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71617076
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Safety Instructions
Prothermo NMT81

NEPSI: Ex ia IIC T6...T2 Ga/Gb
Ex ia IIB T6 Ga/Gb
Ex ia IIC T6 Gb

Endress+Hauser
People for Process Automation

Prothermo NMT81

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Associated documentation

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

BA02038G

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 -> Downloads -> Media Type: Documentation -> Documentation Type: Brochures and catalogs -> Text Search: CP00021Z
- On the CD for devices with CD-based documentation

Manufacturer's certificates

NEPSI Declaration of Conformity

Certificate number:
GYJ21.2902X
Affixing the certificate number certifies conformity with the following standards (depending on the device version):
- GB 3836.1-2010
- GB 3836.4-2010
- GB 3836.20-2010

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

NMT81	–	**********	+	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: Prothermo

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

NMT81

Basic specifications

Position 1, 2 (Approval)		
Selected option		**Description**
NMT81	NB	NEPSI Ex ia IIC T6 Ga/Gb
	N2	NEPSI Ex ia IIB T6 Ga/Gb
	N3	NEPSI Ex ia IIC T6 Gb

Position 6 (Housing ; Material)		
Selected option		**Description**
NMT81	M	Dual compartment L-shape; Alu, coated
	N	Dual compartment L-shape; 316L

Position 7 (Electrical Connection)		
Selected option		**Description**
NMT81	F	Thread M20, IP66/68 Type 4X/6P
	G	Thread G1/2, IP66/68 Type 4X/6P
	H	Thread NPT1/2, IP66/68 Type 4X/6P

Position 8 (Application temperature)		
Selected option		**Description**
NMT81	A	Converter, not selected
	E	Process max −40 to 100 °C (−40 to 212 °F)
	F	Process max −40 to 75 °C (−40 to 167 °F)
	G	Process max −55 to 235 °C (−67 to 455 °F)
	H	Process max −196 to 100 °C (−320.8 to 212 °F)

Position 19, 20(Water bottom length)		
Selected option		**Description**
NMT81	00	W/o
	05	500 mm (19.69 in)
	10	1 000 mm (39.37 in)
	20	2 000 mm (78.74 in)

Safety instructions: General

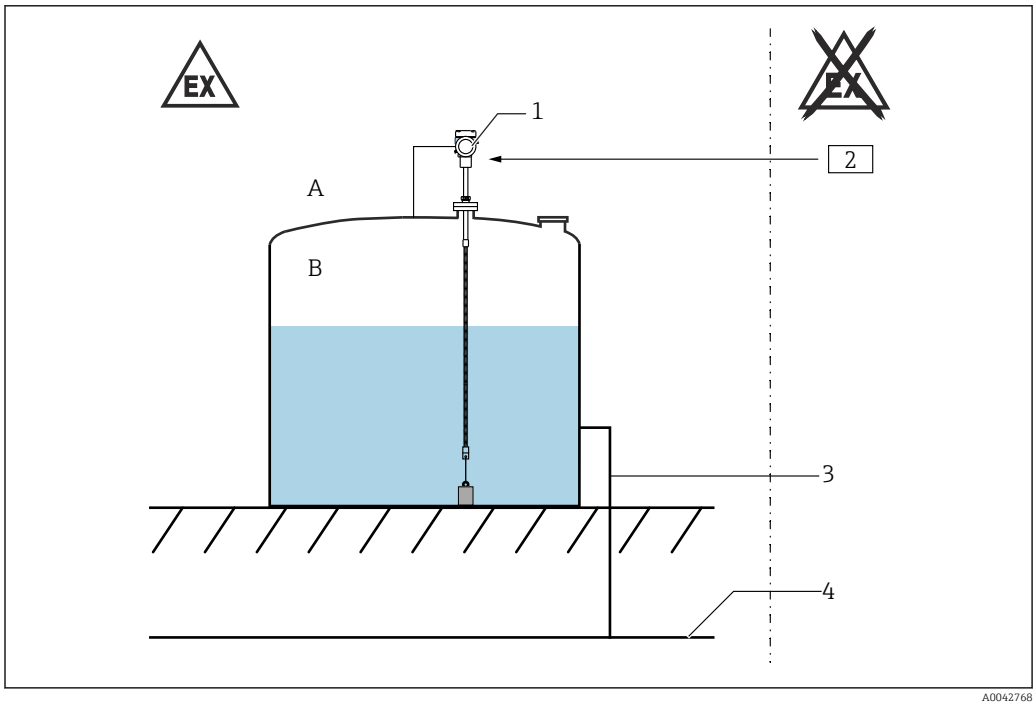
- Comply with the installation and safety instructions in the Operating Instructions.
- Staff must meet the following conditions for mounting, electrical installation, commissioning and maintenance of the device:
  - Be suitably qualified for their role and the tasks they perform
  - Be trained in explosion 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)
- Refer to the temperature tables for the relationship between the permitted ambient temperature for the sensor and/or transmitter, depending on the range of application and the temperature class.
- 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

Permitted ambient temperature range at the electronics housing:
$-40\ °C \leq T_a \leq +60\ °C$
Observe the information in the temperature table on page → 7

- Use supply wires suitable for 20 K above the ambient temperature.
- In the event of additional or alternative special varnishing on the housing or other metal parts:
  - Observe the danger of electrostatic charging and discharge.
  - Do not rub surfaces with a dry cloth.
  - Do not install in the vicinity of processes generating strong electrostatic charges.
- The apparatus is not capable of withstanding the 500V insulation test required by Clause 6.3.13 of EN 60079-11:2012/ IEC60079-11:2012. This must be taken into account when installing the equipment.

Safety instructions: Installation



A Zone 1
B Tank; Zone 0
1 Prothermo NMT81
2 Power supply
3 Potential equalization line
4 Potential equalization

- Install the device to exclude any mechanical damage or friction during the application. Pay particular attention to flow conditions and tank fittings.
- Pay particular attention to the following points to prevent leakage of gas or vapor.
  - Connection of equipment and tank connection flange.
  - When opening the cover and reclosing it. If the O-ring is deteriorated or deformed, replace it with a new O-ring.
- Continuous operating temperature of external wiring cable: See → 6
- In potentially explosive atmospheres:
  - Do not disconnect the electrical connection of the power supply circuit when energized.
  - Do not open the connection compartment cover.

Potential equalization

Integrate the device into the local potential equalization.

Measure low or high temperature liquid

- The process temperature shall not bring the enclosure of the electronics compartment beyond the specified ambient temperature range limits.
- When installing high or low temperature storage tank, heat or cold from the liquid, the vapor or tank wall should not be conducted to the NMT81 directly.
- Cover the tank with a thermal isolation material and/or install an ambient temperature adjustment pipe between NMT81 and nozzle of the tank.

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.

Temperature tables

The ambient temperature and the process temperature are specified as below tables.

Temperature only

Temperature specification	T-Class	T ambient	T process
Standard	T6	−40 °C ≤ Ta ≤ 60 °C	−40 °C ≤ Tp ≤ 100 °C
	T4	−40 °C ≤ Ta ≤ 70 °C	−40 °C ≤ Tp ≤ 100 °C
High temperature	T4	−40 °C ≤ Ta ≤ 70 °C	−55 °C ≤ Tp ≤ 125 °C
	T3	−40 °C ≤ Ta ≤ 70 °C	−55 °C ≤ Tp ≤ 190 °C
	T2	−40 °C ≤ Ta ≤ 70 °C	−55 °C ≤ Tp ≤ 235 °C
Low temperature	T6	−40 °C ≤ Ta ≤ 60 °C	−196 °C ≤ Tp ≤ 100 °C
	T4	−40 °C ≤ Ta ≤ 70 °C	−196 °C ≤ Tp ≤ 100 °C

Temperature + Water bottom sensor

Temperature specification	T-Class	T ambient	T process
Standard	T6	−40 °C ≤ Ta ≤ 60 °C	−40 °C ≤ Tp ≤ 70 °C
	T4	−40 °C ≤ Ta ≤ 70 °C	−40 °C ≤ Tp ≤ 75 °C

Converter only

Temperature specification	T-Class	T ambient	T process
-	T6	−40 °C ≤ Ta ≤ 60 °C	Tp [1]

1) T process varies depending on the specification of the sensor.

Connection data

Input entity parameters for:

- Average temperature probe + Converter
- Average temperature probe + Converter + Water bottom sensor
- Converter

Power supply
Ui = 30 V
Ii = 300 mA
Pi = 1 W
Ci = 10 nF
Li = 0

Output entity parameters for converter

Power supply
Uo = 6.0 V
Io = 32.4 mA
Po = 48.7 mW
Co= 30 uF (for Lo = 0)
Lo = 7.5 mH (for Co = 0)

Others

- The contents of this document may be added or changed without notice when new knowledge about explosion protection or safety is obtained.
- Keep this document together with the instruction manual (BA).

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