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 BVS 15.0114X**	Page 1 of 4	Certificate history:
Status:	**Current**	Issue No: 3	Issue 2 (2020-04-08) Issue 1 (2016-11-14) Issue 0 (2015-12-08)
Date of Issue:	2021-09-22		

Applicant: **Knick Elektronische Messgeräte GmbH & Co. KG**
Beuckestraße 22
14163 Berlin
Germany

Equipment: **Inductive sensor-cable connection system MEMOSENS consisting of: Sensor and measuring cable**

Optional accessory:

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

Marking: **Ex ia IIC T3/T4/T6 Ga**
Ex ia IIC T6 Ga

Details see general product Information

Approved for issue on behalf of the IECEx Certification Body: **Dr Franz Eickhoff**

Position: **Lead Auditor and officially recognised expert**

Signature:
(for printed version)

Date:
(for printed version) 2021-09-22

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DEKRA Testing and Certification GmbH
Certification Body
Dinnendahlstrasse 9
44809 Bochum
Germany

DEKRA
On the safe side.

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Certificate No.: **IECEx BVS 15.0114X**

Date of issue: 2021-09-22 Issue No: 3

Manufacturer: **Knick Elektronische Messgeräte GmbH & Co. KG**
Beuckestraße 22
14163 Berlin
Germany

Manufacturing locations:

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:

DE/BVS/ExTR15.0103/03

Quality Assessment Report:

DE/TUN/QAR06.0016/10

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EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

General product information:

The inductive sensor-cable connection system MEMOSENS, consisting of a sensor and of the measuring cable type **CA/MS-***X**** or type **CA/MS-***X**-L**, is used to measure different parameters of fluid media.

For the inductive sensor-cable connection system MEMOSENS one in hardware and function identical and certified measuring cable can be used, instead of measuring cable type **CA/MS-***X**** or
type **CA/MS-***X**-L**.

The connection between sensor and measuring cable is galvanically isolated via a completely isolated connection system (inductive coupling).

The sensor's and measuring cable's electronic circuit is completely encapsulated.

Subject and Type

See Annex

Ratings

See Annex

SPECIFIC CONDITIONS OF USE: YES as shown below:

1 The inductive sensor-cable connection system MEMOSENS, consisting of the sensors and of the measuring cable type **CA/MS-***X**** or type **CA/MS-***X**-L** may be used in the following ambient temperature range:
Temperature class and ambient temperature range – see table above.

2 The measuring cable type **CA/MS-***X**** or type **CA/MS-***X**-L** and its connecting head must be protected from electrostatic charging, if installed through areas of Category 1G (EPL Ga).

3 For the sensor type **SE546X/*-*MS*** valid:
The sensors may not be operated at processing conditions, in which an electrostatic charging of the sensor and the connecting system is to be reckoned. Operation in product application intended fluid media providing conductivity of at least 10 nS/cm can be assumed as electrostatic uncritical.

4 For the sensor type **SE630X-MS** valid:
Metallic process connection parts have to be mounted at the mounting location electrostatically conductive (< 1 MΩ).
The sensor may only be used in liquid media with a conductivity of at least 10 nS/cm.

5 For the sensor type **SE 736X/*-NMS*** and type **SE 737X/*-NMS*** valid:
The sensors may not be operated in electrostatically critical processing conditions.
Intense vapour or dust flows directly impacting on the connection system must be avoided.
The metallic parts of the sensors have to be mounted at the mounting location electrostatically conductive (< 1 MΩ).

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
The inductive sensor-cable connection system MEMOSENS was tested in accordance to the standard EN IEC 60079-0:2018.

The type key was slightly modified.

Annex:

BVS_15_0114X_Knick_Annex_Issue3_.pdf

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Certificate No.: **IECEx BVS 15.0114X issue No: 3**
Annex

Subject and Type:

MEMOSENS measuring cable type CA/MS-***X** (preferably for industrial use)

- Non-Ex-relevant details
- A = cable
  B,C,D,F = cable with plug-in connector
- Cable length ≤ 100 m

MEMOSENS measuring cable type CA/MS-***X**-L (preferably for laboratory use)

- Non-Ex-relevant details
- A = cable
  B,C,D,F = cable with plug-in connector
- Cable length ≤ 100 m

MEMOSENS (ISFET) pH-sensor type SE546X/*-*MS*

- Non-Ex-relevant details
- Sensor length, e.g. 1=120 mm, 2=225 mm, …

MEMOSENS conductivity sensor type SE630X-MS

MEMOSENS oxygen sensor type SE 736X/*-NMS*

- Non-Ex-relevant details
- Sensor length, e.g. 1=120 mm, 2=225 mm, …

MEMOSENS oxygen sensor type SE 737X/*-NMS*

- Non-Ex-relevant details
- Sensor length, e.g. 1=120 mm, 2=225 mm, …

MEMOSENS Measuring cable and Sensor details - type, marking, ambient temperature range:

Type	Marking	Ambient temperature range
MEMOSENS Measuring cable		
CA/MS-*X**	**Ex ia IIC T3/T4/T6 Ga**	-15 °C ≤ T_a ≤ +135 °C (T3) -15 °C ≤ T_a ≤ +120 °C (T4) -15 °C ≤ T_a ≤ + 70 °C (T6)
CA/MS-*X**-L**	**Ex ia IIC T6 Ga**	-10 °C ≤ T_a ≤ + 50 °C (T6)
MEMOSENS Sensor		
SE546X/*-*MS*	**Ex ia IIC T3/T4/T6 Ga**	-15 °C ≤ T_a ≤ +135 °C (T3) -15 °C ≤ T_a ≤ +120 °C (T4) -15 °C ≤ T_a ≤ + 70 °C (T6)
SE630X-MS	**Ex ia IIC T3/T4/T6 Ga**	-20 °C ≤ T_a ≤ +135 °C (T3) -20 °C ≤ T_a ≤ +115 °C (T4) -20 °C ≤ T_a ≤ + 65 °C (T6)
SE 736X/*-NMS* **SE 737X/*-NMS***	**Ex ia IIC T3/T4/T6 Ga**	-5 °C ≤ T_a ≤ +135 °C (T3) -5 °C ≤ T_a ≤ +120 °C (T4) -5 °C ≤ T_a ≤ + 70 °C (T6)

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Ratings

The sensors, in connection with the measuring cable type **CA/MS-***X**** or type **CA/MS-***X**-L** or an in hardware and function identical and certified measuring cable, may be connected to the intrinsically safe sensor output circuit for digital sensors of the transmitter

Analyzing Unit Stratos Pro type A2..X-.-.	(IECEx KEM 08.0020)
Modular Analyzing System Protos type 3400 X */*** and Protos II type 4400 X */***	(IECEx DEK 11.0054)
Measuring System type Portavo 90*X*	(IECEx DEK 12.0059)

Furthermore, the connection of the listed sensors with measuring cable to an intrinsically safe output circuit (Ex ia IIC) with the following maximum values is possible:

Maximum output voltage	U_o	DC	5.1	V
Maximum output current	I_o		130	mA
Maximum output power (linear output characteristic)	P_o		166	mW

The maximum internal capacity and inductivity of the intrinsically safe output circuit may not exceed the following maximum values:

Maximum internal capacity	C_i	15	µF
Maximum internal inductivity	L_i	95	µH

Alternative:

Maximum output voltage	U_o	DC	5.04	V
Maximum output current	I_o		80	mA
Maximum output power (trapezoid output characteristic)	P_o		112	mW

The maximum internal capacity and inductivity of the intrinsically safe output circuit may not exceed the following maximum values:

Maximum internal capacity	C_i	14.1	µF
Maximum internal inductivity	L_i	237.2	µH

Furthermore, the connection of power limited Memosens sensors (P_i is defined) to the power limited inductive coupling of the measuring cable type **CA/MS-***X**** or type **CA/MS-***X**-L** is possible considering of the following value:

Maximum output power	P_o	178	mW

Note: P_o is the maximum possible value under conditions mentioned above and shall be used for all calculations.

Temperature class and ambient temperature range - see table above.