



Type examination certificate

for the explosion protection “Simple electrical apparatus” according to chapter 5.7 of EN 60079-11:2012. According to ENTR/G/3/DE D(2003) of the European Commission, it does not come under Directive 2014/34/EU for equipment to be used in potentially explosive atmospheres.

Type examination certificate number **SILZ 21 EX 001 X**

Product: **Reed-Chain level sensor** Type: **RCK-EX...**
Float switch Type: **RCS-EX...**

Manufacturer: Reed Electronics AG, Gewebering 2, CH-6105 Schachen, Switzerland

The electronics engineer Dipl.-Ing. (FH) Wilfried Silz with 33 years of experience in examining explosion-protected devices – especially with intrinsic safety “Ex i” – certifies that these products comply with the following harmonized standards:

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

These standards were communicated by the European Commission as part of the implementation of Directive 2014/34/EU.

The results of the examinations are recorded in the confidential test report SILZ 21B001.

The products are voluntarily marked with the following data:

Ex ia IIC T6...T4 Ga Ex ib IIC T_a Db

Description of the products

The products are used to determine levels of flammable liquids in containers. A floating body with a built-in magnet slides along a submerged tube in which there are reed contacts. Different reed contacts are magnetically switched depending on the fill level. In addition, a temperature switch can be installed that responds at a specified liquid temperature.

The RCS-EX... float switch has pre-set switching points for the liquid level. In case of RCS-EX-FLEX type, the guide tube is flexible. It is made of electrostatically dissipative plastic.

The RCK-EX... reed-chain level sensor contains a chain of resistors with evenly distributed resistances. Between every resistor a pole of a reed contact is connected. Depending on the filling level, a certain reed contact is switched on which picks up the voltage from the resistor chain.

The products are available in two connection types:

- Either with a connection box for mounting on the container. The guide tube is firmly attached to the box.
- Or with a permanently attached cable to the guide tube. The cable can also run in the container.

Technical data

Temperature range of liquid and the environment T_a

from -20 °C to +80 °C optionally up to 125 °C

Guide tube length

up to 6 m

Intrinsic safety data Ex ia IIC T6...T4 Ga and Ex ib IIC T_a Db

Maximum applied voltage	$U_i = 30 \text{ V}$
Maximum fed current	$I_i = 300 \text{ mA}$
Maximum fed power	P_i acc. to tables
Internal capacity is negligible	$C_i = 0$
Internal inductivity is negligible	$L_i = 0$
Cable capacity: Conductor - Conductor	$C_c = 100 \text{ pF/m}$
Cable inductivity: Conductor - Conductor	$L_c = 1 \text{ } \mu\text{H/m}$

The connections are safely insulated from earth.

Intrinsic safety data Ex ia IIC T₆ Ga
depending on the liquid and ambient temperature T_a

T _a	to 32 °C	40 °C	50 °C	60 °C	68 °C
P_i for T₆	0.4 W	0.33 W	0.25 W	0.16 W	0.1 W

Intrinsic safety data Ex ia IIC T₄ Ga
depending on the liquid and ambient temperature T_a

T _a	to 70 °C	80 °C	90 °C	100 °C	110 °C	120 °C	125 °C
P_i for T₄	0.4 W	0.353 W	0.306 W	0.259 W	0.212 W	0.165 W	0.1 W

Intrinsic safety data Ex ib IIC T_a Db

Regardless of P_i, there is no significant self-heating outside the container – with the terminal box and the connection cable.

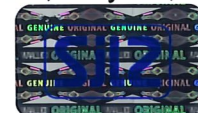
In addition to EN 60079-14, the following must be observed for the safe use of the products:

1. In order to dissipate electrostatic charges, the guide tube and the connection box need contact with the earthed container.
2. Earth conductors whose potentials are not balanced with the container must not be led into the container.
3. Ignitable sparks are possible due to impacts on the aluminium connection box. This must be taken into account when installing in Zone 0.
4. In order to prevent dangerous charging of the connection box, it must not be wiped dry in areas that are potentially explosive due to gas group IIC.
5. Charging of the products by highly effective processes must be ruled out: fast moving particles along the connection box as occurs with pneumatically conveyed dust, flowing liquids or droplets. Charges are also be excluded from free electrons or ions which e.g. occur in electrostatic painting.

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Original only valid with hologram