[1] # TYPE EXAMINATION CERTIFICATE

[2] **Equipment or Protective System intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU**

[3] Type Examination Certificate Number: **DEMKO 13 ATEX 1209038X Rev. 5**

[4] Product: **Optical Encoders, H20, H25, H25X, HS20, HS25, HS35, and HS45**

[5] Manufacturer: **Sensata Technologies Inc., BEI Sensors**

[6] Address: **1461 Lawrence Drive, Thousand Oaks, CA 91320 USA**

[7] This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

[8] UL International Demko A/S certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014.

The examination and test results are recorded in confidential report no. **US/UL/ExTR13.0076/04.**

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

EN 60079-0:2012+A11:2013 **EN 60079-15:2010**

except in respect of those requirements listed at item 18 of the Schedule.

[10] If the sign "**X**" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

[11] This Type examination certificate relates only to the design of the specified product, and not to specific items of product subsequently manufactured.

[12] The marking of the product shall include the following:

II 3 G Ex nA IIB T3 Gc

II 3 G Ex nA IIB T4 Gc

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: 2013-10-23
Re-issued: 2020-11-13

Certification Body UL International Demko A/S, Borupvang 5A, 2750 Ballerup, Denmark
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[13] [14]

Schedule
TYPE EXAMINATION CERTIFICATE No.
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[15] Description of Product:
The devices are optical encoders powered by a class 2 power supply.

The optical radiation output of the product with respect to explosion protection, according to Annex II clause 1.3.1 of the Directive 2014/34/EU is not covered in this certificate.

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 Model 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 – Single or Dual Electronics (HS35 and HS45 only)
Output termination location (H20, H25, and H25X only)

VII – Direction of increasing count (on H25X only)
CW – clockwise increasing count
CCW – counter clockwise increasing count

VIII – Connector type

IX – NI denotes non-sparking

X – Special features
"S" denotes special features described in a footnote (e.g., extreme duty electronics)

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 ºC 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 ºC to +85 °C	T3
HS35 Extreme Duty Version	-40°C to +85°C	T4

[13] [14]

Schedule
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Electrical data
Powered by a Class 2 Supply:

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

Routine tests
N/A

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

[17] Special Conditions of Use:

- 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 connector or cable gland must be installed in an ATEX certified enclosure with an IP54 or greater rating.

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

Additional information
All encoder models excluding the Model H20, and all connector options excluding the K8 connector type, have in addition passed the tests for Ingress Protection to IP 64 in accordance with EN 60529:1991+A1:2000+A2:2013