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71545681
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Safety Instructions
NRR261 Converter for Oil leak detector NAR300

Intrinsic Safety “ia”
Flameproof “db”

Endress+Hauser
People for Process Automation

NRR261 Converter for Oil leak detector NAR300

Table of contents

Associated documentation

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

- BA00402G (NAR300 system)
- BA00403G (NAR300 system high temperature)

Manufacturer's certificates

EU Declaration of Conformity

Declaration Number:
EC00736

The EU Declaration of Conformity is available:
In the download area of the Endress+Hauser website:
www.endress.com -> Downloads -> Declaration -> Type: EU Declaration -> Product Code: ...

EU type-examination certificate

Certificate number:

FM 14 ATEX 0048X

List of applied standards: See EU Declaration of Conformity.

IEC Declaration of Conformity

Certificate number:

IECEx FMG 14.0024X

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

- IEC 60079-0: 2017
- IEC 60079-1: 2014-06
- IEC 60079-11: 2011
- IEC 60079-25: 2020-06

Manufacturer address

Endress+Hauser Yamanashi Co., Ltd.

406-0846

862-1 Mitsukunugi, Sakaigawa-cho, Fuefuki-shi, Yamanashi

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

NRR261	–	*****....*****	+	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: NRR261

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

NRR261

Basic specifications

Specification code 1 (approval)		
Selected option		**Description**
NRR261	A	ATEX
	B	IECEx

Specification code 2 (power supply)		
Selected option		**Description**
NRR261	A	90 to 25 V_{AC} 50/60 Hz
	B	22 to 26 V_{DC}

Specification code 3 (external conductor entrance)		
Selected option		**Description**
NRR261	Q	NPT3/4 x2 (Ex d), NPT1/2 x1 (Ex ia)
	R	NPT1/2 x2 (Ex d), NPT1/2 x1 (Ex ia)
	U	M25 x2 (Ex d), M20 x1 (Ex ia)
	W	M20 x2 (Ex d), M20 x1 (Ex ia)

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
- 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.

- Only use the device in media to which the wetted materials have sufficient durability.
- Avoid electrostatic charging:
  - Of plastic surfaces (e.g. housing, sensor element, special varnishing, attached additional plates, ..)
  - Of isolated capacities (e.g. isolated metallic plates)
- Modifications 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: Special conditions

- The ambient temperature range for Converter NRR261 is −20 to 60 °C (−4 to 140 °F).
- Connect the external grounding terminal to class A grounding (≤ 10 Ω) by the shortest practicable rout.
- Ensure that the power supply and generic devices do not exceed 250 V_{AC} 50/60 Hz or 250 V_{DC} in both normal and abnormal situations.
- For safe handling of an Oil leak detector NAR300 (intrinsically safe device) that is connected to a Converter NRR261, adhere to the following conditions.

Oil leak detector	NAR300-						Remarks
Converter	A1****	A5****	A6****	B1****	B5****	B6****	
NRR261-A**	✓	✗	✗	✗	✗	✗	ATEX
NRR261-D**	✗	✓	✓	✗	✗	✗	
NRR261-B**	✗	✗	✗	✓	✗	✗	IECEx
NRR261-E**	✗	✗	✗	✗	✓	✓	
☑ : Connectible ☒ : Not connectible							

The maximum external inductance (Lo) and maximum external capacitance (Co) of the intrinsically safe circuit and the maximum inductance (Lw) and maximum capacitance (Cw) of an external connection cable are shown below.

Cw < Co - 0 nF (Ci) = 0.083 µF
and
Lw < Lo - 48 µH (Li) = 2.3 mH

For the above conditions, also see the safety instructions for the converters in the following table.

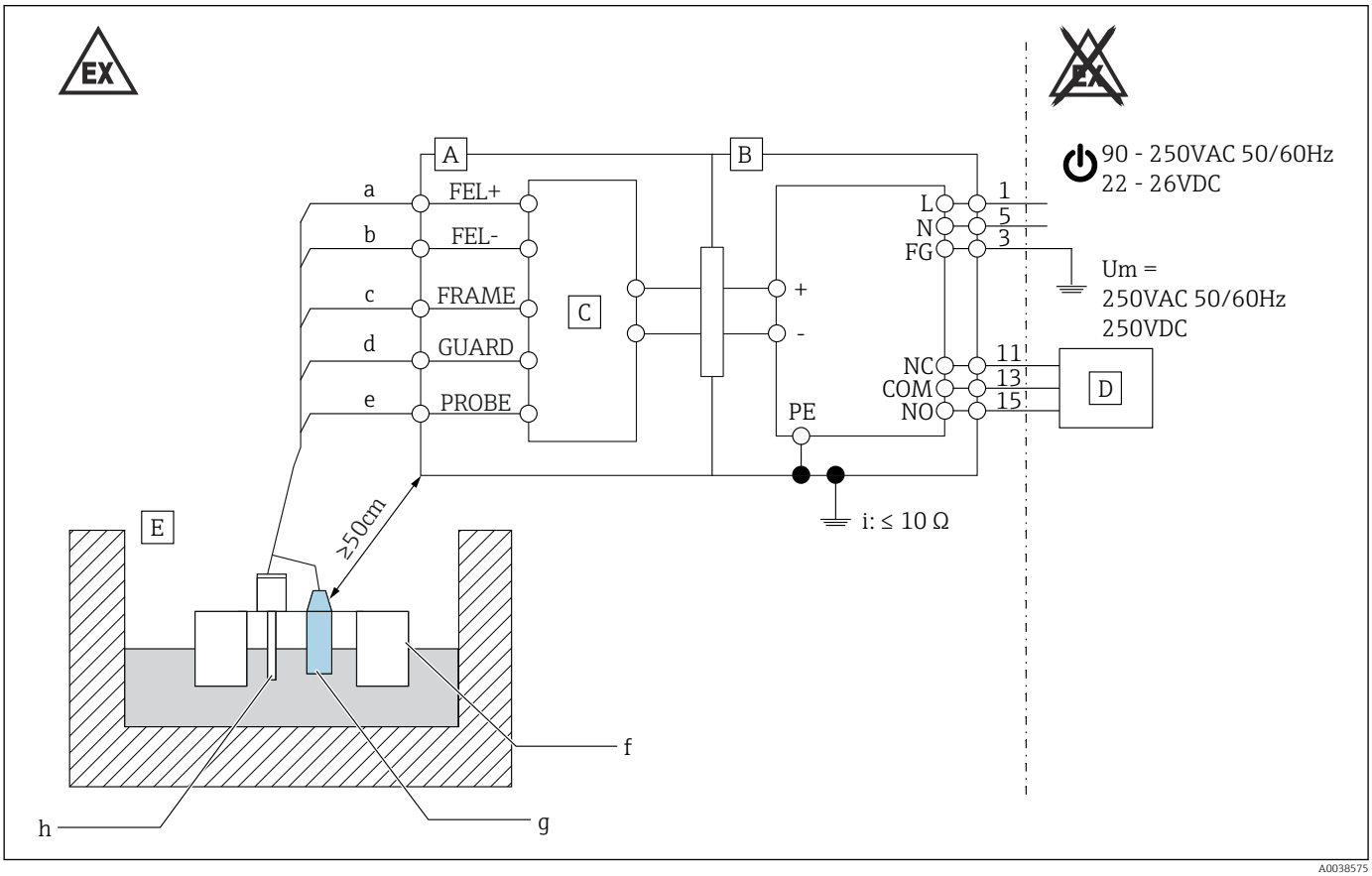
Converter	Approval No.	Explosion safety instruction manual	Remarks
NAR300-A**	FM14 ATEX0048X	XA01741G-*	Installation in hazardous locations Float sensor; Ex ia IIB T5 Ga Transmitter; Ex ia [ia Ga] IIB T4 SIL specifications
NAR300-B**	IECEx FMG 14.0024X		

Ex d enclosure

After de-energizing, delay 10 minutes before opening the cover for the terminal compartment and electrical compartment.

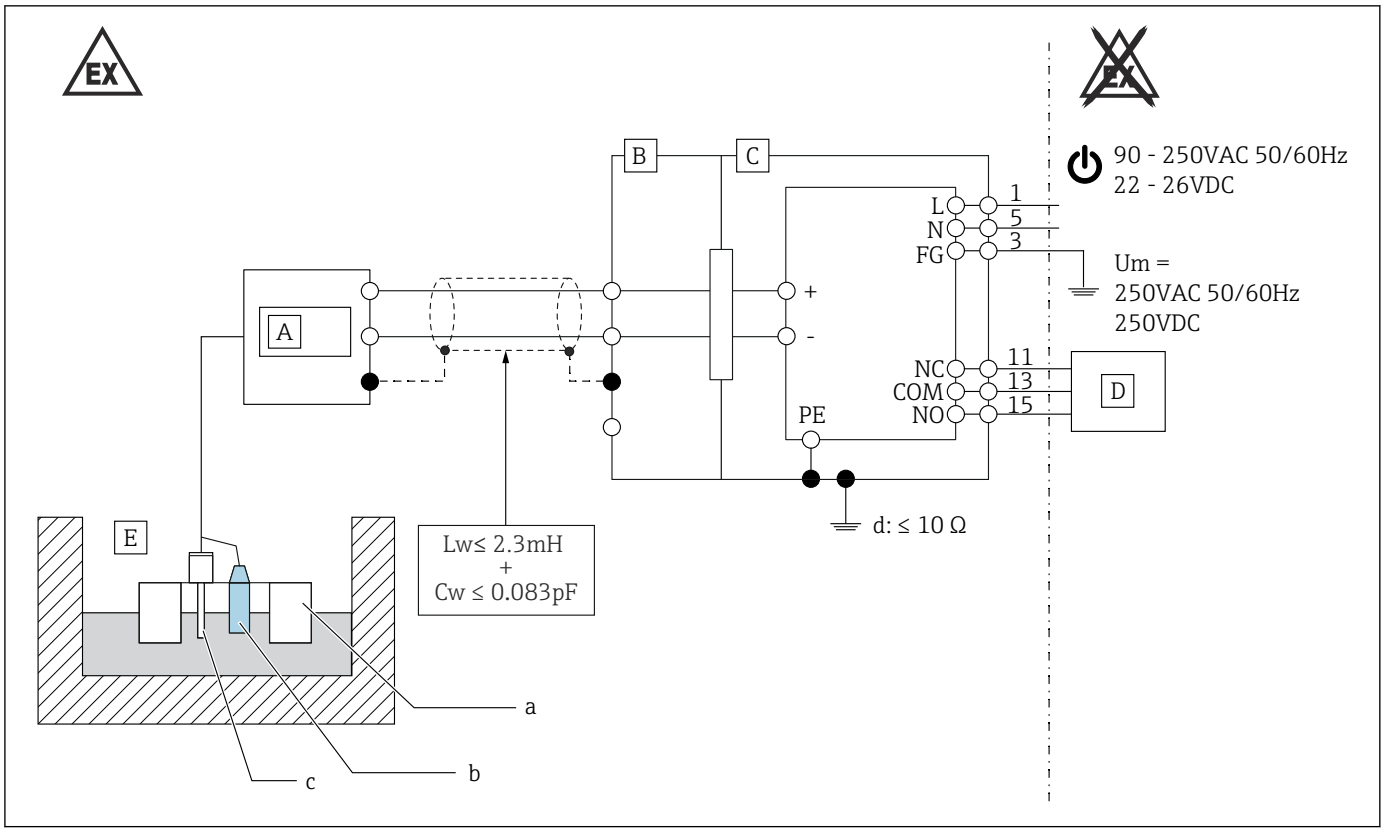
Safety instructions: Installation

Use Converter NRR261 by configuring it as shown below



1 *NAR300-A1/B1*** and converter NAR261-A/B***

A Transmitter
B Intrinsically safe compartment
C Ex d compartment
D Non-IS device
E Float sensor
a Float
b Conductivity sensor
c Vibrionic sensor
d Class A grounding



2 *NAR300-A5/A6/B5/B6** and NRR261-1-D/E*** wiring*

A Transmitter
B Intrinsically safe compartment
C Ex d compartment
D Non-IS device
E Float sensor
a Float
b Conductivity sensor
c Vibrionic sensor
d Class A grounding

See BA00402G or BA00403G for details on the following wiring arrangements.
- Wiring between NAR300 and NRR261 or NRR262
- Wiring between the transmitter of NAR300 and the float sensor

- Install the device to exclude any mechanical damage or friction during the application.
- Only use certified cable entries suitable for the application. Observe national regulations and standards. Accordingly, the connection terminal does not include any ignition sources.

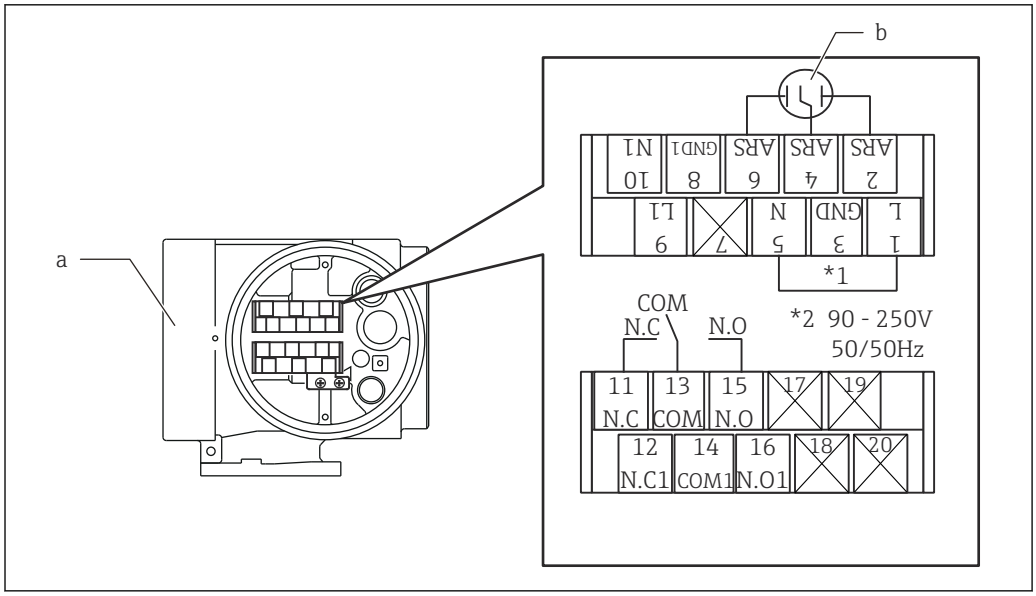
Safety instructions: Zone 0

- In the event of potentially explosive vapor/air mixtures, only operate the device under atmospheric conditions.
  - Temperature: −20 to +60 °C
  - Pressure: 80 to 110 kPa (0.8 to 1.1 bar)
  - Air with normal oxygen content, usually 21 % (V/V)
- If no potentially explosive mixtures are present, or if additional protective measures have been taken, the device may also be operated under non-atmospheric conditions in accordance with the manufacturer's specifications.

Connection data

Basic specifications

NRR261-A/B** pressure-resistant terminal connection



3 Ex d terminal

a NRR261
b Power supply arrester (installed)

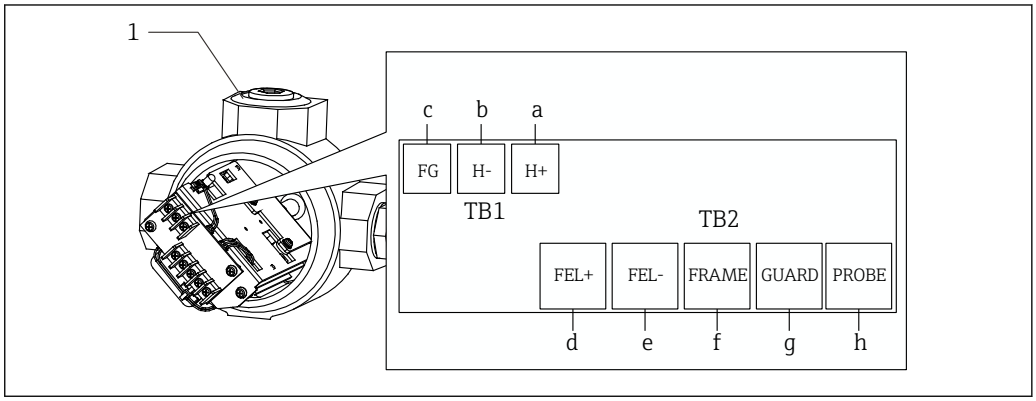
1*: GND: Connected when using a power cable with FG.

2*: When the power supply is 22 to 26 V_{DC}, a terminal number "L" is "+" (plus) and "N" is "-" (minus).

Terminal symbol		Rating	Remarks
1	L	90 to 250 V_{AC}, 50/60 Hz Um = 250 V_{AC}/250 V_{DC}	NRR261-AA* or NRR261-BA*
3	GND		
5	N		
1	+	22 to 26 V_{DC} Um = 250 V_{AC}/250 V_{DC}	NRR261-AB* or NRR261-BB*
5	-		

NRR261-A/B** intrinsically safe terminal connection

Connect the cable for Float sensor NAR300-A1/B1**** to the corresponding terminal on the NRR261-A/B** transmitter.



*4 NRR261-A/B** transmitter terminal*

1 Intrinsically safe terminal
a Blue 1 (already wired at shipping), screw (M3)
b Blue 2 (already wired at shipping), screw (M3)
c Green, screw (M3)
d Red, screw (M3)
e Blue, screw (M3)
f Yellow, screw (M3)
g Black, screw (M3)
h White, screw (M3)

Terminal symbol		Wire color	Intrinsic safety parameter	Remarks
d	FEL+	Red	Uo = 13 V Io = 46.8 mA Po = 152 mW Co = 250 nF Lo = 58.3 mH	Connection with the float sensor's vibrionic sensor There is no wiring for NAR300-A6/B6** (high temperature)
e	FEL-	Blue		
f	FRAME	Yellow	-	Connection with the float sensor's conductivity sensor
g	GUARD	Black		
h	PROBE	White		

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