粘度补偿

流量计 / 监测器

操作手册

型号: VKM

1. 目录

制造商和销售商:

Kobold Messring GmbH
Nordring 22-24
D-65719 Hofheim Tel.:
+49(0)6192-2990
Fax: +49(0)6192-23398
E-Mail: info.de@kobold.com
Internet: www.kobold.com

2. 注意

在拆开包装和投入使用之前，请阅读本操作说明书。请严格按照说明操作。
我们网站 www.kobold.com 上的使用说明书始终适用于我们当前生产的产品版本。由于技术变化，网上提供的使用说明书不一定与您购买的产品版本一致。如果您需要与所购产品版本相对应的使用说明书，可通过电子邮件 (info.de@kobold.com) 向我们免费索取 PDF 格式的使用说明书，并注明相关发票号和序列号。如果您愿意，我们也可以邮寄纸质操作手册给您，但需支付相应的邮寄费。

通过设备上的 QR 码或 www.kobold.com 获取操作说明、数据表、认证和更多信息。

设备只能由熟悉本操作说明书的人员按照当地有关健康和安全以及预防事故的规定进行使用、维护和保养。

在机器中使用时，只有当机器符合 EC 机器准则时，才可使用测量元件。

符合PED 2014/68/EU标准

根据 PED 2014/68/EU 第 4 条第 (3) 款 “合理的工程实践”，无 CE 标志。
图 8，管道，第 1 组危险流体

3. 仪器检查

仪器在发货前均经过检查，完好无损。如果仪器有明显的损坏，我们建议对发货包装进行彻底检查。如有损坏，请立即通知您的包裹服务/货运代理，因为他们对运输过程中的损坏负责。

供货范围:
标准交付包括:
- 粘度补偿流量计/监测器 型号: VKM

4. 使用条例

任何超出制造商规格的设备使用都可能导致保修失效。因此，由此造成的任何损坏与制造商无关。用户自行承担所有使用风险。

VKM 型用于测量和监测粘性液体流量（最大 540 mm2/s）。它们适用于测量与所用仪器材料相兼容的清洁、均匀的流体。
如果测量粘度较高的介质，测量值会出现较大偏差。

大的污物颗粒可能会阻碍浮子的移动，导致误报情况的发生。
沉积在浮子上的铁氧体颗粒（带磁铁）可能会产生同样的效果。

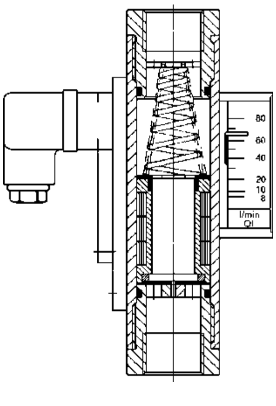
提供的工具如下:

流量测量（仅适用于 VKM-2 和 VKM-3 型）
实际流速可通过仪器上的磁性指针指示器读取。刻度直接显示流速，单位为升/分钟。

限位开关（仅适用于 VKM-1.. 和 VKM-3.. 型）
仪器配有一个或两个可调限位开关，用于监测流量吞吐值。

开关类型:
- N/O 开关 (标准型)
- 转换开关 (标准型)
- N/O 开关 (cCSAus)
- 转换开关 (cCSAus)

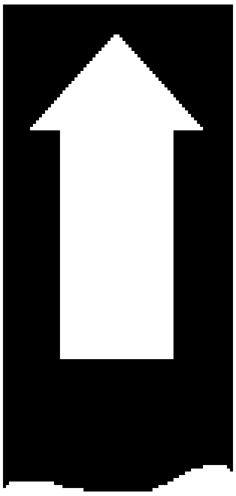
5. 工作原理



带有尖角孔口的空心浮子位于圆柱形钻孔金属壳体内。流动介质在弹簧力的作用下将浮子抬起。浮子的位置与特定的流速相对应，该流速可从安装在仪器上的指针式指示器读取。浮子周围装有永久磁铁，用于操作壳体外部的簧片触点开关。开关的工作无电压，通过磁力工作，即：开关是密封的。

6. 机械连接

安装前:



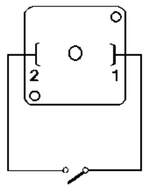
- 应确认不超过设备允许的最大工作压力和工作温度。
- (见表格：标准材质组合)。
- 仪器可安装在任何位置。改变位置时无需重新校准。流量必须始终沿着箭头方向流动（见标签）。
- 清除所有运输包装，确保仪器内没有任何包装材料。
- 应使用特氟龙胶带或类似材料密封连接螺纹。
- 仪器不得安装在电磁感应区域内。
- 如果可能，应在机械安装后检查管道连接螺纹是否完全密封（见第 9 节）。

7. 电气连接

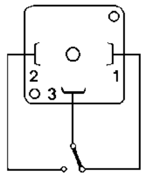
7.1. 开关量输出 VKM-1.. 和 VKM-3..

- 确保电源线断电。
- 松开插头的固定螺丝，从插座中拔出插头帽。
- 根据接线图在插头盖内进行连接。
- 如果尚未调整触点开关点，此时应进行调整。
- (见第 9 节调试)。
- 将插头推到插座上，用锁紧螺钉固定。(见第 9 节调试)。

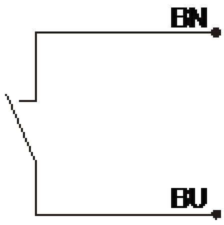
N/O contact



Changeover contact



Ex contact N/O



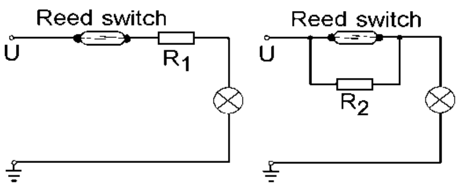
请注意！即使在短时间内，也不得超过磁簧开关的电气规格。如果开关容量较大，我们建议使用开关保护继电器（如 MSR 型）或任何其他开关保护装置。

将指定的外部设备连接到限位开关并调整所需的开关点后，所有与连接有关的工作即告完成。

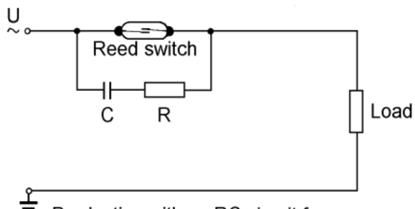
现在可以设置设备运行了。

7.2. 开关防护措施示例

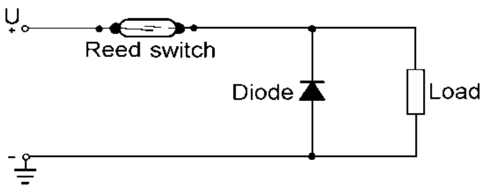
对于电容性负载和电感性负载（长电缆和继电器/保护装置），我们建议采用以下保护方案。



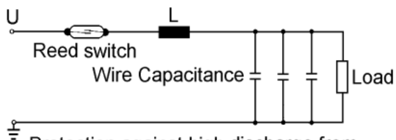
Lamp load with parallel or series resistance to the switch.



Prodection with an RC circuit for a.c. current and inductive load.



Protection with an idle diode for d.c. current and inductive load.



Protection against high discharge from condensers and loadcapacitances.

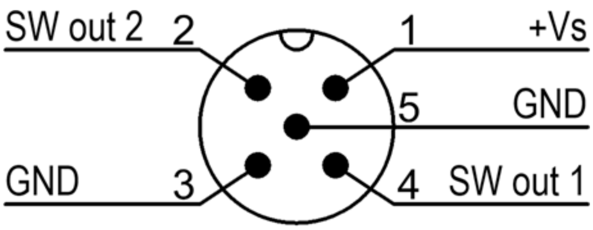
7.3. ADI-电子设备 VKM-7..

关于电源和输出信号的连接，请查阅相应 ADI 电子设备的使用说明书。

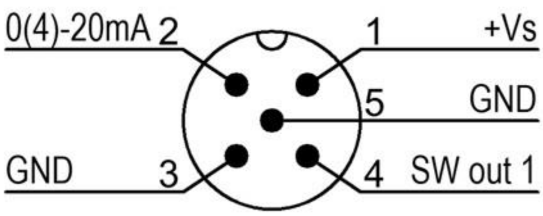
信息！ ADI 的测量输入端已在出厂前设置好。

7.4. 紧凑型电子设备 VKM-8...

紧凑型电子设备: (..C0R, ..C0M)



紧凑型电子设备: (..C4P, .. C4N)



8. 在危险区域使用

8.1. 关于不含自身潜在源的设备的声明

Erklärung für Betriebsmittel ohne eigene potentielle Zündquelle in Anlehnung an die Richtlinie 2014/34/EU

Statement an apparatus not containing an own potential source following Directive 2014/34/EU

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Hiermit erklärt die / *hereby declares*

KOBOLD Messring GmbH, Nordring 22-24, DE 65719 Hofheim

in alleiniger Verantwortung, dass die Ergebnisse, der an den folgenden mechanischem Betriebsmitteln vorgenommenen Prüfungen, die Anforderungen der Richtlinie 2014/34/EU erfüllen.

under the sole responsibility, that the results of the examinations with the mechanical equipment described below comply with the requirements of Directive 2014/34/EU.

Viskositätskompensierten Schwebekörper-Durchflussmesser / -wächter VKM (siehe auch Seite 2), Identifikations-Nummer siehe Lieferunterlagen

Vicositiy Compensated Flowmeter / switch of the series VKM (see also at page 2), Identification number see shipping documents

sind gemäß Richtlinie 2014/34/EU, Artikel 1
a) keine Geräte,
b) keine Schutzsysteme,
c) keine Sicherheits-, Kontroll- oder Regeleinrichtungen,
d) keine Komponenten.

are according to Directive 2014/34/EU, article 1
a) not an equipment,
b) not a protective system
c) not a safety device, controlling device or regulating device
d) not a component.

Die mechanischen Betriebsmittel haben bei bestimmungsgemäßem Betrieb keine eigene potentielle Zündquelle und bekommen **keine Kennzeichnung** im Sinne der ATEX-Richtlinie. Eine interne Zündgefahrenbewertung wurde durchgeführt.
Als Medium wird ein Fluid verwendet.

*When used adequately, this mechanical equipment has no inherent potential ignition source and thus it is **not marked** in accordance with the ATEX- Directive. An internal ignition risk analysis was carried out. The used medium is a fluid.*

Die mechanischen Betriebsmittel können, unter Berücksichtigung der geltenden Einrichtungsbestimmungen für Maschinen, Geräte und Anlagen im Ex-Bereich, z.B. EN 1127-1, EN 60079-14 u.a., folgendermaßen eingesetzt werden:
a) In der Zone 1 (Gas-Ex, Kategorie 2G, EPL Gb) in den Explosionsgruppen IIA, IIB und IIC
b) In der Zone 2 (Gas-Ex, Kategorie 3G, EPL Gc) in den Explosionsgruppen IIA, IIB und IIC
c) In der Zone 21 (Staub-Ex, Kategorie 2D, EPL Db) in den Explosionsgruppen IIIA und IIIB
d) In der Zone 22 (Staub-Ex, Kategorie 3D, EPL Dc) in den Explosionsgruppen IIIA und IIIB

The apparatus can be used as follows in explosive atmospheres in accordance with the applicable erection regulations on machines, devices and plants, such as e.g. EN 1127-1, EN 60079-14, etc.:
a) In Zone 1 (gas hazard, category 2G, EPL Gb) in the explosion groups IIA, IIB and IIC
b) In Zone 2 (gas hazard, category 3G, EPL Gc) in the explosion groups IIA, IIB and IIC
c) In Zone 21 (dust hazard, category 2D, EPL Db) in the explosion groups IIIA und IIIB
d) In Zone 22 (dust hazard, category 3D, EPL Dc) in the explosion groups IIIA und IIIB

Mögliche elektrische Betriebsmittel sind ohne Einfluss auf den mechanischen Zündschutz. Sie müssen den Anforderungen der jeweils vor Ort herrschenden Zonen genügen und sind nicht Bestandteil dieser Erklärung

Any electrical apparatus that may be used here do not impair the mechanical explosion protection. Those apparatus have to comply with the locally applicable zones and are not subject of this statement.

Folgende harmonisierte Normen/Spezifikationen sind in der am Unterschriftsdatum aktuellen Fassung angewandt worden:

- EN 1127-1 Explosionsfähige Atmosphären, Explosionsschutz, Teil 1: Grundlagen und Methodik

The following harmonised standards and specifications were referred to in their version applicable on the date of signature:

- *EN 1127-1 Explosive atmospheres, Explosion prevention and protection, Part 1: Basic concepts and methodology*

Wichtige Hinweise:

a) Die vom Hersteller erstellten Einbau und Bedienungsanleitungen sind zwingend zu beachten.
b) Die im Anwenderland geltenden Errichtungsbestimmungen sind zu beachten.
c) Die mechanischen Komponenten der VKM-Baureihe sind für Umgebungstemperaturen von:
mit Perbunan-Dichtung -20 °C .. 70 °C
mit Viton-Dichtung -10 °C .. 100 °C geeignet.

Please note:

a) The installation and operating instructions provided by the manufacturer are to be considered compellingly.
b) The installation regulations valid in the designated country of use are to be observed.
c) The VKM series with its mechanical components is suitable for ambient temperatures of
with Perbunan-seal -20 °C .. 70 °C
with Viton-seal -10 °C .. 100 °C.

Erklärung für Betriebsmittel ohne eigene potentielle Zündquelle in Anlehnung an die Richtlinie 2014/34/EU

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d) Bei bestimmungsgemäßem Betrieb wird außen eine Erwärmung < 10 K erwartet; die Temperaturklasse T4 wird eingehalten.
e) Die Geräte können elektrostatisch aufgeladen werden. Es sind geeignete Maßnahmen - elektrostatisch erden, „nur feucht reinigen" und Aufladungsprozesse vermeiden - einzuhalten, um eine Gefährdung auszuschließen. Eine Warnkennzeichnung ist beispielhaft auf verschiedenen Geräten angebracht.
f) Sämtliche außen liegenden Werkstoffe bestehen aus geeigneten funkenarmen Materialien, kein Leichtmetall. Der Betreiber ist jedoch für die Überprüfung der Zündgefahr durch Funken beim Betrieb der kompletten Maschine selbst verantwortlich.
g) Die mechanischen Komponenten des VKM müssen in den Potentialausgleich einbezogen werden.
h) Anschlussleitungen von elektrischen Betriebsmitteln sind geschützt zu verlegen.
i) An Bauteilen dürfen in der Explosionsgruppe IIC und der Zone 1 keine projizierten Oberflächen von Kunststoffen > 20 cm² vorhanden sein; bei IIB oder im Staub dürfen 100 cm² erreicht werden. Die Geräte dürfen nicht dort eingesetzt werden, wo damit zu rechnen ist, dass dort starke elektrostatische Aufladungen (Gleitstielbüschelentladungen) provoziert werden (durch menschliche Aufladung nicht möglich)
j) Wenn isolierende Anschlussschläuche verwendet werden, dann sind Typen mit einem Durchmesser < 20 mm (IIC) oder < 30 mm (IIA, IIB, Staub) zulässig.
k) Staubablagerungen sind regelmäßig zu entfernen.
l) Bei Undichtigkeit des Gehäuses darf das Betriebsmittel nicht weiter betrieben werden
m) Die Verwendung von brennbarem oder explosionsfähigen Medien ist nicht zulässig.
n) Streuströme (z.B. in Anlagen mit elektrischem Korrosionsschutz) dürfen nicht über die Bauteile geführt werden
o) Bei Montagen im Ex-Bereich ist unbedingt die EN 1127-1 Anhang A zu beachten (ggf. funkenarmes Werkzeug benutzen!)

Ausgefertigt in Hofheim am 22. Februar 2024
Unterzeichnet für und im Namen der KOBOLD Messring GmbH
Ort und Datum

Statement an apparatus not containing an own potential source following Directive 2014/34/EU

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d) At intended operation the temperature rising outside is < 10 K; Temperature class T4 is kept.
e) The apparatus is electrostatically chargeable. Thus appropriate measures have to be taken – grounded electrostatically, "only cleaning with a damp cloth" and avoiding charging processes – that will prevent hazards. Warning signs are fixed exemplary on the outside of some apparatus.
f) All exterior materials consist of suitable low-sparking components no alloy. The operator himself, however, is responsible for checking the risk of ignition caused by sparks during the operation of the complete machine.
g) The mechanical components of the VKM have to be integrated in the equipotential bonding.
h) Connecting cables of electrical apparatus have to be installed in a protected manner.
i) At apparatus in explosion group IIC and in Zone 1 no projected surfaces of plastics are permitted that exceed 20 cm²; in IIB or dust hazardous atmospheres 100 cm² may be reached. The products should not be used where strong electrostatic charges are present which provokes propagating brush discharges (by human charging it is not possible).
j) If insulated connection hoses are used, only types with a diameter < 20 mm (IIC) or < 30 mm (IIA, IIB, Dust) may be used.
k) Dust deposits are to be removed regularly.
l) If the enclosure shows signs of leakage, the apparatus may be not operated further.
m) The use of any flammable or explosive flow medium is not permitted.
n) Leakage currents (e.g. in plants with electrical anti-corrosion protection) may not be led over the parts.
o) When mounting the apparatus inside an explosive area, Annex A of standard EN 1127-1 has to be adhered to (if necessary, low-sparking tools have to be used).

Issued at Hofheim on February 22nd 2024
Signed for and on behalf of KOBOLD Messring GmbH

Joseph Burke Compliance Manager / *authorized signatory*

HEK_18 BopZ 0005 Ed 2 Kobold VKM.odt

Folgende VKM-Betriebsmittel wurden in die Bewertung einbezogen / *The following VKM series was considered for the assessment:*

Typenschlüssel Serie VKM / *Type key series VKM*		
VKM-1***	Das Magnetfeld betätigt eine außerhalb angebrachten Kontakt	The magnetic field actuates an external contact
VKM-2***	Das Magnetfeld betätigt eine außerhalb angebrachte Anzeigevorrichtung	The magnetic field actuates an externally applied display device
VKM-3***	Das Magnetfeld betätigt eine außerhalb angebrachte Anzeigevorrichtung und einen zusätzlichen Kontakt.	The magnetic field actuates an externally applied display device and an additional contact.

8.2. ATEX 防爆开关 ...F0... (仅 VKM-1… 和 VKM-3…)

II 2G Ex mb IIC T6 Gb
II 2 D Ex mb IIC T80 °C Db
max. 250 V_{AC}/1.5 A/100 VA

8.3. ATEX 防爆干簧开关 41R57**

ATEX N/O开关41R57 II

3G Ex ic IIC T4 Gc
II 3 D Ex ic IIIC T125 °C Dc
-20 °C ≤Ta≤80 °C
max. 250 $V_{AC/DC}$/1.5 A/100 W/100 VA

ATEX 转换开关 41R57U II 3G Ex

ic IIC T4 Gc
II 3 D Ex ic IIIC T125 °C Dc
-20 °C ≤Ta≤80 °C
max. 250 $V_{AC/DC}$/1 A/30 W/60 VA

干簧触点 41R57 操作说明书相关节选**

1. 前言

本操作说明书摘录仅代表原相关内容。它以相同或类似的形式复制到原始操作手册中；允许对文本进行修改，但保留原有的相关说明。
为确保功能和人身安全，请在安装前仔细阅读随附的操作说明书。如有任何疑问，请联系霍夫海姆的 KOBOLD Messring GmbH。与原操作说明书一起使用。
在对产品进行评估时，考虑了以下标准问题:

a) IEC 60079-0:2017 Ed. 7 / EN 60079-0:2018 爆炸性气体环境 –
0区: 设备 - 一般要求

b) IEC 60079-11:2011 Ed. 6 + Corr. 2012 / EN 60079-11:2012 爆炸性气体环境 –
11区: 设备本质安全保护"i"

2. 防爆一般信息

干簧开关可与各种 KOBOLD 产品配合使用，并用于监控。可提供 N/O 开关或转换开关。

通过插头进行电气连接 - 仅适用于本质安全系统。
干簧管用于商业用途，只能按照 Kobold 技术文件中的规格和铭牌上的信息使用。
它只能与经过认证的产品一起通过本安电路进行操作。它们符合有效的标准和规定。

必须遵守潜在爆炸性环境中系统的安装规定（如 EN 60079-14）。

更多重要详情，请参阅相应的欧共体类检查证书.

允许用途

- 本安型磁簧开关的使用方法如下:
  - 在爆炸类别 IIA、IIB 和 IIC 的 2 区（Gas-Ex，EPL Gc）内
  - 在爆炸类别 IIIA、IIIB 和 IIIC 的 22 区（Dust-Ex，EPL Dc）内
- 满足在 1/21 区本质安全电路中使用的简单电气设备的要求。
- 有关表面温度的限定值为 T4。对于点火温度大于 135 ° C 的所有气体、蒸汽和薄雾，设备都不是点火源。
  - 在防尘区，125 ° C 是进一步考虑与燃烧温度安全距离的参考温度。
- 环境温度范围是-20 ° C ≤ Ta ≤ 80 ° C。

2.1. Ex i的电气特性

电气数据:

- 额定电压最高可达 45 volt AC / DC
- 额定电流最高可达 2 A
- Ui_{IC} ≤ 30 V AC / DC, Ii_{IIC} ≤ 250 mA
- Ui_{IIB} ≤ 45 V AC / DC, Ii_{IB} ≤ 2 A
- Ui_{IIIC} ≤ 45 V AC / DC, Ii_{IIIC} ≤ 250 mA
- Li = 可忽略, Ci = 可忽略
- 外壳发热 <15 K

2.2 类型代码

设备由以下类型代码标识:

类型	描述	产品编号	备注
41R57 A B	类型代码		
41R57	开关设备		
A	N/O 开关 (2线制), 带黑色盖子的插头		
	转换开关 (3线制), 带灰色盖子的插头		
B	70 – 75 带标志 (与前者无关)	202.289	N/O
	45 – 50带标志	202.285	N/O
	50 – 55带标志	202.286	N/O
	60 – 65带标志	202.287	N/O
	70 – 75带标志	202.288	转换
	60 – 65 c转换开关	202.290	转换

2.3 温度等级

磁簧开关适用于温度等级T4 / T125 ° C。

2.4 一般要求

2.4.1 预期用途

a) 为确保安全操作，产品只能按照装配说明书中的说明使用。在使用过程中，还必须遵守相关应用所要求的法律和安全规定。这一点同样适用于使用附件时。
b) 如果不遵守本摘录中的说明或对产品操作不当，我们将不承担任何责任。此外，产品和备件的保修无效。
c) 产品在预期用途方面不具备安全要素。
d) 只能使用制造商的原装部件。

2.4.2 一般性安全说明

干簧开关符合最新技术水平，性能可靠。如果未经培训的人员使用和操作不当，干簧开关可能会造成残余危险。
每个负责安装、调试、维护或修理g簧开关的人员都必须阅读并理解装配说明，尤其是安全说明。

a) 遵循选择和正确操作产品的一般技术规则。
b) 所有连接的电气设备和机械设备必须适合各自的应用场合。
c) 遵守本操作说明书中的注意事项以及各产品铭牌上的使用条件和允许数据。
d) 必须确保只安装与区域相对应的产品保护类型！
e) 本产品仅获准在正常工业环境中适当使用。不允许浸入液体中。
f) 必须确保没有高空坠物砸到产品上。
g) 操作员必须根据当地法规确保整个系统的防雷保护。
h) 安装人员有责任确保舌簧开关与电气设备配合使用时功能正常，并获准用于预期用途。
i) 本安型连接（包括舌簧开关）必须通过经批准/测试的电气装置进行接线，电气装置可能需要配备合适的安全栅或开关放大器。

3. 调试，安装

根据 IP 防护等级，必须规定清洁设备（灰尘沉积）的时间。其他重要信息:

a) 本产品只能在 2 区（Cat.3G, EPL Gc）或 22 区（Cat.3D, EPL Dc）的本质安全电路中由具有类似于 TRBS 1203 规定的合格人员资格的专业人员进行操作。
b) 符合 EN 60079-11 标准中适用于 1/21 危险区的简单电气设备要求。
c) 产品只能在通常的工业环境中使用。如果空气中存在腐蚀性物质，必须始终咨询生产商。在不利的环境条件下，必须对产品进行适当的保护。
d) 产品只能在完全组装且未损坏的机械结构内运行。在可能出现损坏的情况下，操作员可能需要考虑区域转移；此外，如果外壳损坏，则不允许操作外壳。
e) 必须遵守操作说明书中规定的环境条件，并防止恶劣环境条件的影响。
f) 还必须考虑来自外来产品/部件的热辐射。

g) 必须对干簧开关进行保护，防止液体和/或污物进入。
h) 在有爆炸性气体存在的情况下，不得强行松动固定部件（如因霜冻或腐蚀）。因此必须避免结冰。
i) 磁簧开关只能承受轻微振动，参见 IEC 34-14。
j) 为确保静电释放，必须考虑国家要求。
k) 特别是必须防止出现隔绝的能力。
l) 只能使用输出电路经过认证/测试可在潜在爆炸性环境中使用的齐纳防爆栅或开关放大器。在欧洲，在 1/21 区使用时，相关设备必须有指定防爆机构颁发的 EC 型式检验证书。
m) 电源装置的电压必须小于或等于舌簧开关的电压 Ui。
n) 电源装置的总电流 Io 必须小于或等于舌簧开关的电流 Ii。
o) 在安装本安电路时，需要由安装人员/操作人员绘制控制图纸（系统描述）。
p) 使用接地电源时，必须沿本质安全电路建立等电位连接。
q) 必须考虑到证书，包括其中规定的特殊条件。
r) 在有爆炸性气体存在的情况下，不得强行松开产品的抗性部件（如因霜冻或腐蚀）。
s) 在潜在爆炸区域内，只能根据当地适用的安装规定进行安装。必须遵守以下条件（不完整）:
t) 安装和维护只能在无爆炸环境中进行，并符合操作者所在国的现行规定。
u) 如果预期存在硫化氢、环氧乙烷和/或一氧化碳，则必须采取额外的预防措施： 这些物质的点火能量非常低。!
v) 在有这些物质和爆炸类别 IIC 物质存在的情况下，以及在假定存在潜在爆炸性气体环境的情况下，只能使用无火花工具!

4. 维护和保养
根据 IEC 60079-17 标准的术语定义:

维护和修理: 为保持或恢复物品的状态，使其符合相关规范的要求，并确保其发挥所需功能而开展的所有活动的组合。

检查: 对物体进行仔细检查的活动，目的是对物体的状况获得可靠的说明，在不拆卸的情况下进行，或在必要时进行部分拆卸，并辅以测量等措施。

目测检查: 目视检查是在不使用检修装置或工具的情况下检测可见故障（如螺丝缺失）的一种检测方法。

近距离测试: 除目视检查外，还能识别诸如螺丝松动等只能通过使用螺丝刀等检修装置，如台阶（如有必要），才能获得的误差的测试，工具是可见的。进行近距离测试时，通常不需要打开外壳，或者设备必须断电。

详细测试: 除近距离检测外，还能检测到诸如连接松动等缺陷，这些缺陷只能通过打开外壳和/或必要时使用工具和检测设备来识别。

a) 维护措施只能由合格人员执行。
b) 只能在潜在爆炸性环境中使用符合欧洲指令和国家法规所有要求的附件。
c) 拆卸干簧开关的维护措施只能在无菌环境下进行。.
d) 更换部件只能使用原装零配件，这些零配件还必须经批准可用于潜在爆炸性区域。
e) 必须定期对防爆区内的产品进行维护和清洁。间隔时间由操作员根据现场环境要求设定。

	活动	每月目视检查	每 6 个月进行一次严密检查	每 12 个月进行一次详细检查
1	目测磁簧开关是否损坏，清除沉积的灰尘	•		
2	检查完整性和功能			•
3	测试整个系统	操作人员的责任		

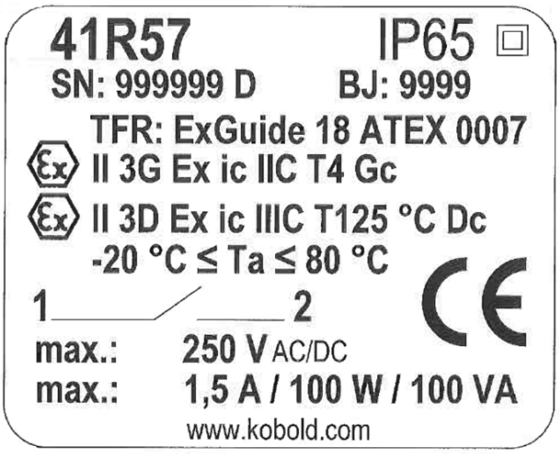
5. 故障排除

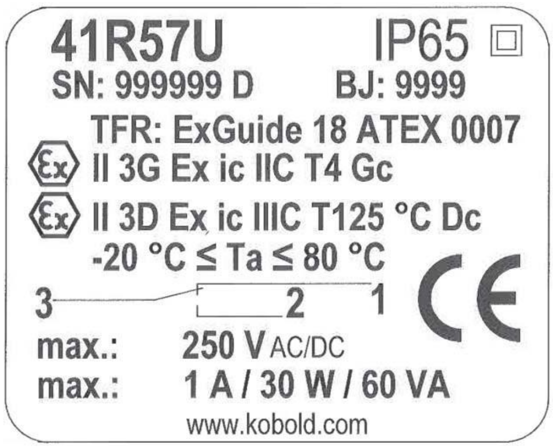
不得改装在潜在爆炸性环境中运行的产品。只有经过专门培训和授权的人员才能对产品进行维修。

6. 处置

包装和废旧部件的处理必须符合产品所在国的规定。

7. 干簧开关的标记（铭牌)





在序列号中，可以对生产年份进行编码；也可以指定为纯文本。

通常情况下，即使在产品首次投入使用之前，已为现场使用所需的防爆类型做了可读标记。

在非本质安全电路中操作过的舌簧开关以后可能无法在本质安全电路中使用。

9. 调试

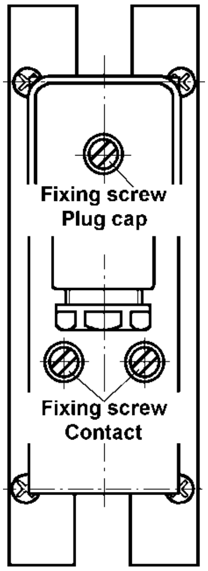
9.1. 一般情况

超量程
非脉动流量可能会大大超出流量范围。压力损失只会有一定程度的增加。(不得超过允许的最大工作压力！)。

粘度范围
仪器刻度适用于 1 - 540 mm2/s 的粘度范围。在此范围内无需重新校准。

9.2. 开关量输出 VKM-1.. 和 VKM-3..

回差 (VKM-1.. 和 VKM-3..)
回差是触点接通点和断开点之间的差值。通过匹配磁铁和簧片的触点强度（AW 值），可实现约 3.5 mm 的浮子移动回差。同时可以确保触点具有双稳态开关特性。



限值调整 (VKM-1..)
- 松开开关上的安装螺钉。
- 将开关上的标记与外壳刻度上的要求值保持一致。
- 在此位置拧紧安装螺钉。

限值调整 (VKM-3..)
- 用螺丝刀拧松触点处的两个安装螺钉。
- 将开关外壳移至最低位置。
- 拧松螺丝后，从开关上取下插头盖。
- 将合适的万用表连接至引脚 1 和 2（SPDT：接触引脚 2 和 3）；（见第 5 页）。
- 仪器安装完毕后，打开入口管，让介质缓慢流动，直至指针指示器显示所需的最小流量。然后舌簧开关闭合（电气连续性）。
- 向上移动开关外壳，直到干簧管刚刚打开（无电气连续性）。
- 在此位置拧紧安装螺钉。装上插头盖。仪器现在可以运行。
- 通过正确调整限位开关，可实现双稳态开关状态，即：即使超过调整后的限值，触点仍保持闭合状态（PIN 1 + 2 或 PIN 2 + 3，用于转换开关选项）。

9.3. ADI-电子分析器 VKM-7..

如需调整输出参数（模拟量输出、开关量输出），请查阅相应 ADI 电子装置的使用说明书。ADI 电子装置已在出厂前根据传感器进行了设置。

9.4. 紧凑型电子装置 VKM-8...

参见无频率输出的紧凑型电子设备的操作说明书补充说明。

10. 维护

在被测介质未受污染的情况下，VKM 型几乎无需维护。但是，如果外壳或其他内部部件有钙或污垢沉积，则应定期清洁仪器。
使用合适的开口扳手，将仪器从管道上卸下。拆下最上部的螺纹连接后，可以拆下内部部件进行清洁。可以使用合适的刷子清洁内部部件。清洁后，按照正确的组装顺序重新组装仪表。
请注意，必须将弹簧安装到上部螺纹连接的管口和浮子上。带有插入孔的浮子下端位于流体入口侧。

11. 技术信息

通过设备上的 QR 码或 www.kobold.com 获取操作说明、数据表、认证和更多信息

12. 订货号

通过设备上的 QR 码或 www.kobold.com 获取操作说明、数据表、认证和更多信息

13. 推荐备件

仅列出仪器部件和材料。根据仪器类型，可提供不同尺寸的部件（订购时请注明仪器类型）。

1.1) 浮子 黄铜材质
1.2) 浮子 不锈钢
2.1) 槽形喷嘴 黄铜材质
2.2) 槽形喷嘴 不锈钢材质
3.1) 弹簧 不锈钢材质
4.1) O型圈 NBR
4.2) O型圈 FPM

5.1) N/O开关 (标准型)
5.2) 转换开关 (标准型)
5.3) N/O开关 Ex
5.4) N/O开关 (cCSAus)
5.5) 转换开关 (cCSAus)

14. 尺寸图

通过设备上的 QR 码或 www.kobold.com 获取操作说明、数据表、认证和更多信息。

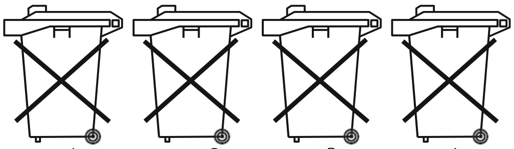
15. 处置

注意!

- 避免介质污染部件对环境造成破坏
- 以环保方式处置设备和包装
- 遵守适用的国家和国际处置法规和环境法规

电池

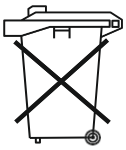
含有污染物的电池上标有由划线的垃圾桶和重金属的化学符号（镉、汞、锂或铅）组成的标志，重金属的化学符号对电池是否含有污染物起决定性作用:



Cd[1] Hg[2] Pb[3] Li[4]

1. „Cd" 代表镉
2. „Hg" 代表汞
3. „Pb" 代表铅
4. „Li" 代表锂

电气和电子设备



16. EU 符合性声明 (VKM)

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

Flow Meter and Monitor **Model VKM**

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)

Additionally for devices with compact or ADI electronics:

2014/30/EU **EMC Directive**

Also, the following standards are fulfilled:

EN 61010-1:2010 + A1:2019 + A1:2019/AC:2019
Safety requirements for electrical equipment for measuring control and laboratory use – Part 1: general requirements

EN 60529:2014-09
Protection type through case (IP code)

DIN EN IEC 63000:2019
Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

Additionally for devices with compact or ADI electronics:

EN IEC 61326-1:2021
Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements

Hofheim, 21 Feb. 2024

H. Volz
General Manager

J. Burke
Compliance Manager

17. UK 符合性声明 (VKM)

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

Flow Meter and Monitor **Model: VKM**

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

Additionally for devices with compact or ADI electronics:

S.I. 2016/1091	**Electromagnetic Compatibility Regulations 2016**

Also, the following standards are fulfilled:

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

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.

Additionally for devices with compact or ADI electronics:

BS EN IEC 61326-1:2021
Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements, industrial area

Hofheim, 21 Feb. 2024

H. Volz	J. Burke
General Manager	Compliance Manager

18. EU ATEX 符合性声明 (干簧开关41R57**)

EU-KONFORMITÄTSERKLÄRUNG zur Bestätigung der Übereinstimmung einer Baugruppe mit der Richtlinie 2014/34/EU

EU DECLARATION OF CONFORMITY to confirm the conformance of a device with the Directive 2014/34/EU

Der Hersteller

The manufacturer

KOBOLD Messring GmbH, Nordring 22-24, DE 65719 Hofheim

erklärt hiermit in alleiniger Verantwortung, dass die nachfolgende Maschine oder Baugruppe

hereby declares under sole responsibility, that the machinery or subassembly equipment described below

Bezeichnung

Description

Reed-Schalter / *Reed contact* 41R57**

Kennzeichnung / Marking: Ex II 3G Ex ic IIC T4 Gc or Ex II 3D Ex ic IIIC T125 °C Dc

Fertigungs-Nummer lt. Lieferpapieren und Typenschild

Serial number see shipping documents and type label

mit den Bestimmungen folgender harmonisierter Normen der Europäischen Union:

- IEC 60079-0:2018 Explosionsgefährdete Bereiche –Teil 0: Betriebsmittel - Allgemeine Anforderungen
- EN 60079-11:2012 Explosionsgefährdete Bereiche – Teil 11: Geräteschutz durch Eigensicherheit "i"

conforms with the provisions of the following harmonized standards in the version of the European Union:

- *IEC 60079-0:2018 Explosive atmospheres –Part 0: General Requirements*
- *EN 60079-11:2012 Explosive atmospheres – Part 11: Equipment protection by intrinsic safety "i"*

Ebenfalls mit folgenden Europäischen und nationalen Normen und technischen Vorschriften, in der zum Unterschriftsdatum gültigen Fassung, übereinstimmt:

- Technische Regeln für Gefahrstoffe (TRGS) 727:2016, Vermeidung von Zündgefahren infolge elektrostatischer Aufladungen

Also conforms with the following European and National Standards and technical provisions in the version, valid at signature date:

- *Technical rules for hazardous substances TRGS 727:2016, Avoidance of ignition hazards as consequence of electrostatic charging*

Ausgefertigt in Hofheim am 23. November 2023

done at Hofheim on November, 23, 2023

Name des Unterzeichners

Name of signatory

Joseph Burke
Compliance Manager/ *authorized signatory*
Unterzeichnet für und im Namen der / *Signed for and on behalf of KOBOLD Messring GmbH*

Unterschrift / signatur

KEEX68180503

19. 干簧开关符合性声明 41R57**

EXGUIDE TECHNOLOGY

(1) **STATEMENT OF CONFORMITY**

(2) Equipment and protective systems intended for use in potentially explosive atmospheres – **directive 2014/34/EU**

(3) Document No.

ExGuide 18 ATEX 0007 Edition 2

(4) Equipment: **Reed contact type 41R57****

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

(6) Address: **Nordring 22-24**
65719 Hofheim, Germany

(7) The design of this product and the various permissible versions are specified in the annex to this certificate and the documents listed therein.

(8) ExGuide Technology - Geoffrey Stenzel, as a certified engineering company, certifies that the product meets the basic safety and health requirements for the design and construction of category 3 equipment for use in potentially explosive atmospheres in accordance with Annex II of Directive 2014/34/EU. The results of the test are documented in the confidential test report No. P20220024PB01.

The QM system of the engineering offices ExGuide Technology - Geoffrey Stenzel is monitored according to ISO 9001:2015 by AJA Europe Ltd. and listed under certificate No. AJ AEU/19/15703.

(9) The essential health and safety requirements are met by compliance with:

EN IEC 60079-0: 2018 **EN 60079-11:2012**

(10) If the sign "X" is placed after a certificate number, special conditions for the safe use of the equipment are indicated in the appendix to this certificate. If no certificate number according to (3) is applied to the device, the sign "X" must be placed after the Ex marking according to (12).

(11) This statement of conformity refers only to the design and specifications for the construction of the device according to directive 2014/34/EU. Further requirements apply to the manufacture and placing into market of this product. These requirements are not covered by this certificate.

(12) The Ex-marking of the product must contain the following information:

II 3G Ex ic IIC T4 Gc
II 3D Ex ic IIIC T125°C Dc

ExGuide Technology – Geoffrey Stenzel
Katernberger Str. 107
45327 Essen, Germany

Essen, dated 18 January 2023

Stenzel

Dipl.-Ing. Geoffrey Stenzel

Page 1 of 3

ATEX not available in GB

EXGUIDE TECHNOLOGY

(13) Annex

(14) **ExGuide 18 ATEX 0007** Edition 2

(15) Description of the product

15.1 Subject and type designation

Reed contact type 41R57**

Explanation of the type designation

41R57	**Reed contact**
1. Asterisk	**Contact type**
	3 = N/O contact (2 wires), Plug with black cap
	6 = Change-over contact (3 wires), plug with grey cap
2. Asterisk	Not Ex relevant

15.2 Description

The reed contact work with different devices and serve there values for monitoring. They are available as N/O or change-over contacts. Standard electrical connection is made through a permanently connected cable inside between the reed contact and the pins of the plug.

Changes

Application of harmonized standard EN IEC 60079-0:2018.

15.3 Technical data

15.3.1 Thermal data

Abient temperature range	T_a	-20 °C to +80 °C	
Heating at the outer enclosure	ΔT	<15 K	

15.3.2 Electrical data

Maximum input voltage	U_i	30 V AC/DC 45 V AC/DC	for IIC for IIB and IIIC
Maximum input current	I_i	250 mA 2 A	for IIB and IIIC for IIB
Effective internal inductance	L_i	negligible	
Effective internal capacitance	C_i	negligible	

Page **2** of **3**

ATEX not available in GB

EXGUIDE TECHNOLOGY

15.4 Minimum marking requirements on this equipment

Manufacturer's name and postal address	KOBOLD Messring GmbH Nordring 22-24 65719 Hofheim, Germany
Type designation	41R57**
Serial No.	
Year of manufacturer	
Ex symbol	Ex
Ex marking	II 3G Ex ic IIC T4 Gc II 3D Ex ic IIIC T125 °C Dc
CE marking	CE
Ambient temperature range	-20 °C ≤ T_a ≤ +80 °C

(16) Test and assessment report No. P20220024PB01, dated 18 January 2023

(17) Special conditions for safe use

None

(18) Essential health and safety requirements

Fulfilled by compliance with the above-mentioned standards.

ExGuide Technology – Geoffrey Stenzel
Katernberger Str. 107
45327 Essen, Germany

Essen, dated 18 January 2023

Stenzel

Dipl.-Ing. Geoffrey Stenzel

Page 3 of 3

20. 制造商声明 (F0)

.steute

EU-KONFORMITÄTSERKLÄRUNG
EU DECLARATION OF CONFORMITY

gemäß der Explosionsschutz-Richtlinie 2014/34/EU
according to Explosion Protection Directive 2014/34/EU

Als Hersteller trägt die Firma steute Technologies die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung /
As manufacturer, steute Technologies is solely responsible for issuing this Declaration of Conformity.

Art und Bezeichnung der Betriebsmittel / Type and name of equipment:	Ex Magnetsensor, Typen Ex RC ... Ex magnetic sensor, types Ex RC ...

Hiermit erklären wir, dass die oben aufgeführten elektrischen Betriebsmittel aufgrund der Konzipierung und Bauart den grundlegenden Sicherheits- und Gesundheitsanforderungen nach Anhang II der Richtlinie 2014/34/EU entsprechen. /
We hereby declare that, due to its design and construction, the above mentioned electrical equipment satisfies the requirements of directive 2014/34/EU in respect to basic safety and health requirements according to Annex II.

Angewandte EU-Richtlinie / Applied EU directive	Harmonisierte Normen / Harmonised standards	Neueste harmonisierte Normen / Latest harmonised standards
2014/34/EU Explosionsschutzrichtlinie / 2014/34/EU Explosion Protection Directive	EN IEC 60079-0:2018, EN 60079-18:2015 + A1:2017	
EG-Baumusterprüfung / EU-type examination:	**Ex-Kennzeichnung / Ex marking**	**Neueste Ex-Kennzeichnung / Latest Ex marking**
DMT 01 ATEX E 058 X	Ⓔx II 2G Ex mb IIC T6 Gb Ⓔx II 2D Ex mb IIIC T80°C Db	
Weitere angewandte EU-Richtlinien / Additionally applied EU directives	**Harmonisierte Normen / Harmonised standards**	**Anmerkungen / Comments**
2014/35/EU Niederspannungsrichtlinie / 2014/35/EU Low Voltage Directive	EN 60947-5-2:2007 + A1:2012	-
2014/30/EU EMV-Richtlinie / 2014/30/EU EMC Directive	nicht anwendbar nach EN 60947-1:2007 + A1:2011 + A2:2014 / not applicable to EN 60947-1:2007 + A1:2011 + A2:2014	-
2011/65/EU RoHS-Richtlinie / 2011/65/EU RoHS Directive	EN IEC 63000:2018	-

Benannte Stelle der EG-Baumusterprüfung / Notified body for EU-type examination:	Dekra Testing and Certification GmbH Dinnendahlstr. 9 44809 Bochum Kenn-Nr. 0158
Überwachende Stelle nach Anhang IV/VII der Richtlinie 2014/34/EU / Notified body according to Annex IV/VII of Directive 2014/34/EU:	Dekra Testing and Certification GmbH Dinnendahlstr. 9 44809 Bochum Kenn-Nr. 0158
Verantwortlich technische Dokumentation / Responsible for technical documentation:	Marc Stanesby (Geschäftsführer) Marc Stanesby (Managing Director)

Marc Stanesby

Löhne, 30. November 2022 / 30 November, 2022
Ort und Datum der Ausstellung / Place and date of issue

Rechtsverbindliche Unterschrift,
Marc Stanesby (Geschäftsführer) /
Legally binding signature,
Marc Stanesby (Managing Director)

steute Technologies GmbH & Co KG, Brückenstr. 91, 32584 Löhne, Germany

21. EC 型检验证书 磁簧开关 (F0)

Translation

1 **EU-Type Examination Certificate Supplement 7**

2 **Equipment intended for use in potentially explosive atmospheres Directive 2014/34/EU**

3 EU-Type Examination Certificate Number: **DMT 01 ATEX E 058 X**

4 Product: **Magnetic switch type Ex RC*******

5 Manufacturer: **steute Technologies GmbH & Co. KG**

6 Address: **Brückenstraße 91, 32584 Löhne, Germany**

7 This supplementary certificate extends EU-Type Examination Certificate No. DMT 01 ATEX E 058 X to apply to products designed and constructed in accordance with the specification set out in the appendix of the said certificate but having any acceptable variations specified in the appendix to this certificate and the documents referred to therein.

8 DEKRA Testing and Certification GmbH, Notified Body number 0158, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in the confidential Report No. BVS PP 01.2051 EU.

9 The Essential Health and Safety Requirements are assured in consideration of:

EN IEC 60079-0:2018	**General requirements**
EN 60079-18:2015+A1:2017	**Encapsulation "m"**

10 If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Special Conditions for Use specified in the appendix to this certificate.

11 This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of the product shall include the following:

Ex **II 2G Ex mb IIC T6 Gb**
II 2D Ex mb IIIC T80°C Db

DEKRA Testing and Certification GmbH
Bochum, 2019-10-22

Signed: Jörg-Timm Kilisch

Managing Director

Page 1 of 4 of DMT 01 ATEX E 058 X / N7

DEKRA Testing and Certification GmbH, Handwerkstr. 15, 70565 Stuttgart, Germany
Certification body: Dinnendahlstr. 9, 44809 Bochum, Germany
Phone +49.234.3696-400, Fax +49.234.3696-401, e-mail DTC-Certification-body@dekra.com

13 **Appendix**

14 **EU-Type Examination Certificate**

DMT 01 ATEX E 058 X
Supplement 7

15 **Product description**

15.1 **Subject and type**

Magnetic switch type Ex RC*******

1. Asterisk	Housing design:	
	12	Diameter12 mm
	13.5	Diameter 13.5 mm
	M14	Mounting thread M14 x 1
	15	Diameter 15 mm
	M20	Mounting thread M20 x 1,5
	2580	Housing dimensions 25 mm x 80 mm
2. Asterisk	Contact function:	
	W	Change-over contact
	Wr	Change-over contact latching
	S	Normally open contact
	Sr	Normally open contact latching
	Ö	Normally closed contact
3. Asterisk	Cable length	
4. Asterisk	Housing material	
	Blank	Brass
	KST	Thermoplastic
	Niro	Stainless steel
5. Asterisk	Lower ambient temperature range	
	Blank	-20 °C
	-40 °C	-40 °C
	-50 °C	-50 °C
	-60 °C	-60 °C
6. Asterisk	Allowed impact	
	Blank	7 Joule
	4J	4 Joule
7. Asterisk	Approval	
	GL	German Lloyd

15.2 **Description**

The magnetic switch is designed in type of protection Encapsulation "m" and will be used for the implementation of switching operations.

Reason for this supplement:

- Extension of the type code
- Updating of the applicable standards.
- New reed contacts DRS-DTH and HSR-834W
- Extension of the electrical rating
- New magnetic switch type Ex RC M20**KST -50 °C*

DEKRA Testing and Certification GmbH, Handwerkstr. 15, 70565 Stuttgart, Germany
Certification body: Dinnendahlstr. 9, 44809 Bochum, Germany
Phone +49.234.3696-400, Fax +49.234.3696-401, e-mail DTC-Certification-body@dekra.com

DEKRA

15.3 **Parameters**

15.3.1 Electrical Data

Switching voltage	up to	AC	250	V
Switching current*	up to		1.5	A
or	up to		0.35	A
Switching power for change-over contact and for normally closed contact	up to		50	VA/W
Switching power for normally open contact	up to		100	VA/W
Short-circuit current I_k for change-over contact and for normally closed contact	up to		2	A
Short-circuit current I_k for normally open contact	up to		5	A

* = depending on reed contact used

15.3.2 Thermal Data

Ambient temperature range (Marking on the nameplate)	-20 °C up to +40 °C
or	-20 °C up to +70 °C
or	-40 °C up to +70 °C
or	-50 °C up to +70 °C
or	-60 °C up to +70 °C

16 **Report Number**

BVS PP 01.2051 EU, as of 2019-10-22

17 **Special Conditions for Use**

17.1 The ends of the permanent cables have to be connected inside enclosures that have been certified for the use in the relevant category accordingly.

17.2 The short circuit current I_k of the supply source may not exceed the mentioned parameters in 15.3.1, ensured by an external protective device.

17.3 The magnetic switch type Ex RC 12***** must be assembled in a way that is protected from mechanical hazards.

17.4 The magnetic switch type Ex RC*****4J must be assembled in a way that is protected from mechanical hazards.

DAkkS Deutsche Akkreditierungsstelle D-ZE-17438-02-00

DEKRA Testing and Certification GmbH, Handwerkstr. 15, 70565 Stuttgart, Germany
Certification body: Dinnendahlstr. 9, 44809 Bochum, Germany
Phone +49.234.3696-400, Fax +49.234.3696-401, e-mail DTC-Certification-body@dekra.com

DEKRA

18 **Essential Health and Safety Requirements**

The Essential Health and Safety Requirements are covered by the standards listed under item 9.

19 **Drawings and Documents**

Drawings and documents are listed in the confidential report.

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

DEKRA Testing and Certification GmbH
Bochum, 2019-10-22
BVS-Pe/Mu A 20190753

Managing Director

DAkkS Deutsche Akkreditierungsstelle D-ZE-17416-02-00

Page 4 of 4 of DMT 01 ATEX E 058 X / N7
This certificate may only be reproduced in its entirety and without any change.

DEKRA Testing and Certification GmbH, Handwerkstr. 15, 70565 Stuttgart, Germany
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22. IECEx 认证 (F0)

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 07.0007X**	Page 1 of 4	Certificate history:
Status:	**Current**	Issue No: 4	Issue 3 (2019-02-27) Issue 2 (2016-10-07) Issue 1 (2014-05-12) Issue 0 (2007-04-12)
Date of Issue:	2019-10-24		
Applicant:	**Steute Technologies GmbH & Co. KG** Brückenstraße 91 32584 Löhne **Germany**		
Equipment:	**Magnetic switch type Ex RC*********		
Optional accessory:			
Type of Protection:	**Equipment protection by encapsulation "m"**		
Marking:	Ex mb IIC T6 Gb Ex mb IIIC T80°C Db		

Approved for issue on behalf of the IECEx Certification Body:	**Dr Franz Eickhoff**
Position:	**Deputy Head of Certification Body**
Signature: (for printed version)	
Date:	2019-10-24

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 07.0007X**	Page 2 of 4
Date of issue:	2019-10-24	Issue No: 4

Manufacturer: **Steute Technologies GmbH & Co. KG**
Brückenstraße 91
32584 Löhne
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 Edition:7.0 — Explosive atmospheres - Part 0: Equipment - General requirements

IEC 60079-18:2017 Edition:4.1 — Explosive atmospheres - Part 18: Protection by encapsulation "m"

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/ExTR07.0008/03

Quality Assessment Report:

DE/BVS/QAR06.0023/11

IECEx Certificate of Conformity

Certificate No.:	IECEx BVS 07.0007X	Page 3 of 4
Date of issue:	2019-10-24	Issue No: 4

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

Description

The magnetic switch is designed in type of protection Encapsulation "m" and will be used for the implementation of switching operations.

Subject and Type

See Annex

Parameters

See Annex

SPECIFIC CONDITIONS OF USE: YES as shown below:

- The ends of the permanent cables have to be connected inside enclosures that have been certified for the use in the relevant Category accordingly.
- The short circuit current I_k of the supply source may not exceed the mentioned parameters, ensured by an external protective device.
- The magnetic switch type Ex RC 12***** must be assembled in a way that is protected from mechanical hazards.
- The magnetic switch type Ex RC*****4 J must be assembled in a way that is protected from mechanical hazards.

IECEx Certificate of Conformity

Certificate No.: **IECEx BVS 07.0007X** Page 4 of 4

Date of issue: 2019-10-24 Issue No: 4

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

- Extension of the type code
- Updating of the applicable standards.
- New reed contacts DRS-DTH and HSR-834W
- Extension of the electrical rating
- New magnetic switch type Ex RC M20**KST -50 °C*

Annex:

BVS_07_0007X_Steute_Annex_issue4.pdf

IECEx Certificate of Conformity

DEKRA

Certificate No.: **IECEx BVS 07.0007X issue No.: 4**
Annex
Page 1 of 2

Subject and Type

Magnetic switch type Ex RC*******

1. Asterisk	Housing design:	
	12	Diameter12 mm
	13.5	Diameter 13.5 mm
	M14	Mounting thread M14 x 1
	15	Diameter 15 mm
	M20	Mounting thread M20 x 1,5
	2580	Housing dimensions 25 mm x 80 mm
2. Asterisk	Contact function:	
	W	Change-over contact
	Wr	Change-over contact latching
	S	Normally open contact
	Sr	Normally open contact latching
	Ö	Normally closed contact
3. Asterisk	Cable length	
4. Asterisk	Housing material	
	Blank	Brass
	KST	Thermoplastic
	Niro	Stainless steel
5. Asterisk	Lower ambient temperature range	
	Blank	-20 °C
	-40 °C	-40 °C
	-50 °C	-50 °C
	-60 °C	-60 °C
6. Asterisk	Allowed impact	
	Blank	7 Joule
	4J	4 Joule
7. Asterisk	Approval	
	GL	German Lloyd

IECEx Certificate of Conformity

DEKRA

Certificate No.: **IECEx BVS 07.0007X issue No.: 4**
Annex
Page 2 of 2

Parameters

Electrical Data

Switching voltage	up to	AC	250	V
Switching current*	up to		1.5	A
or	up tp		0.35	A
Switching power for change-over contact and for normally closed contact	up to		50	VA/W
Switching power for normally open contact	up to		100	VA/W
Short-circuit current I_k for change-over contact and for normally closed contact	up to		2	A
Short-circuit current I_k for normally open contact	up to		5	A

* = depending on reed contact used

Thermal Data

Ambient temperature range (Marking on the nameplate)	-20 °C up to +40 °C
or	-20 °C up to +70 °C
or	-40 °C up to +70 °C
or	-50 °C up to +70 °C
or	-60 °C up to +70 °C