

# Safety Instructions

## Nivotester FTL325N

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





# Nivotester FTL325N

## Table of contents

About this document .....	4
Associated documentation .....	4
Supplementary documentation .....	4
Manufacturer's certificates .....	4
Manufacturer address .....	4
Extended order code .....	4
Safety instructions: General .....	7
Safety instructions: Installation .....	8
Temperature tables .....	11
Connection data .....	11

**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:

BA01972F/00, BA01973F/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](http://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:  
GYJ22.1801

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
- GB 3836.20-2010

**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

FTL325N	-	*****	+	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*

FTL325N

*Basic specifications*

Position 1 (Approval)		
Selected option		Description
FTL325N	M	NEPSI [Ex ia Ga] IIC, [Ex ia Da] IIC
	N	NEPSI [Ex ia Ga] IIC, [Ex ia Da] IIC, SIL

Position 2 (Housing)		
Selected option		Description
FTL325N	1	Rail mounting, 22.5 mm, 1-channel
	3	Rail mounting, 45 mm, 3-channel

Position 3 (Power Supply)		
Selected option		Description
FTL325N	A	85-253 V AC
	E	20-30 V AC / 20-60 V DC

Position 4 (Switch Output)		
Selected option		Description
FTL325N	1	1x SPDT level + 1x SPST alarm
	3	3x SPDT level + 1x SPST alarm

*Optional specifications*

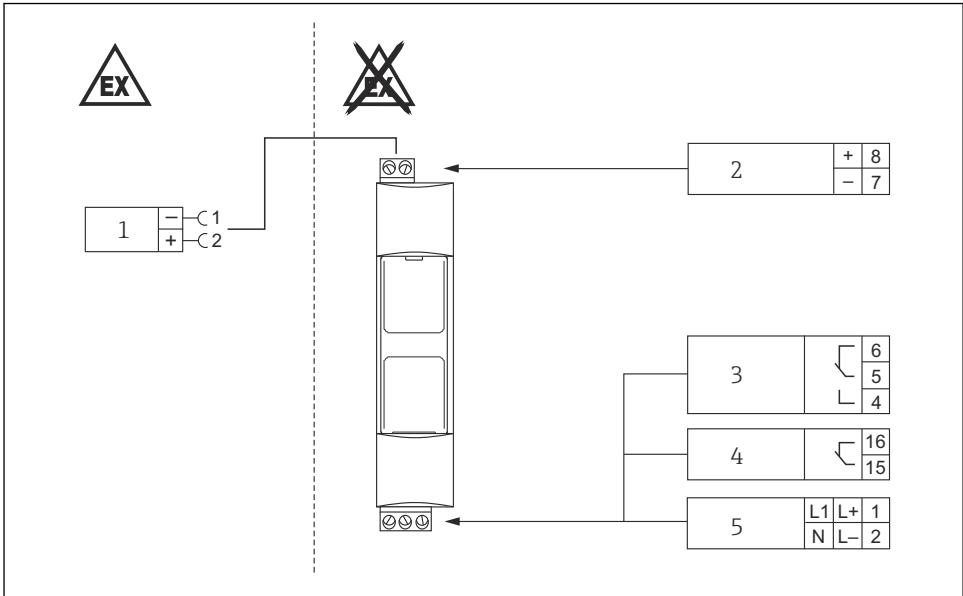
No options specific to hazardous locations are available.

**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
- 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".
  - GB/T 3836.18-2017: "Explosive atmospheres, Part 18: Intrinsically safe electrical systems".
  - GB 15577-2018: "Safety regulations for dust explosive prevention and protection". (Only if installed in dust hazardous area.)
- 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



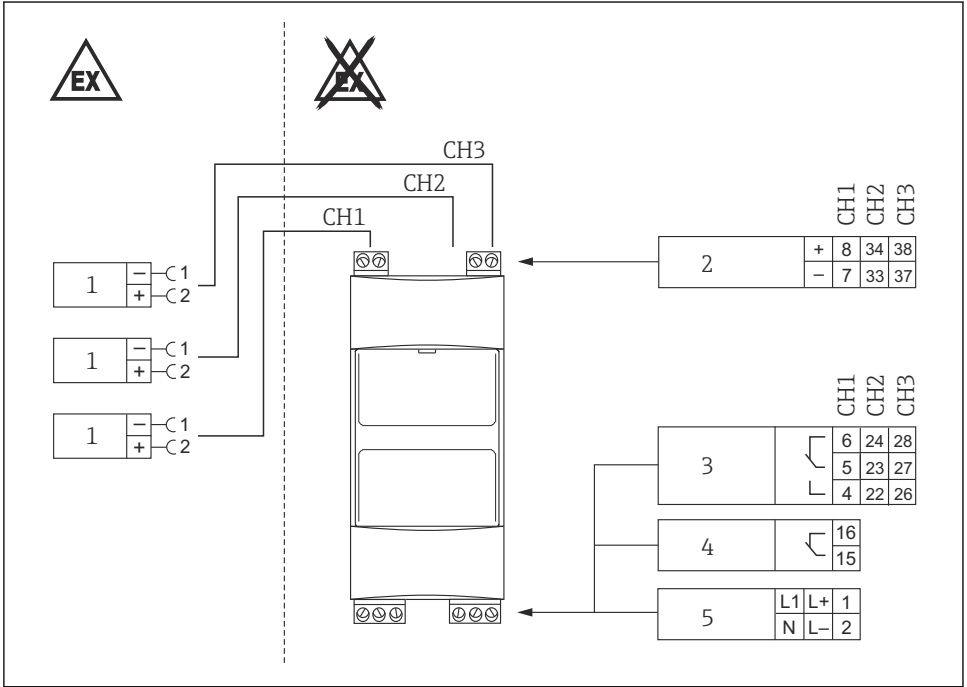
A0034562

 1

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



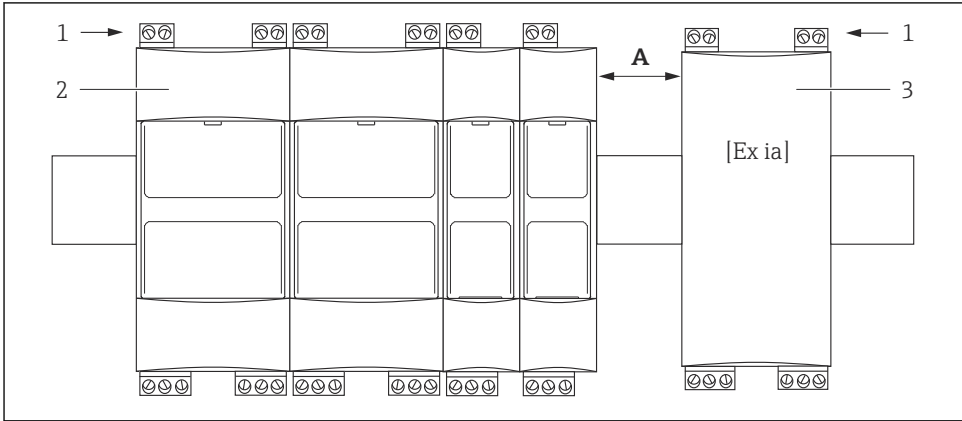
Three channel version



A0034563

2

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



A0027418

3

- A *Min. 6 mm*  
 1 *Intrinsically safe contacts*  
 2 *Nivotester FTL325N*  
 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	$-20\text{ °C} \leq T_a \leq +60\text{ °C}$
Series installation	$-20\text{ °C} \leq T_a \leq +50\text{ °C}$

## Connection data

Power supply circuit	
Terminal connections: 1, 2	AC voltage U = 85 to 253 V <sub>AC</sub> , 50/60 Hz P ≤ 1.75 W (one channel version) P ≤ 2.75 W (three channel version)
	DC voltage U = 20 to 60 V <sub>DC</sub> U = 20 to 30 V <sub>AC</sub> , 50/60 Hz P ≤ 1.20 W (one channel version) P ≤ 2.25 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:		$U_o \leq 12 \text{ V}$ $I_o \leq 34 \text{ mA}$ $P_o \leq 154 \text{ mW}$	$R_i \geq 644 \Omega$ $C_i = 0$ $L_i = 0$	Trapezium-shaped characteristic	
		<b>[Ex ia Ga] IIC</b>		<b>[Ex ia Ga] IIB</b> <b>[Ex ia Da] IIIC</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	500 nF	1.0 mH	2.0 $\mu\text{F}$	
		1.0 mH	450 nF	5.0 mH	1.5 $\mu\text{F}$	
	Max. external capacitance or max. external inductance	30 mH	1.4 $\mu\text{F}$	120 mH	9.0 $\mu\text{F}$	
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	30 mH	1.4 $\mu\text{F}$	120 mH	9.0 $\mu\text{F}$	

1) not available in one channel version









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