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Safety Instructions
Nivotester FTW325

[Ex ia Ga] IIC

Endress+Hauser
People for Process Automation

Nivotester FTW325

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About this document

This document has been translated into several languages. Legally determined is solely the English source text.

Associated documentation

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

KA00199F, TI00373F

Supplementary documentation

Explosion protection brochure: CP00021Z

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

NEPSI Declaration of Conformity

Certificate number:
GYJ20.1615

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

- GB/T 3836.1-2021
- GB/T 3836.4-2021

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

FTW325	–	**********	+	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

FTW325

Basic specifications

Position 1 (Approval)		
Selected option		**Description**
FTW325	1	NEPSI [Ex ia Ga] IIC

Position 2 (Housing)		
Selected option		**Description**
FTW325	2	Rail mounting, 22.5 mm, 2-channel

Position 3 (Power Supply)		
Selected option		**Description**
FTW325	A	85-253 V AC
	B	20-30 V AC / 20-60 V DC

Position 4 (Switch Output)		
Selected option		**Description**
FTW325	1	1x SPDT level + 1x SPST alarm

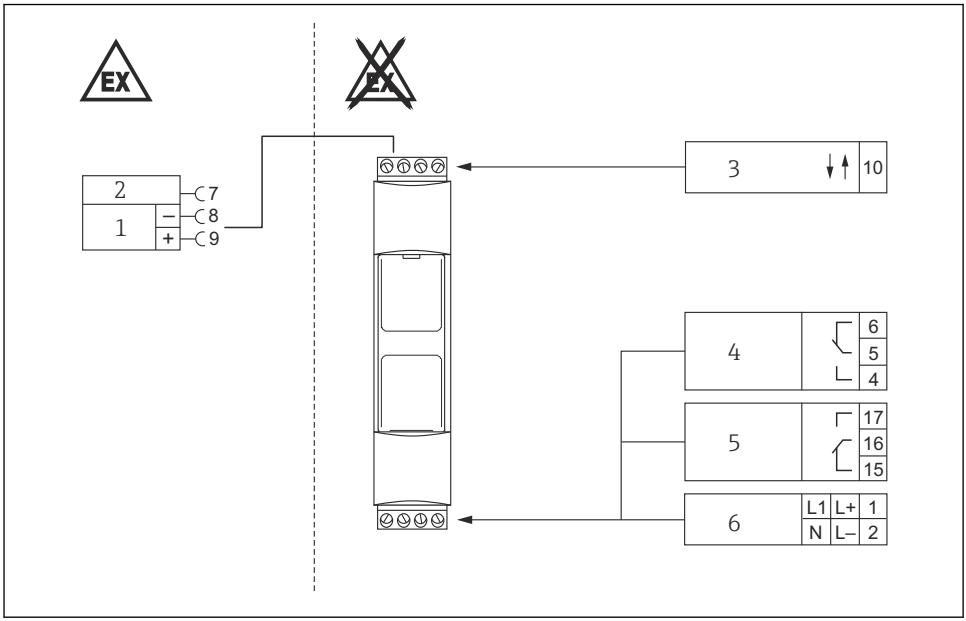
Optional specifications

No options specific to hazardous locations are available.

Safety instructions: General

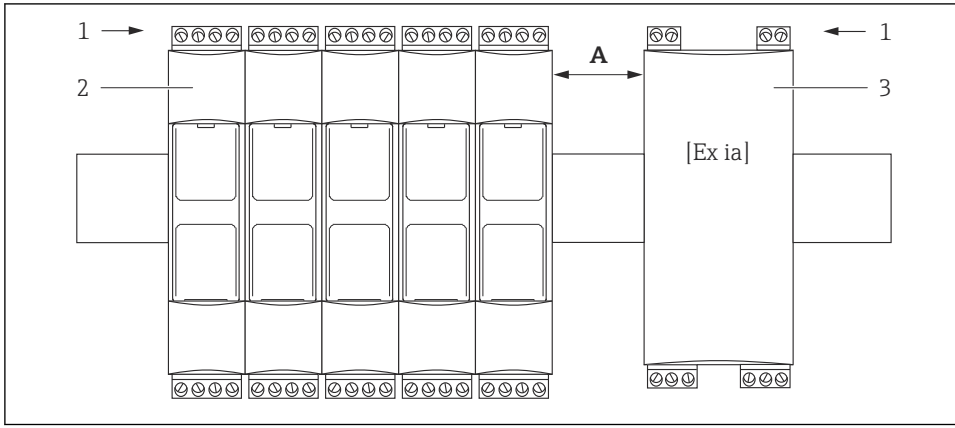
- Staff must meet the following conditions for mounting, electrical installation, commissioning and maintenance of the device:
  - Be suitably qualified for their role and the tasks they perform
  - Be trained in explosion protection
  - Be familiar with national regulations
- For installation, use and maintenance of the device, users must also observe the requirements stated in the Operating Instructions and the standards:
  - GB 50257-2014: "Code for construction and acceptance of electric device for explosion atmospheres and fire hazard electrical equipment installation engineering".
  - GB/T 3836.13-2021: "Explosive atmospheres, Part 13: Equipment repair, overhaul, reclamation and modification".
  - GB/T 3836.15-2017: "Explosive atmospheres, Part 15: Electrical installations design, selection and erection".
  - GB/T 3836.16-2017: "Explosive atmospheres, Part 16: Electrical installations inspection and maintenance".
- 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.

Safety instructions: Installation



1

1 Sensor, Limit level Ex ia IIC/IIB
2 Earth
3 Master / Slave
4 Limit relay 1
5 Limit relay 2 / Alarm relay
6 Power supply



2

A Min. 6 mm
1 Intrinsically safe contacts
2 Nivotester FTW325
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 enclosure.
- The device is an associated apparatus: Only use the device outside explosion hazardous areas.
- 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 enclosure.

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.
- All devices that are connected to the intrinsically safe circuits must be included in the potential equalization.

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: 1, 2	AC voltage	U = 85 to 253 V_{AC}, 50/60 Hz P ≤ 5.2 VA
	DC voltage	U = 20 to 60 V_{DC} U = 20 to 30 V_{AC}, 50/60 Hz P ≤ 1.2 W P ≤ 2.0 VA

Contact circuit	
Limit relay Terminal connections: Channel 1 (CH1): 4, 5, 6 Channel 2 (CH2): 15, 16, 17 [1] **Alarm relay** Terminal connections: 15, 16, 17 [1]	U ≤ 250 V_{AC}, I ≤ 2 A, P ≤ 500 VA at cos φ ≥ 0.7 U ≤ 40 V_{DC}, I ≤ 2 A, P ≤ 80 W

1) dependent on the configuration

<table>
<tr><th colspan="6">Sensor circuit</th></tr>
<tr><td rowspan="2">Terminal connections:
Channel 1 (CH1): 9
Channel 2 (CH2): 8 [1)]
Earth: 7</td><td rowspan="2">Connection data:</td><td colspan="4">$U_o \leq 13.8$ V
$I_o \leq 15.5$ mA
$P_o \leq 116$ mW

Trapezium-shaped characteristic</td></tr>
<tr><td colspan="4"></td></tr>
<tr><td rowspan="4"></td><td rowspan="2"></td><td colspan="2">[Ex ia Ga] IIC</td><td colspan="2">[Ex ia Ga] IIB</td></tr>
<tr><td>L_o</td><td>C_o</td><td>L_o</td><td>C_o</td></tr>
<tr><td>Max. external capacitance at max. external inductance</td><td>0.5 mH</td><td>730 nF</td><td>2.0 mH</td><td>2.8 µF</td></tr>
<tr><td>1.0 mH</td><td>610 nF</td><td>5.0 mH</td><td>2.1 µF</td></tr>
<tr><td>Max. external capacitance or max. external inductance</td><td>100 mH</td><td>760 nF</td><td>100 mH</td><td>4.9 µF</td></tr>
<tr><td rowspan="3">If using explosion protection group [Ex ib Gb] IIC/IIB the application is limited to II (2) G</td><td rowspan="2"></td><td colspan="2">[Ex ib Gb] IIC</td><td colspan="2">[Ex ib Gb] IIB</td></tr>
<tr><td>L_o</td><td>C_o</td><td>L_o</td><td>C_o</td></tr>
<tr><td>Max. external capacitance or max. external inductance</td><td>100 mH</td><td>760 nF</td><td>100 mH</td><td>4.9 µF</td></tr>
</table>

1) dependent on the configuration

The values of the max. external capacitance and inductance of Group IIB are applicable for the explosion hazards arising from dust.

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