

[1] EC-TYPE EXAMINATION CERTIFICATE

[2] Equipment or Protected System Intended for use
in Potentially explosive atmospheres
Directive 94/9/EC

[3] EC-Type Examination Certificate Number: Nemko 13ATEX1522X Issue 3

[4] Equipment or Protective System: Load cell with amplifier(s)

[5] Applicant/ Manufacturer: Vishay Nobel AB

[6] Address: Box 423
69127 Karlskoga
SWEDEN

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

[8] Nemko AS, notified body number 0470 in accordance with Article 9 of Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report no. D0001187 Rev 1




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

EN 60079-0: 2012, EN 60079-11: 2012 and EN 50303 :2000

[10] If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

[11] This EC-TYPE EXAMINATION CERTIFICATE relates only to the design, examination and tests of the specified equipment or protective system in accordance to the directive 94/9/EC.
Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

[12] The marking of the equipment or protective system shall include the following:

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

Oslo, 2015-01-14

Bjørn Spongsveen
Certification Manager, Ex-products

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[13] Schedule**[14] EC-TYPE EXAMINATION CERTIFICATE No Nemko 13ATEX1522X Issue 3****[15] Description of Equipment or Protective System**

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.

Safety parameters for intrinsically safe connection:

Maximum input voltage, $U_i=30V$

Maximum input current, $I_i=100mA$

Maximum input power, $P_i=0.7W$

Maximum internal capacitance, $C_i=57nF$

Maximum internal inductance, $L_i=4.4\mu H$

- 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.

Degree of protection:

IP67 according to IEC 60529.

Additional manufacturing locations.

Manufacturers HQ address:	Manufacturers Production address:
Vishay Nobel AB Skrantahöjdsvägen 40 691 46 Karlskoga SWEDEN	Vishay Nobel AB Gjuterigatan 12 693 35 Degerfors SWEDEN

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[16] Report No. D0001187 Rev 1**Descriptive Documents**

Name/Number	Rev.	Date	Title/Description	Sheets
270150	3	2014-11-24	ATEX & IECEx DOCUMENT LIST	1

Certificate History and Associated Nemko Reports

Issue	Date	Report	Description
0	2013-03-21	204789	Prime certificate released
1	2013-07-09	240583	Design optimization, none of the components on which the intrinsic safety depends were changed. Safety parameter Ci changed from 56.6nF to 57nF.
2	2014-02-13	D0001187	Minor changes of the design, mining approval and issue IECEx certificate.
3	2015-01-13	D0001187 Rev 1	Minor changes of the design and reduction of the ambient temperature from -40°C to -45°C.

[17] Special Conditions for Safe Use

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

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.

[18] Essential Health and Safety Requirements

See item 9

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