

Declaration of Conformity

We Vishay Nobel AB
Box 423, SE-691 27 KARLSKOGA
Skrantahöjdsvägen 40, SE-691 46 KARLSKOGA
SWEDEN

declare under our sole responsibility that the products

Load Cells KOSD-RA, KIMD-RA, KOSD-RAD and KIMD-RAD

to which this declaration relates are in conformity with the
following standards or other normative documents.

The essential requirements in the EMC Directive 2014/30/EU
EN 61326-1:2013

The essential requirements in the ATEX Directive 2014/34/EU
with later amendments

EN IEC 60079-0: 2018
EN 60079-11: 2012
EN 50303: 2000

Group I Category M1: Ex ia I Ma
Group II Category 1: Ex ia IIC T4 Ga, Ex ia IIIC T79°C Da

EC – Type examination Certificate: DNV 21 ATEX 50821X
IEC – Type examination Certificate: IECEx DNV 21.0017X
UKCA - Type examination Certificate: DNV 22 UKEX 76724X

Notified body for EC type Examination: DNV, NB No. 2460, Høvik Norway
Notified Body for production: SGS Fimko OY, NB No. 0598, Helsinki FINLAND
Notified Body for production UK: SGS Baseefa Limited, NB No. 1180, Buxton UK

The essential requirements in the RoHS Directive 2011/65/EU Restriction of the use of
certain hazardous substances in electrical and electronic equipment.
EN 50581:2012

The product is supplied by 42 VDC and is therefore not covered by
the requirements in the Low Voltage Directive 2014/35/EU.

On behalf of the above named company, I declare that, on the date the equipment
accompanied by this declaration is placed on the market, the equipment conforms to all
technical and regulatory requirements of the above listed directives.

KARLSKOGA, 1st of December 2022



Per Fredriksson, Managing Director

[1]

EU-TYPE EXAMINATION CERTIFICATE

- [2] Directive 2014/34/EU of the European Parliament and of the Council of 26 February 2014
- [3] EU-Type Examination Certificate Number: **DNV 21 ATEX 50821X** **Issue 1**
- [4] Product: **Load cell with amplifier(s)**
- [5] Manufacturer: **Vishay Nobel AB**
- [6] Address: **Box 423
69127 Karlskoga
SWEDEN**
- [7] This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
- [8] DNV Product Assurance AS, notified body number 2460, in accordance with Article 17 and Article 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, 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 the Directive.
- The examination and test results are recorded in confidential reports listed in item 16.
- [9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with: **EN IEC 60079-0:2018, EN 60079-11: 2012 and EN 50303 :2000**
- Where additional criteria beyond those given here have been used, they are listed at item 18 in 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" listed under item 17 of this certificate.
- [11] This EU-TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.
- [12] The marking of the product shall include the following:

I 1 M1	Ex ia I Ma	- 45°C ≤ Ta ≤ +70°C
II 1 G	Ex ia IIC T4 Ga	- 45°C ≤ Ta ≤ +70°C
II 1 D	Ex ia IIIC T79°C Da	- 45°C ≤ Ta ≤ +70°C



Date of issue:
2023-04-17



Asle Kaastad
Asle Kaastad
For DNV Product Assurance AS
The Certificate has been digitally signed.
See www.dnv.com/digitalsignatures for info

[13]

Schedule

[14]

EU-Type Examination Certificate No:

DNV 21 ATEX 50821X

Issue 1

[15]

Description of Product

KxxD-RA(D) is a series of load cells, this certificate covers the KIMD and KOSD types. They incorporate resistive strain gauges, measuring the shear force, and types of replaceable signal conditioning amplifiers with 2-wire 4-20mA current loop output with HART communication and NAMUR high error signalling. Housed in an IP67 approved enclosure. These load cells are approved for use in an explosive gas and dust area, provided that suitable intrinsic safety barriers are used. Two different metallic cylinders are included: KOSD is made of metal and KIMD which also is made of metal but in addition have compound as a part of the external enclosure and therefore includes a Warning – Potential electrostatic hazard.

The load cell consists of replaceable amplifier, housed in the metallic cylinder ends, filled with casting compound. Three different end terminations are included: connector (LCAMP110), cable (LCAMP120) and blind (LCAMP130).

In addition the load cell can be equipped with either single or double Bridge.

Type designation

The KxxD load cell can be used with replaceable signal amplifiers as follows :

- KxxD-RA: Primary LCAMP110 with 4-pin M12 connector.
- KxxD-RA: Primary LCAMP120 with fixed shielded 4 wire cable.
- KxxD-RAD: Primary LCAMP110 or 120 and optional Secondary LCAMP110, 120 or blind 130.

The RA-versions have one electrical circuit and the RAD-version two separate electrical circuits. For the RAD-version the safety parameters are applicable to each circuit. Connection to indicator and power supply is made by two-wires in a common external connector or fixed cable for each amplifier.

Electrical Data

Maximum input voltage:	Ui=30 V
Maximum input current:	Ii=100 mA
Maximum input power:	Pi=0.7 W
Maximum internal capacitance:	Ci=57 nF
Maximum internal inductance:	Li=4.4 µH

- Total cable capacitance must not exceed 9.0nF for use in Group IIC.
- Total cable capacitance must not exceed 503nF for use in Group IIB and Group III.
- Total cable capacitance must not exceed 3µF for use in Group I.

Degrees of protection (IP Code)

IP67 according to IEC 60529.

Ambient temperature:

- 45°C ≤ Ta ≤ +70°C

Routine tests

None

[16]

Report No.: 233865/01

[17]

Specific Conditions of Use

1. The load cell shall only be connected to equipment that has adequate safety parameters according to the load cell's safety parameters [15].

2. The models KIMD-RA and KIMD-RAD have outside potted cavities. No rubbing on these non-metallic surfaces are allowed.
3. The free end of the connected external cable must be installed such that the terminations are afforded a degree of protection of at least IP20.
4. Use of secondary current loop output on primary side when using LCAMP110 or LCAMP120 as secondary amplifier on KxD-RAD is not allowed.

Notes for manufacture, installation and operation:

- Additional manufacturing locations.
- Manufacturers HQ address:
Vishay Nobel AB
Skrantahöjdsvägen 40
691 46 Karlskoga
SWEDEN
- Manufacturers Production address:
Vishay Nobel AB
Gjuterigatan 12
693 35 Degerfors
SWEDEN

[18] Essential Health and Safety Requirements

Met by compliance with the requirements mentioned in item 9.

[19] Drawings and documents

Number	Title	Rev.	Date
270150	ATEX & IECEX DOCUMENT LIST	6	2022-11-07

[20] Certificate History

Issue	Description	Issue date	Report no.
0	Prime certificate released	2013-03-21	204789
1	Design optimization, none of the components on which the intrinsic safety depends were changed. Safety parameter Ci changed from 56.6nF to 57nF.	2013-07-09	240583
2	Minor changes of the design, mining approval and issue IECEX certificate.	2014-02-13	D0001187
3	Minor changes of the design and reduction of the ambient temperature from -40°C to -45°C.	2015-01-13	D0001187 Rev 1
0	Original issue, replaces Nemko 13ATEX1522X. Update to latest EN 60079-0:2018	2021-06-04	233865
1	Add new alternative component D9. Update the marking label and use the manual for UKCA certificate.	2023-04-17	233865/01

END OF CERTIFICATE



IECEx Certificate of Conformity

200486r4

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

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

Certificate No.:	IECEx DNV 21.0017X	Page 1 of 5	<u>Certificate history:</u>
Status:	Current	Issue No: 1	Issue 0 (2021-06-04)
Date of Issue:	2023-03-10		
Applicant:	Vishay Nobel AB Box 423 69127 Karlskoga Sweden		
Equipment:	Load cell with replaceable amplifier(s)		
Optional accessory:			
Type of Protection:	Intrinsic safety "Ex ia"		
Marking:	Ex ia I Ma Ex ia IIC T4 Ga Ex ia III C T79°C Da -45°C < Ta < +70°C		

Approved for issue on behalf of the IECEx
Certification Body:

Asle Kaastad

Position:

Certification Manager

Signature:
(for printed version)

Date:
(for printed version)

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:

DNV Product Assurance AS
Veritasveien 1
1363 Høvik
Norway





IECEx Certificate of Conformity

200486r4

Certificate No.: **IECEx DNV 21.0017X**

Page 2 of 5

Date of issue: 2023-03-10

Issue No: 1

Manufacturer: **Vishay Nobel AB**
Box 423
69127 Karlskoga
Sweden

Manufacturing
locations: **Vishay Nobel AB**
Box 423
69127 Karlskoga
Sweden

Vishay Nobel AB
Gjuterigatan 12
693 35 Degerfors
Sweden

Vishay Nobel AB
Skrantahöjdsvägen 40
691 46 Karlskoga
Sweden

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:

NO/DNV/ExTR21.0017/00

NO/DNV/ExTR21.0017/01

Quality Assessment Reports:

GB/BAS/QAR14.0003/00
GB/BAS/QAR14.0003/03

GB/BAS/QAR14.0003/01
GB/BAS/QAR14.0003/04

GB/BAS/QAR14.0003/02
GB/BAS/QAR14.0003/05



IECEx Certificate of Conformity

200486r4

Certificate No.: **IECEx DNV 21.0017X**

Page 3 of 5

Date of issue: 2023-03-10

Issue No: 1

EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

KxxD-RA(D) is a series of load cells, this certificate covers the KIMD and KOSD types. They incorporate resistive strain gauges, measuring the shear force, and types of replaceable signal conditioning amplifiers with 2-wire 4-20mA current loop output with HART communication and NAMUR high error signalling. Housed in an IP67 approved enclosure.

These load cells are approved for use in an explosive gas and dust area, provided that suitable intrinsic safety barriers are used.

Two different metallic cylinders are included: KOSD is made of metal and KIMD which also is made of metal but in addition have compound as a part of the external enclosure and therefore includes a Warning – Potential electrostatic hazard.

The load cell consists of replaceable amplifier, housed in the metallic cylinder ends, filled with casting compound. Three different end terminations are included: connector (LCAMP110), cable (LCAMP120) and blind (LCAMP130). In addition the load cell can be equipped with either single or double Bridge.

SPECIFIC CONDITIONS OF USE: YES as shown below:

- The load cell shall only be connected to equipment that has adequate safety parameters according to the load cell's safety parameters.
- The models KIMD-RA and KIMD-RAD have outside potted cavities. No rubbing on these non-metallic surfaces are allowed.
- The free end of the connected external cable must be installed such that the terminations are afforded a degree of protection of at least IP20.
- Use of secondary current loop output on primary side when using LCAMP110 or LCAMP120 as secondary amplifier on KxxD-RAD is not allowed.



IECEx Certificate of Conformity

200486r4

Certificate No.: **IECEx DNV 21.0017X**

Page 4 of 5

Date of issue: 2023-03-10

Issue No: 1

Equipment (continued):

Type designation

The KxxD load cell can be used with replaceable signal amplifiers as follows :

- KxxD-RA: Primary LCAMP110 with 4-pin M12 connector.
- KxxD-RA: Primary LCAMP120 with fixed shielded 4 wire cable.
- KxxD-RAD: Primary LCAMP110 or 120 and optional Secondary LCAMP110, 120 or blind 130.

The RA-versions have one electrical circuit and the RAD-version two separate electrical circuits. For the RADversion the safety parameters are applicable to each circuit. Connection to indicator and power supply is made by two-wires in a common external connector or fixed cable for each amplifier.

Intrinsic Safety Parameters

Maximum input voltage:	$U_i=30\text{ V}$
Maximum input current:	$I_i=100\text{ mA}$
Maximum input power:	$P_i=0.7\text{ W}$
Maximum internal capacitance:	$C_i=57\text{ nF}$
Maximum internal inductance:	$L_i=4.4\text{ }\mu\text{H}$

- Total cable capacitance must not exceed 9.0nF for use in Group IIC.
- Total cable capacitance must not exceed 503nF for use in Group IIB and Group III.
- Total cable capacitance must not exceed 3 μF for use in Group I.



IECEx Certificate of Conformity

200486r4

Certificate No.: **IECEx DNV 21.0017X**

Page 5 of 5

Date of issue: 2023-03-10

Issue No: 1

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

New alternative component D9.

Update the marking label and use the manual for UKCA certificate.

[1] UNITED KINGDOM CONFORMITY ASSESSMENT

UK TYPE EXAMINATION CERTIFICATE

[2] Product or Protective System Intended for use in Potentially Explosive Atmospheres UKSI 2016:1107 (as amended) – Schedule 3A, Part 1

[3] UK Type Examination Certificate Number: **DNV 22 UKEX 76724X** **Issue 0**

[4] Product: **Load cell with amplifier(s)**

[5] Manufacturer: **Vishay Nobel AB**

[6] Address: **Box 423
69127 Karlskoga
SWEDEN**

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

[8] DNV Business Assurance UK Ltd, Approved Body number 8501 in accordance with Regulation 42 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), 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 Schedule 1 of the Regulations.

The examination and test results are recorded in confidential reports listed in item 16.

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with: **EN IEC 60079-0:2018, EN 60079-11: 2012 and EN 50303 :2000**

Except in respect of those requirements listed at section 18 of the schedule to this certificate.

[10] If the sign "X" is placed after the certificate number, it indicates that the product is subject to the "Specific Conditions of Use" listed under item 17 of this certificate.

[11] This UK TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Regulations apply to the manufacturing process and supply of this product. These are not covered by this certificate.

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

I 1 M1	Ex ia I Ma	- 45°C ≤ Ta ≤ +70°C
Ex I 1 G	Ex ia IIC T4 Ga	- 45°C ≤ Ta ≤ +70°C
II 1 D	Ex ia IIIC T79°C Da	- 45°C ≤ Ta ≤ +70°C



Date of issue:
2023-04-17



Asle Kaastad

Asle Kaastad

For DNV Business Assurance UK Ltd

The Certificate has been digitally signed.
See www.dnv.com/digitalsignatures for info

[13]

Schedule

[14]

UK Type Examination Certificate No:

DNV 22 UKEX 76724X

Issue 0

[15]

Description of Product

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- Total cable capacitance must not exceed 503nF for use in Group IIB and Group III.
- Total cable capacitance must not exceed 3µF for use in Group I.

Degrees of protection (IP Code)

IP67 according to IEC 60529.

Ambient temperature:

- 45°C ≤ Ta ≤ +70°C

Routine tests

None

[16]

Report No.: 233865/01

[17]

Specific Conditions of Use

1. The load cell shall only be connected to equipment that has adequate safety parameters according to the load cell's safety parameters [15].
2. The models KIMD-RA and KIMD-RAD have outside potted cavities. No rubbing on these non-metallic surfaces are allowed.

3. The free end of the connected external cable must be installed such that the terminations are afforded a degree of protection of at least IP20.
4. Use of secondary current loop output on primary side when using LCAMP110 or LCAMP120 as secondary amplifier on KxxD-RAD is not allowed.

Notes for manufacture, installation and operation:

- Additional manufacturing locations.
- Manufacturers HQ address:
Vishay Nobel AB
Skrantahöjdsvägen 40
691 46 Karlskoga
SWEDEN
- Manufacturers Production address:
Vishay Nobel AB
Gjuterigatan 12
693 35 Degerfors
SWEDEN

[18] Essential Health and Safety Requirements (Regulations Schedule 1)

In addition to the Essential Health and Safety Requirements covered by the standards listed at item 9, all other requirements are demonstrated in the relevant reports.

[19] Drawings and documents

Number	Title	Rev.	Date
270150	ATEX & IECEx DOCUMENT LIST	6	2022-11-07

[20] Certificate History

Issue	Description	Issue date	Report no.
0	Original issue	2023-04-17	233865/01

END OF CERTIFICATE