PNP. With this, you can check the position of the tuning fork when screwing it in. When the hexagon touches the seal, the thread can still be turned by approx. half a turn. This is sufficient to reach the recommended installation position.

In adhesive and viscous media, the surfaces of the tuning fork should protrude into the vessel to avoid buildup. Therefore, nozzles for flanges and mounting bosses should not exceed a certain length.



Application



- Simple and robust measuring system, virtually unaffected by the chemical and physical properties of liquids
- Easily mountable in pipelines from DN 25, vessels and tanks
- Outputs: contactless electronic switch or transistor

APPLICATION AND INSTALLATION

Ensure that the liquid is within the specified temperature and pressure ranges (see specifications).

Ensure that the viscosity of the liquid is within the recommended range of 0.2 to 10,000 cP.

Examples of high-viscosity products: Chocolate syrup, ketchup, peanut butter, and asphalt.

The switch can still detect these products, but the response time will be longer.

Ensure that the liquid density exceeds 37.5 lbs/ft³ (600 kg/m³).

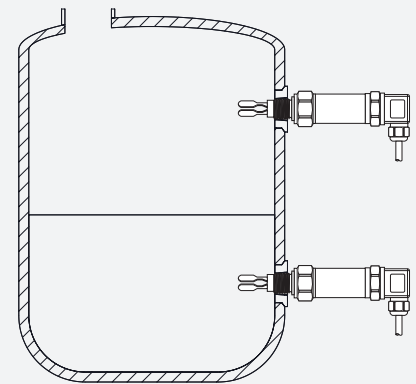
Examples of lower density products: Acetone, pentane, and hexane.

Check if there is a risk of bridging on the tuning fork.

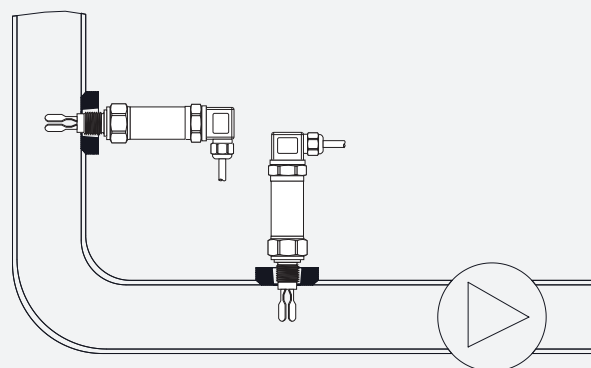
Avoid excessive buildup due to product drying and coating.

Ensure there is no risk of the tuning fork becoming jammed or bridged.

Examples of materials that can cause sticking and bridging: Thick pulp and asphalt.



Level detection for vessels



Pipeline monitoring

Check if there are solid particles in the liquid.

If the product coats the fork and dries, it leads to excessive buildup.

As a guideline, the maximum diameter of solid particles in the liquid is 0.2 inches (5 mm).

When dealing with particles larger than 5 mm (0.2 inches) in diameter, special attention is required, and the manufacturer can be consulted.

Foam

Note that in almost all cases, the device is insensitive to foam (without bubbles).

However, in exceptional cases, particularly thick foam can act like a liquid and be detected. This can occur, for example, during the production of ice cream and orange juice.

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TUNING AND INDICATION DETAILS(LITE-TYPE/MINI-TYPE)

Output Status For Relay

Low (Min.) Mode: Tuning fork switch will be active after 3 seconds while power on. Relay is on NO status and red LED indication is off. When tuning fork is covered by testing medium, the vibration will stop and relay becomes NC status. Red LED indication then is on.

High(Max.) Mode: Tuning fork switch will be active after 3 seconds while the power on. Relay is on NC status and red LED indication is on. When tuning fork covered by testing medium, the vibration stops and relay becomes NO status. 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 failure
Contactless electronic switch	Switch open	Switch closed	Switch closed	Switch open	Switch open
Red LED					

It represents Blinking

Output Status For PNP / NPN Transistor
DIN & Cable type

Low(Min.) Mode: Tuning fork switch will be active after 3 seconds while power on. Output transistor is on NO status and red LED indication is on. When tuning fork covered by testing medium,vibration will stop and output transistor becomes NC status. Red LED indication is off.

High(Max.) Mode: Tuning fork switch will be active after 3 seconds while power on. Output transistor is on NC status and red LED indication is on. When tuning fork covered by testing medium,vibration will stop and output transistor becomes NO status. Red LED indication is off.

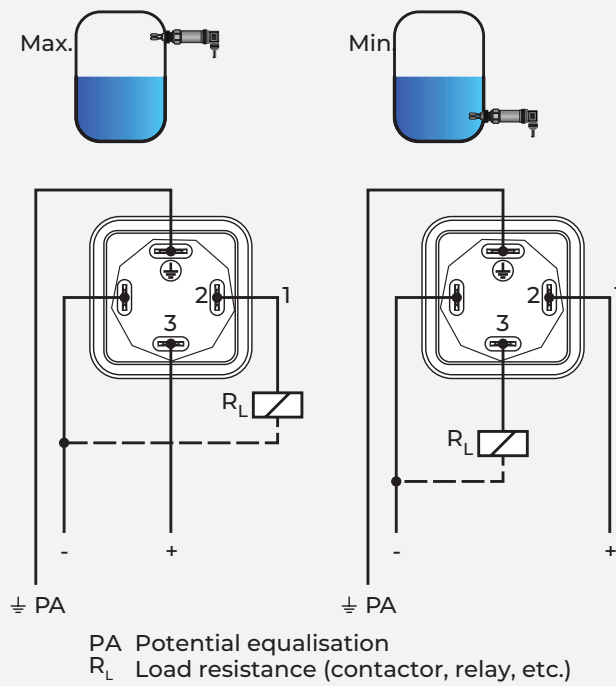
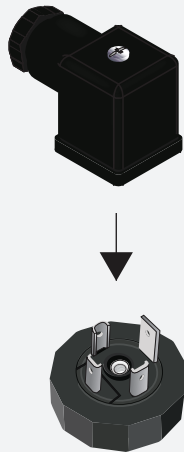
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M12 x 4Pin type

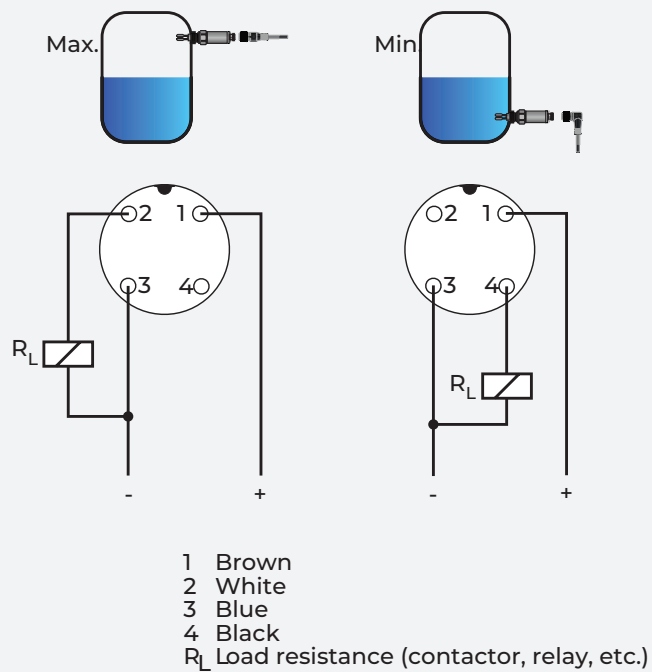
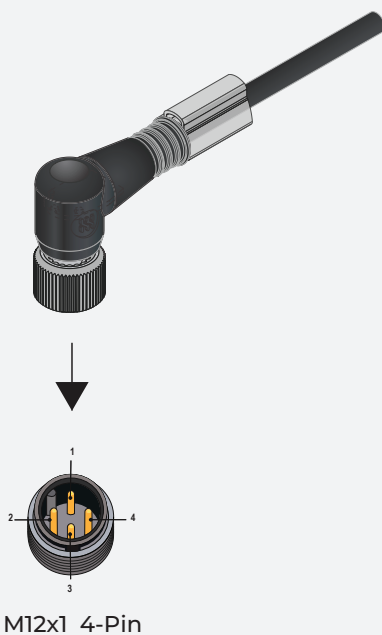
	Min. Mode		Max.Mode		
Level					Instrument failure
PNP/NPN Output	Switch open	Switch closed	Switch closed	Switch open	Switch open
Red LED (DIN& Cable)					
Red LED (M12x 4Pin)					

It represents Blinking

Electrical Connection



M12 connector with moulded cable



Contact us

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