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# Safety Instructions
# **Nivotester FTC325**

[Ex ia Ga] IIC
[Ex ia Da] IIIC


Endress+Hauser
People for Process Automation

# Nivotester FTC325

## Table of contents

**Associated documentation**

This document is an integral part of the following Operating Instructions:

TI00380F/00, KA00221F/00

**Supplementary documentation**

Explosion-protection brochure: CP00021Z/11

The Explosion-protection brochure is available:
- In the download area of the Endress+Hauser website: www.endress.com -> Downloads -> Brochures and Catalogs -> Text Search: CP00021Z
- On the CD for devices with CD-based documentation

**Manufacturer's certificates**

**Certificate of Conformity**

Certificate number:
CML 21JPN2145

Affixing the certificate number certifies conformity with the following standards (depending on the device version):

- JNIOSH-TR-46-1:2015
- JNIOSH-TR-46-6:2015

**Manufacturer address**

Endress+Hauser SE+Co. KG
Hauptstraße 1
79689 Maulburg, Germany

Address of the manufacturing plant: See nameplate.

**Extended order code**

The extended order code is indicated on the nameplate, which is affixed to the device in such a way that it is clearly visible. Additional information about the nameplate is provided in the associated Operating Instructions.

**Structure of the extended order code**

| FTC325 | – | ********** | + | A*B*C*D*E*F*G*.. |
|---|---|---|---|---|
| *(Device type)* | | *(Basic specifications)* | | *(Optional specifications)* |

* = Placeholder
At this position, an option (number or letter) selected from the specification is displayed instead of the placeholders.

*Basic specifications*

The features that are absolutely essential for the device (mandatory features) are specified in the basic specifications. The number of positions depends on the number of features available.
The selected option of a feature can consist of several positions.

*Optional specifications*

The optional specifications describe additional features for the device (optional features). The number of positions depends on the number of features available. The features have a 2-digit structure to aid identification (e.g. JA). The first digit (ID) stands for the feature group and consists of a number or a letter (e.g. J = Test, Certificate). The second digit constitutes the value that stands for the feature within the group (e.g. A = 3.1 material (wetted parts), inspection certificate).

More detailed information about the device is provided in the following tables. These tables describe the individual positions and IDs in the extended order code which are relevant to hazardous locations.

## Extended order code: Nivotester

The following specifications reproduce an extract from the product structure and are used to assign:
- This documentation to the device (using the extended order code on the nameplate).
- The device options cited in the document.

*Device type*

FTC325

*Basic specifications*

| Position 1 (Approval) | | |
|---|---|---|
| **Selected option** | | **Description** |
| FTC325 | J | JPN [Ex ia Ga] IIC<br>JPN [Ex ia Da] IIIC |

| Position 2 (Input, Housing) | | |
|---|---|---|
| **Selected option** | | **Description** |
| FTC325 | 1 | 2-wire PFM; 45mm, DIN Rail |

| Position 3 (Power Supply) | | |
|---|---|---|
| **Selected option** | | **Description** |
| FTC325 | A | 85-253 VAC |
| | B | 20-30 VAC / 20-60 VDC |

| Position 4 (Switch Output) | | |
|---|---|---|
| **Selected option** | | **Description** |
| FTC325 | 1 | 1x SPDT level + 1x SPST alarm N.C. (normal closed) |
| | 2 | 1x SPDT level + 1x SPST alarm N.O. (normal open) |

*Optional specifications*

No options specific to hazardous locations are available.

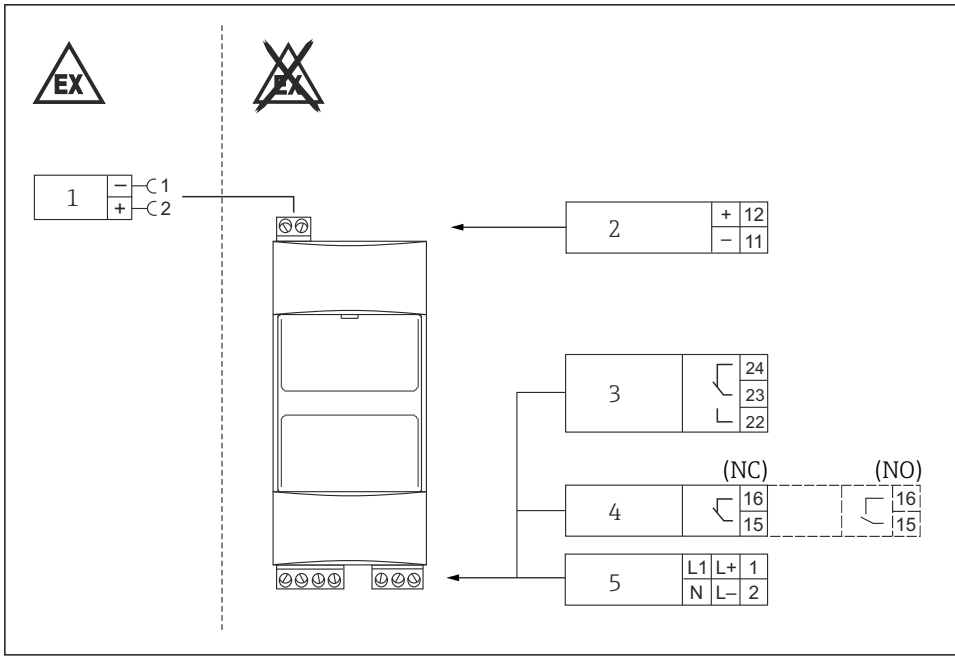
**Safety instructions: General**

- Staff must meet the following conditions for mounting, electrical installation, commissioning and maintenance of the device:
  - Be suitably qualified for their role and the tasks they perform
  - Be trained in explosion protection
  - Be familiar with national regulations
- Comply with the installation and safety instructions in the Operating Instructions.
- Install the device according to the manufacturer's instructions and national regulations.
- Do not operate the device outside the specified electrical, thermal and mechanical parameters.
- Avoid electrostatic charging.
- Modifications to the device can affect the explosion protection and must be carried out by staff authorized to perform such work by Endress+Hauser.

**Safety instructions: Special conditions**

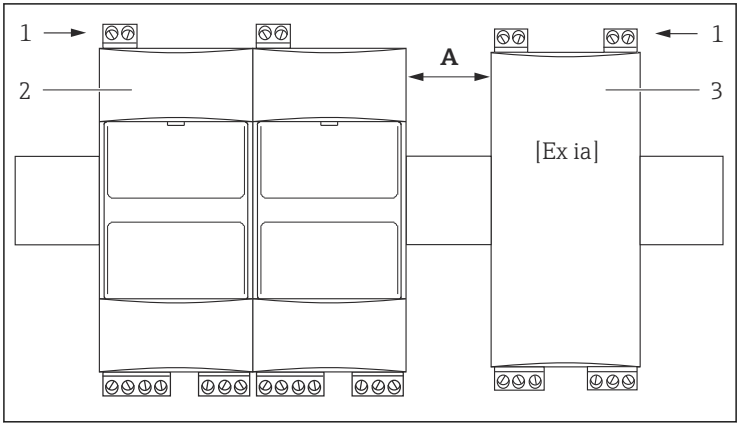
To avoid electrostatic charging: Do not rub surfaces with a dry cloth.

## Safety instructions: Installation




1

1 PFM sensor, Limit level Ex ia IIC/IIB
2 PFM sensor
3 Level relay
4 Fault signal relay/Level relay
5 Power supply




*2*

*A Min. 6 mm*
*1 Intrinsically safe contacts*
*2 Nivotester FTC325*
*3 Other type, other product*

- To achieve an ingress protection of at least IP55: Protect the device from dust and humidity, e.g. in control rooms, or located in a suitable protective housing.
- The device is an associated apparatus: Only use the device outside explosion hazardous areas.
- If an intrinsically safe circuit is connected to the device passes through dust explosion-hazardous areas of Zones 20 or Zone 21, make sure that the devices connected to this circuit meet the requirements of categories 1 D or 2 D and are certified accordingly.
- There must be a distance (thread measure) of at least 50 mm between intrinsically safe and nonintrinsically safe terminals.
- When combining the device with other types and products on the same top-hat rail: Keep the distances comply to the relevant standards and rules.
- When combining with devices from other manufacturers: Observe ingress protection of the housing.

### Intrinsic safety

- Observe the pertinent guidelines when interconnecting intrinsically safe circuits.
- The intrinsically-safe input circuits are galvanically isolated from other circuits up to a peak value of the nominal voltage of 375 V.

## Temperature tables

| Ambient temperature range | |
|---|---|
| Individual installation | $-20\,°C \leq T_a \leq +60\,°C$ |
| Series installation | $-20\,°C \leq T_a \leq +50\,°C$ |

## Connection data

| Power supply circuit | | |
|---|---|---|
| Terminal connections:<br>1, 2 | AC voltage | U = 85 to 253 $V_{AC}$, 50/60 Hz<br>P ≤ 6.0 VA |
| | DC voltage | U = 20 to 60 $V_{DC}$<br>U = 20 to 30 $V_{AC}$, 50/60 Hz<br>P ≤ 2.0 W |

| Contact circuit | |
|---|---|
| **Level relay**<br>Terminal connections:<br>22, 23, 24 | U ≤ 250 $V_{AC}$, I ≤ 2 A, P ≤ 500 VA at cos φ ≥ 0.7<br>U ≤ 40 $V_{DC}$, I ≤ 2 A, P ≤ 80 W |
| **Fault signal relay**<br>Terminal connections:<br>15, 16 | U ≤ 250 $V_{AC}$, I ≤ 2 A, P ≤ 500 VA at cos φ ≥ 0.7<br>U ≤ 40 $V_{DC}$, I ≤ 2 A, P ≤ 80 W<br>optionally NC or NO, → 1, 7 |

| Sensor circuit | | | | | |
|---|---|---|---|---|---|
| Terminal connections:<br>11, 12 | Connection data: | $U_o \leq 13.9$ V<br>$I_o \leq 99$ mA<br>$P_o \leq 874$ mW<br>Trapezium-shaped characteristic | | $R_i \geq 391\,\Omega$<br>$C_i = 138$ nF<br>$L_i = 0.13$ mH | |
| | | **[Ex ia Ga] IIC** | | **[Ex ia Ga] IIB**<br>**[Ex ia Da] IIIC** | |
| | | **$L_o$** | **$C_o$** | **$L_o$** | **$C_o$** |
| | Max. external capacitance at max. external inductance | 0.85 mH | 0.18 µF | 0.85 mH | 2.06 µF |
| | | 0.35 mH | 0.26 µF | 4.85 mH | 1.06 µF |
| | Max. external capacitance or max. external inductance | 3.50 mH | 0.60 µF | 14.3 mH | 4.56 µF |
| If using explosion protection group [Ex ib Gb] IIC/IIB the application is limited to **II (2) G** or EPL **Gb** | | **[Ex ib Gb] IIC** | | **[Ex ib Gb] IIB** | |
| | | **$L_o$** | **$C_o$** | **$L_o$** | **$C_o$** |
| | Max. external capacitance or max. external inductance | 3.50 mH | 0.60 µF | 14.3 mH | 4.56 µF |


www.addresses.endress.com

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