



**Meister Strömungstechnik GmbH**  
Im Gewerbegebiet 2  
63831 Wiesen  
Germany

## 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.

Place and date .....

Wiesen, August 18, 2011

Legally binding signature of the authorized person .....

Rosemarie Mill  
Managing Director



## (1) EC-TYPE-EXAMINATION CERTIFICATE (Translation)

(2) Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres - **Directive 94/9/EC**

(3) EC-type-examination Certificate Number:

**PTB 03 ATEX 2154 X**



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

(5) Manufacturer: Meister Strömungstechnik GmbH

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

(7) This equipment and any acceptable variation thereto are 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 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems 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 03-23036.


(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

**EN 50014:1997 + A1 + A2      EN 50028:1987**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-type-examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

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

 **II 2 G EEx m II T6**

Zertifizierungsstelle Explosionsschutz

Braunschweig, August 14, 2003

On behalf of PTB:

(signature)                      L.S.

Dr.-Ing. U. Johannsmeyer  
Regierungsdirektor

## SCHEDULE

(13)

(14) **EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2154 X**

(15) Description of equipment

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

### Electrical data

|               |                            |
|---------------|----------------------------|
| Type name     | SEM-E                      |
|               | NOC                        |
| Rated voltage | $U_{max.} = 250 \text{ V}$ |
| Rated current | $I_{max.} = 2 \text{ A}$   |
| Maximum power | $P_{max.} = 60 \text{ W}$  |
| Type name     | SEM-A                      |
|               | changeover contact         |
| Rated voltage | $U_{max.} = 250 \text{ V}$ |
| Rated current | $I_{max.} = 1 \text{ A}$   |
| Maximum power | $P_{max.} = 30 \text{ W}$  |

(16) Test Report PTB Ex 03-23036

(17) Special conditions for safe use

1. Every switchgear unit must be provided on the line side with a short-circuit protection in the form of a fuse designed to meet its rated current (max.  $3 \times I_R$  in accordance with IEC 60127-2-1) or a motor overload trip with instantaneous short-circuit and thermal release (adjusted to match the rated current). The fuse may be accommodated in the corresponding power supply unit or it must be connected separately on the line side. The fuse voltage rating must be the same as or greater than the voltage rating specified for the switchgear unit. The breaking capacity of the fuse link must be the same as or greater than the maximum short-circuit current expected at the place of installation (normally 1500 A).
2. The switchgear units are only designed for use in guide rails.
3. The connected circuit must not include either any effective inductivities nor any effective capacities.
4. The switchgear unit may also be connected to an intrinsically safe circuit. In that case, the line-side fuse is not required.
5. For the electrical data, reference is made to the instructions for operation.

6. If connection is made in the potentially explosive area, the connecting cable shall be connected in an enclosure that meets the requirements of an approved type of protection in accordance with EN 50014, section 1.2.
7. The maximum ambient temperature must not exceed 75 °C.

(18) Essential health and safety requirements

Met by compliance with the afore-mentioned Standards.

Zertifizierungsstelle Explosionsschutz  
On behalf of PTB:

Braunschweig, August 14, 2003

(signature)

L.S.

Dr.-Ing. U. Johannsmeyer  
Regierungsdirektor

**3 pages, correct and complete as regards content.**

On behalf of PTB:



Dr.-Ing. U. Johannsmeyer  
Direktor und Professor

Braunschweig, May 15, 2014


## 1st SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2154 X

(Translation)

Equipment: Switch unit, typ SEM-E and SEM.A

Marking:  II 2 G EEx m II T6

Manufacturer: Meister Strömungstechnik GmbH

Address: Im Gewerbegebiet 2  
63831 Wiesen, Germany

### Description of supplements and modifications

The switch unit may also be used in areas, in which an explosive atmosphere of dust/air-mixture may occasionally occur.

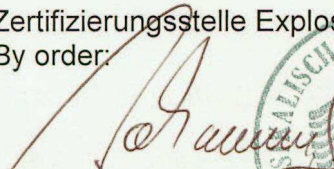
Therefore the marking changes into:

 II 2 G EEx m II T6 and  II 2D IP67 T80 °C

Test report: PTB Ex 04-24161

Zertifizierungsstelle Explosionsschutz  
By order:

Braunschweig, September 15, 2004

  
Dr.-Ing. U. Johannsmeyer  
Regierungsdirektor




## 3. SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2154 X

(Translation)

Equipment: Switch unit, type SEM-E, SEM-A

Marking:  II 2 G EEx m II T6 und II 2 D IP67 T80 °C

Manufacturer: Meister Strömungstechnik GmbH





Address: Im Gewerbegebiet 2, 63831 Wiesen, Germany

### Description of supplements and modifications

The switch unit may be used for temperature class T5 with a maximum ambient temperature of  $T_{amb,max} = 90\text{ °C}$ .

In the future the polyurethane-casting compound of type DIAPOL 509FG with hardener C 500 manufactured by the company SA S.E.G Dielectriques may be used.

Depending on the respective ambient temperature range the equipment shall be marked as follows:

| <u>ambient temperature range</u>            | <u>marking</u>  |
|---|---|
| $-20\text{ °C} \leq T_a \leq +75\text{ °C}$ |  II 2 G Ex mb II T6<br> II 2 D Ex tD A21 IP67 T80 °C  |
| $-20\text{ °C} \leq T_a \leq +90\text{ °C}$ |  II 2 G Ex mb II T5<br> II 2 D Ex tD A21 IP67 T100 °C |

All other specifications of the EC-type examination certificate as well as the "Special Conditions" apply without changes.

The requirements of the standards stated below are complied with by this supplement.

Applied standards

EN 60079-0:2006


EN 60079-18:2004

EN 61241-0:2006

EN 61241-1:2004

Test report: PTB Ex 08-27300

Zertifizierungsstelle Explosionsschutz  
By order:

  
Dr.-Ing. U. Johannsmeyer  
Direktor und Professor




Braunschweig, April 7, 2008

## 4. SUPPLEMENT

according to Directive 94/9/EC Annex III.6

to EC-TYPE-EXAMINATION CERTIFICATE PTB 03 ATEX 2154 X  
(Translation)

Equipment: Switchgear unit , type SEM-E and type SEM-A

Marking:  II 2 G Ex mb II T5, T6 and II 2 D Ex tD A21 IP67 T80 °C, T100 °C

Manufacturer: Meister Strömungstechnik GmbH

Address: Im Gewerbegebiet 2, 63831 Wiesen, Germany

Description of supplements and modifications

The switchgear unit is supplemented by an alternative mounting option for hexagonal or square enclosures. In addition it can be provided with a screwed-on cable bushing unit.

All further specifications of the EC-type examination certificate and its supplements as well as the "Special Conditions" apply without changes.

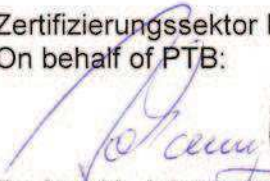
By this supplement the requirements of the standards listed below are complied with.

Applied standards

EN 60079-0:2006, EN 60079-18:2004, EN 61241-0:2006, EN 61241-1:2004

Assessment and test report: PTB Ex 11-20178Zertifizierungssektor Explosionsschutz  
On behalf of PTB:

Braunschweig, February 21, 2011

  
Dr.-Ing. U. Johannsmeyer  
Direktor und Professor



## EU-Konformitätserklärung

Wir,  
Meister Strömungstechnik GmbH  
Im Gewerbegebiet 2  
DE 63831 Wiesen

erklären in alleiniger Verantwortung, dass unser Produkt  
**Grenzwertschalter Typ SEM-E + SEM-A**  
mit folgenden EU-Richtlinien übereinstimmt:

2014/34/EU Geräte und Schutzsysteme zur Verwendung in explosionsgefährdeten Bereichen:  
angewandte Normen EN 60079-0:2014-06 EN 60079-18:2015-10  
EN 60079-31:2014-12

Es sind keine wirksamen inneren Induktivitäten + Kapazitäten vorhanden.

EG Baumusterprüfbescheinigung erteilt von der Physikalisch - Technischen Bundesanstalt  
in Braunschweig Nr. PTB 03 ATEX 2154 X

**EG-Konformitätsaussage:**  
**PTB 03 ATEX N055-5**

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## EU-Declaration of Conformity

We,  
Meister Strömungstechnik GmbH  
Im Gewerbegebiet 2  
DE 63831 Wiesen

hereby declare in our sole responsibility, that our product  
**Limit switch Type SEM-E + SEM-A**  
is in accordance with the following EU directives:

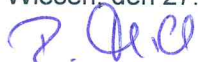
2014/34/EU Equipment and protective systems for use in potentially explosive atmospheres:  
applied standards EN 60079-0:2014-06 EN 60079-18:2015-10  
EN 60079-31:2014-12

There are no effective internal inductivities + capacities present.


EC-type Examination Certificate granted by the Physikalisch-Technische Bundesanstalt  
Brunswick (Germany) No PTB 03 ATEX 2154 X

**EC-Certificate of Conformity:**  
**PTB 03 ATEX N055-5**

Wiesen, den 27.03.2017



R. Mill, Geschäftsführerin / Managing Director

|                      |  |   |
|----------------------|--|---|
| Ausgabe:<br>07.04.08 | <b>Operating Instruction</b>                             |  |
| Seitenanzahl: 2      | <b>Explosion-proof contacts according to ATEX 2154 X</b> |   |

\* **Technical Safety Data Model SEM-A (SPDT/change over) + SEM-E (SPST N.O./normally open))**

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

| EN 60079-0: 2006 / EN 60079-18: 2004 / EN 61241-0: 2006 / EN 61241-1:2004                                 |  |
|---|--|
| T6 (PTB 03 ATEX N055-2)   | T5 (PTB 03 ATEX N055-2)  |
| Typ SEM – A.... CE 0102 max. Ambient temperature 75°C<br>II 2 G Ex mb II T6 + II 2 D Ex tD A21 IP67 T80°C | Typ SEM – A.... CE 0102 max. Ambient temperature 90°C<br>II 2 G Ex mb II T5 + II 2 D Ex tD A21 IP67 T100°C |
| Typ SEM – E.... CE 0102 max. Ambient temperature 75°C<br>II 2 G Ex mb II T6 + II 2 D Ex tD A21 IP67 T80°C | Typ SEM – E.... CE 0102 max. Ambient temperature 90°C<br>II 2 G Ex mb II T5 + II 2 D Ex tD A21 IP67 T100°C |

| EN 50014:1997 +A1 +A2, EN 50028:1987  |  |
|---|--|
| T6 (PTB 03 ATEX N055-1)   | T5 (PTB 03 ATEX N055-1)  |
| Typ SEM – A.... CE 0102 max. Ambient temperature 75°C<br>II 2 G EEx m II T6 + II 2 D IP67 T80°C | Typ SEM – A.... CE 0102 max. Ambient temperature 90°C<br>II 2 G EEx m II T5 + II 2 D IP67 T100°C       |
| Typ SEM – E.... CE 0102 max. Ambient temperature 75°C<br>II 2 G EEx m II T6 + II 2 D IP67 T80°C | Typ SEM – E.... CE 0102 max. Ambient temperature 90°C<br>II 2 G EEx m II T5 + II 2 D EEx D IP67 T100°C |

**Approval: EC-Type Examination Certificate PTB 03 ATEX 2154 X**

\* **Start up:**

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

**SEM-A: Umax 250 V, Imax 1 A and Pmax 30 W**

**SEM-E: Umax 250 V, Imax 2 A and Pmax 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 intrinsic safe circuit.

\* **Application:**

The switch unit may be used in Harzadous Areas of Category 2.

\* **Mounting:**

The switch unit must be inserted into the mounting rail and than fixed with 2 screws.

\* **Maintenance:**

There is no maintenance required. Repairs are not permitted!

\* **Installation:**

The electrical connections have to be made in accordance to local safety regulations for electrical equipment and under observance of the regulations for the erection of electrical equipment in Hazardous Areas.  
If the unit is not connected to an intrinsic safe circuit this has to be executed in increased safety.

\* **Adjustment:**


Except for the switch point (sliding the switch unit in the mounting rail) no other adjustments have to be made.

\* **Relevant safety data:**

The following limit values must, under no circumstances, be exceeded, not even for a fractional moment.

| 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. surface temperature | 90 °C      | 90 °C      | 75 °C      | 75 °C      |

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

|                      |  |   |
|----------------------|--|---|
| Ausgabe:<br>07.04.08 | <b>Operating Instruction</b>                             | <b>meister</b><br>strömungstechnik gmbh  |
| Seitenanzahl: 2      | <b>Explosion-proof contacts according to ATEX 2154 X</b> |   |

**\* Warninghints:**

Do not clean the switch unit with aggressive or solvent containing purifier, nor store or install it in aggressive atmosphere, this is, to avoid, that the employed plastics being damaged.

The cleaning must not be done in Hazardous Areas.

It has to be made certain, that during cleaning the plastic housing can not pick up electrostatic charges. In case of uncertainty the housing must be, outside the Hazardous Area, completely discharged by means of a grounded metalplate, before taking back into the Hazardous Area.

In Hazardous Areas the plastic housing must never be handled in that way, that electrostatic charge might occur.

If for example the flowmeter with the switch unit is removed from the process line, make certain, that no medium gets 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 it's function and must be protected against mechanical damages, when removed from the flow meter.

The switch unit must be installed in that way, that the connecting cable can't be pinched, scoured or otherwise being damaged and must not be brought in contact with parts which exceed the temperature of 75°C (at T6) or 90°C (at T5).

The mounting of the switch unit onto devices which are fitted into a processline with severe vibration should be avoided, because this could cause operating trouble (loosen of fixing screws, incorrect switch point, cable failure).

The switch unit must not be employed in machinery, plants or medical apparatus where, in case of trouble, persons, animals or things could be harmed.

**\* Function Test:**

**Warning hint:**

The function test must be made outside the Hazardous 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 frontside 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 (electrical connections-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 frontside of the switch unit, she must switch and the cable tester must indicate"conductive".

The dielectric resistance (electrical connections-housing) must be > 10 MΩ.

**Connection: in any order**

**\* Safety recommendation:**

The explosion proof safety can be increased when the switch unit is connected with an intrinsic safe circuit.

**For example:** Using an galvanic isolator with intrinsic safe input circuit. The galvanic isolator must be mounted in the safe area.