



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

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

Certificate No.: **IECEX SIR 16.0089U** issue No.: **1**

Certificate history:
Issue No. 1 (2018-1-8)
Issue No. 0 (2017-1-25)

Status: **Current**

Date of Issue: **2018-01-08** Page 1 of 4

Applicant: **KEM Küppers Elektromechanik GmbH**
Liebigstr. 5
85757 Karlsfeld
Germany

Equipment: **Flowpod Sensor adaptor**
Optional accessory:


Type of Protection: **Flameproof**

Marking: **Ex db IIC Gb**

Approved for issue on behalf of the IECEx Certification Body: **C Ellaby**

Position: **Deputy Certification Manager**

Signature: *(for printed version)*


2018-01-08

Date:

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 the Official IECEx Website.

Certificate issued by:

SIRA Certification Service
CSA Group
Unit 6, Hawarden Industrial Park
Hawarden, Deeside, CH5 3US
United Kingdom

sira
CERTIFICATION





IECEX Certificate of Conformity

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Page 2 of 4

Manufacturer: **KEM Küppers Elektromechanik GmbH**
Liebigstr. 5
85757 Karlsfeld
Germany

Additional Manufacturing location(s):

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 electrical apparatus 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 60079-1 : 2014-06 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition: 7.0

*This Certificate **does not** indicate compliance with electrical 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:

GB/SIR/ExTR16.0309/00

GB/SIR/ExTR17.0272/00

Quality Assessment Report:

DE/TPS/QAR12.0003/04



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Page 3 of 4

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The sensor adaptor is the connection between a flowmeter and an Ex d electronic device. A flowmeter can be a gear meter, helical gear meter, turbines or others. An electronic device can be any device as an indicating device like the normally used "Flowpod" or an adaptor box, which encloses additional electronics to evaluate the signals from the sensor coil. The sensor coil can be a carrier frequency or an inductive one. The sensor adaptor consists of three parts, which are mounted together. "SV-XX-AD-XX-XX-AA" is assembled with "SV-XX-AD-XX-XX-SA" via an M12x1.5 6H thread. This assembly is inserted in an "SV XX AD-XX-M14-GA-X", there is a cylindrical joint between both parts. Stub screws secure the parts from slipping off each other, these screws are secured by temperature resistant adhesive. The whole assembly is connected to the flowmeter via an M14x1.5 6H/6g thread. The adapter is secured by a counter nut against loosening from the flowmeter. Refer to the Annexe for coding and additional information

SPECIFIC CONDITIONS OF USE: NO



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Date of Issue: 2018-01-08

Issue No.: 1

Page 4 of 4

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

This issue recognises the following changes, refer to the certificate annex for a comprehensive history:
The depth of the bore hole was reduced.

Annexe to: **IECEX SIR 16.0089U Issue 1**
 Applicant: **KEM Küppers Elektromechanik GmbH**
 Apparatus: **Flowpod Sensor adaptor**



Flowpod Sensor adaptor

Type code: SV**_***_***_**_**

SV	*	*	-	**	**	-	**	**	-	**
Sensor type										
Carrier Frequency	T									
Inductive	I									
Sensor design type										
Short sensor adaptor, common sensor tap		K								
Long sensor adaptor, common sensor tap		L								
Short sensor adaptor, small sensor tap		R								
Long sensor adaptor, small sensor tap		S								
Material										
1.4305				05						
1.4404				04						
Sensor design connection										
Sensor hole					A1					
Thread socket short					B1					
Thread socket long					B2					
Connection to electronic device										
3/4" NPT							N1			
Connection to flowmeter										
M14x1.5 6H								M1		
Certification types										
ATEX, IECEX Ex d Gb Certification										EX

Operation of the carrier frequency type:

The coil is actively powered by a sinusoidal signal source of the maximum amplitude of 5 Volts at a frequency in the Kilohertz range. If the magnetic field is adopted by a moving part, e.g. gear or a turbine wheel of a flow meter, a shift in oscillator frequency is observed. Consequently, each shift correlates with a certain amount of displaced fluid, whereby the volumetric flow rate is calculated. Oscillator, coil power limitation and evaluation electronics are located outside the sensor adapter.

Operation for the inductive type:

The inductive type induces a voltage when a gear or a turbine wheel of a flow meter is moving near the sensor. The coil, which is located in the tip of the sensor adapter, induces a sinusoidal signal in a frequency range from a few Hertz to Kilohertz depending of the flow rate and the flow meter. Each signal oscillation is correlated with a certain amount of displaced fluid, whereby the volumetric flow rate is calculated. The evaluation electronics are located outside the sensor adapter.

Sira Certification Service

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Annexe to: IECEx SIR 16.0089U Issue 1
Applicant: KEM Küppers Elektromechanik GmbH
Apparatus: Flowpod Sensor adaptor



Schedule of Limitations

- i. The flamepaths shall not be repaired.
- ii. The ambient temperature shall be between the range of $-40\text{ °C} \leq T_a \leq +85\text{ °C}$.
- iii. The maximum input power of sensor adaptor with the carrier frequency coil shall not exceed 0.11 W.
- iv. The maximum output power of the sensor adaptor with the inductive coil shall not exceed 0.36 W.
- v. CAUTION – USE FASTENERS WITH YIELD STRESS $\geq 450\text{ MPa}$.

Conditions of Manufacture

- i. It is the responsibility of the manufacturer to connect the thread socket to the flowmeter (sensor hole) and to subject both to the routine test together with the sensor adaptor if the enclosure incorporates a welded construction.
- ii. The minimum dimensions of the sensor hole shall comply with the certification drawings.
- iii. The manufacturer shall conduct an overpressure test as routine test for the type SX**-**B1/B2-**-**-, which has a welded construction, at minimum 14.5 bar according clause 16 of IEC 60079-1.

Details of Certificate Changes (for issues 1 and above):

Issue 1 – this Issue introduced the following changes:

1. The depth of the bore hole was reduced.