



# Brief Operating Instructions Nivotester FailSafe FTL825

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 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

### Designated use

The device is a transmitter power supply unit and may only be used for measuring limit levels in conjunction with the Liquiphant FailSafe FTL8x from Endress+Hauser.

- Use for overflow protection (Z-65.11-507) or dry-running protection/leakage (Z-65.40-508), also for tanks with combustible, explosive, toxic (water-endangering) liquids.

## Mounting

### Mounting requirements

- If you are using the device outside the hazardous area, mount it in a control cabinet
- 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)
- Mounted in protective housing: -20 to +60 °C (-4 to +140 °F)  
A maximum of two Nivotester units may be installed in a protective housing.

### Mounting the device

The device can be mounted vertically on a DIN rail.

- Also use in safety systems requiring functional safety to SIL3 as per IEC 61508 Ed.2.0/IEC 61511-1/ISA 84-1.

### Workplace safety

When working on and with the device:

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

### Operational safety

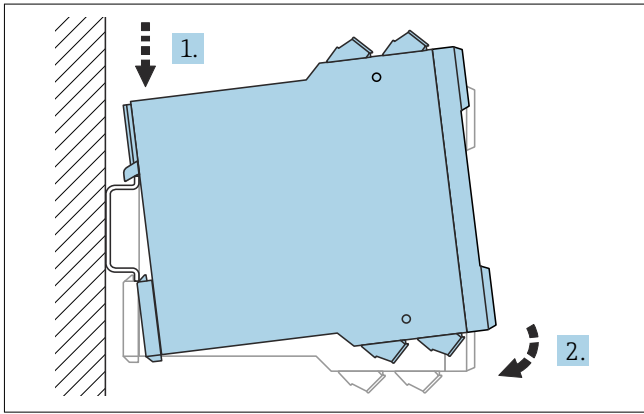
- ▶ Operate the device only if it is in proper technical condition, free from errors and faults.
- ▶ The operator is responsible for ensuring that the device is in good working order.



- 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.



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 disconnector for the device (IEC/EN61010).

Observe the specifications on the nameplate of the device.

**Connecting the device**

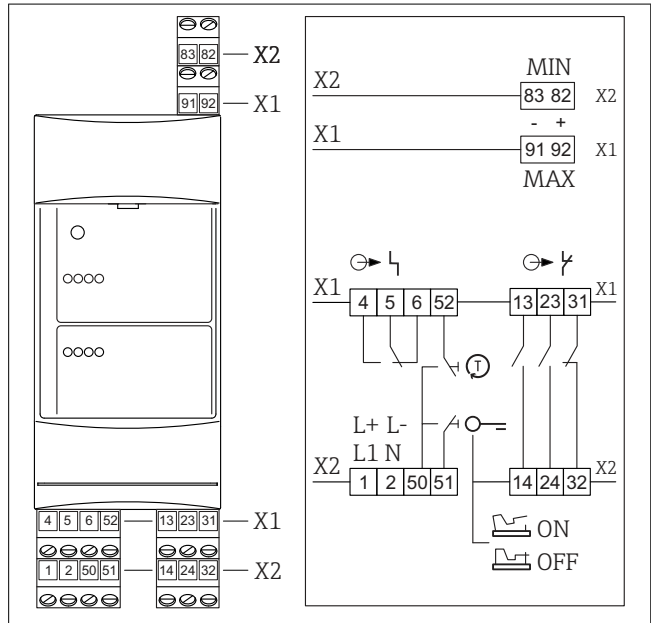
*Cable diameter and wire cross-section*

Maximum permitted wire cross-section 1 x 2.5 mm<sup>2</sup> (14 AWG) or maximum 2 x 1.5 mm<sup>2</sup> (16 AWG).

*Terminal blocks*

The removable terminal blocks (intrinsically safe version) are separated into intrinsically safe circuits (at the top of the device) and non-intrinsically safe circuits (at the bottom of the device). These differences help to ensure that the connecting lead is safely wired.

*Connections on the Nivotester FailSafe FTL825*

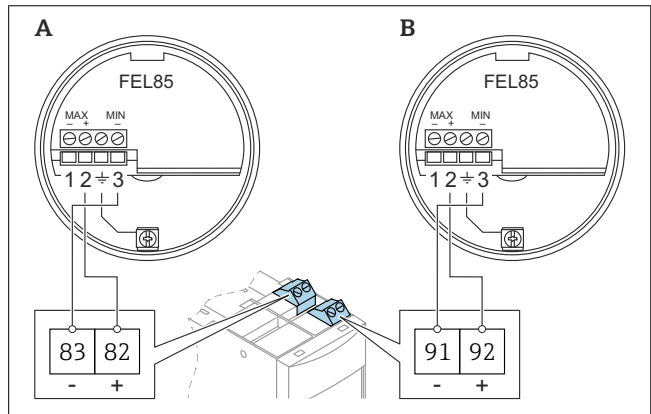


2 Front panel open, connection to the terminal blocks

- X1 Gray (top), 2 screw terminals, MAX detection sensor connection (91, 92)
- X2 Gray (top), 2 screw terminals, MIN detection sensor connection (83, 82)
- X1 Gray (bottom), 4 screw terminals, fault-signaling contact (4, 5, 6) and remote control (52)
- X2 Green (bottom), 4 screw terminals, supply voltage (1, 2) and unlocking (50, 51)
- X1 Gray (bottom), 3 screw terminals, safety contacts (13, 23) and signaling contact (31)
- X2 Gray (bottom), 3 screw terminals, safety contacts (14, 24) and signaling contact (32)

*Connecting the sensor*

Only one Liquiphant FailSafe FTL8x limit switch may be connected. The MIN/MAX mode of operation can be selected through the connection wiring.



3 Connection to terminal blocks at the top, example of the FEL85 sensor

- A Minimum detection (dry-running protection)
- B Maximum detection (overflow protection)

**Top, gray X1 and X2 terminal blocks for sensor connection:**

- 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

**Connection data**

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.

Mains voltage version:

- Nominal supply voltage: AC/DC 230 V/115 V
- Supply voltage range:  
AC 85 to 253 V, 50 Hz/60 Hz  
DC 85 to 253 V
- Power consumption:  $\leq 3.8 \text{ VA}$ ,  $\leq 2.0 \text{ W}$

Ultra-low voltage version:

- Nominal supply voltage: AC/DC 24 V

- Supply voltage range:  
AC 20 to 30 V, 50 Hz/60 Hz  
DC 20 to 60 V
- Direct current supply:  $\leq 95 \text{ mA}$
- Permissible residual ripple within tolerance:  $U_{\text{rs}} = \text{maximum } 2 \text{ V}$
- Power consumption:  $\leq 3.6 \text{ VA}$ ,  $\leq 2.5 \text{ W}$

**Ensuring the degree of protection**

IP20 (as per IEC/EN 60529)

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