Operating Instructions

for

Paddle Flow Monitor

Model: PSR-..., PSE-...

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2. Note

2.1. General

Before unpacking and commissioning the device, the operating instructions and the “General Safety Instructions” document must be read and followed carefully. The general safety instructions, the operating instructions, the data sheet as well as approvals and further information can be downloaded via the QR code on the device or under the respective product on www.kobold.com.

Due to technical changes, the device documentation available online may not always correspond to the product version you have purchased. If you need an instruction manual that corresponds to the purchased product version, you can request it from us free of charge by email (info.de@kobold.com) in PDF format, specifying the relevant invoice number and serial number. If you wish, the operating instructions can also be sent to you by post in paper form.

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

The devices are only to be used, maintained and serviced by persons familiar with these operating instructions and in accordance with local regulations applying to Health & Safety and prevention of accidents.

When used in machines, the device should be used only when the entire machine fulfils the EU machinery directive.

2.2. Hazard warnings

The following instructions are intended to ensure your personal safety and to prevent damage to the product described or connected devices. Safety instructions and warnings to prevent danger to the life and health of users or maintenance personnel, or to prevent damage to property, are highlighted in this documentation using the symbols defined here. *The symbols and terms used have the following meaning in the documentation itself:*

Symbol	Explanation	Symbol	Explanation
Note	Is important information about the product, the handling of the product or the respective part of the documentation to which particular attention should be drawn.	Caution	Means that minor personal injury or minor property damage may occur if proper precautions are not taken.

Symbol	Explanation	Symbol	Explanation
Warning	Indicates that serious personal injury or substantial property damage may occur if proper precautions are not taken.	Danger	Means that death can occur if proper precautions are not taken.
Warning	Attention: Hot surface!	Warning	Warning: Dangerous electrical voltage

2.3. As per PED 2014/68/EU

	Pipe	
	Table 8 Group 1 dangerous fluids	Table 9 Group 2 non-dangerous fluids
PSR-.. (1/4" - 1")	Art. 4, § 3	Art. 4, § 3
PSR-132B and PSR-140B	not deliverable	Art. 4, § 3
PSR-232B and PSR-240B	Cat. II	Art. 4, § 3

3. Instrument Inspection

Instruments are inspected before shipping and sent out in perfect condition. Should the damage to a device be visible, we recommend a thorough inspection of the delivery packing. In case of damage, please inform your parcel service/ forwarding agent immediately, since they are responsible for damages during transit.

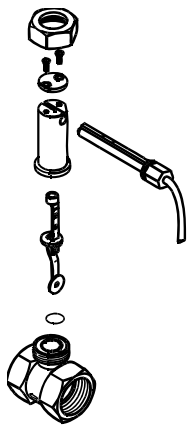
Scope of delivery:

- Paddle Flow Monitor Model: PSR-.. / PSE-..

4. Regulation Use

Series PSR and PSE are used to monitor liquid flow. Instruments are provided with an adjustable limit switch. Only low viscosity fluids that are compatible with the material combination chosen are allowed to be monitored. If using higher viscous media, large deviations in the specified switching range will occur.
The instruments are relatively insensitive to dirt, however large particles may block the paddle, leading to erroneous alarm conditions; likewise, ferritic particles may deposit on the magnet and lead to faulty operation. In case of doubt, please contact the manufacturer.

5. Operating Principle



The KOBOLD flow monitors of series PSE and PSR are used where economical, reliable flow monitors are indicated. Depending on the flow velocity respectively flow rate, the baffle plate is deflected and moves the permanent magnet via the balance arm into the switching range of the reed contact mounted outside of the flow media.
The flat spring, which also serves as a support for the balance arm, forces the baffle plate back to its rest position when there is no flow. KOBOLD baffle plate flow monitors are supplied completely assembled with fitting up to nominal size 40, or for larger nominal pipe sizes - supplied without a pipe length for direct insertion into standard T pieces or fittings. The sealing takes place via PTFE tape.

6. Use in Hazardous Areas (PSx-2)

6.1. Preamble

This excerpt from the operating instructions only represents the ex-relevant aspects. It is adopted in the same or analogous form in the original operating instructions; Textual changes are permitted; the ex-relevant statements remain. To ensure functionality and for your own safety, please read the enclosed operating instructions carefully before starting the installation. If you have any questions, please contact KOBOLD Messring GmbH, Hofheim. It applies with the original operating instructions.
When evaluating the product, the following standard issues were taken into account:

a) IEC 60079-0:2017 Ed. 7.0 / EN IEC 60079-0:2018 Explosive atmospheres – Part 0: General Requirements
b) IEC 60079-11:2011 Ed. 6 + Cor.:2012 / EN 60079-11:2012 Explosive atmospheres – Part 11: Equipment protection by intrinsic safety “i”
c) EN 50303:2000 Group 1, category M1 equipment intended to remain functional in atmospheres endangered by firedamp and/or coal dust

6.2. General information on explosion protection

The KOBOLD flow monitors types PSR and PSE are used wherever reliable flow monitoring is required.
Depending on the flow velocity or flow rate, the baffle plate is deflected and moves the permanent magnet via the balance beam into the response area of the reed contact located outside the flow medium.

Due to the force of the leaf spring, which also serves as a holder for the balance beam, the baffle plate is returned to its rest position if the flow fails. The KOBOLD baffle plate flow monitors are supplied complete with a pipe section up to a nominal size of 40. For larger pipe sizes, the devices are supplied without a pipe section for direct installation and are screwed into commercially available T-pieces or reducers. The seal is made with PTFE tape.
The flow monitor is intended for commercial systems and may only be used in accordance with the information in the technical documentation and the information on the nameplate. It is operated exclusively together with certified products via an intrinsically safe circuit. They correspond to the applicable standards and regulations.
The installation regulations (e.g. EN 60079-14) for systems in potentially explosive areas must be observed.

Permitted use

- The intrinsically safe flow monitor can be used as follows, taking the certified parameters into account:
  - In Zone 0 (Gas-Ex, Cat. 1G) in explosion groups IIA, IIB and IIC
  - In Zone 20 (Dust-Ex, Cat. 1D) in explosion groups IIIA, IIIB and IIIC
  - In Zone 1 (Gas-Ex, Cat. 2G) in explosion groups IIA, IIB and IIC
  - In Zone 21 (Dust-Ex, Cat. 2D) in explosion groups IIIA, IIIB and IIIC
  - In Zone 2 (Gas-Ex, Cat. 3G) in explosion groups IIA, IIB and IIC
  - In Zone 22 (Dust-Ex, Cat. 3D) in explosion groups IIIA, IIIB and IIIC
- The qualification with regard to the surface temperature is T4 / T3; for all gases, vapors, mists and dusts with an ignition temperature ≥ 110 ° C / ≥ 150 ° C, the products are not an ignition source.
- The permissible ambient temperature range extends from -20 ° C ≤ Ta ≤ 70 ° C in the standard version; up to 110 ° C for the high temperature version.

6.2.1. Electrical parameters when used in all zones, except for zone 20

- Ui = 60 V AC/DC
- Ii = 2 A
- Pi = 40 W / 20 VA
- Li = negligible
- Ci = negligible
- Ambient temperature range of the standard version PSx-21:
  -20 °C ≤ Ta ≤ 70 °C → T4 / T110 °C
- Ambient temperature range of the high temperature version PSx-22:
  -20 °C ≤ Ta ≤ 110 °C → T3 / 150 °C

6.2.2. Electrical parameters when used in Zone 20

- Ui = 30 V AC/DC
- Ii = 0.25 A
- Pi = 650 mW @ Ta 70 °C, 500 mW @ Ta 110 °C
- Li = negligible
- Ci = negligible
- Ambient temperature range of the standard version: -20 °C ≤ Ta ≤ 70 °C → T4 / T135 °C
- Ambient temperature range of the high temperature version: -20 °C ≤ Ta ≤ 110 °C → T4 / T135 °C

6.2.3. General requirements

6.2.3.1 Intended Use

d) To ensure safe operation, the products may only be used in accordance with the information in the assembly instructions. When using the device, the legal and safety regulations required for the respective application must also be observed. This also applies analogously to the use of accessories.
e) If the instructions given in this excerpt are not observed or if the product is improperly handled, our liability is void. In addition, the warranty does not apply to products and spare parts.
f)The products are not safety elements in the sense of their intended use.
g) Only original parts from the manufacturer may be used.
h) Flammable media within the flow monitor must not be heated to above 80% of their ignition temperature in zone 0 or 1 without taking special measures.

6.2.3.2 General safety information

The flow monitor corresponds to the state of the art and is operationally safe. The flow monitor can pose a residual risk if it is used and operated improperly by untrained personnel. Every person who is entrusted with the installation, commissioning, maintenance or repair of the flow monitor must have read and understood the assembly instructions and in particular the safety instructions.
a) When selecting a product and using it as intended, follow the general rules of technology.
b) All connected electrical and mechanical equipment must be suitable for the respective application.
c) Observe the information in these operating instructions as well as the conditions of use and permissible data that appear on the imprints / nameplates of the respective products.
d) It must be ensured that only the product types of protection that correspond to the zones are installed!
e) The product is only approved for appropriate and intended use in a normal industrial atmosphere. Immersion in liquids is not permitted.
f) It must be ensured that no falling objects can hit the product. If there is a risk of impact sparks, external housing parts made of light metal must be installed in a protected manner.
g) The operator must ensure lightning protection for the entire system in accordance with local regulations.
h) It is the responsibility of the installer to ensure that the flow monitor functions properly in conjunction with the individual evaluation devices and that it is approved for the intended purpose.
i) The intrinsically safe connection must be made using approved / tested evaluation devices, which may have to be equipped with suitable Zener barriers or switching amplifiers.

6.3. Commissioning, installation, operation

Depending on the IP degree of protection, the time for cleaning the equipment (dust deposits) must be specified. Other important facts:

i) The product may only be put into operation in intrinsically safe circuits in the zones defined in Section 2 in Section "Permitted Use" by specialists with a qualification similar to a qualified person in accordance with TRBS 1203.

j) The products may only be used in a normal industrial atmosphere. If aggressive substances are present in the air, the manufacturer should always be consulted. The products must be appropriately protected in adverse environmental conditions.

k) The operation of the product is only permitted in the completely assembled and undamaged housing. In the event of possible damage, the operator may have to consider the spread of zones; In addition, operation is not permitted if the housing is damaged.

l) The ambient conditions specified in the operating instructions must be strictly adhered to and appropriately protected against adverse ambient conditions.

m) The mechanical flow monitor may only be operated when it is completely filled. Exceptions according to the operator's risk assessment are only permitted for start-up and shutdown.

n) Thermal radiation from third-party products / components must be taken into account.

o) The flow monitor must be protected against inadmissible ingress of liquids and / or contamination.

p) The contact must be protected against UV light.

q) Stuck parts (e.g. due to frost or corrosion) must not be loosened with force in the presence of an explosive atmosphere. Icing must therefore be avoided.

r) The flow monitor may only be exposed to low vibrations, see also IEC 34-14.

s) A direct electrostatic discharge of high energy onto the equipment is not permitted (usually cannot be generated by human contact). To ensure that electrostatic charges are discharged, the national requirements must be taken into account.

t) In particular, isolated capacities must be prevented.

u) All construction parts must be connected to one another using metal.

v) In zones 20, 21 and 0, the connection cables must be protected against electrostatic charges.

w) Equalizing currents must not be routed through the metallic structures.

x) Only Zener barriers or switching amplifiers whose output circuits are approved / tested for use in an explosive atmosphere may be used. In Europe, use in Zone 1 requires an EC type-examination certificate for the equipment in question, which is issued by a body designated for explosion protection.

a) The voltage of the supply units must be less than or equal to the voltage Ui of the flow monitor.

b) The total current Io of the supply devices must be less than or equal to the current Ii of the flow monitor.

c) The ignition limit curves from EN 60079-11 must be taken into account in Zone 2 without a safety factor and must be observed during installation. In Zone 1, the safety factor 1.5 must be used. A control drawing (system description) to be created by the installer / operator is required for the installation of the intrinsically safe circuit.
d) Equipotential bonding must be established along the intrinsically safe circuit if the power is supplied via an earthed source.

q) The certificates must be taken into account, including the special conditions stipulated therein.
r) Within the potentially explosive area, assembly may only be carried out in accordance with the locally applicable installation regulations. The following conditions must be observed (incomplete):
a) Installation and maintenance may only be carried out in an explosion-free atmosphere and in compliance with the regulations applicable in the country of the operator.
b) Additional precautions must be taken if the presence of hydrogen sulfide, ethylene oxide and / or carbon monoxide is to be expected: These substances have a very low ignition energy!
c) If these substances are present and if a substance of explosion group IIC is present and an explosive atmosphere is likely to be present, only non-sparking tools may be used!

d) The flow monitors must not be used in systems with cathodic corrosion protection; in borderline cases, consult the manufacturer.
a) Particular care must be taken to ensure that no stray currents (e.g. generated by motors that are operated on frequency converters, welding systems and / or cathodic corrosion protection systems) are passed through the flow monitor.

6.4. Maintenance, servicing

Definition of terms according to IEC 60079-17:

Maintenance and repair: A combination of all activities that are carried out to keep an object in a condition or to bring it back into a condition that meets the requirements of the relevant specification and ensures the execution of the required functions.

Inspection: An activity that involves the careful examination of an object with the aim of making a reliable statement about the condition of this object, without dismantling or, if necessary, with partial dismantling, supplemented by measures such as B. measurements is carried out.

Visual inspection: A visual inspection is an inspection in which visible defects are found without the use of access devices or tools, for example missing screws.

Close-up inspection: An inspection that, in addition to the aspects of the visual inspection, identifies defects such as loose screws that can only be removed through the use of access devices, e.g. B. Steps (if necessary), and tools can be identified. For close-up tests, a housing does not usually need to be opened or the equipment needs to be de-energized.

Detailed inspection: An inspection in which, in addition to the aspects of close-up inspection, defects such as loose connections, which can only be identified by opening housings and / or, if necessary, using tools and testing equipment, are identified.

a) Maintenance measures may only be carried out by qualified persons.
b) Only those accessories may be used in potentially explosive areas that meet all the requirements of the European directives and national legislation.
c) Maintenance measures with dismantling of the flow monitor may only be carried out in an explosion-free atmosphere.
d) Components may only be replaced with original spare parts that are also approved for use in Ex areas. Repairs only by the manufacturer or specialist workshop.
e) The products must be regularly serviced and cleaned in the Ex area. The intervals are determined by the operator in accordance with the environmental stresses on site.

	Activity	**Visual inspection monthly**	**Close-up inspection every 6 months**	**Detailed examination every 12 months**
1	Visual inspection of the flow monitor for damage and remove dust deposits	•		
2	Check for integrity and function			•
3	Examination of the entire system	In the operator's area of responsibility		

6.5. Troubleshooting

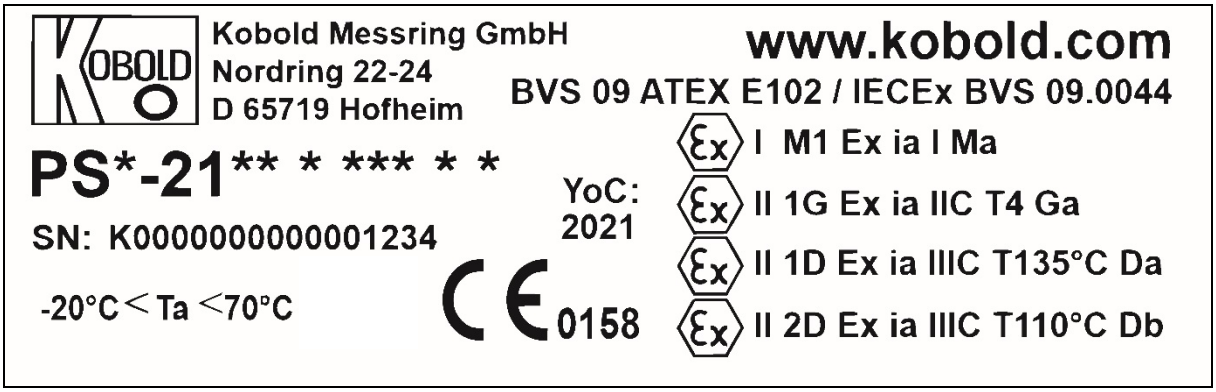
No changes may be made to products that are operated in connection with potentially explosive areas. Repairs to the product may only be carried out by specially trained and authorized specialists.

6.6. Disposal

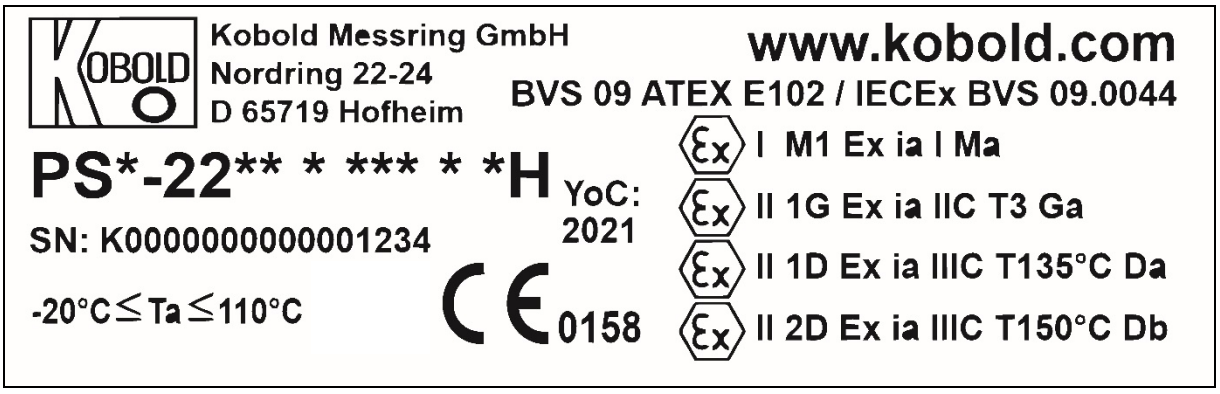
The packaging and used parts must be disposed of in accordance with the regulations of the country in which the product is installed.

6.7. Identification of the flow monitor (nameplate)

6.7.1. Marking for the standard version

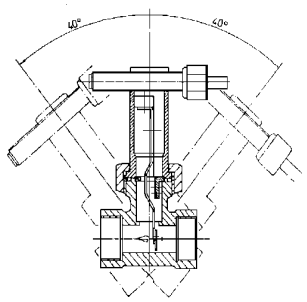


6.7.2. Marking for the high temperature version



7. Mechanical Connection

Before installation



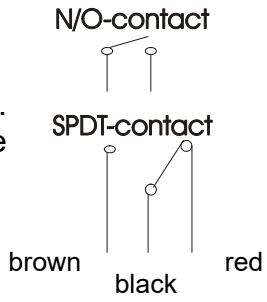
- Please check that the actual flow matches with the switching range of the instrument.
- Ensure that the allowable maximum operating pressure and operating temperature of the instruments will not be exceeded.
- Remove all transport packing and be sure that no packing material is left in the instrument.
- The instrument may be installed in any position (except PSR-..32 / PSR-..40 - for horizontal installation only); however, the top half of the paddle switch must be vertically positioned in relation to the pipe axis, and the arrow on the threaded fitting must match the flow direction.
- For dirty media, it is recommended that the upper housing will be installed as close to vertical as possible, respectively with not more than 40° deviation from vertical. This will prevent dirt from being deposited in the upper housing. When this is not possible, we recommend the instrument to be cleaned more frequently (see maintenance).
- The application of PTFE tape or similar sealant to the connection threads is recommended.
- Check that the connection threads of the pipe are fully sealed.

Attention! Make sure that the supply voltage to the instrument conforms to the value stated on the equipment label. For higher power loads, we recommend our contact protection relay model MSR-10.

The inlet and outlet section needs to be minimum 5 x DN in front of and after the flow meter.

8. Electrical Connection

- Ensure that the electrical supply lines are powerless.
- Connect the connection cable with your supply cable.
- The contact housing is made of glass-fibre reinforced plastic. It is insulated in accordance with VDI 0720 Class II; separate insulation measures are not necessary.



After connecting the external equipment, the instrument is ready for operation.

9. Limit Switches

The instrument is supplied with an adjustable contact. The standard contact, depending on the adjustments can be used either as N/O or N/C switch. The instrument is supplied ex works as a normally open contact. Optionally, the PSR/PSE can be ordered with an SPDT switch.

Contact mode

Depending on the positioning of the adjustable standard switch, the following contact modes are available.

- **Normally open**
  The contact closes when the flow increases and the set point value is reached or exceeded. The switch opens again with falling flow at the minimum value based on the switch hysteresis.

- **Normally closed**
  The contact opens when the flow increases and the set point value is reached or exceeded. The switch closes again with falling flow at the minimum value based on the switch hysteresis.

- **Option: Changeover (SPDT) contact**
  The normally open and normally closed switch modes are simultaneously available from the same position. When retrofitting the standard design with an SPDT switch, the upper switch housing must be replaced at the same time.

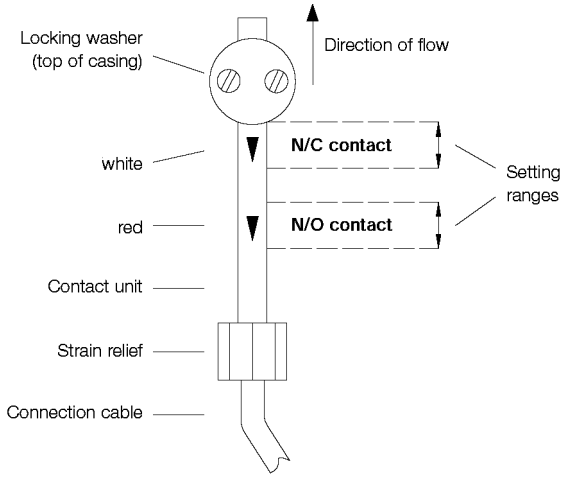
Switch Point Adjustment

When adjusting the switch point, the clamp plate in the top of the upper housing must be loosened, enabling the switching unit to be repositioned. For ease of adjustment, the switching unit is marked with a white and a red arrow. The front edge of the clamp plate serves as the adjustment marker.

- **Normally open contact**

(standard setting, as shipped)

The switch range is adjustable in the area of the red arrow. By sliding the switching unit in the direction of flow, the minimum switching value given in the table is achieved. By sliding the switching unit in the opposite direction, the maximum listed switch value is achieved.



- **Normally closed contact**

The switch range is adjustable in the area of the white arrow. By sliding the switch unit in the direction of flow, the minimum switch value given in the table is achieved. By sliding the switch unit in the opposite direction, the maximum listed switch value is achieved.

- **Option: Changeover contact**

The following options for wiring apply:
Black and brown conductor = contact opens at decreasing flow.
Black and red conductor = contact closes at decreasing flow.

After successful adjustment, tighten the clamp plate by means of the screws.

Hysteresis

The Hysteresis is defined as the difference between the opening and closing flow values of a contact. For example, the model PSR 11083 with minimal switching adjustment and increasing flow is switching on at 2.3 l/min and will switch off at 1.6 l/min at decreasing flow. Contact hysteresis = 0.7 l/min.

Contact protection

The reed contact may be damaged if the switch ratings are exceeded, especially while switching inductive or capacitive loads. This can cause unsafe conditions. By using a contact protection/isolation relay (e.g.: Model MSR 10), this problem can be overcome and the lifespan and switch rating of the reed contact can be extensively increased.

10. Maintenance

In cases the measured flow medium is not polluted, the PSR/PSE will remain virtually maintenance-free. Ferritic (iron) particles in the medium may deposit on the magnet, which can lead to problems. Bigger dirt particles can lead into blocking of the balance arm. To avoid those conditions, we recommend the installation of a magnet filter (e.g.: Magnet Filter model MFR).
Depending on the amount of dirt present in the medium, we recommend the instrument to be checked and cleaned regularly.

Cleaning of the instrument

The device requires regular maintenance and cleaning. The intervals are determined by the operator according to the environmental stresses on site. It should proceed as follows:

- Shut-off the flow through the instrument.
- Ensure that there is no flow through the pipe and that the pipe is empty and not under pressure.
- Loosen the sleeve nut with a wrench (hex size 30) (only PSR-..).
- The upper switch housing and paddle arm can then be removed for cleaning.
- When cleaning the paddle arm, check that the flat spring is not damaged or bent.
- Prior to reinstallation, check that the o-ring is placed correctly in the lower housing. Dirt particles on the o-ring will lead to sealing problems.
- Insert the leaf-spring/paddle assembly into the lower housing and replace the upper housing. Note that the suspension disk of this assembly must be correctly positioned within the recesses of the upper and lower housings.
- Tighten the sleeve nut. Check that the upper half does not turn with the nut.
- Check seal tightness.

11. Recommended Spare Parts

1.) Paddle (only PSR-…)
2.1) Spare Normally open contact
2.2) Spare Changeover contact
2.3) Conversion kit: N/O for Changeover contact (only PSR-11...)
consisting of top (sleeve) brass + 1 Changeover contact
2.4) Conversion kit: N/O for Changeover contact (only PSR-12...)
consisting of top (sleeve) stainless steel + 1 Changeover contact
3.1) FPM O-Rings
3.2) NBR O-Rings

12. Technical Information

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

13. Order Codes

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

14. Dimensions

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

15. Disposal

See “General Safety Instructions” - via the QR code on the device or via www.kobold.com

16. EU Declaration of Conformance

We, KOBOLD Messring GmbH, Nordring 22-24, 65719 Hofheim, Germany, declare under our sole responsibility that the product:

Paddle Flow Switch **Model: PSR-x / PSE-x**

to which this declaration relates is in conformity with the following EU directives stated below:

2014/35/EU **Low Voltage Directive**
2011/65/EU **RoHS** (category 9)
2015/863/EU Delegated Directive (RoHS III)
2014/68/EU **PED**

	Pipe	
	Table 8 Group 1 dangerous fluids	Table 9 Group 2 non-dangerous fluids
PSR-.. (1/4" - 1")	Art. 4, § 3	Art. 4, § 3
PSR-132B and PSR-140B	not deliverable	Art. 4, § 3
PSR-232B and PSR-240B	Cat. II	Art. 4, § 3

- Module D, marking CE0575
- Notified body: DNV GL
- Certificate No. PEDD000000R

Also, the following standards are fulfilled:

EN 60529:2013
Protection through housing (IP-code)

EN IEC 63000:2018 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

EN 61010-1:2010 + A1:2019 + A1:2019/AC:2019 Safety requirements for electrical equipment for measurement, control and laboratory use - Part 1: General requirements

Hofheim, 17. Nov. 2023

H. Volz
General Manager

J. Burke
Compliance Manager

17. 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: **Paddle Flow Switch Type: PS*-**** * *** * ***

EU type examination certificate: **BVS 09 ATEX E102**

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 60079-11:2012	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

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.

Certificate: BVS 24 ATEX ZQS/E110

Hofheim, 20 March 2025

H. Volz
General Manager

J. Burke
Compliance Manager

18. UK Declaration of Conformity

We, KOBOLD Messring GmbH, Nordring 22-24, 65719 Hofheim, Germany, declare under our sole responsibility that the product:

Paddle Flow Switch **Model: PSR-x / PSE-x**

to which this declaration relates is in conformity with the following UK directives stated below:

S.I. 2016/1101 **Electrical Equipment (Safety) Regulations 2016**
S.I. 2012/3032 The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

S.I. 2016/1105 **The Pressure Equipment (Safety) Regulations 2016**

	Pipe	
	Table 8 Group 1 dangerous fluids	Table 9 Group 2 non-dangerous fluids
PSR-.. (1/4" - 1")	Art. 4, § 3	Art. 4, § 3
PSR-132B and PSR-140B	not deliverable	Art. 4, § 3
PSR-232B and PSR-240B	Cat. II	Art. 4, § 3

- Module D, marking CE0575
- Notified body: DNV AS
- Certificate No. PEDD000000R

Also, the following standards are fulfilled:

BS EN 60529:1992+A2:2013
Degrees of protection provided by enclosures (IP-Code)

BS EN IEC 63000:2018
Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.

BS EN 61010-1:2010+A1:2019
Safety requirements for electrical equipment for measurement, control and laboratory use Part - 1: General requirements

Hofheim, 17. Nov. 2023

H. Volz
General Manager

J. Burke
Compliance Manager

19. ATEX Certificate

1 **EU-Baumusterprüfbescheinigung**
Nachtrag 1
Umstellung auf die Richtlinie 2014/34/EU

2 **Geräte zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen**
Richtlinie 2014/34/EU

3 Nr. der EU-Baumusterprüfbescheinigung: **BVS 09 ATEX E 102**

4 Produkt: **Strömungswächter Typ PS*-**** * *** * ***

5 Hersteller: **KOBOLD Messring GmbH**

6 Anschrift: **Nordring 22-24, 65719 Hofheim/Ts., Deutschland**

7 Dieser Nachtrag erweitert die EG-Baumusterprüfbescheinigung Nr. BVS 09 ATEX E 102 um Produkte, die gemäß der Spezifikation in der Anlage der Bescheinigung festgelegt, entwickelt und konstruiert wurden. Die Ergänzungen sind in der Anlage zu diesem Zertifikat und in der zugehörigen Dokumentation festgelegt.

8 Die Zertifizierungsstelle der DEKRA Testing and Certification GmbH, benannte Stelle Nr. 0158 gemäß Artikel 17 der Richtlinie 2014/34/EU des Europäischen Parlaments und des Rates vom 26. Februar 2014, bescheinigt, dass das Produkt die wesentlichen Gesundheits- und Sicherheitsanforderungen für die Konzeption und den Bau von Produkten zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen gemäß Anhang II der Richtlinie erfüllt.
Die Ergebnisse der Prüfung sind in dem vertraulichen Prüfprotokoll BVS PP 09.2122 EU niedergelegt.

9 Die wesentlichen Gesundheits- und Sicherheitsanforderungen werden erfüllt unter Berücksichtigung von:

EN IEC 60079-0:2018	**Allgemeine Anforderungen**
EN 60079-11:2012	**Eigensicherheit „i"**

10 Falls das Zeichen „X" hinter der Bescheinigungsnummer steht, wird in der Anlage zu dieser Bescheinigung auf besondere Bedingungen für die sichere Anwendung des Produktes hingewiesen.

11 Diese EU-Baumusterprüfbescheinigung bezieht sich nur auf den Entwurf und Bau der beschriebenen Produkte.
Für den Herstellungsprozess und die Abgabe der Produkte sind weitere Anforderungen der Richtlinie zu erfüllen, die nicht durch diese Bescheinigung abgedeckt sind.

12 Die Kennzeichnung des Produktes muss die folgenden Angaben enthalten:

Typ PS*-** * *** * * H**		oder	**Typ PS*-**** * *** * ***
I M1Ex ia I Ma			**Ex ia I Ma**
II 1GEx ia IIC T3 Ga			**Ex ia IIC T4 Ga**
II 1DEx ia IIIC 135°C Da			**Ex ia IIIC 135°C Da**
II 2DEx ia IIIC T150°C Db			**Ex ia IIIC T110°C Db**

DEKRA Testing and Certification GmbH
Bochum, 07.04.2021

Geschäftsführer

DEKRA Testing and Certification GmbH, Handwerkstraße 15, 70565 Stuttgart
Zertifizierungsstelle: Dinnendahlstraße 9, 44809 Bochum
Telefon +49.234.3696-400, Fax +49.234.3696-401, DTC-Certification-body@dekra.com

13 **Anlage zur**

14 **EU-Baumusterprüfbescheinigung**

BVS 09 ATEX E 102
Nachtrag 1

15 **Beschreibung des Produktes**

15.1 **Gegenstand und Typ**

Strömungswächter Typ PS*-**** * *** * *

15.2 **Beschreibung**

Mit diesem Nachtrag wird das Zertifikat auf die Richtlinie 2014/34/EU umgestellt.
(Erläuterung: Gemäß Artikel 41 der Richtlinie 2014/34/EU kann auf EG-Baumusterprüfbescheinigungen für Richtlinie 94/9/EG, die vor dem Stichtag für die Richtlinie 2014/34/EU (20.04.2016) ausgestellt wurden, so verwiesen werden, als ob diese gemäß Richtlinie 2014/34/EU ausgestellt wurden. Nachträge und neue Ausfertigungen dieser Bescheinigungen können die Originalnummern der Bescheinigungen, die vor dem 20.04.2016 vergeben wurden, beibehalten.)

Grund des Nachtrags

- Umstellung auf die Richtlinie 2014/34/EU
- Das Gerät wurde nach den aktuellen Normenfassungen geprüft.
- Reduzierte Kenngrößen für Zone 20 (EPL Da)
- Die Kennzeichnung wurde geringfügig geändert
- Neues Typenschildmaterial wird verwendet
- Die Beschreibung wurde geringfügig geändert

Beschreibung des Produkts

Der Strömungswächter, der in eigensicheren Stromkreisen als „Einfaches elektrisches Betriebsmittel" bzw. in eigensicheren elektrischen Anlagen der Gruppe I als Zubehör verwendet wird, dient zur Überwachung von Strömungen und enthält nur Bauteile, welche die Zündschutzart „Eigensicherheit" nicht beeinträchtigen.
Der Strömungswächter besteht aus einem Metallgehäuse, in dem ein Reedschalter vollständig vergossen untergebracht ist. Dieser Reedschalter wird durch einen Dauermagneten betätigt, der an einem Paddel befestigt ist. Dieses Paddel wird durch die Strömung des Mediums ausgelenkt.
Der elektrische Anschluss erfolgt über eine fest angeschlossene Leitung.
Bei Verwendung des Strömungswächters in Bereichen, die Kategorie 1G, 1D und 2D (Zone 0, 20 und 21) -Betriebsmittel erfordern, ist dieser so zu errichten, dass eine mögliche elektrostatische Entladung der Anschlussleitung vermieden wird.

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15.3 **Kenngrößen**

15.3.1 **Elektrische Kenngrößen nicht für Zone 20 (EPL Da)**

Maximale Eingangsspannung	U_i	AC/DC	60	V
Maximaler Eingangsstrom	I_i		2	A
Maximale Eingangsleistung	P_i		40 W / 20	VA
Maximale innere Kapazität	C_i		vernachlässigbar	
Maximale innere Induktivität	L_i		vernachlässigbar	
Umgebungstemperaturbereich	T_a			
für Typ PS*-**** * *** * * H (T3 / T150 °C)			-20 °C bis +110 °C	
für Typ PS*-**** * *** * * (T4 / T110 °C)			-20 °C bis + 70 °C	

15.3.2 **Elektrische Kenngrößen für den Einsatz in Zone 20 (EPL Da)**

Maximale Eingangsspannung	U_i	AC/DC	30	V
Maximaler Eingangsstrom	I_i		250	mA
Maximale Eingangsleistung	P_i			
für Typ PS*-**** * *** * * H			500	mW
für Typ PS*-**** * *** * *			650	mW
Maximale innere Kapazität	C_i		vernachlässigbar	
Maximale innere Induktivität	L_i		vernachlässigbar	
Umgebungstemperaturbereich	T_a			
für Typ PS*-**** * *** * * H (T135 °C)			-20 °C bis +110 °C	
für Typ PS*-**** * *** * * (T135 °C)			-20 °C bis +70 °C	

16 **Prüfprotokoll**

BVS PP 09.2122 EU, Stand 07.04.2021

17 **Besondere Bedingungen für die Verwendung**

Keine

18 **Wesentliche Gesundheits- und Sicherheitsanforderungen**

Die wesentlichen Gesundheits- und Sicherheitsanforderungen sind durch die unter Abschnitt 9 gelisteten Normen abgedeckt.

19 **Zeichnungen und Unterlagen**

Die Zeichnungen und Unterlagen sind in dem vertraulichen Prüfprotokoll gelistet.

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DEKRA

(1) # EG-Baumusterprüfbescheinigung

(2) **- Richtlinie 94/9/EG -**
Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen

(3) ## BVS 09 ATEX E 102

(4) **Gerät:** **Strömungswächter Typ PS*-** *** *** ***

(5) **Hersteller:** **KOBOLD Messring GmbH**

(6) **Anschrift:** **65719 Hofheim/Ts.**

(7) Die Bauart dieses Gerätes sowie die verschiedenen zulässigen Ausführungen sind in der Anlage zu dieser Baumusterprüfbescheinigung festgelegt.

(8) Die Zertifizierungsstelle der DEKRA EXAM GmbH, benannte Stelle Nr. 0158 gemäß Artikel 9 der Richtlinie 94/9/EG des Europäischen Parlaments und des Rates vom 23. März 1994, bescheinigt, dass das Gerät die grundlegenden Sicherheits- und Gesundheitsanforderungen für die Konzeption und den Bau von Geräten und Schutzsystemen zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen gemäß Anhang II der Richtlinie erfüllt.
Die Ergebnisse der Prüfung sind in dem Prüfprotokoll BVS PP 09.2122 EG niedergelegt.

(9) Die grundlegenden Sicherheits- und Gesundheitsanforderungen werden erfüllt durch Übereinstimmung mit

IEC 60079-0:2007	Allgemeine Anforderungen	EN 61241-0:2006	Allgemeine Anforderungen
EN 60079-11:2007	Eigensicherheit ´i´	EN 61241-11:2006	Eigensicherheit ´iD´
EN 50303:2000	Kategorie-M1-Geräte		
EN 60079-26:2007	Gerätegruppe II Kategorie 1G		

(10) Falls das Zeichen „X" hinter der Bescheinigungsnummer steht, wird in der Anlage zu dieser Bescheinigung auf besondere Bedingungen für die sichere Anwendung des Gerätes hingewiesen.

(11) Diese EG-Baumusterprüfbescheinigung bezieht sich nur auf die Konzeption und die Baumusterprüfung des beschriebenen Gerätes in Übereinstimmung mit der Richtlinie 94/9/EG.
Für Herstellung und Inverkehrbringen des Gerätes sind weitere Anforderungen der Richtlinie zu erfüllen, die nicht durch diese Bescheinigung abgedeckt sind.

(12) Die Kennzeichnung des Gerätes muss die folgenden Angaben enthalten:

I M1	**Ex ia I Ma**
II 1G	**Ex ia IIC T4/T3 Ga**
II 1D	**Ex ia IIIC IP6x T110 °C / 150 °C Da**

DEKRA EXAM GmbH
Bochum, den 04. August 2009

Zertifizierungsstelle | Fachbereich

Dieses Zertifikat darf nur vollständig und unverändert weiterverbreitet werden.
DEKRA EXAM GmbH Dinnendahlstraße 9 44809 Bochum Telefon 0234/3696-105 Telefax 0234/3696-110 E-mail zs-exam@dekra.com

DEKRA

(13) Anlage zur

(14) # EG-Baumusterprüfbescheinigung

BVS 09 ATEX E 102

(15) 15.1 Gegenstand und Typ

Strömungswächter Typ PS*-** *** *** ***

15.2 Beschreibung

Der Strömungswächter, der in eigensicheren Stromkreisen als „Einfaches elektrisches Betriebsmittel" bzw. in eigensicheren elektrischen Anlagen der Gruppe I als Zubehör verwendet wird, dient zur Überwachung von Strömungen und enthält nur Bauteile, die die Zündschutzart „Eigensicherheit" nicht beeinträchtigen.

Der Strömungswächter besteht aus einem Metallgehäuse, in dem ein Reedschalter vollständig vergossen untergebracht ist. Dieser Reedschalter wird durch einen Dauermagneten betätigt, der an einem Paddel befestigt ist. Dieses Paddel wird durch die Strömung des Mediums ausgelenkt.

Der elektrische Anschluss erfolgt über eine fest angeschlossene Leitung.

15.3 Kenngrößen

Schaltspannung	Ui	AC/DC 60 V
Schaltstromstärke	Ii	2 A
Schaltleistung	Pi	40W / 20VA
Umgebungstemperaturbereich	Ta	
bei Typ PS*-** *** *** **H		-20 °C bis +110 °C
bei allen anderen Typen		-20 °C bis +70 °C
Interne Kapazität	Ci	vernachlässigbar
Interne Induktivität	Li	vernachlässigbar

(16) Prüfprotokoll

BVS PP 09.2122 EG, Stand 04.08.2009

(17) Besondere Bedingungen für die sichere Anwendung

Entfällt

Dieses Zertifikat darf nur vollständig und unverändert weiterverbreitet werden.
DEKRA EXAM GmbH Dinnendahlstraße 9 44809 Bochum Telefon 0234/3696-105 Telefax 0234/3696-110 E-mail zs-exam@dekra.com

20. IECEx Certificate

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 09.0044**	Page 1 of 5	Certificate history:
Status:	**Current**	Issue No: 1	Issue 0 (2009-08-07)
Date of Issue:	2021-04-20		
Applicant:	**KOBOLD Messring GmbH** Nordring 22-24 65719 Hofheim/Ts. **Germany**		
Equipment:	**Flow control device type PS*-**** * *** * ***		
Optional accessory:			
Type of Protection:	**Intrinsic Safety "i"**		
Marking:	**For type PS*-**** * *** * * H** Ex ia I Ma Ex ia IIC T3 Ga Ex ia IIIC T135°C Da Ex ia IIIC T150°C Db T_a: -20 °C up to +110 °C or **type PS*-**** * *** * *** Ex ia I Ma Ex ia IIC T4 Ga Ex ia IIIC T135°C Da Ex ia IIIC T110°C Db T_a: -20 °C up to +70 °C		

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:

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:

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

DEKRA
On the safe side.

IECEx Certificate of Conformity

Certificate No.: **IECEx BVS 09.0044** Page 2 of 5

Date of issue: 2021-04-20 Issue No: 1

Manufacturer: **KOBOLD Messring GmbH**
Nordring 22-24
65719 Hofheim/Ts.
Germany

Additional 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/ExTR09.0038/01

Quality Assessment Report:

DE/BVS/QAR09.0001/11

IECEx Certificate of Conformity

Certificate No.: **IECEx BVS 09.0044** Page 3 of 5

Date of issue: 2021-04-20 Issue No: 1

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

General product information

Paddle Flow Monitor type PS*-**** * *** * *
Instead of the *** in the complete denomination letters and numerals will be inserted which characterize modifications.

Description

The flow monitor, which is used as "Simple apparatus" in intrinsically safe circuits resp. as "accessory" in Group I intrinsically safe systems, is used for detection of fluid flow and comprises only components which do not effect intrinsic safety.

The flow monitor consists of a metal enclosure, in which a reed contact is completely encapsulated. This reed contact will be operated by a permanent magnet which is mounted on a paddle; this paddle will be moved by the flow medium.

For use of the flow monitor in areas requiring Category 1G, 1D and 2D (Zone 0, 20 and 21) -equipment, the monitor shall be mounted in a way that possible electrostatic discharge of the cable will be avoided.

SPECIFIC CONDITIONS OF USE: NO

IECEx Certificate of Conformity

Certificate No.: **IECEx BVS 09.0044** Page 4 of 5

Date of issue: 2021-04-20 Issue No: 1

Equipment (continued):

Parameters

Electrical parameters for use in all Zones, except Zone 20 (EPL Da)

Maximum input voltage		U_i	AC/DC	60	V
Maximum input current		I_i		2	A
Maximum input power		P_i		40 W / 20	VA
Maximum internal capacitance		C_i		negligible	
Maximum internal inductance		L_i		negligible	
Ambient temperature range		T_a			
for type PS*-**** * *** * * H	(T3 / T150 °C)			-20 °C up to +110 °C	
for type PS*-**** * *** * *	(T4 / T110 °C)			-20 °C up to +70 °C	

Electrical parameters for use in Zone 20 (EPL Da)

Maximum input voltage		U_i	AC/DC	30	V
Maximum input current		I_i		250	mA
Maximum input power		P_i			
for type PS*-**** * *** * * H				500	mW
for type PS*-**** * *** * *				650	mW
Maximum internal capacitance		C_i		negligible	
Maximum internal inductance		L_i		negligible	
Ambient temperature range		T_a			
for type PS*-**** * *** * * H	(T135 °C)			-20 °C up to +110 °C	
for type PS*-**** * *** * *	(T135 °C)			-20 °C up to +70 °C	

IECEx Certificate of Conformity

Certificate No.: **IECEx BVS 09.0044** Page 5 of 5

Date of issue: 2021-04-20 Issue No: 1

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

- The equipment has been assessed in accordance with current standard versions.
- Reduced parameters for Zone 20 (EPL Da)
- The marking was slightly changed
- New type label material is used
- The description was slightly changed