XA01433F-C/00/EN/02.23-00
71600970
2023-02-08

Safety Instructions
Nivotester FTL325P

Control Drawing
AIS Cl. I, Div. 1, Group A, B / C, D; [AEx ia Ga] IIC / IIB
AIS Cl. II, III, Div. 1, Groups E-G; [AEx ia Da] IIIC

FM APPROVED

Endress+Hauser
People for Process Automation

Nivotester FTL325P

Table of contents

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:

BA01970F, BA01971F

Certificates and declarations

FM certificate

Certificate number:

FM16US0310X

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

FTL325P	–	**********	+	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

FTL325P

Basic specifications

Position 1 (Approval)		
Selected option		**Description**
FTL325P	O	FM AIS Cl. I, Div. 1, Group A, B / C, D; [AEx ia Ga] IIC / IIB FM AIS Cl. II, III, Div. 1, Groups E-G; [AEx ia Da] IIIC
	P	FM AIS Cl. I, Div. 1, Group A, B / C, D; [AEx ia Ga] IIC / IIB; SIL (Liquiphant M, Liquiphant S) FM AIS Cl. II, III, Div. 1, Groups E-G; [AEx ia Da] IIIC; SIL (Liquiphant M, Liquiphant S)

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

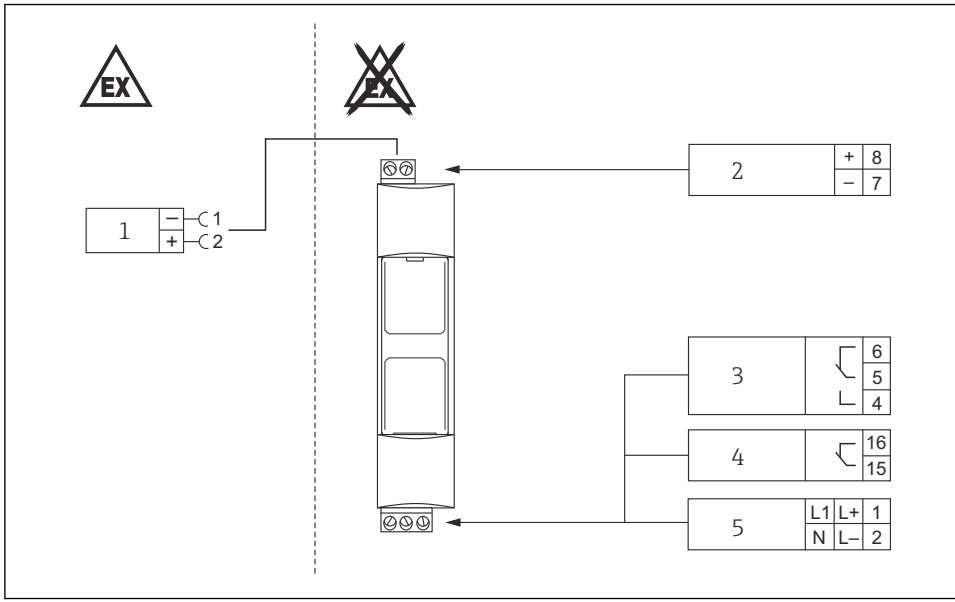
No options specific to hazardous locations are available.

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

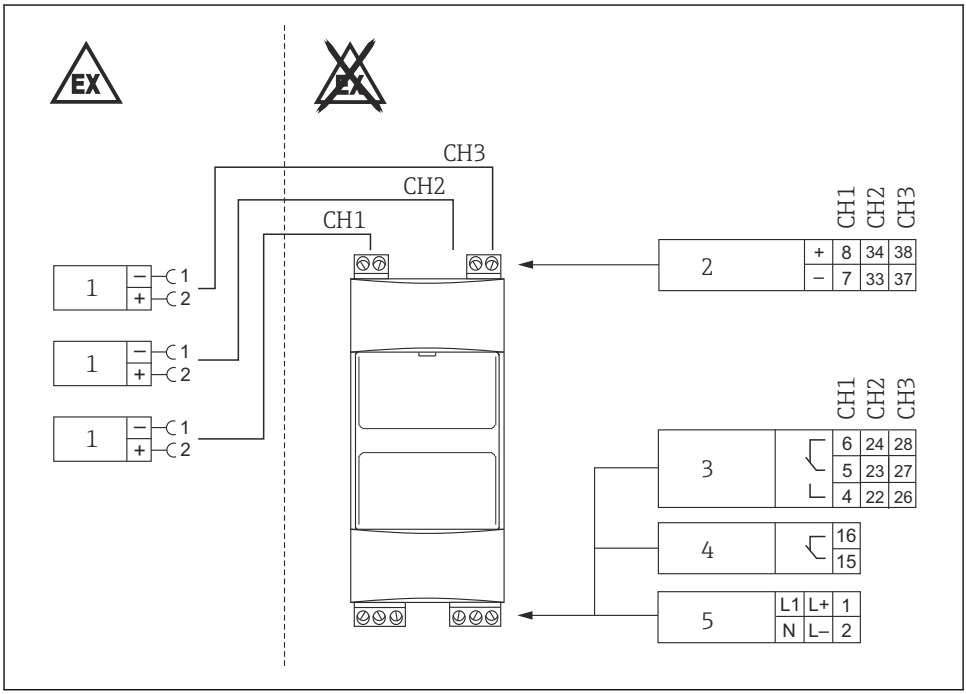
One channel version



1

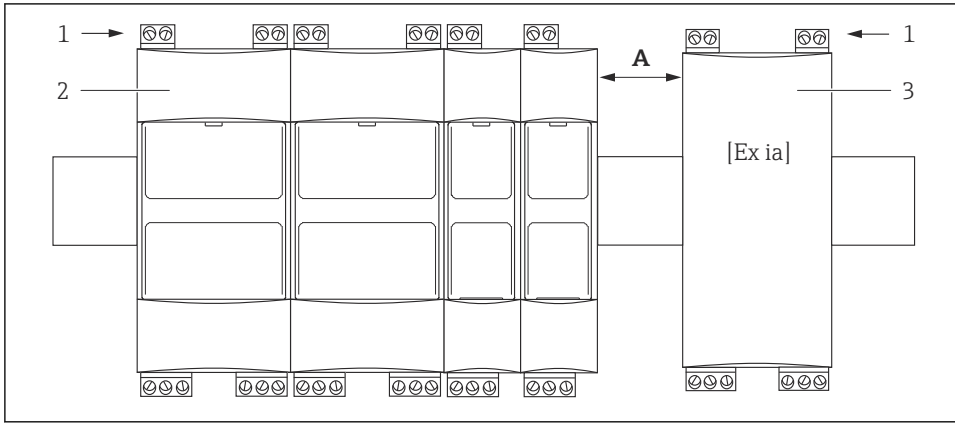
1 PFM sensor, Limit level
2 PFM sensor
3 Level relay
4 Fault signal relay
5 Power supply

Three channel version



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



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 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 (2 in) 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

- WARNINGS: Substitution of components may impair intrinsic safety.
- Approved intrinsically safe apparatus must be installed in accordance with manufacturer instructions.
- Maximum safe area voltage 250 V.
- Installation shall be in accordance with National Electrical Code ANSI / NFPA70.

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 ≤ 2.0 W (one channel version) P ≤ 4.2 W (three channel version)
	DC voltage	U = 20 to 60 V_{DC} U = 20 to 30 V_{AC}, 50/60 Hz P ≤ 1.7 W (one channel version) P ≤ 4.0 W (three channel version)

Contact circuit	
Level relay Terminal connections: Channel 1 (CH1): 4, 5, 6 Channel 2 (CH2): 22, 23, 24 [1] Channel 3 (CH3): 26, 27, 28 [1] **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

1) not available in one channel version

<table>
<tr><th colspan="6">Sensor circuit</th></tr>
<tr><td>Terminal connections:
Channel 1 (CH1): 7, 8
Channel 2 (CH2): 33, 34 [1)]
Channel 3 (CH3): 37, 38 [1)]</td><td colspan="5">Connection data: $U_o \leq 14.6$ V $R_i \geq 273\ \Omega$
$I_o \leq 97$ mA $C_i \leq 19$ nF
$P_o \leq 633$ mW $L_i = 0$
Trapezium-shaped characteristic</td></tr>
<tr><td rowspan="5"></td><td rowspan="2"></td><td colspan="2">Cl. I, Div. 1, Group A, B [AEx ia Ga] IIC</td><td colspan="2">Cl. I, II, III, Div. 1, Group C-G [AEx ia Ga] IIB [AEx ia Da] IIIC</td></tr>
<tr><td>L_o</td><td>C_o</td><td>L_o</td><td>C_o</td></tr>
<tr><td rowspan="2">Max. external capacitance at max. external inductance</td><td>0.5 mH</td><td>300 nF</td><td>1.0 mH</td><td>1.0 µF</td></tr>
<tr><td>1.0 mH</td><td>200 nF</td><td>5.0 mH</td><td>500 nF</td></tr>
<tr><td>Max. external capacitance or max. external inductance</td><td>3.0 mH</td><td>640 nF</td><td>15 mH</td><td>3.9 µF</td></tr>
<tr><td rowspan="3">If using explosion protection group [Ex ib Gb] IIC/IIB the application is limited to Zone 1</td><td rowspan="2"></td><td colspan="2">Cl. I, Div. 1, Group A, B [AEx ib Gb] IIC</td><td colspan="2">Cl. I, Div. 1, Group C, D [AEx 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>3.0 mH</td><td>640 nF</td><td>15 mH</td><td>3.9 µF</td></tr>
</table>

1) not available in one channel version

www.addresses.endress.com

Endress+Hauser

People for Process Automation