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Safety Instructions
Nivotester FTC325

ATEX, IECEx: [Ex ia Ga] IIC
[Ex ia Da] IIIC

Endress+Hauser
People for Process Automation

Nivotester FTC325

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About this document

The document number of these Safety Instructions (XA) must match the information on the nameplate.

Associated documentation

All documentation is available on the Internet:
www.endress.com/Deviceviewer
(enter the serial number from the nameplate).

If not yet available, a translation into EU languages can be ordered.

To commission the device, please observe the Operating Instructions pertaining to the device:

TI00380F, KA00221F

Supplementary documentation

Explosion protection brochure: CP00021Z

The explosion protection brochure is available on the Internet:
www.endress.com/Downloads

Certificates and declarations

EU Declaration of Conformity

Declaration Number:
EU_01254

The EU Declaration of Conformity is available on the Internet:
www.endress.com/Downloads

EU type-examination certificate

Certificate number:
DMT 02 ATEX E 232

List of applied standards: See EU Declaration of Conformity.

IEC Declaration of Conformity

Certificate number:
IECEx BVS 20.0037

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

- IEC 60079-0 : 2017
- IEC 60079-11 : 2023

Manufacturer address

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

Address of the manufacturing plant: See nameplate.

Other standards

Among other things, the following standards shall be observed in their current version for proper installation:
- IEC/EN 60079-14: "Explosive atmospheres - Part 14: Electrical installations design, selection and erection"
- EN 1127-1: "Explosive atmospheres - Explosion prevention and protection - Part 1: Basic concepts and methodology"

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	C	ATEX II (1) G [Ex ia Ga] IIC, WHG ATEX II (1) D [Ex ia Da] IIIC, WHG
	H	IECEx [Ex ia Ga] IIC IECEx [Ex ia Da] IIIC

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

Position 3 (Power Supply)		
Selected option		**Description**
FTC325	A	85 to 253 V_{AC}
	B	20 to 30 V_{AC} / 20 to 60 V_{DC}

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.

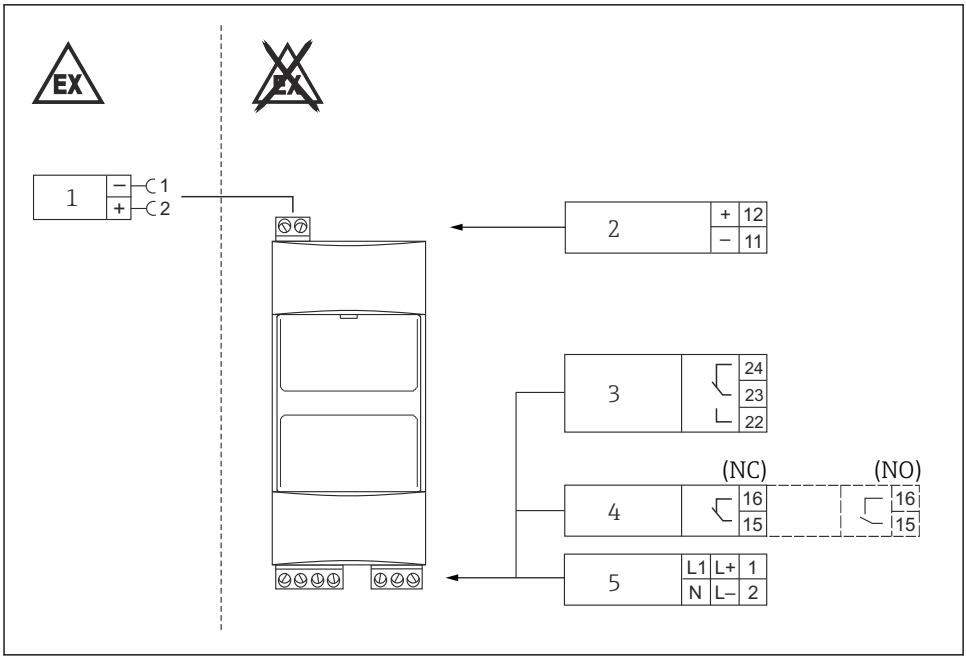
Safety instructions: General

- 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.
- Alterations 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: Specific conditions of use

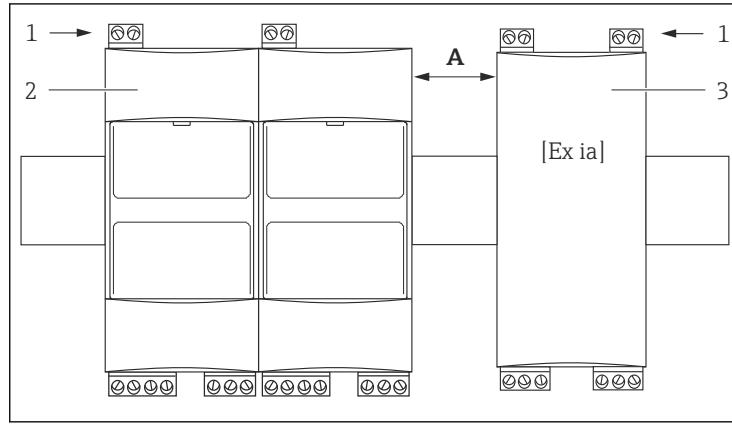
To avoid electrostatic charging: Do not rub surfaces with a dry cloth.

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 enclosure.
- 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 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.

Temperature tables

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

Connection data

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

Contact circuit	
Level relay Terminal connections: 22, 23, 24	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
Fault signal relay Terminal connections: 15, 16	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 optionally NC or NO, → 1, 8

Sensor circuit					
Terminal connections: 11, 12	Connection data:	U_o ≤ 13.9 V I_o ≤ 99 mA P_o ≤ 874 mW Trapezium-shaped characteristic		R_i ≥ 391 Ω C_i = 138 nF L_i = 0.13 mH	
		[Ex ia Ga] IIC		**[Ex ia Ga] IIB** **[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 equipment protection level (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

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