# UK Type Examination Certificate CML 21UKEX2841X Issue 1

**United Kingdom Conformity Assessment**

1 Product or Protective System Intended for use in Potentially Explosive Atmospheres UKSI 2016:1107 (as amended) – Schedule 3A, Part 1

2 Equipment **Prothermo NMT81 Converter, Temperature and Water Level Transmitter**

3 Manufacturer **Endress+Hauser Yamanashi Co., Ltd.**

4 Address **862-1 Mitsukunugi Sakaigawa-cho**
**Fuefuki-shi**
**406-0846 Yamanashi**
**Japan**

5 The equipment is specified in the description of this certificate and the documents to which it refers.

6 Eurofins E&E CML Limited, Newport Business Park, New Port Road, Ellesmere Port, CH65 4LZ, United Kingdom, Approved Body Number 2503, in accordance with Regulation 43 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations.

The examination and test results are recorded in the confidential reports listed in Section 12.

7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to specific conditions of use (affecting correct installation or safe use). These are specified in Section 14.

8 This UK Type Examination certificate relates only to the design and construction of the specified equipment. Further requirements of the Regulations apply to the manufacturing process and supply of the product. These are not covered by this certificate.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:

EN IEC 60079-0:2018 EN 60079-11:2012 EN 60079-26:2015

10 The equipment shall be marked with the following:

| **Average Temperature Probe + Converter:** | **Average Temperature Probe + Water Bottom Sensor + Converter:** | **Converter (only):** |
|---|---|---|
| Ex II 1/2 G | Ex II 1/2 G | Ex II 2 G |
| Ex ia IIC T6 Ga/Gb | Ex ia IIB T6 Ga/Gb | Ex ia IIC T6 Gb |
| Ta = -40 °C to +60 °C | Ta = -40 °C to +60 °C | Ta = -40 °C to +60 °C |

UKAS PRODUCT CERTIFICATION 8175



A Snowdon
Certification Manager

## 11 Description

The Prothermo NMT81 is a tank measurement and converter device. It can be configured as an average temperature measuring device for liquid in a tank and/or a level measuring device for water at the tank bottom (eg level of water/oil interface at bottom of an oil tank). In addition, the Prothermo NMT81 can be supplied as a converter only.

The Prothermo NMT81 uses the Model HA37 aluminium enclosure or stainless-steel version HS37 for the converter and contains the electronics, display and terminal unit.

The temperature sensor is enclosed within a flexible tube which either attaches directly to a boundary wall flange or to an adjuster pipe with an adjustable clamp which passes through the flange enabling the height of the sensor to be adjusted. The electronic module (SEHT) for the temperature sensor is housed in a stainless steel enclosure attached to the base of the main HA37/HS37 enclosure.

The water bottom level sensor is a capacitive sensor which attaches to the lower end of the temperature sensor flexible tube. The electronic module (SEHW) for the level sensor is housed in stainless steel enclosure at the top of the level sensor.

The sensor(s) in the tank are EPL Ga and the head unit (enclosure and converter) is installed external to the tank and is EPL Gb.

The equipment has the following safety description:

Average Temperature Probe + Converter:

| | | |
|---|---|---|
| Ui | = | 30 V |
| Ii | = | 300 mA |
| Pi | = | 1 W |
| Ci | = | 10 nF |
| Li | = | 0 mH |

Average Temperature Probe + Water Bottom Sensor + Converter:

| | | |
|---|---|---|
| Ui | = | 30 V |
| Ii | = | 300 mA |
| Pi | = | 1 W |
| Ci | = | 10 nF |
| Li | = | 0 mH |

Converter (only):

| | | | | | |
|---|---|---|---|---|---|
| Ui | = | 30 V | Uo | = | 6.0 V |
| Ii | = | 300 mA | Io | = | 32.4 mA |
| Pi | = | 1 W | Po | = | 48.7 mW |
| Ci | = | 10 nF | Co | = | 30 µF (for Lo = 0) |
| Li | = | 0 mH | Lo | = | 7.5 mH (for Co=0) |

**Variation 1**

This variation introduced the following modifications:

i. New process temperature range for standard temperature version only.
ii. Minor change to description.
iii. Change to Output parameters.

## 12 Certificate history and evaluation reports

| Issue | Date | Associated report | Notes |
|---|---|---|---|
| 0 | 20 Jul 2021 | R13295C/00 | Issue of the prime certificate. |
| 1 | 22 Dec 2022 | R15587A/00 | Introduction of Variation 1 |

Note: Drawings that describe the equipment are listed in the Annex.

## 13 Conditions of Manufacture

The following conditions are required of the manufacturing process for compliance with the certification.

i. Where the product incorporates certified parts or safety critical components, the manufacturer of the product defined on this certificate shall continually monitor these parts/components for any modifications introduced by the manufacturer(s) of these constituent parts. If the manufacturer of any constituent part introduces any changes which affect the compliance of the certified product that is the subject of this certificate, the manufacturer is required to have this certificate updated.

## 14 Specific Conditions of Use

The following conditions relate to safe installation and/or use of the equipment.

i. The apparatus is not capable of withstanding the 500V insulation test required by Clause 6.3.13 of EN 60079-11:2012. This must be taken into account when installing the equipment.

ii. The following ambient temperatures and process temperatures shall be observed,

| 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 Temp | 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 Temp | 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* |

*T process varies depending on the specification of the sensor.