

# Safety Instructions

## Nivotester FTL325P

[Ex ia Ga] IIC



Document: XA01340F-A  
Safety instructions for electrical apparatus for explosion-  
hazardous areas →  3



# Nivotester FTL325P

## Table of contents

Associated documentation .....	4
Supplementary documentation .....	4
Manufacturer's certificates .....	4
Manufacturer address .....	4
Extended order code .....	4
Safety instructions: General .....	7
Safety instructions: Installation .....	7
Temperature tables .....	10
Connection data .....	10

<b>Associated documentation</b>	<p>This document is an integral part of the following Operating Instructions:</p> <p>KA00167F/00, KA00168F/00, TI00350F/00</p>
<b>Supplementary documentation</b>	<p>Explosion-protection brochure: CP00021Z/11</p> <p>The Explosion-protection brochure is available:</p> <ul style="list-style-type: none"><li>■ In the download area of the Endress+Hauser website: <a href="http://www.endress.com">www.endress.com</a> -&gt; Downloads -&gt; Media Type: Documentation -&gt; Documentation Type: Brochures and catalogs -&gt; Text Search: CP00021Z</li><li>■ On the CD for devices with CD-based documentation</li></ul>
<b>Manufacturer's certificates</b>	<p><b>Certificate of Conformity</b></p> <p>Certificate number: TÜV 13.0913 X</p> <p>Affixing the certificate number certifies conformity with the following standards (depending on the device version):</p> <ul style="list-style-type: none"><li>■ ABNT NBR IEC 60079-0:2013</li><li>■ ABNT NBR IEC 60079-11:2013</li></ul>
<b>Manufacturer address</b>	<p>Endress+Hauser SE+Co. KG Hauptstraße 1 79689 Maulburg, Germany Address of the manufacturing plant: See nameplate.</p>
<b>Extended order code</b>	<p>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.</p>

## Structure of the extended order code

FTL325P	–	*****	+	A*B*C*D*E*F*G*..
<i>(Device type)</i>		<i>(Basic specifications)</i>		<i>(Optional specifications)</i>

\* = 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*

FTL325P

### *Basic specifications*

Position 1 (Approval)		
Selected option		Description
FTL325P	1	INMETRO  Ex ia Ga  IIC
	2	INMETRO  Ex ia Ga  IIC, SIL

Position 2 (Housing)		
Selected option		Description
FTL325P	1	Rail mounting, 22.5 mm, 1-channel
	3	Rail mounting, 45 mm, 3-channel

Position 3 (Power Supply)		
Selected option		Description
FTL325P	A	85-253 V AC
	E	20-30 V AC / 20-60 V DC

Position 4 (Switch Output)		
Selected option		Description
FTL325P	1	1x SPDT level + 1x SPST alarm
	3	3x SPDT level + 1x SPST alarm

### *Optional specifications*

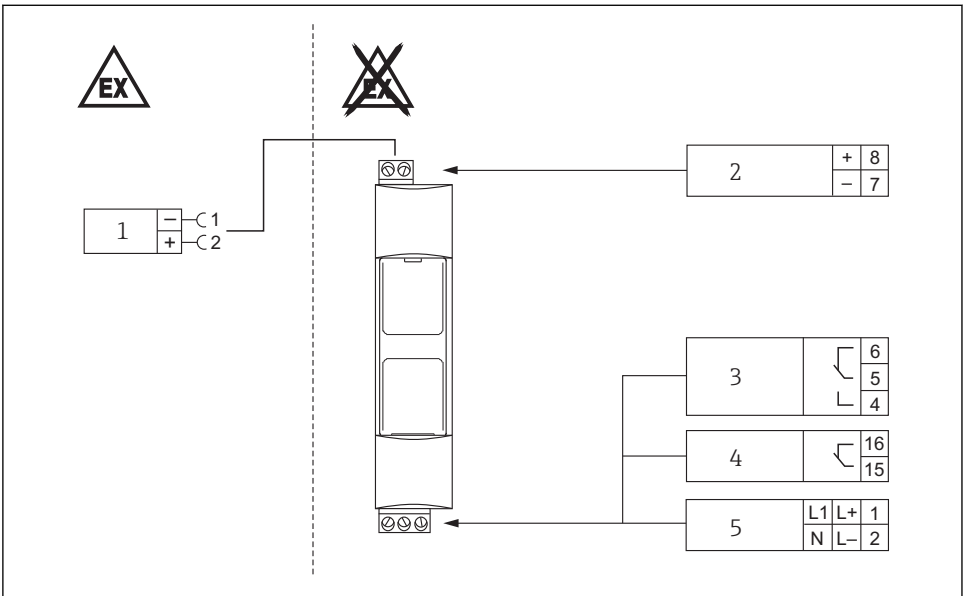
No options specific to hazardous locations are available.

**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
- 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**

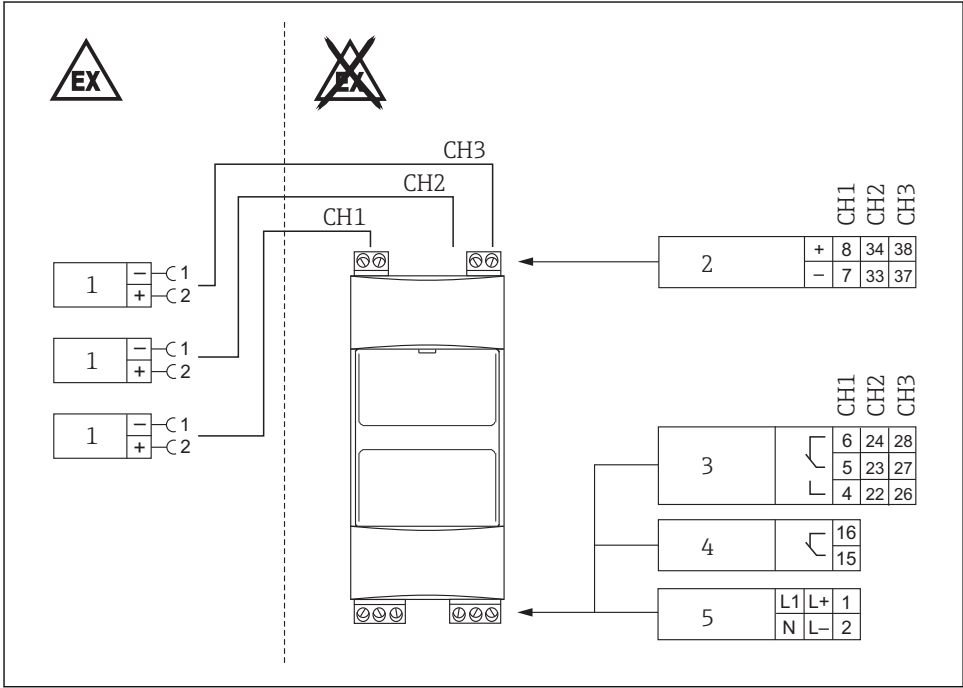
One channel version



A0034562

-  1
- 1 PFM sensor, Limit level
  - 2 PFM sensor
  - 3 Level relay
  - 4 Fault signal relay
  - 5 Power supply

Three channel version

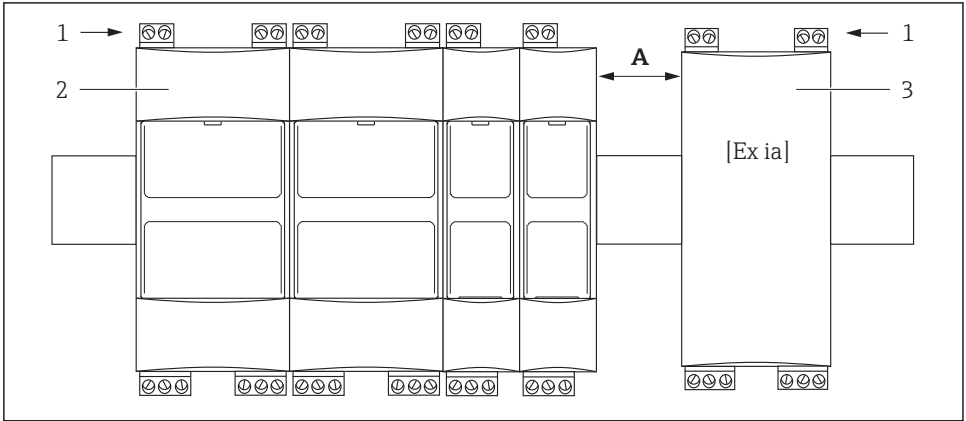


A0034563

2

- CH1 Channel 1
- CH2 Channel 2
- CH3 Channel 3
- 1 PFM sensor, Limit level
- 2 PFM sensor
- 3 Level relay
- 4 Fault signal relay
- 5 Power supply





A0027418

3

- A *Min. 6 mm*  
 1 *Intrinsically safe contacts*  
 2 *Nivotester FTL325P*  
 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.
- 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	$-20\text{ °C} \leq T_a \leq +60\text{ °C}$
Series installation	$-20\text{ °C} \leq T_a \leq +50\text{ °C}$

## Connection data

Power circuit	
Terminal connections: 1, 2	AC U = 85 to 253 V <sub>AC</sub> , 50/60 Hz P ≤ 1.7 W (one channel version) P ≤ 4.2 W (three channel version)
	DC U = 20 to 60 V <sub>DC</sub> U = 20 to 30 V <sub>AC</sub> , 50/60 Hz P ≤ 1.5 W (one channel version) P ≤ 3.3 W (three channel version)

Contact circuit	
<b>Level relay</b> Terminal connections: Channel 1 (CH1): 4, 5, 6 Channel 2 (CH2): 22, 23, 24 <sup>1)</sup> Channel 3 (CH3): 26, 27, 28 <sup>1)</sup>	U ≤ 250 V <sub>AC</sub> , I ≤ 2 A, P ≤ 500 VA at cos φ ≥ 0.7 U ≤ 40 V <sub>DC</sub> , I ≤ 2 A, P ≤ 80 W
<b>Fault signal relay</b> Terminal connections: 15, 16	

1) not available in one channel version

<b>Sensor circuit</b>					
Terminal connections: Channel 1 (CH1): 7, 8 Channel 2 (CH2): 33, 34 <sup>1)</sup> Channel 3 (CH3): 37, 38 <sup>1)</sup>	Connection data	$U_o \leq 14.6 \text{ V}$		$R_i \geq 273 \Omega$	
		$I_o \leq 97 \text{ mA}$		$C_i = 19 \text{ nF}$	
		$P_o \leq 633 \text{ mW}$		$L_i = 0$	
		Trapezium-shaped characteristic			
		<b>[Ex ia Ga] IIC</b>		<b>[Ex ia Ga] IIB</b>	
		<b>L<sub>o</sub></b>	<b>C<sub>o</sub></b>	<b>L<sub>o</sub></b>	<b>C<sub>o</sub></b>
	Max. external capacitance at max. external inductance	0.5 mH	300 nF	1.0 mH	1.0 µF
		1.0 mH	200 nF	5.0 mH	500 nF
	Max. external capacitance or max. external inductance	3.0 mH	640 nF	15 mH	3.9 µF
If using explosion protection group [Ex ib Gb] IIC/IIB the application is limited to <b>II (2) G</b>		<b>[Ex ib Gb] IIC</b>		<b>[Ex ib Gb] IIB</b>	
		<b>L<sub>o</sub></b>	<b>C<sub>o</sub></b>	<b>L<sub>o</sub></b>	<b>C<sub>o</sub></b>
	Max. external capacitance or max. external inductance	3.0 mH	640 nF	15 mH	3.9 µF

1) not available in one channel version



71469049

[www.addresses.endress.com](http://www.addresses.endress.com)

---