

[1]

# EU-TYPE EXAMINATION CERTIFICATE



[2]

## Equipment or Protective System intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

[3]

EU-Type Examination Certificate Number: **UL 22 ATEX 2670X Rev. 1**

[4]

Product: **400 Series Wireless Transmitter –  
LD400WH – Pressure Transmitter  
TT400WH – Temperature Transmitter  
RP400WH – Wireless Repeater**

[5]

Manufacturer: **Nova SMAR S/A**

[6]

Address: **Rua Guilherme Volpe nº 1422 – Jardim Sumaré, CEP-14170-530, Sertãozinho - Sao Paulo, Brazil**

[7]

This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

[8]

UL International Demko A/S, notified body number 0539 in accordance with Article 17 of the Council Directive 2014/34/EU of 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report no. **BR/ULBR/ExTR22.0002/01**.

[9]

Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

**EN IEC 60079-0:2018**

**EN 60079-11:2012**

[10]

If the sign "X" is placed after the certificate number, it indicates that the product is subject to special conditions for safe use specified in the schedule to this certificate.

[11]

This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by the certificate.

[12]

The marking of the product shall include the following:

 **II 1 G Ex ia IIC T6...T4 Ga**

**Certification Manager**  
Jan-Erik Storgaard

This is to certify that the sample(s) of the Product described herein ("Certified Product") has been investigated and found in compliance with the Standard(s) indicated on this Certificate, in accordance with the ATEX Product Certification Program Requirements. This certificate and test results obtained apply only to the product sample(s) submitted by the Manufacturer. UL did not select the sample(s) or determine whether the sample(s) provided were representative of other manufactured product. UL has not established Follow-Up Service or other surveillance of the product. The Manufacturer is solely and fully responsible for conformity of all product to all applicable Standards, specifications, requirements or Directives. The test results may not be used, in whole or in part, in any other document without UL's prior written approval.

**Date of issue:** 2022-06-30

**Re-issued:** 2022-11-21

**Notified Body**

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[13]

[14]

## Schedule

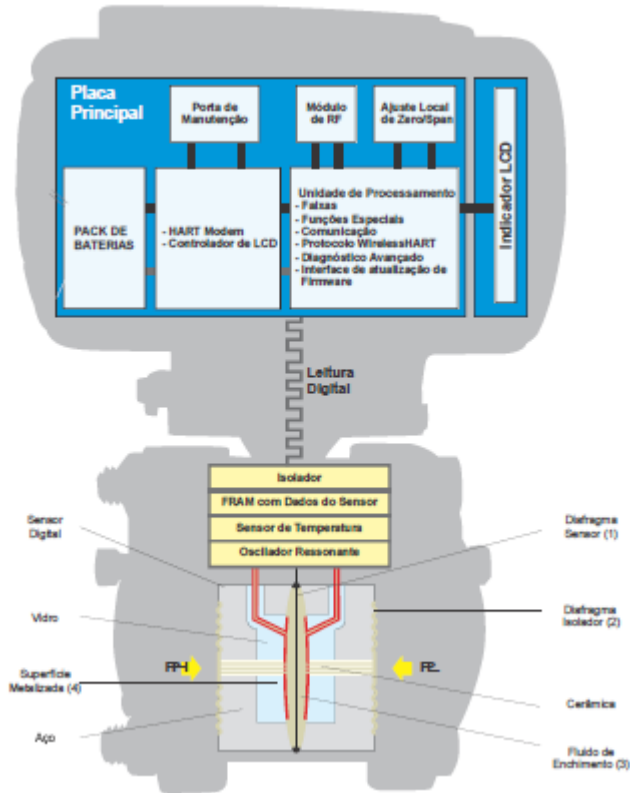
### EU-TYPE EXAMINATION CERTIFICATE No.

#### UL 22 ATEX 2670 Rev. 1

[15] Description of Product

The **LD400 WirelessHART™** uses a technique for pressure measuring by capacitance reading.

The block diagram of the **LD400 HART®** pressure transmitter is shown below.



In the cell center is the sensor diaphragm (1). This diaphragm flexes in response to the different pressures applied on the LOW and HIGH sides of the cell (PL and PH). These pressures are directly applied on the isolator diaphragms (2), whose function is to isolate the sensor process and supply high resistance against corrosion caused by process fluids. The pressure is transmitted directly to the sensor diaphragm through the filling fluid (3) and causes its deflection. The sensor diaphragm is a mobile electrode whose two metal surfaces (4) are stable electrodes. A deflection on the sensor diaphragm is read by the capacitance variation between both stable and mobile electrodes.

The resonance oscillator reads the capacitance variations between the mobile and the stable boards and generates a pressure output equivalent to the detected capacitance variation. This pressure value is informed in compliance with the transmitter communication protocol. As the conversion process does not involve an A/D converter, any errors or deviations are eliminated during the process. Temperature compensation is done by a sensor, which combined with a precision sensor, results in a high accuracy and small range measurement.

The process variable, as well as the diagnostic monitoring and information, are supplied by the digital communication protocol. The LD400 is available with the *WirelessHART™* communication protocol.

TT400WH is a temperature transmitter used on applications that requires wireless data transmission. It is used mainly in temperature measurement using RTDs or thermocouples. TT400 WirelessHART™ accepts up to two sensors.

The RP400WH is not a process element, but a network element. The concept of WirelessHART network is that each of its devices acts as a repeater, hence the absence of the "repeater" element in the structure description of this type of network.

The RP400WH is a device dedicated to the WirelessHART network and has the primary function to extend the range of this network, being a router agent that simplifies the project and implementation of a wireless network. It has no role in the industrial process. A WirelessHART communication network is structured in loops and adopts an architecture using "Mesh" network. "Mesh" networks allow network nodes to communicate with each other by establishing redundant paths to the base, increasing reliability, because if one path is blocked alternative routes will exist so that the message reaches its final destination. This type of network also enables scalability by simply adding to the network more nodes or RP400WH repeaters. Another feature is that the larger the network the more reliable because more alternative paths are created automatically.



[13]

[14]

**Schedule**  
**EU-TYPE EXAMINATION CERTIFICATE No.**  
**UL 22 ATEX 2670 Rev. 1**

Temperature range

The relation between ambient temperature and the assigned temperature class is as follows:

<b>Ambient temperature range</b>	<b>Temperature class</b>
-20°C ≤ Ta ≤ +85°C	T4
-20°C ≤ Ta ≤ +60°C	T5
-20°C ≤ Ta ≤ +40°C	T6

Electrical data

Equipment powered by battery

U: 7,2 V

HART Communication: Ui = 5V, Ii = 100 µA

TT400: Uo = 5,4V, Io = 27mA, Lo = \*48.8mH, Co = \*64.9µF

\* Co and Lo values were not evaluated in combination in this application.

Uo = 5,4V, Io = 27mA, Po = 36,5mW, Co = 64,89µF, Lo = 0mH

Uo = 5,4V, Io = 27mA, Po = 36,5mW, Co = 0µF, Lo = 48,8mH

The instructions state the use of combination of Co and Lo considering the following parameters: Uo = 5,4V, Io = 27 mA, Co = 2 µF, Lo = 7 mH

Routine tests

None

[16]

Descriptive Documents

The scheduled drawings are listed in the report no. provided under item no. [ 8 ] on page 1 of this EU-Type Examination Certificate.

[17]

Specific conditions of use:

- POTENTIAL ELECTROSTATIC CHARGING HAZARD SEE INSTRUCTIONS.
- DURING INSTALLATION TAKE ACTIONS TO PREVENT THE EQUIPMENT FROM MECHANICAL IMPACT OR FRICTION.
- USE ONLY BATTERY PACK CODE SMAR 400-1209.

[18]

Essential Health and Safety Requirements

The Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9.

Additional information

The manufacturer shall inform the notified body concerning all modifications to the technical documentation as described in Annex III to Directive 2014/34/EU of the European Parliament and the Council of 26 February 2014.

