



Flow / Consumption Sensor KEC-3 / KEC-4



Ex-Documentation

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1 Pictograms and Symbols



General Warning symbol (Danger, Warning, Caution)



General note



Installation- and Instruction manual to consider (on Nameplate)



Installation- and Instruction manual to consider



Hazardous area
Important notes for use in potentially explosive atmospheres

2 Area of application

This Ex-documentation contains special requirements for the use of flow / consumption sensors KEC-3 / KEC-4 in gas hazardous areas which complement and modify the general requirements in the instruction manual.

3 Safety instructions

3.1 General safety instructions

- Existing national regulations regarding installation, electrical installation, commissioning and maintenance of equipment in hazardous areas must be observed.
 - ATEX-Guideline 2014/34/EU (ATEX)
 - Use of Work Equipment Directive 89/655/EEC
 - the work safety regulations / safety rules
 - any other relevant safety regulations (see also Declaration of Conformity of the device)
- Installation, electrical installation, commissioning and maintenance of the equipment must be carried out by qualified personnel, which is trained to work in hazardous areas.
- Connecting and disconnecting the electrical connections of the device only in strainless state
- All the technical data of the sensor (see nameplate) must be strictly adhered.
- Opening of the sensor is allowed only in strainless state or in area free of explosive atmosphere.
- To ensure the dust-tightness the sensor housing is to be close firmly.



Warning

- When operating outside the performance data and use outside of the temperature range it may result in malfunction of the product.
This means in the hazardous area Danger to life!
Therefore: The performance specifications and temperature ranges of the operating instructions must be complied with.

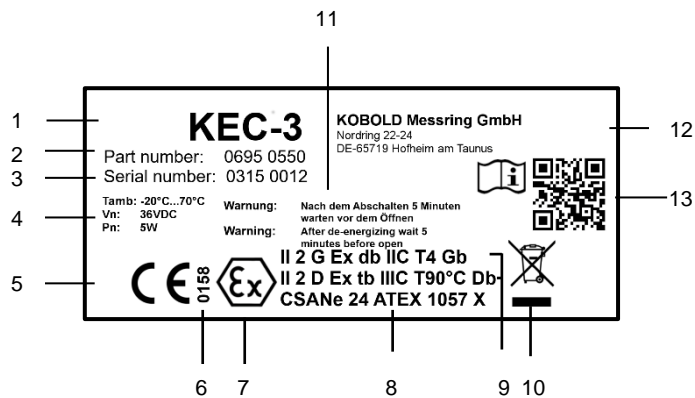
3.2 Specific conditions

- The manual and the Ex documentation must be observed, in particular the provisions for sufficient potential equalization and grounding and surge protection.
- Opening the housing in the hazardous area is possible in strainless state after a waiting period of at least 5 minutes after switching off. The electrical connection is to be performed only in strainless state of the sensor. Each aperture that was open is with the tightening torques conditions laid down in the instruction manual to be closed and locked.
- The repair of the flameproof case of flow-/consumption sensor KEC-3 and KEC-4 Ex including the flameproof joints are not allowed.
- The type of ignition protection depends on the proper selection and installation of the cable glands and the plugs. All openings must be provided with appropriate cable glands or sealing plugs for unused openings. Only in accordance with the standards EN 60079-0, EN 60079-1 and EN 6009-31 with a separate EC-type examination certificate certified cable glands and sealing plugs are allowed to use. These cable glands and sealing plugs must be certified at least for a temperature range of -20°C to $+95^{\circ}\text{C}$. The used cable glands and sealing plugs must have a thread in the size M20x1.5. The screw-in depth has to be min. 8 mm
- The appliance must be used exclusively with the appropriate cable glands for harmonized cables. These must be suitable for an operating temperature range of -20°C to $+95^{\circ}\text{C}$.

3.3 Installation / Commissioning

- metal parts (housing and fixing material) are to be included in the potential equalization
- The use of the sensor is only allowed in the permissible temperature range of T4 (135°C)
- Only certified cable glands (II 2 G Ex db IIC Gb / II 2 G Ex tb IIIC T90°C Db) are allowed to use.
- Turning or opening of the housing is allowed to perform only in strainless state and after a waiting time of > 5 minutes after switching off the sensor.
- In hazardous areas, the requirements of IEC/EN 60079-14 Section 9 must be observed.

3.4 Name plate



- 1 Sensortype
- 2 Ordering No.
- 3 Serialnumber
- 4 max. Operatingtemperature of the sensor, Power supply range, power consumption
- 5 CE Mark
- 6 Identification number of notified body
- 7 Ex mark
- 8 Year of first certification and report no of notified body report
- 9 Equipment group and category as per directive 2014/34/EU
- 10 WEEE-mark
- 11 Notes
- 12 Address: KOBOLD Messring GmbH
- 13 QR Code Download link for Instruction manual

Cable glands

3.5 Cable glands



Warning

- Ignition protection minimum: II 2 G Ex db IIC T4 Gb
II 2 D Ex tb IIIC T90°C Db
- Operating temperature range min: -20°C TO +95°C
- Connection thread: M20 x 1.5 mm
- Tightening torque must be applied in accordance with the manufacturer's instructions.
- Tightness of the cable / conduit entries must be ensured, the associated seals shall be installed directly on the casing.
- Unused cable entries must be closed with certified caps

4 Connection diagram

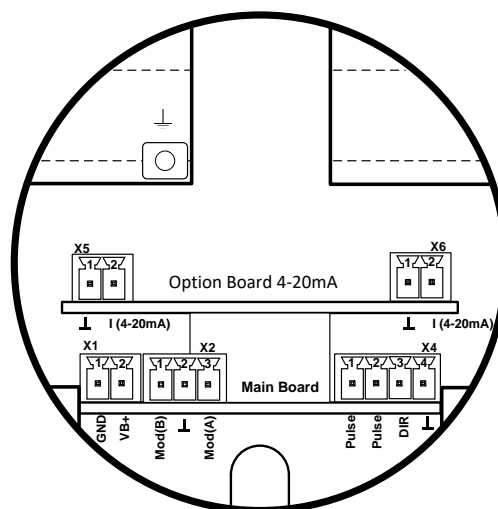
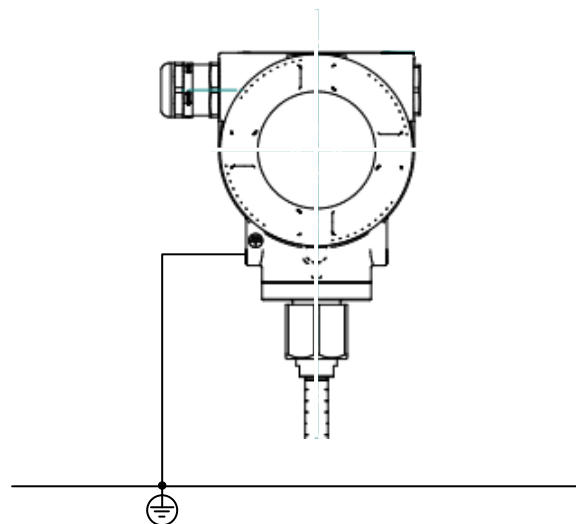


Specific conditions are to be observed!

- Before opening the housing for connection / wiring special conditions must be observed!
- General conditions of the pin assignment and wiring have to be observed in the user manual

4.1 Potential equalization

The sensors KEC-3 or KEC-4 are by using the outside screw terminal to integrate securely into the potential equalization.



5 Technical data

Model description:	Flow-/ Consumption sensor KEC-3 resp.. KEC-4
Ignition protection/Marking:	II 2 G Ex db IIC T4 Gb II 2 D Ex tb IIIC T90°C Db
Conformity to standards:	EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-31:2014
Operating temperature range:	-20°C to +70°C
Permissible medium temperature range:	-20°C to +120°C
Voltage (nominal value)	Un = 36 VDC
Power consumption (nominal value):	Pn = 5 W

6 Repairs and calibration

6.1 Repair and Service

Defective KEC-3 / KEC-4 sensors must be sent to Kobold Messring GmbH.
Spare parts cannot be provided for safety reasons.

6.2 Calibration

It is recommended to have the KEC-3 / KEC-4 sensors calibrated at regular intervals. The calibration cycles should be based on your internal specification.

7 EU Type Examination Certificate



1 **EU-TYPE EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

3 Certificate Number: **CSANe 24ATEX1057X** Issue: **0**

4 Equipment: **Flow- / Consumption Sensor KEC-3 and KEC-4**

5 Applicant: **Kobold Messring GmbH**

6 Address: Nordring 22-24
65719 Hofheim am Taunus
Germany

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

8 CSA Group Netherlands B.V., notified body number 2813 in accordance with Articles 17 and 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports listed in Section 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule to this certificate, has been assured by compliance with the following documents:

EN 60079-0:2012 + A11:2013 EN 60079-1:2014 EN 60079-31:2014

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to Specific Conditions of Use identified in the schedule to this certificate.

11 This EU-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:



II 2G
II 2D
Ex db IIC T4 Gb
Ex tb IIIC T90°C Db

Signed: M Halliwell

Title: Director of Operations



Project Number 80200500

This certificate and its schedules may only be reproduced in its entirety and without change
CSA Group Netherlands B.V. Utrechtseweg 310, Building B42, 6812AR Arnhem, The Netherlands

DQD 544.09 Issue Date: 2022-04-14

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SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE

**CSANe 24ATEX1057X
Issue 0**

13 DESCRIPTION OF EQUIPMENT

The flow / consumption probe KEC-3 or KEC-4 is used to measure the thermal mass flow of compressed air, pure gases and gas mixtures by means of a calorimetric principle. At the same time the gas temperature is determined.

The device consists of an aluminium die-cast housing sealed on both sides with housing covers and a sensor with measuring tips. The evaluation and display electronics consists of three printed circuit boards, which are installed in the die-cast aluminium housing. The electrical connection to the outside via one or two with separate EU-type examination certificate corresponding certified cable and cable entries, which are bolted into the aluminium die-cast housing. Unused entries in the aluminium die-cast housing must be closed with a separate EU-type examination certificate according to certified sealing plugs.

The measured values or settings are displayed via a 2" TFT display. The operation or adjustment of the flow / consumption probe KEC-3 or KEC-4 is done visually via the sight glass in the housing cover. The measured value is output via Modbus RTU or via two 4-20mA analogue outputs.

The flow / consumption probe KEC-3 is screwed into the pipeline via a connection nut and is equipped with the sensor with measuring tips in various lengths from 120 mm to 600 mm.

The flow / consumption probe KEC-4 is delivered pre-assembled together with a measuring section.

The permissible ambient temperature range is: -20°C to + 70°C
The permissible media temperature range is: -20°C to + 120°C

Technical data

Voltage (nominal value) $U_n = 36$ VDC
Power input (nominal value) $P_n = 5$ W

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Reports and Certificate History

Issue	Date	Report number	Comment
0	22 March 2024	R80200500A	The release of the prime certificate.

15 SPECIFIC CONDITIONS OF USE (denoted by X after the certificate number)

15.1 The operating instructions and the Ex documentation must be observed, in particular the stipulations for the necessary inclusion in equipotential bonding and grounding as well as overvoltage protection.

15.2 Opening the housing in the potentially explosive area is possible after a waiting period of at least 5 minutes after switch-off. The electrical connection must only be carried out when the power is off. Each opening that has been opened must be resealed and locked with the tightening torques specified in the operating instructions.

15.3 The repair is not permitted on the pressure-resistant housing of the flow / consumption probe KEC-3 or KEC-4 including flameproof plug-in gaps.



SCHEDULE

EU-TYPE EXAMINATION CERTIFICATE

CSANe 24ATEX1057X
Issue 0

- 15.4 The type of protection depends on the proper selection and installation of the cable glands and plugs. All openings must be provided with appropriate cable glands or blanking plugs for unnecessary openings. Only cable and cable entries and blanking elements certified according to the standards EN 60079-0 and EN 60079-1 with separate EU-type examination certificate may be used. These must be certified at least for a temperature range of -20°C to + 95°C. The cable glands and sealing plugs used must have a thread size M20x1.5. The screw-in depth must be at least 8 mm.
- 15.5 The device may only be used with the harmonized cables suitable for the cable glands. These must be suitable for at least a service temperature range of -20°C to + 95°C.
- 16 **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II (EHSRs)**
The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in the reports listed in Section 14.2.
- 17 **CONDITIONS OF MANUFACTURE**
- 17.1 The use of this certificate is subject to the Regulations Applicable to Holders of CSA Group Netherlands B.V. certificates.
- 17.2 Holders of EU-Type Examination Certificates are required to comply with the conformity to type requirements defined in Article 13 of Directive 2014/34/EU.

Project Number 80200500

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8 EU Declaration of Conformity

EU Declaration of Conformity (ATEX)

We, Kobold Messring GmbH, Nordring 22-24, 65719 Hofheim, Germany, hereby declare under our sole responsibility and with the aim of traceability that the product

Product type: **Flow/Consumption Sensor** Model: **KEC-3/KEC-4**

EU type examination certificate: **CSANe 24ATEX1057X**

Complies with all relevant requirements of the following directive(s):

2014/34/EU Equipment and Protective systems intended for use
in potentially Explosive Atmospheres

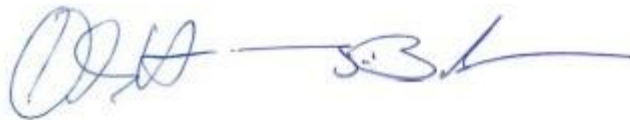
The following harmonized standards were applied for conformity assessment:

EN IEC 60079-0:2018	Equipment – General requirements
EN 60079-1:2014	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
EN 60079-31:2014	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"

The above-mentioned product complies with Directive 2014/34/EU. New editions may have already replaced one or more of the standards mentioned in the EU type examination certificates. Kobold Messring declares that the product mentioned in this declaration of conformity either meets the requirements of the new editions or is not affected by the changes.

The notified body DEKRA Testing and Certification GmbH, identification number: 0158, was activated, in accordance with Article 17 of Directive 2014/34/EU, to monitor quality assurance related to the production process.

Hofheim, 28 March 2024



H. Volz
General Manager

J. Burke
Compliance Manager



KOBOLD Messring GmbH

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