



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 22.0003X** Page 1 of 3 [Certificate history:](#)

Status: **Current** Issue No: 0

Date of Issue: 2022-12-19

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

Equipment: **Pressure Transmitter, LD400 HART**

Optional accessory:

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

Marking: Ex ia IIC T6...T4 Ga
T4: $-40^{\circ}\text{C} \leq \text{Ta} \leq +80^{\circ}\text{C}$
T5: $-40^{\circ}\text{C} \leq \text{Ta} \leq +60^{\circ}\text{C}$
T6: $-40^{\circ}\text{C} \leq \text{Ta} \leq +40^{\circ}\text{C}$

Approved for issue on behalf of the IECEx
Certification Body:

Erin LaRocco

Position:

Staff Engineer

Signature:
(for printed version)

Erin LaRocco

Date:
(for printed version)

2022-12-19

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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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 Report:

[BR/ULBR/ExTR22.0004/00](#)

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 HART®** uses a highly proven technique for pressure measuring by capacitance reading.

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 HART® communication protocol.

Please see Annex for additional information.

SPECIFIC CONDITIONS OF USE: YES as shown below:

DURING INSTALLATION TAKE ACTIONS TO PREVENT THE EQUIPMENT FROM MECHANICAL IMPACT OR FRICTION.

Annex:

[Annex to IECEx ULBR 22.0003X Issue 0.pdf](#)

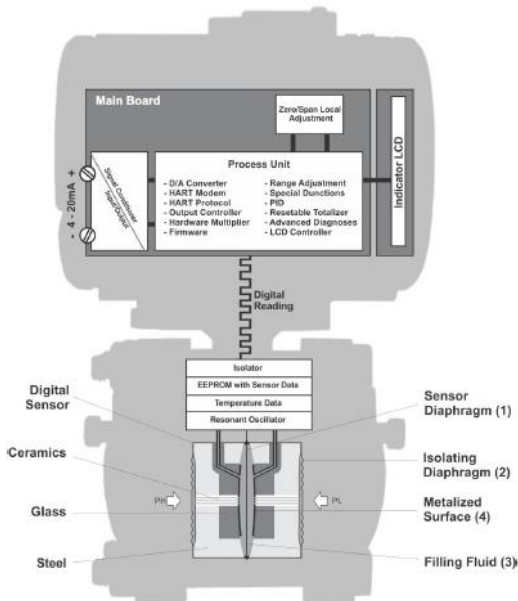
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TYPE DESIGNATION

The LD400 HART® uses a highly proven 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.

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Nomenclature:

See Instructions for ordering code or contact the manufacturer

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PARAMETERS RELATING TO THE SAFETY

$U_i = 30V$
 $I_i = 110mA$
 $P_i = 0.825W$
 $C_i = 21,6nF$
 $L_i = 4\mu H$

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

Ambient temperature range

$-40^{\circ}C \leq T_a \leq +80^{\circ}C$
 $-40^{\circ}C \leq T_a \leq +60^{\circ}C$
 $-40^{\circ}C \leq T_a \leq +40^{\circ}C$

Temperature class

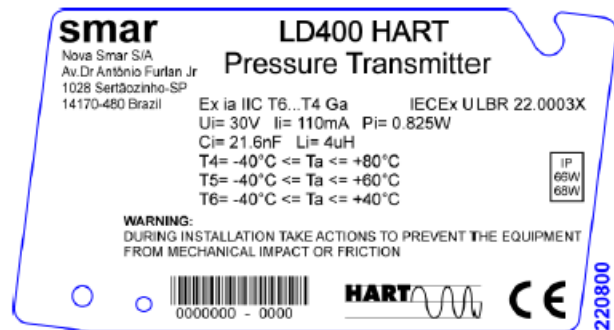
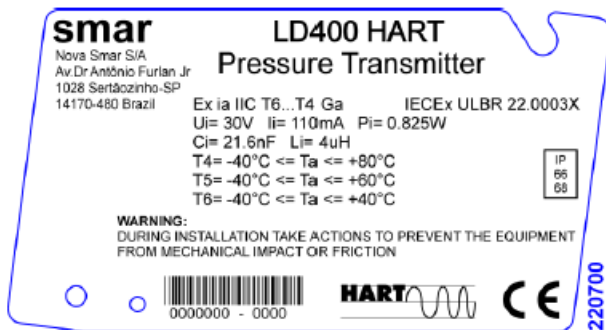
T4
 T5
 T6

MARKING

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

LD400 HART w/o salt spray

LD400 HART w/ salt spray



LD400 HART SIS w/o salt spray

LD400 HART SIS w/ salt spray





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ROUTINE EXAMINATIONS AND TESTS

- Infallible Transformers 102B030805 and 102B110302 shall be subjected to Routine Tests of 500V rms between input and output windings.

LIST OF CERTIFIED COMPONENTS

The following additional previous editions of Standards noted under the "Standards" section of this Certificate were applied to integral Components as itemized below. There are no significant safety related changes between these previous editions and the editions noted under the "Standards" section.

Product	Certificate Number	Standards
IS Fusion Limited Fuse, Model ISF003	IECEX SIR 07.0050U Issue 5	IEC 60079-0:2011 ed.6 IEC 60079-11:2011 ed.6 IEC 60079-26:2006 ed.2