

MANUFACTURER'S DECLARATION

to the application of switch units,
Type SEM-E and SEM-A with
EC-Type Examination Certificate PTB 03 ATEX 2154 X

The switch unit may only be used in conjunction with flow meters, which have previously been approved by us (hereinafter referred to as „Device Unit“)

The safety concept and its implementation by the operator of the plant, in which the device unit is used, must have mandatory, multiple levels of redundancy. The device unit is not certified for employment as exclusive safety component in the event of a breakdown, disruption or malfunction, which may cause damage or injury to persons, animals or property.

Therefore, the operator is solely liable; the liability of the manufacturer is, to the extent legally permitted, excluded.

Wiesen, 22 November 2018

Legally binding signature of the authorized person



Rosemarie Mill



(1) **EU-TYPE EXAMINATION CERTIFICATE**
(Translation)

(2) Equipment or Protective Systems Intended for Use in
Potentially Explosive Atmospheres - **Directive 2014/34/EU**

(3) EU-Type Examination Certificate Number:

PTB 03 ATEX 2154 X

Issue: 01

(4) Product: Switchgear unit, type SEM-E and SEM-A

(5) Manufacturer: Meister Strömungstechnik GmbH

(6) Address: Im Gewerbegebiet 2, 63831 Wiesen, Germany

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

(8) The Physikalisch-Technische Bundesanstalt, notified body No. 0102 in accordance with Article 17 of the 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 Test Report PTB Ex 18-25131.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 60079-0:2018, EN 60079-18:2015 + A1:2017, EN 60079-31:2014

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

(11) This EU-Type Examination Certificate relates only to the design and construction of the specified product in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

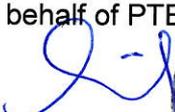
(12) The marking of the product shall include the following:

 **II 2 G Ex mb IIC T5, T6 Gb and II 2 D Ex tb IIIC T80 °C, T100 °C Db**

Konformitätsbewertungsstelle, Sektor Explosionsschutz

Braunschweig, October 29, 2018

On behalf of PTB:


Dr.-Ing. F. Lienesch
Direktor und Professor



(13)

SCHEDULE

(14) **EU-Type Examination Certificate Number PTB 03 ATEX 2154 X, Issue: 01**

(15) Description of Product

The SEM-* switchgear unit is an encapsulated reed contact, which is used as a limit switch. Type SEM-E is a two-pole normally-open contact. Type SEM-A is a three-pole changeover contact.

Electrical data

Type		SEM-E	SEM-A
Contact		normally close	changeover
Rated voltage	U_{max}	250 V	250 V
Rated Current	I_{max}	2 A	1 A
Maximum power	P_{max}	60 W	30 W

The marking depends on the ambient temperature range as follows

-20 °C ≤ Ta ≤ +75 °C		II 2 G Ex mb IIC T6 Gb
		II 2 D Ex tb IIIC T80 °C Db
-20 °C ≤ Ta ≤ +90 °C		II 2 G Ex mb IIC T5 Gb
		II 2 D Ex tb IIIC T100 °C Db

Changes with respect to previous editions

Verification of compliance with the specified state of standards.

(16) Test Report PTB Ex 18-25131

SCHEDULE TO EU-TYPE EXAMINATION CERTIFICATE PTB 03 ATEX 2154 X, Issue: 01

(17) Specific conditions of use

1. A fuse according to IEC 60127-2-1 corresponding to rated current or a motor protection switch with instantaneous short-circuit or thermal release shall be connected in series to each switchgear unit. The Fuse may be accommodated in the associated supply unit or shall be connected in series. The rated voltage of the fuse shall be higher than or equal to the maximum value of the rated voltage of the switchgear unit. The breaking capacity of the fuse shall be higher than or equal to the prospective maximum short circuit current at the place of installation (usually 1500 A).
2. The switchgear units are intended to be used in mounting rails only.
3. The connected circuit shall not include any effective inductances or capacitances.
4. The switchgear unit may also be connected to an intrinsically safe circuit. In this case the protective fuse may be dispensed with.
5. Inside of hazardous areas the connecting cable shall be connected in an enclosure that complies with the requirements of an acknowledged type of protection according to EN 60079-0.

(18) Essential health and safety requirements

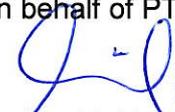
Met by compliance with the aforementioned standards.

According to Article 41 of Directive 2014/34/EU, EC-type examination certificates which have been issued according to Directive 94/9/EC prior to the date of coming into force of Directive 2014/34/EU (April 20, 2016) may be considered as if they were issued already in compliance with Directive 2014/34/EU. By permission of the European Commission supplements to such EC-type examination certificates and new issues of such certificates may continue to hold the original certificate number issued before April 20, 2016.

Konformitätsbewertungsstelle, Sektor Explosionsschutz

Braunschweig, October 29, 2018

On behalf of PTB:


Dr.-Ing. F. Lienesch
Direktor und Professor



OPERATING INSTRUCTIONS

Explosion-proof contacts according to ATEX 2154 X

- **Technical Safety Data Model**
SEM-A (SPDT/Change Over) + SEM-E (SPST/Normally Open)

Manufacturer: Meister Strömungstechnik GmbH / Im Gewerbegebiet 2 / D-63831 Wiesen

EN 60079-0: 2018 / EN 60079-18:2015 / EN 60079-18/A1:2018 / EN 60079-31:2014	
T6	T5
Typ SEM – A... CE 0102 max. ambient temperature 75 °C	Typ SEM – A... CE 0102 max. ambient temperature 90 °C
ⓂII 2G Ex mb IIC T6 Gb + ⓂII 2D Ex tb IIIC T80 Db	ⓂII 2G Ex mb IIC T5 Gb + ⓂII 2D Ex tb IIIC T100 Db
Typ SEM – E... CE 0102 max. ambient temperature 75 °C	Typ SEM – E... CE 0102 max. ambient temperature 90 °C
ⓂII 2G Ex mb IIC T6 Gb + ⓂII 2D Ex tb IIIC T80 Db	ⓂII 2G Ex mb IIC T5 Gb + ⓂII 2D Ex tb IIIC T100 Db

Approval: EX-Type Examination Certificate PTB 03 ATEX 2154 X

- **Startup**

The switch unit may only be connected to circuits with the following maximum ratings:

SEM-A: U_{max} : 250 V / I_{max} : 1 A / P_{max} : 30 W

SEM-E: U_{max} : 250 V / I_{max} : 2 A / P_{max} : 60 W

The circuit must not incorporate any effective inductivities or effective capacities. Above mentioned max. ratings must never be exceeded. For contact protection a fuse with the nominal value

of 1 A for SEM-A respectively 2 A for SEM-E

must be provided outside of the hazardous area for the circuit, unless the switch unit is connected to an intrinsically safe circuit.

- **Application**

The switch unit may be used in potentially explosive atmospheres classified as Category 2.

- **Mounting**

The switch unit must be inserted between the mounting rails and then tightened with 2 screws.

▪ **Maintenance**

There is no maintenance required. Repairs are not permitted!

▪ **Installation**

The electrical connections must be made in accordance to local safety regulations for electrical equipment and under observance of the regulations for the installation of electrical equipment in hazardous areas. The connection circuits must be designed with increased safety, if the device is not connected to intrinsically safe circuits.

▪ **Adjustment**

Except for the switch point, no other adjustments have to be made.

▪ **Relevant safety data**

The following limit must not, under any circumstances, be exceeded, even for a very short time. The following limit values must never be exceeded, even for short periods.

Type	SEM-A (T5)	SEM-E (T5)	SEM-A (T6)	SEM-E (T6)
Operating voltage	max. 250 V	max. 250 V	max. 250 V	max. 250 V
Switch current	max. 1 A	max. 2 A	max. 1 A	max. 2 A
Contact Rating	max. 30 W	max. 60 W	max. 30 W	max. 60 W
Max. ambient temperature	90 °C	90 °C	75 °C	75 °C

The unit must not be used in areas where electrostatic charging of the plastic housing might occur.

▪ **Warning**

Do not clean the switch unit with aggressive cleaning agents or solvents, nor store or install the unit in aggressive atmosphere to avoid damage to the employed plastics.

Cleaning must not take place in potentially explosive areas.

Ensure that the plastic housing is not electrostatically charged during cleaning. If this cannot be ensured, the housing must be discharged on all sides, outside the potentially explosive area, by means of a grounded metal plate before bringing the unit back into the potentially explosive area.

In explosive areas, the plastic housing must under no circumstances be exposed to handling or processes which can lead to electrostatic charging of the housing.

When removing the flowmeter and switch unit from the process line, ensure that no flow medium comes in contact with the switch housing and/or connecting cable.

The sensor side of the switch unit (opposite the cable entry) is fragile due to its function and must be protected against mechanical damages when removed from the flow meter.

The switch unit must be installed so that the connecting cable is not pinched, chafed or otherwise damaged and must not come in contact with parts which exceed temperatures of 75 °C (at T6) or 90 °C (at T5). The mounting of the switch unit onto flowmeters installed into a process line subjected to severe vibrations must be avoided, as this may cause malfunctions, such as loosening of the fixing screws, inexact measured values or cable failure.

The switch unit must not be employed in machinery, plants or medical apparatus in which, should a malfunction arise, persons, animals or property could be injured or damaged.

▪ **Function test**

Warning

The function test must be conducted outside the potentially explosive area.

SEM-A: The function test is performed with a cable tester and a magnet. If measured between core 1 and 2 of the connecting cable, the cable tester must switch from “conductive” to “nonconductive” when the magnet is in approximation to the front side of the switch unit. If measured between core 1 and 3 of the connecting cable the action of the cable tester must be reversed.

The dielectric resistance between the electrical connections and the housing must be > 10 MΩ.

Connection:	Core No. 1	Common
	Core No. 2	Normally closed
	Core No. 3	Normally open

SEM-E: The function test is performed with a cable tester and a magnet. If the magnet is in approximation of the front side of the switch unit the cable tester must indicate “conductive” when the switch is triggered.

The dielectric resistance between the electrical connections and the housing must be > 10 MΩ.

Connection: in any order

Safety recommendation

The explosion proof safety can be increased when the switch unit is connected to an intrinsically safe circuit e. g. using a galvanic isolator with an intrinsically safe input circuit. The galvanic isolator must be mounted in the safe area.

Wiesen, 3 September 2018

