



# Brief Operating Instructions

## Nivotester FTL325N, 3-channel Level detector with NAMUR input

Vibronic



These Brief Operating Instructions are not a substitute for the Operating Instructions pertaining to the device. Detailed information can be found in the Operating Instructions and the additional documentation.

Available for all device versions via:

- Internet: [www.endress.com/deviceviewer](http://www.endress.com/deviceviewer)
- Smartphone/tablet: Endress+Hauser Operations app

## Basic safety instructions

### Manufacturer's address

Manufacturer: Endress+Hauser SE+Co. KG, Hauptstraße 1, D-79689 Maulburg or [www.endress.com](http://www.endress.com).

Place of manufacture: See nameplate.

### Requirements for the personnel

The personnel must fulfill the following requirements to carry out their tasks, e. g. commissioning and maintenance:

- ▶ Trained specialists must have a qualification that is relevant to the specific function and task.
- ▶ Must be authorized by the plant owner/operator.
- ▶ Must be familiar with national regulations.
- ▶ Must have read and understood the instructions in the manual and supplementary documentation.
- ▶ Personnel must follow instructions and comply with general policies.

### Intended use

- The Nivotester FTL325N with intrinsically safe NAMUR inputs (IEC/EN 60947-5-6) must be connected only to appropriate NAMUR sensors
- The device may be dangerous if used incorrectly
- Only use insulated tools

- Only use original parts

### Workplace safety

When working on and with the device:

- ▶ Wear the required personal protective equipment as per national regulations.

### Operational safety

- ▶ Operate the device only if it is in proper technical condition, free from errors and faults.
- ▶ The operator is responsible for ensuring that the device is in good working order.



- For applications requiring functional safety in accordance with IEC 61508 (SIL), refer to the Functional Safety Manual.
- For WHG applications, see the associated WHG documents

### Product safety

This product is designed in accordance with good engineering practice to meet state-of-the-art safety requirements and has been tested and left the factory in a condition in which it is safe to operate.

## Mounting

### Mounting requirements

The device must be housed in a cabinet outside the hazardous area.

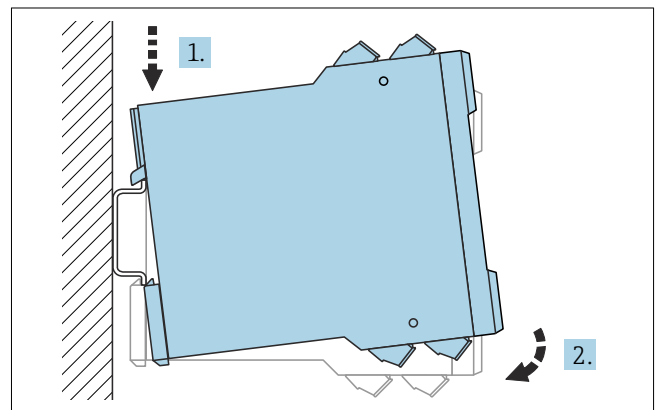
Mount the device so that it is protected against weather and impact. If you are operating the device outdoors and in warmer climates, avoid direct sunlight

### Ambient temperature range

- Mounted individually: -20 to +60 °C (-4 to 140 °F)
  - Mounted in a row without lateral spacing: -20 to +50 °C (-4 to +122 °F)
  - For installation in protective housing: -20 to +40 °C (-4 to +104 °F)
- A maximum of four single-channel Nivotester devices or a maximum of two 3-channel Nivotester devices or a maximum of two single-channel Nivotester devices plus one 3-channel Nivotester device may be installed in a protective housing.

### Mounting the device

The device can be mounted horizontally or vertically on a DIN rail.



1 Mounting; DIN rail as per EN 60715 TH35-7.5/EN 60715 TH35-15

**Electrical connection**



**Risk of explosion due to faulty connection.**

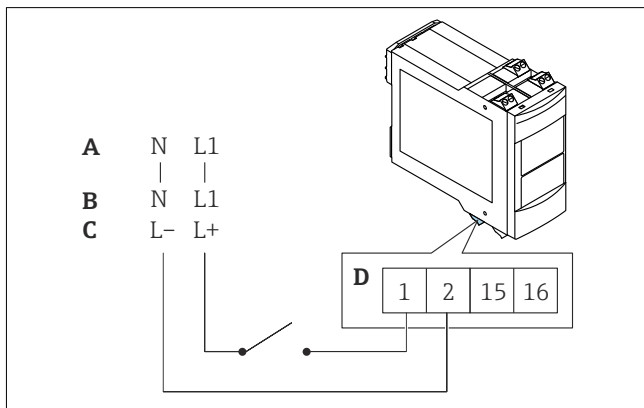
- ▶ Observe applicable national standards.
- ▶ Comply with the specifications in the Safety Instructions (XA).
- ▶ Check to ensure that the power supply matches the information on the nameplate.
- ▶ Switch off the supply voltage before connecting.
- ▶ When connecting to the public mains, install a mains switch for the device such that it is within easy reach of the device. Mark the power switch as a disconnecter for the device (IEC/EN61010).

Observe the specifications on the nameplate of the device.

*Connecting the device*

The removable terminal blocks are color-coded into intrinsically safe and non-intrinsically safe terminals. This difference helps to ensure safe wiring.

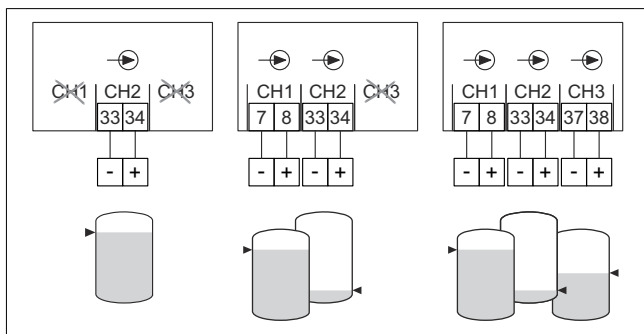
**Arrangement of terminals, power supply**



2 Arrangement of terminals, power supply

- A  $U \sim 85$  to  $253 V_{AC}$ , 50/60 Hz
- B  $U \sim 20$  to  $30 V_{AC}$ , 50/60 Hz
- C  $U = 20$  to  $60 V_{DC}$
- D Max.  $1 \times 2,5 \text{ mm}^2$  (14 AWG) or  $2 \times 1,5 \text{ mm}^2$  (16 AWG)

**Connecting the sensor**



3 Connecting to any NAMUR sensor for 1 to 3 limit signals

Connecting the sensors for two-point control  $\Delta s$ , see Operating Instructions.

**Connectable sensors:**

- Liquiphant FTL51B, FTL62, FTL63, FTL64 with FEL68

- Liquiphant FTL41 with FEL48
- Liquiphant M FTL50(H), FTL51(H), FTL51C with FEL56/58
- Soliphant M FTM50, FTM51, FTM52 with FEM58
- Solicap M; S FTI55, FTI56; FTI77 with FEI58
- Liquicap M FTI51, FTI52 with FEI58

**Blue terminal blocks at top for hazardous area**

- Two-wire connection cable between the Nivotester and sensor, e.g. commercially available installation cable or wires in a multi-core cable for measurement purposes
- Use a shielded cable in the event of strong electromagnetic interference, e.g. from machines or radio equipment. Only connect the shield to the grounding terminal in the sensor. Do not connect it to the Nivotester

**Connecting the signal and control systems**

**Gray terminal blocks at bottom for the non-hazardous area**

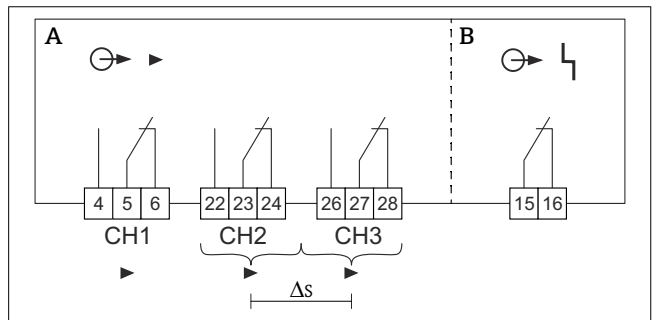
- Observe the relay function depending on the level and safety mode
- If a high-inductance device is connected (e.g. contactor, solenoid valve etc.), a spark arrester must be provided to protect the relay contact

**Connecting the supply voltage**

**Green terminal block at bottom:**

A fuse is integrated into the power supply circuit. An additional fine-wire fuse is not necessary. The device is equipped with reverse polarity protection.

**Connecting the outputs**



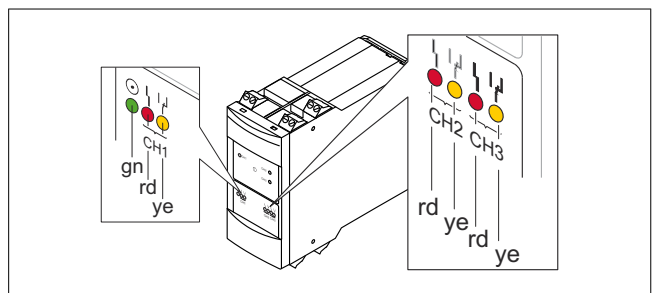
4 Connecting the outputs

- A Level, limit signal
- B Fault, alarm

**Ensuring the degree of protection**

- IP20 (as per IEC/EN 60529)
- IK06 (as per IEC/EN 62262)

**Display elements**



5 Display elements, light emitting diodes (LEDs)

- gn Green LED: ready for operation
- rd Red LED: fault signaling
- ye Yellow LED: level relay energized