

# Brief Operating Instructions Brief Operating Instructions Nivotester FTC325, 3-wire

Capacitance

evaluation unit for capacitance point level measurement



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.

Solutions

Available for all device versions via:

- Internet: 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

Place of manufacture: See nameplate.

#### Requirements for the personnel

The operating personnel must fulfill the following requirements:

- Trained, qualified specialists: must have a relevant qualification for this specific function and task
- Are authorized by the plant operator
- Are familiar with national regulations
- They must have read and understood the instructions in the manual, supplementary documentation and certificates (depending on the application) prior to starting work
- They must follow instructions and comply with basic conditions

#### Intended use

 Use the device only as a transmitter supply unit for level switches from Endress+Hauser with a 3-wire connection.

# Installation

#### Installation requirements

The device must be housed in a cabinet or protective housing 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
- For outdoor installation, a protective housing (IP66) is available for up to 4 devices.

#### Ambient temperature range

- Installation of an individual device: -20 to +60 °C (-4 to 140 °F)
- Side-by-side installation without lateral spacing: -20 to +50 °C (-4 to +122 °F)
- Installation in protective housing: –20 to +40  $^\circ C$  (–4 to +104  $^\circ F)$

#### Mounting the device

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

- The device may be dangerous if used incorrectly.
- Only use insulated tools.
- Only use original parts.

## Workplace safety

For work on and with the device:

Wear the required personal protective equipment according to federal/ 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 trouble-free operation of the device.

#### Product safety

This state-of-the-art device is designed and tested in accordance with good engineering practice to meet operational safety standards. It left the factory in a condition in which it is safe to operate.





## Electrical connection



Observe the specifications on the nameplate of the device.

# **WARNING**

If the device is not connected properly, personal injury and explosion may occur due to limited electrical safety.

- Comply with 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 switch as a disconnector for the device (IEC 61010).

Connecting the device

## **WARNING**

## Risk of electric shock from contact with live components! Burns and injuries caused by startle responses may result.

Switch off the supply voltage before connecting the device. ►

# Connecting the sensor



🖸 2 Connecting the power supply and signal line S with any sensor

# Sensors connectable with FEI53 electronic insert:

- Liquicap M FTI51, FTI52
- Solicap M FTI55, FTI56
- . Solicap S FTI77

F

Upper terminal blocks

- Three-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.

If the sensor's electronic insert has been replaced, a recalibration must be carried out.

# Connecting the signal and control systems

## Lower, grey terminal blocks for non-hazardous areas

- Observe 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

## Lower, green terminal blocks



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.



₽ 3 Arrangement of terminals

- U~AC85 to 253 V, 50/60 Hz U~AC20 to 30 V, 50/60 Hz
- A B C D U=DC20 to 60 V
- Maximum 1.5 mm<sup>2</sup> (16 AWG)

## Connecting the outputs



Connecting the outputs • 4

Level, limit signal

Fault, alarm

Α

В

## Ensuring the degree of protection

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