

Translation

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EU-Type Examination Certificate Supplement 1

Change to Directive 2014/34/EU

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

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EU-Type Examination Certificate Number: **BVS 15 ATEX E 086 X**

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Product: **Float switch**
type UniEx.SS x.*.x.x.x.x.x.x.*.x.*
type UniEx.M x.*.x.x.x.x.x.x.*.x.x.*
type UniEx.ANM x.*.x.x.*.x.x.*
type UniEx.T x.*.x.*.x.*

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Manufacturer: **Engler Steuer- und Messtechnik GmbH & Co. KG**

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Address: **Lange Straße 151, 72535 Heroldstatt, Germany**

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This supplementary certificate extends EC-Type Examination Certificate No. BVS 15 ATEX E 086 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.

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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 15.2146 EU.

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

EN IEC 60079-0:2018	General requirements
EN 60079-11:2012	Intrinsic Safety "i"
EN 60079-26:2015	Equipment protection level (EPL) Ga

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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.

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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.

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The marking of the product shall include the following:

	II 1/2G Ex ia IIC T3...T6 Ga/Gb	For details see next page
	II 1/-D Ex ia IIIC T°C Da	
	II 1D Ex ia IIIC T°C Da	




DEKRA Testing and Certification GmbH
 Bochum, 2021-10-07

Signed: Jörg-Timm Kilisch

Managing Director

13 **Appendix**
 14 **EU-Type Examination Certificate**
BVS 15 ATEX E 086 X
Supplement 1
 15 **Product description**
 15.1 **Subject and type**

Float switch type UniEx.SS x.*.x.x.x.x.x.x.AK.x.*
 type UniEx.M x.*.x.x.x.x.x.x.AK.x.x.*
 type UniEx.ANM x.*.x.x.*.x.x.*
 type UniEx.T x.*.x.*.x.*

Float switch type	UniEx.SS x.*.x.x.x.x.x.x.AK.x.* UniEx.M x.*.x.x.x.x.x.x.AK.x.x.* UniEx.ANM x.*.x.x.AK.x.x.* UniEx.T x.*.x.AK.x.* UniEx.SS x.*.x.x.x.x.x.x.AS.x.* UniEx.M x.*.x.x.x.x.x.x.AS.x.x.* UniEx.ANM x.*.x.x.AS.x.x.* UniEx.T x.*.x.AS.x.*	 II 1/2 G Ex ia IIC T3...T6 Ga/Gb II 1/- D Ex ia IIIC T* °C Da (* see operating instructions)
	UniEx.SSx.*.x.x.x.x.x.x.AGN.x.* UniEx.SSx.*.x.x.x.x.x.x.AGA.x.* UniEx.SSx.*.x.x.x.x.x.x.AGC.x.* UniEx.M x.*.x.x.x.x.x.x.AGN.x.x.* UniEx.ANM x.*.x.x.AGN.x.x.* UniEx.T x.*.x.AGN.x.*	 II 1/2 G Ex ia IIC T3...T6 Ga/Gb
	UniEx.SSx.*.*.x.x.x.x.x.x.AGU.x.* UniEx.SSx.*.x.x.x.x.x.x.AGB.x.* UniEx.SSx.*.x.x.x.x.x.x.AGD.x.* UniEx.M x.*.*.x.x.x.x.AGU.x.x.* UniEx.ANM x.*.*.x.x.AGU.x.x.* UniEx.T x.*.*.AGU.x.*	 II 1/2 G Ex ia IIC T3...T6 Ga/Gb II 1 D Ex ia IIIC T* °C Da (* see operating instructions)

In the full designation the "*" are replaced by letters and number marking details of the construction

Type	x	*	x	x	x	x	x	x	*	x	*	*
UniEx.SS	not Ex-relevant	a	not Ex-relevant					b	not Ex-relevant	c	d	

a Diameter of slide tube

12 = 12 mm

b Type of process connection

- AK = connection with cable
- AS = connection with plug
- AGU = connection with terminal + non-coated connection housing
- AGN = connection with terminal+ coated connection housing
- AGA, AGC = connection with ceramic terminals + coated connection housing
- AGB, AGD = connection with ceramic terminals + non-coated connection housing

c Temperature switch / temperature sensor

- T60O = normally open (60 °C)
- T60S = normally closed (60 °C)
- Up to T180S / T180O in 5 °C steps
- Pt100 = Pt100 2-wire
- Pt103 = Pt100 3-wire
- Pt104 = Pt100 4-wire
- Pt1000 = Pt1000 2-wire
- Pt1003 = Pt1000 3-wire
- Pt1004 = Pt1000 4-wire

d Service temperature

BT18 = Service temperature -40 °C up to 180 °C

Type	x	*	x	x	x	x	x	*	x	x	*
UniEx.M	not Ex relevant	a	not Ex relevant				b	not Ex relevant		c	

a Diameter of slide tube

8 = 8 mm

b Type of process connection

AK = connection with cable

AS = connection with plug

AGU = connection with terminal + non-coated connection housing

AGN = connection with terminal+ coated connection housing

c Temperature switch / temperature sensor

T60O = normally closed (60 °C)

T60S = normally open (60 °C)

T65O = normally closed (65 °C)

T65S = normally open (65 °C)

T70O = normally closed (70 °C)

T70S = normally open (70 °C)

T75O = normally closed (75 °C)

T75S = normally open (75 °C)

T85O = normally closed (85 °C)

T85S = normally open (85 °C)

Pt100 = Pt100 2-wire

Pt103 = Pt100 3-wire

Pt104 = Pt100 4-wire

Pt1000 = Pt1000 2-wire

Pt1003 = Pt1000 3-wire

Pt1004 = Pt1000 4-wire

Type	x	*	x	x	*	x	x	*
UniEx.ANM	not Ex relevant	a	not Ex relevant		b	not Ex relevant		c

a Diameter of slide tube

8 = 8 mm; 12 = 12 mm;

b Type of process connection

AK = connection with cable

AS = connection with plug

AGU = connection with terminal + non-coated connection housing

AGN = connection with terminal+ coated connection housing

c Temperature sensor

Pt100 = Pt100 2-wire

Pt103 = Pt100 3-wire

Pt104 = Pt100 4-wire

Pt1000 = Pt1000 2-wire

Pt1003 = Pt1000 3-wire

Pt1004 = Pt1000 4-wire

Type	x	*	x	*	x	*
UniEx.T	not Ex relevant	a	not Ex relevant	b	not Ex relevant	c

a Diameter of slide tube

8 = 8 mm; 12 = 12 mm

b Type of process connection

AK = connection with cable

AS = connection with plug

AGU = connection with terminal + non-coated connection housing

AGN = connection with terminal+ coated connection housing

c Temperature switch / temperature sensor

T60O = normally closed (60 °C)

T60S = normally open (60 °C)

T65O = normally closed (65 °C)

T65S = normally open (65 °C)

T70O = normally closed (70 °C)

T70S = normally open (70 °C)

T75O = normally closed (75 °C)

T75S = normally open (75 °C)

T85O = normally closed (85 °C)

T85S = normally open (85 °C)

Pt100 = Pt100 2-wire

Pt103 = Pt100 3-wire

Pt104 = Pt100 4-wire

Pt1000 = Pt1000 2-wire

Pt1003 = Pt1000 3-wire

Pt1004 = Pt1000 4-wire

15.2 Description

With this supplement the certificate is changed to Directive 2014/34/EU.

(Annotation: In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.)

The float switches of type series UniEx.* serve the purpose of intrinsically safe position and temperature sensing of liquid media in vessels.

A printed circuit board embedded in casting compound is placed inside a metallic tube construction. With reference to model, the printed circuit board is fitted either with standalone reed contacts for limit value control or with a reed contact- / resistor chain for continuous level measurement.

The float switches fitted optionally with bi-metal switches or Pt100 / Pt1000 (type L 220) resistors for temperature limit value control or continuous temperature measuring of the medium.

The electrical connection of the versions with resistance sensors is provided in two-, three- or four-wire technology.

The limit values or level values are transferred into the IS circuit by means of a float (or several floats) providing magnets inside, which operate the reed contacts.

Reason for supplement:

- Change to Directive 2014/34/EU.
- Added new type of UniExSS... series, which is suitable for continuous service temperature from -40 °C to +180 °C.
- The devices have been tested according to the standards listed above.



15.3 Parameters

15.3.1 Variants type UniEx.SS x.*.x.x.x.x.x.AGU.x.*, type UniEx.M x.*.x.x.x.x.AGU.x.x.*, type UniEx.ANM x.*.x.x.AGU.x.x.* and type UniEx.T x.*.x.AGU.x.* for applications in areas with 1D - requirements.

15.3.1.1 Variants with one Pt100 resp.one Pt1000 resistor 2-wire, 3-wire, 4-wire measuring circuit.

Maximum input voltage	U _i	DC	30	V
Maximum input current	I _i		100	mA
Maximum input power	P _i	in accordance with the following table		
Internal effective capacitance	C _i	negligible		
Internal effective inductance	L _i	negligible		

Power P _i	Ambient temperature range T _a at the connection head	Max. surface T temperature at the connection head	Max. surface temperature T at the probe head)**
750 mW*)	-20 °C up to + 40 °C	45 °C	Process temperature + 27 K
650 mW*)	-20 °C up to + 70 °C	75 °C	Process temperature + 23 K
550 mW*)	-20 °C up to + 100 °C	105 °C	Process temperature + 20 K

*) Sum value in case of two Pt100 resp. two Pt1000 resistors

**) The max. surface temperature T at the probe head shall not exceed the operating temperature of resistor Pt100 / Pt1000 type TO92 (up to 150 °C).

15.3.1.2 Variants with one temperature switch

Maximum input voltage	U _i	DC	30	V
Maximum input current	I _i		100	mA
Maximum input power	P _i	in accordance with the following table		
Internal effective capacitance	C _i	negligible		
Internal effective inductance	L _i	negligible		

Power P _i	Ambient temperature range T _a at the connection head	Max. surface T temperature at the connection head	Max. surface temperature T at the probe head **)
750 mW	-20 °C up to + 40 °C	45 °C	Process temperature + 10 K
650 mW	-20 °C up to + 70 °C	75 °C	Process temperature + 10 K
550 mW	-20 °C up to + 100 °C	105 °C	Process temperature + 10 K

**) The max. surface temperature T at the probe head shall not exceed the operating temperature of resistor Pt100 / P1000 type TO92 (up to 150 °C).

15.3.2 Variants type UniEx.SS x.*.x.x.x.x.x.AK.x.*, type UniEx.M x.*.x.x.x.x.x.AK.x.x.*, type UniEx.ANM x.*.x.x.AK.x.x.*, type UniEx.T x.*.x.AK.x.*, type UniEx.SS x.*.x.x.x.x.x.AS.x.*, type UniEx.M x.*.x.x.x.x.x.AS.x.x.*, type UniEx.ANM x.*.x.x.AS.x.x.*, type UniEx.T x.*.x.AS.x.*, type UniEx.SS x.*.x.x.x.x.x.AGN.x.*, type UniEx.M x.*.x.x.x.x.x.AGN.x.x.*, type UniEx.ANM x.*.x.x.AGN.x.x.* and type UniEx.T x.*.x.AGN.x.* for applications in areas with 1/2G-requirements.

15.3.2.1 Variants with one Pt100 resp. one Pt1000 resistor 2-wire, 3-wire, 4-wire resp. 2x2-wire, 2x3-wire, 2x4-wire measuring circuit

Maximum input voltage	U_i	DC	30	V
Maximum input current	I_i		100	mA
Maximum input power	P_i	in accordance with the following table		
Internal effective capacitance	C_i	capacitance of the permanently connected cable		
Internal effective inductance	L_i	inductance of the permanently connected cable		
For the variants type UniEx.SS x.*.x.x.x.x.x.AK.x.*, type UniEx.M x.*.x.x.x.x.x.AK.x.x.*, type UniEx.ANM x.*.x.x.AK.x.x.* and type UniEx.T x.*.x.AK.x.*, the following values apply:				
Cable capacitance	C_c		160	pF/m
Cable inductance	L_c		0.7	μ H/m

Ambient temperature range of the connection head resp. the connecting cable:

- 20 °C up to +70 °C for temperature class T3 and T4
- 20 °C up to +55 °C for temperature class T5
- 20 °C up to +40 °C for temperature class T6

Permissible process temperatures in °C depending on the maximum input power P_i and the temperature class:

Temperature class	$P_i = 750 \text{ mW}^*)$
T3**	148
T4	103
T5	73
T6	53

*) Sum value in case of two Pt100 resp. two Pt1000 resistors

***) The operating temperature of resistor Pt100/Pt1000 type TO92 (up to 150 °C).

Through appropriate measures, eg. by corresponding selection of the length of tube, a decoupling of the temperature of the connection head and the connecting cable of the process temperature has to be ensured.

15.3.2.2 Variants with one temperature switch

Maximum input voltage	U_i	DC	30	V
Maximum input current	I_i		100	mA
Maximum input power	P_i	in accordance with the following table		
Internal effective capacitance	C_i	capacitance of the permanently connected cable		
Internal effective inductance	L_i	inductance of the permanently connected cable		
For the variants type UniEx.SS x.*.x.x.x.x.x.AK.x.*, type UniEx.M x.*.x.x.x.x.x.AK.x.x.*, type UniEx.ANM x.*.x.x.AK.x.x.* and type UniEx.T x.*.x.AK.x.*, the following values apply:				
Cable capacitance	C_c		160	pF/m
Cable inductance	L_c		0.7	μ H/m

Ambient temperature range of the connection head resp. the connecting cable:

- 20 °C up to +70 °C for temperature class T3 and T4
- 20 °C up to +55 °C for temperature class T5
- 20 °C up to +40 °C for temperature class T6

Permissible process temperatures in °C depending on the maximum input power P_i and the temperature class:

Temperature class	$P_i = 800 \text{ mW}$
T3*	147
T4	102
T5	72
T6	52

*) The operating temperature of resistor Pt100 / Pt1000 type TO92 (up to 150 °C).

15.3.3 Variants type UniEx.SS x.*.x.x.x.x.x.AK.x.*, type UniEx.M x.*.x.x.x.x.x.AK.x.x.*, type UniEx.ANM x.*.x.x.AK.x.x.*, type UniEx.T x.*.x.AK.x.*, type UniEx.SS x.*.x.x.x.x.x.AS.x.*, type UniEx.M x.*.x.x.x.x.x.AS.x.x.*, type UniEx.ANM x.*.x.x.AS.x.x.* and type UniEx.T x.*.x.AS.x.*, or applications in areas with 1/- D-requirements.

15.3.3.1 Variants with one Pt100 resp. one Pt1000 resistor 2-wire, 3-wire, 4-wire resp. 2x2-wire, 2x3-wire, 2x4-wire measuring circuit

Maximum input voltage	U_i	DC	30	V
Maximum input current	I_i		100	mA
Maximum input power	P_i	in accordance with the following table		

Power P_i	Ambient temperature range T_a at the connection head	Max. surface T temperature at the connection head	Max. surface temperature T at the probe head **)
750 mW*)	-20 °C up to + 40 °C	45 °C	Process temperature + 27 K
650 mW*)	-20 °C up to + 70 °C	75 °C	Process temperature + 23 K
550 mW*)	-20 °C up to + 100 °C	105 °C	Process temperature + 20 K

*) Sum value in case of two Pt100 resp. two Pt1000 resistors

**) The max. surface temperature T at the probe head shall not exceed the operating temperature of resistor Pt100 / Pt1000 type TO92 (up to 150 °C).

The permanently connected cable is installed outside the hazardous area, hence the internal effective capacitance C_i and the internal effective inductance L_i are not considered.

15.3.3.2 Ausführungen mit einem Temperaturschalter / Variants with one temperature switch

Maximum input voltage	U_i	DC	30	V
Maximum input current	I_i		100	mA
Maximum input power	P_i	in accordance with the following table		

Power P_i	Ambient temperature range T_a at the connection head	Max. surface T temperature at the connection head	Max. surface temperature T at the probe head **)
750 mW	-20 °C up to + 40 °C	45 °C	Process temperature + 10 K
650 mW	-20 °C up to + 70 °C	75 °C	Process temperature + 10 K
550 mW	-20 °C up to + 100 °C	105 °C	Process temperature + 10 K

**) The max. surface temperature T at the probe head shall not exceed the operating temperature of resistor Pt100 / Pt1000 type TO92 (up to 150 °C).

The permanently connected cable is installed outside the hazardous area, hence the internal effective capacitance C_i and the internal effective inductance L_i are not considered.

16 **Report Number**

BVS PP 15.2146 EU, as of 07.10.2021

17 **Special Conditions for Use**

- 17.1 Permissible ambient temperature range / process temperature see specifications.
- 17.2 Metallic process connection parts have to be earthed and mounted at the mounting location electrostatically conductive ($< 1 \text{ M}\Omega$).
- 17.3 For the variants with a permanently connected cable the connection cable must be protected against mechanical damage.
- 17.4 All variants should be used only in combination with liquids that have a high conductivity ($> 800 \text{ pS/m}$) and grounded.
- 17.5 The wall thickness of the float switch is $0.2 \text{ mm} < t < 1 \text{ mm}$. The device may not be exposed to environmental conditions which may negatively affect the partition wall.

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, 2021-10-07
BVS-Scho/Mu A20210032



Managing Director