



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEX ULBR 22.0001X** Page 1 of 4 [Certificate history:](#)
Issue No: 1 [Issue 0 \(2022-06-30\)](#)

Status: **Current**

Date of Issue: 2022-11-21

Applicant: **Nova Smar S/A**
Rua Guilherme Volpe nº 1422 – Jardim Sumaré
Sertãozinho
San Paulo CEP-14170-530
Brazil

Equipment: **400 Series Wireless Transmitters: LD400WH Pressure Transmitter, TT400WH Temperature Transmitter, and RP400WH Wireless Repeater**

Optional accessory:

Type of Protection: **Intrinsic Safety "ia"**

Marking: Ex ia IIC T6 ... T4 Ga
T4: $-20^{\circ}\text{C} \leq T_a \leq +85^{\circ}\text{C}$
T5: $-20^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$
T6: $-20^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$

Approved for issue on behalf of the IECEx
Certification Body:

Katy A. Holdredge

Position:

Senior Staff Engineer

Signature:
(for printed version)

Date:
(for printed version)

2022-11-21

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.



Certificate issued by:

UL do Brasil Certificações
Avenida Engenheiro Luis Carlos Berrini, 105 -
24 Andar - Brooklin - Sao Paulo
Brazil





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Date of issue: 2022-11-21

Issue No: 1

Manufacturer: **Nova Smar S/A**
Rua Guilherme Volpe nº 1422 – Jardim Sumaré
Sertãozinho
San Paulo CEP-14170-530
Brazil

Manufacturing locations: **Nova Smar S/A**
Rua Guilherme Volpe nº 1422 – Jardim
Sumaré
Sertãozinho
San Paulo CEP-14170-530
Brazil

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

[IEC 60079-0:2017](#) Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

[IEC 60079-11:2011](#) Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Reports:

[BR/ULBR/ExTR22.0002/00](#)

[BR/ULBR/ExTR22.0002/01](#)

Quality Assessment Report:

[BR/ULBR/QAR22.0001/00](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

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

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

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

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.

RP400WH

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.

Please see Annex for additional information.

SPECIFIC CONDITIONS OF USE: YES as shown below:

- 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.



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Date of issue: 2022-11-21

Issue No: 1

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Issue 1: Inclusion of Temperature Transmitter TT400WH and Wireless Repeater RP400WH.

Annex:

[Annex to IECEx ULBR 22.0001X Issue 1.pdf](#)

Certificate No.: IECEX ULBR 22.0001X

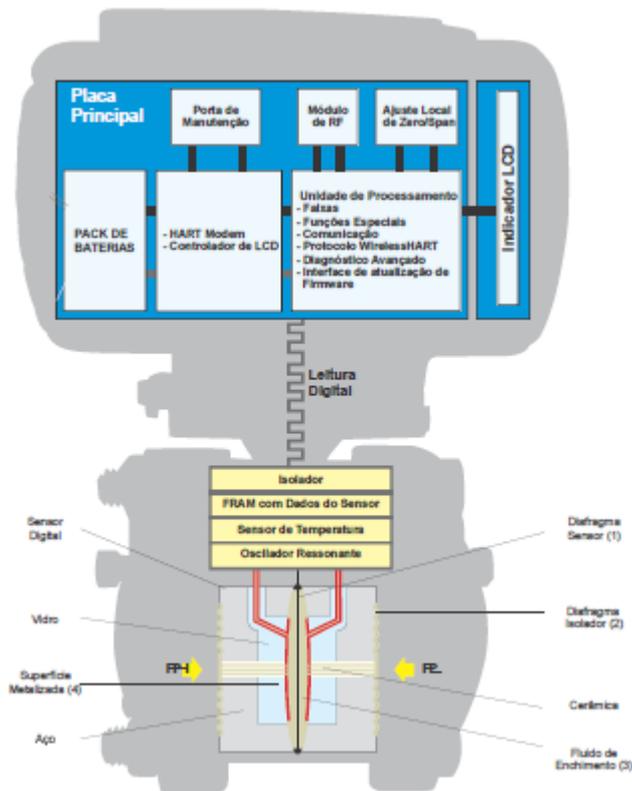
Issue No.: 1

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TYPE DESIGNATION

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

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



PARAMETERS RELATING TO THE SAFETY

Equipment powered by battery

U: 7.2 V

HART Communication: $U_i = 5V$, $I_i = 100 \mu A$

TT400: $U_o = 5,4V$, $I_o = 27mA$, $L_o = *48,8mH$, $C_o = *64,9\mu F$

* C_o and L_o values were not evaluated in combination in this application.

$U_o = 5,4V$, $I_o = 27mA$, $P_o = 36,5mW$, $C_o = 64,89\mu F$, $L_o = 0mH$

$U_o = 5,4V$, $I_o = 27mA$, $P_o = 36,5mW$, $C_o = 0\mu F$, $L_o = 48,8mH$

The instructions state the use of combination of C_o and L_o considering the following parameters:

$U_o = 5,4V$, $I_o = 27 mA$, $C_o = 2 \mu F$, $L_o = 7 mH$



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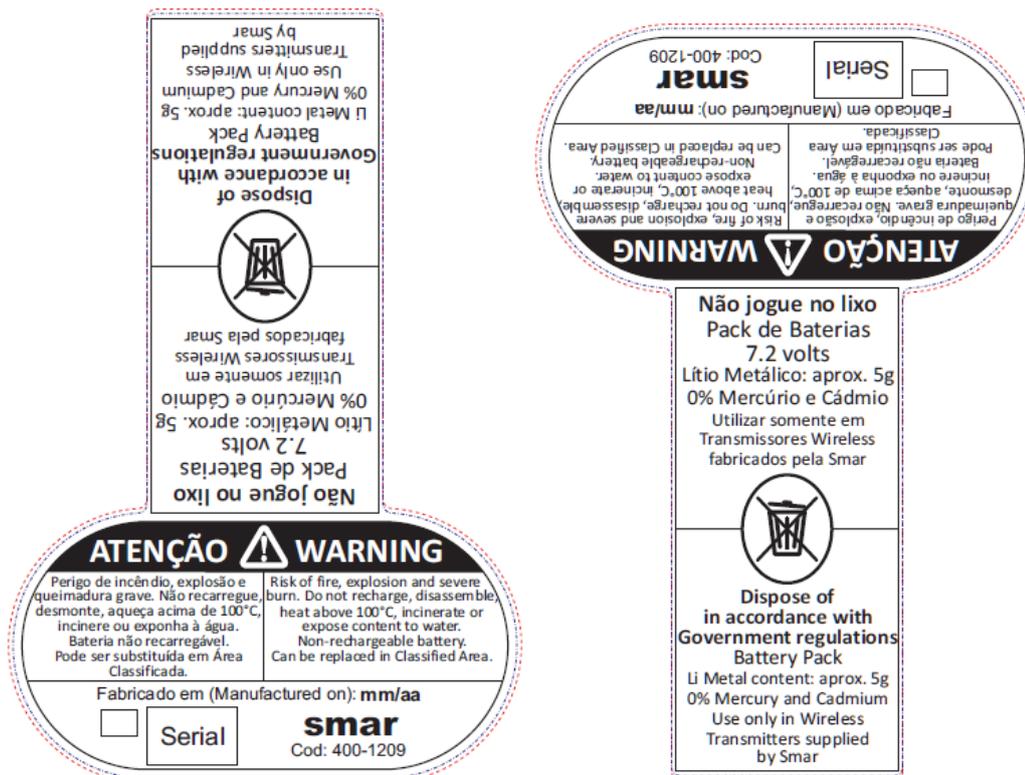
Issue No.: 1

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MARKING

Marking has to be readable and indelible; it has to include the following indications:

Battery Pack

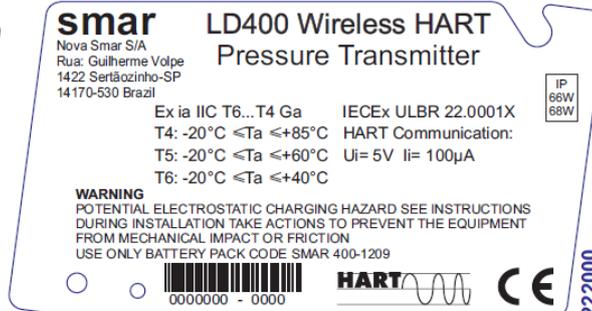


IECEX LD400WH

Without salt spray



With salt spray





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IECEX TT400WH

Without salt spray

smar TT400 Wireless HART Temperature Transmitter

Nova Smar S/A
Rua: Guilherme Volpe
1422 Sertãozinho-SP
14170-530 Brazil

Ex ia IIC T6...T4 Ga IECEX ULBR 22.0001X
T4: -20°C ≤Ta ≤+85°C
T5: -20°C ≤Ta ≤+60°C
T6: -20°C ≤Ta ≤+40°C

HART Communication: Ui= 5V li= 100µA *See the Manual for details.
Sensor Terminals: Uo= 5,4V Io= 27mA Co= *64,89µF Lo= *48,8mH

WARNING: 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

0000000 - 0000 HART CE

IP 66 68

223401

With salt spray

smar TT400 Wireless HART Temperature Transmitter

Nova Smar S/A
Rua: Guilherme Volpe
1422 Sertãozinho-SP
14170-530 Brazil

Ex ia IIC T6...T4 Ga IECEX ULBR 22.0001X
T4: -20°C ≤Ta ≤+85°C
T5: -20°C ≤Ta ≤+60°C
T6: -20°C ≤Ta ≤+40°C

HART Communication: Ui= 5V li= 100µA *See the Manual for details.
Sensor Terminals: Uo= 5,4V Io= 27mA Co= *64,89µF Lo= *48,8mH

WARNING: 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

0000000 - 0000 HART CE

IP 66W 68W

223501

IECEX RP400WH

Without salt spray

smar RP400 Wireless HART Network Repeater

Nova Smar S/A
Rua: Guilherme Volpe
1422 Sertãozinho-SP
14170-530 Brazil

Ex ia IIC T6...T4 Ga IECEX ULBR 22.0001X
T4: -20°C ≤Ta ≤+85°C HART Communication:
T5: -20°C ≤Ta ≤+60°C Ui= 5V li= 100µA
T6: -20°C ≤Ta ≤+40°C

WARNING: 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

0000000 - 0000 HART CE

IP 66 68

224000

With salt spray

smar RP400 Wireless HART Network Repeater

Nova Smar S/A
Rua: Guilherme Volpe
1422 Sertãozinho-SP
14170-530 Brazil

Ex ia IIC T6...T4 Ga IECEX ULBR 22.0001X
T4: -20°C ≤Ta ≤+85°C HART Communication:
T5: -20°C ≤Ta ≤+60°C Ui= 5V li= 100µA
T6: -20°C ≤Ta ≤+40°C

WARNING: POTENTIAL ELECTROSTATIC CHARGING HAZARD SEE INSTRUCTIONS DURING INSTALLATION TAKE ACTIONS TO PREVENT THE EQUIPMENT FROM MECHANICAL IMPACT OR FRICTION
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0000000 - 0000 HART CE

IP 66W 68W

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