



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 UL 13.0071X** Page 1 of 4 Certificate history:
Status: **Current** Issue No: 4 Issue 3 (2017-02-27)
Date of Issue: 2020-11-13 Issue 2 (2016-09-30)
Applicant: **Sensata Technologies Inc.** Issue 1 (2015-05-08)
BEI Sensors Issue 0 (2013-10-18)
1461 Lawrence Drive
Thousand Oaks, CA 91320
United States of America
Equipment: **Optical Encoders, H20, H25, HS20, H25X, HS25, HS35, and HS45**
Optional accessory:
Type of Protection: **Non-sparking "nA"**
Marking: Ex nA IIB T3 Gc
Ex nA IIB T4 Gc
See Annex for temperature ranges

Approved for issue on behalf of the IECEx
Certification Body:

Katy A. Holdredge

Position:

Senior Staff Engineer

Signature:
(for printed version)

Date:

2020-11-13

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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 LLC
333 Pfingsten Road
Northbrook IL 60062-2096
United States of America





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Manufacturer: **Sensata Technologies Inc.**
BEI Sensors
1461 Lawrence Drive
Thousand Oaks, CA 91320
United States of America

Additional manufacturing locations: **Custom Sensors & Technologies de Mexico S.A. de C.V.**
Avenida Produccion 2181
Parque Industrial Internacional Tijuana
Tijuana, Baja California 22425
Mexico

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 60079-0:2011 Explosive atmospheres - Part 0: General requirements
Edition:6.0

IEC 60079-15:2010 Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
Edition:4

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:

[US/UL/ExTR13.0076/00](#)
[US/UL/ExTR13.0076/03](#)

[US/UL/ExTR13.0076/01](#)
[US/UL/ExTR13.0076/04](#)

[US/UL/ExTR13.0076/02](#)

Quality Assessment Reports:

[US/UL/QAR09.0004/09](#)

[US/UL/QAR15.0002/05](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The devices are optical encoders powered by a class 2 power supply.

Please see Annex for additional information.

SPECIFIC CONDITIONS OF USE: YES as shown below:

- The encoders are intended to be used in an area of not more than pollution degree 2.
- Provision shall be made to prevent the rated voltage being exceeded by the transient disturbances of more than 140%.
- Any Model H20 encoder, or any encoder utilizing the K8 cable connector or cable gland must be installed in an IECEx certified enclosure with an IP54 or greater rating.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Issue 1: An alternate manufacturing location was added.

Issue 2: The manufacturer submitted updated label drawings, manual and construction drawings for examination. Reports were corrected for typos.

Issue 3: Adding new H25X analog and SSI models.

Issue 4: Enclosure testing to achieve IP54 for various models.

Annex:

[Annex to IECEx UL 13.0071X Rev. 4.pdf](#)



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TYPE DESIGNATION

Nomenclature:

H25 E-F1-SS - 1024 - ABZC - 28V/V - CCW - E (-) M18 - NI - S
I IIA (or IIB) III IV V VI VII VIII IX X

- I - Basic model number: H20, HS20, H25, H25X, HS35, HS25, HS45.
- IIA - Shafted Encoders (H20, H25, H25X)
Housing Type/Pilot: XX - one or two letter designation for specific geometry, followed by dash:
Shaft Type/Diameter (H20 encoder only): .12" through .75" and shaft type, followed by dash,
Face Mount: F1 to F999, followed by dash (or blank without dash),
Shaft Seal: SS, followed by dash
- IIB - Hollow Shaft Encoders (HS20, HS25, HS35, HS45)
Housing configuration: XX - one or two letter designation for specific geometry, followed by dash:
Bore Size: .12" through 2.00", may or may not be followed by "S", followed by dash,
Tether: R1 to R99, followed by dash (or blank without dash),
Shaft Seal: BS, SS, followed by dash
- III - Resolution – Inc. 1 to 999,999-T16
Abs. up to 16 Bits
- IV - Output channels: Up to 3 Data Channels and Complements (examples: ABZ, ABZC)
- Not used on H25X
- V - Output type:
15V/V = 5-15 Vin/out (HS35 Extreme Duty Version Only)
28V/V = 5-28 Vin/out
28V/5 = 5-28 Vin/5Vout
A1, A2, A3, A4, A5 = 12-28 Vin/Variable out
S3 = 5-28 Vin/SSI out
- VI - Direction of increasing count (on H25X only)
CW – clockwise increasing count
CCW – counter clockwise increasing count
- VII - Single or Dual Electronics (HS35 and HS45 only)
Output termination location (H20, H25, and HS25 only)
- VIII - Connector type
- IX - NI denotes non-sparking
- X - Special features
"S" denotes special features described in a footnote (e.g., extreme duty electronics)



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PARAMETERS RELATING TO THE SAFETY

Input: 5-15 VDC, 250 mA (HS35 Extreme Duty Version), 5-28 VDC, 250 mA (All other units), 5-28 VDC, 267 mA (HS25), 12-28 VDC, 75 mA (H25X, all analog), 5-28 VDC, 75 mA (H25X, S3 option)

Temperature range:

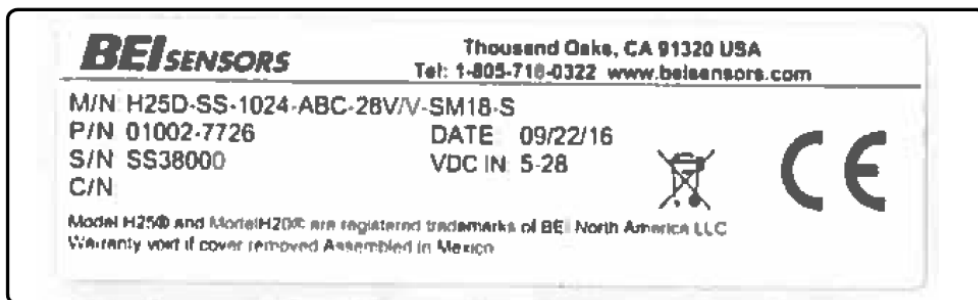
The relation between model number, ambient temperature, and the assigned temperature class is as follows:

Model Number	Ambient temperature range	Temperature class
H20 & HS20	-40 °C to +85 °C	T3
	-40 °C to +55 °C	T4
H25 & HS25	-40 °C to +80 °C	T4
H25X (analog and serial)	-30 °C to +105 °C	T3
HS35 & HS45	-40 °C to +85 °C	T3
HS35 Extreme Duty Version	-40°C to +85°C	T4

MARKING

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

General Marking for all models:





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H20:

TELEMETERING EQUIPMENT FOR USE
IN HAZARDOUS LOCATIONS:
CAUTION: OPEN ALL CIRCUITS BEFORE UNPLUGGING RECEPTACLE
WARNING: HOT SURFACE RISK OF BURN
(SEE DOC. 02138-000)

C **RU** **US** REGISTERED

CLASS I, DIV 2, GROUP A,B,C,D;
CLASS II, DIV. 2, GROUP F,G
TEMP CODE
T3B: $-40^{\circ}\text{C} \leq T_{\text{AMB}} \leq 85^{\circ}\text{C}$
T4: $-40^{\circ}\text{C} \leq T_{\text{AMB}} \leq 55^{\circ}\text{C}$
POWER WITH CLASS 2 SUPPLY
5-28 VDC, 250 mA MAX.
CONN. WIRE 105°C MIN.

CE

30105-002_B

Ex II 3 G Ex nA IIB T3 Gc DEMKO 13 ATEX 1209038X
IECEX UL 13.0071X

HS20:

TELEMETERING EQUIPMENT FOR USE
IN HAZARDOUS LOCATIONS:
CAUTION: OPEN ALL CIRCUITS BEFORE UNPLUGGING RECEPTACLE
WARNING: HOT SURFACE RISK OF BURN
(SEE DOC. 02138-000)

C **RU** **US** REGISTERED

CLASS I, DIV 2, GROUP A,B,C,D
TEMP CODE
T3B: $-40^{\circ}\text{C} \leq T_{\text{AMB}} \leq 85^{\circ}\text{C}$
T4: $-40^{\circ}\text{C} \leq T_{\text{AMB}} \leq 55^{\circ}\text{C}$
POWER WITH CLASS 2 SUPPLY
5-28 VDC, 250 mA MAX.
CONN. WIRE 105°C MIN.

CE

30105-005_A

Ex II 3 G Ex nA IIB T3 Gc DEMKO 13 ATEX 1209038X
IECEX UL 13.0071X

H25 and HS25:

TELEMETERING EQUIPMENT FOR USE
IN HAZARDOUS LOCATIONS:
CAUTION: OPEN ALL CIRCUITS BEFORE UNPLUGGING RECEPTACLE
WARNING: HOT SURFACE RISK OF BURN
(SEE DOC. 02138-000)

C **RU** **US** REGISTERED

CLASS I, DIV 2, GROUP A,B,C,D;
CLASS II, DIV. 2, GROUP F,G
TEMP CODE
T4: $-40^{\circ}\text{C} \leq T_{\text{AMB}} \leq 80^{\circ}\text{C}$
POWER WITH CLASS 2 SUPPLY
5-28 VDC, 250 mA MAX.
CONN. WIRE 105°C MIN.

CE

30105-003_B

Ex II 3 G Ex nA IIB T4 Gc DEMKO 13 ATEX 1209038X
IECEX UL 13.0071X



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HS35 and HS45:

TELEMETERING EQUIPMENT FOR USE
IN HAZARDOUS LOCATIONS:
CAUTION: OPEN ALL CIRCUITS BEFORE UNPLUGGING RECEPTACLE
WARNING: HOT SURFACE-RISK OF BURN
(SEE DOC 02138-000)

UL® CLASS I, DIV 2, GROUP A,B,C,D;
CLASS II, DIV. 2, GROUP F,G
TEMP CODE
T4: $-40^{\circ}\text{C} \leq T_{\text{AMB}} \leq 85^{\circ}\text{C}$
POWER WITH CLASS 2 SUPPLY
5-28 VDC, 250 mA MAX.
CONN. WIRES 105°C MIN.

CE 30105-001_B

Ex II 3 G Ex nA IIB T3 Gc IECEx UL 13.0071X
DEMKO 13 ATEX 1209038X

HS35 (Ext. Duty)

TELEMETERING EQUIPMENT FOR USE
IN HAZARDOUS LOCATIONS:
CAUTION: OPEN ALL CIRCUITS BEFORE UNPLUGGING RECEPTACLE
WARNING: HOT SURFACE RISK OF BURN
(SEE DOC. 02138-000)

UL® CLASS I, DIV 2, GROUP A,B,C,D
TEMP CODE
T4: $-40^{\circ}\text{C} \leq T_{\text{AMB}} \leq 85^{\circ}\text{C}$
POWER WITH CLASS 2 SUPPLY
INPUT: 5-15 VDC, 250 mA MAX.
OUTPUT: 5-15 VDC, 250 mA MAX.
CONN. WIRE 105°C MIN.

CE 30105-004 REV C

Ex II 3 G Ex nA IIB T4 Gc IECEx UL 13.0071X
DEMKO 13 ATEX 1209038X

H25X (Analog options):

TELEMETERING EQUIPMENT FOR USE
IN HAZARDOUS LOCATIONS:
CAUTION: OPEN ALL CIRCUITS BEFORE UNPLUGGING RECEPTACLE
WARNING: HOT SURFACE RISK OF BURN
(SEE DOC. 02138-000)

UL® CLASS I, DIV 2, GROUP A,B,C,D
TEMP CODE T3
 $-30^{\circ}\text{C} \leq T_{\text{AMB}} \leq 105^{\circ}\text{C}$
POWER WITH CLASS 2 SUPPLY
12-28 VDC, 75 mA MAX.
CONN. WIRE 105°C MIN.

CE 30105-007_C

Ex II 3 G Ex nA IIB T3 Gc IECEx UL 13.0071X
DEMKO 13 ATEX 1209038X



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H25X (SSI option):

TELEMETERING EQUIPMENT FOR USE
IN HAZARDOUS LOCATIONS:
CAUTION: OPEN ALL CIRCUITS BEFORE UNPLUGGING RECEPTACLE
WARNING: HOT SURFACE RISK OF BURN
(SEE DOC. 02138-000)

 CLASS I, DIV 2, GROUP A,B,C,D
TEMP CODE T3
-30°C ≤ T_{AMB} ≤ 105°C
POWER WITH CLASS 2 SUPPLY
5-28 VDC, 75 mA MAX.
CONN. WIRE 105°C MIN.

 30105-006_C

 II 3 G Ex nA IIB T3 Gc DEMKO 13 ATEX 1209038X
IECEx UL 13.0071X