

Data sheet

UniEx-Float switch combinable with temperature measurement

Type: UniEx.SS...

 II 1/2G Ex ia IIC T3...T6 Ga/Gb

 II 1/- D Ex ia IIIC T* °C Da

 II 1 D Ex ia IIIC T* °C Da

To be operated in
intrinsically safe circuits
- Type of protection Ex i

Float switches with ATEX approval are suitable for the use in explosive atmosphere.

The magnet equipped float activates in relation to the level of fluid a reed contact in the sliding tube.

UniEx float switches are manufactured according to customer specifications and are therefore used in the most diverse applications.

Our devices of the UniExSS series may only be operated in connection with an EX barrier / switch amplifier

Features:

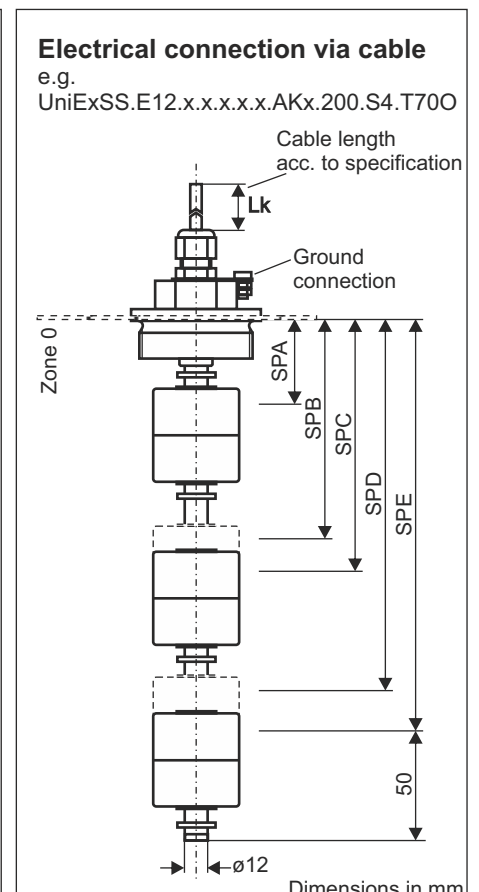
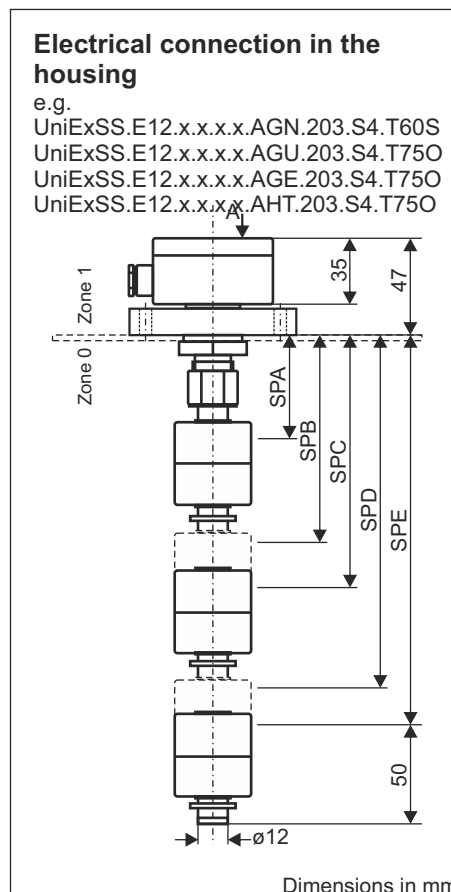
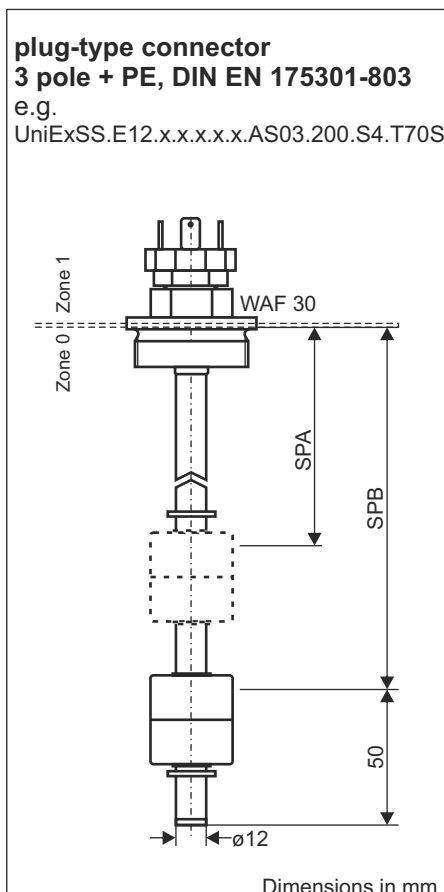
- ATEX approval
- Several electrical connections, process connections and materials are available
- A large field of application due to the proven functional principle
- Long life span
- Temperature range from -40°C to 180°C (page 5-7)

Applications:

- Level measurement in many liquid media
- Monitoring of processes, predetermined levels as well as pumps and level controls
- Fields of application: chemical, petrochemical, mechanical engineering, shipbuilding industry, offshore facilities, energy plants ...

Safety note:

- The float switch may only be operated with certified intrinsically safe circuits with the permissible maximum values.
- The device must be included in the periodic test of the container pressure.
- The float switch must be electrically connected to the equipotential bonding system of the plant.



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Type: UniEx.SS...

Order key

Example for 2 switching points: UniExSS. E12 . A1 . B4 . 100 . 200 .AGN. 200 . S4 . T600

Type UniExSS

Material tube
stainless steel tube ø12 -- E12

Further materials on demand

Function of switching point A 30V/100mA

closes on level rise -- A1
opens on level rise --- A2
closes on level drop - A3
opens on level drop -- A4
change-over contact -A5

Function of switching point B 30V/100mA

closes on level rise -- B1
opens on level rise--- B2
closes on level drop-- B3
opens on level drop-- B4
change over contact- B5

Note:
For a device with only one switching point use switching point B
e.g.: UniExSS.E12.B4.100.AGN.201.S4

Switching length **SPA**
in mm, acc. to customer sepcification

Switching length **SPB**
in mm, acc. to customer sepcification

For further switching points
SPC, SPD, SPE... follow the method above
AGU/AGN housing max. 5SP possible
AGE housing max. 3SP possible

Electrical connection see table 1
alu housing painted
(II 1/2 G Ex ia IIC T3...T6 Ga/Gb) --- AGN
alu housing unpainted
(II 1 D Ex ia IIIC T°C Da and II 1/2 G Ex ia IIC T3...T6 Ga/Gb) --- AGU
stainless steel housing 1.4571
(II 1 D Ex ia IIIC T°C Da and II 1/2 G Ex ia IIC T3...T6 Ga/Gb) --- AGE

The following apply to II 1/2 G Ex ia IIC T3...T6 Ga/Gb and II 1/- D Ex ia IIIC T°C Da

plug-type connector 3 pole + PE DIN --- AS03
plug-type connector M12 4 pole --- AS04
plug-type connector M12 5 pole --- AS05
plug-type connector M12 6 pole --- AS06
plug-type connector M12 8 pole --- AS07
sheathed cable (length in mm) --- AK, e.g. AK2500 = cable length 2500mm

Optional*

Temperature switch:
40°C n.c./n.o. contact --- T400/T40S
in 5°C steps up to 100°C

Temperature sensor PT100 / PT1000
PT100 2 wire --- PT100
PT100 3 wire --- PT103
PT100 4 wire --- PT104
PT1000 2 wire --- PT1000
PT1000 3 wire --- PT1003
PT1000 4 wire --- PT1004

*Max. 2x additional options further on demand

Float
ø45x53mm material stainless steel --- S4
ø52mm bullet material stainless steel --- S7
ø52mm bullet material titanium --- S22

Process connection see table 1

- 200 > 1 1/2" thread DIN 3852 form A stainless steel 1.4301
- 201 > 2" thread DIN 3852 form A stainless steel 1.4301
- 203 > standard flange AD120 LK100, stainless steel 1.4301
- 204 > standard flange AD120 LK100 with conduit stainless steel 1.4301
- 205 > standard flange AD74 LK60, stainless steel 1.4404
- 206 > 1 1/2" thread, stainless steel 1.4571, 90° right angled
- 207 > 1/2" thread stainless steel 1.4571 ((only in connection with AK))
- 208 > 3/8" thread stainless steel 1.4571 ((only in connection with AK))
- 214 > 1/4" thread stainless steel 1.4571 ((only in connection with AK))

further process connections on demand

Table 1	Electrical connection									
	Process connection	AS03	AS04	AS05	AS06	AS07	AGN	AGU	AGE	AK
200, 201, 203, 204, 205, 206	x	x	x	x	x	x	x	x	x	x
207, 208, 214										x

Technical data

Connection: see electrical connection above, further electrical connections on demand

Process connection: see respective design, special mounting on demand

Tube: ø12mm - material stainless steel 1.4571, further materials on demand

Tube length: according to specification, max. 3000mm

Float: ø45x52mm cylinder, material stainless steel 1.4571, type S4
ø52mm bullet, material stainless steel 1.4571 or titanium, Typ S7

Reed contacts: max. 6x n.o. contact / n.c. contact or change-over contact

Switching capacity: 30V / 100mA - **to be operated in intrinsically safe circuits - type of protection Ex i!**

Pressure: max. 6bar

Protection rating: IP 65

Operating temperature: -20°C to 105°C in medium, -20°C to 70°C above process connection

Data sheet

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Type: UniEx.SS...

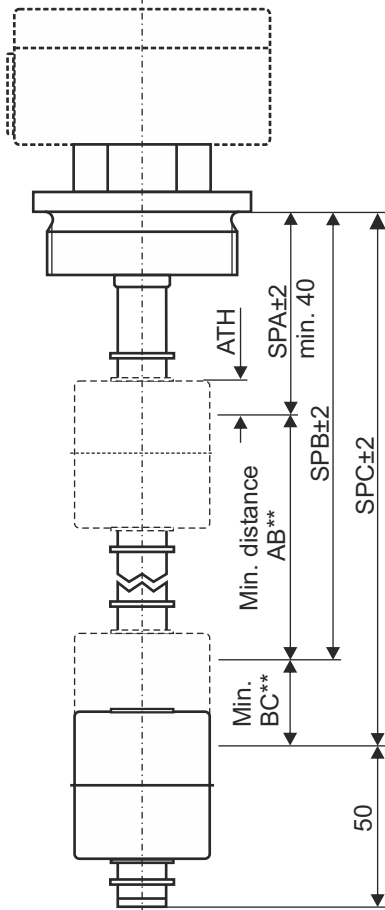
Terminal diagrams		Further terminal diagrams on demand	
<p>1x change-over contact</p> <p>B5</p>	<p>2x change-over contact</p> <p>A5 B5</p>	<p>1x n.o. contact/n.c. contact</p> <p>B1/B3; B2/B4</p>	<p>2x n.o. contacts/n.c. contacts</p> <p>A1/A3; A2/A4 B1/B3; B2/B4</p>
<p>Electrical connections</p> <p>Connection: AS03 plug-type connecto 3-pole + PE, DIN EN 175301-803</p>		<p>Connection: AK with sheathed cable e.g. Ak2500 = Lk 2500mm</p> <p>Cable length Lk acc. to customer specification</p> <p>optional: Ground connection outside</p> <p>Equipotential bonding via housing / process connection</p>	
<p>Connection: AS04 to AS07 plug-type connector M12x1</p> <p>Equipotential bonding via housing / process connection</p>		<p>Thread: 206 - 1 1/2" angled</p> <p>Equipotential bonding via housing / process connection</p>	
<p>Connection: AS04 to AS07 plug-type connector M12x1</p> <p>Equipotential bonding via housing / process connection</p>		<p>Float</p> <p>Cylindrical and bullet float material stainless steel - ATH: Height above medium surface: 0,998 g/cm³ S4:12mm / S7:21mm</p>	
<p>Connection: AGN, AGU or AGE in the housing circuit board with terminals 1,5mm²</p>		<p>Thread with cable outlet: 207 - 1/2" 208 - 3/8" 214 - 1/4" only in connection with AK</p> <p>Equipotential bonding via housing / process connection</p>	
<p>Connection: AGN, AGU or AGE in the housing circuit board with terminals 1,5mm²</p>		<p>Process connections</p> <p>thread: 200 - 1 1/2" form A 201 - 2" form A</p>	
<p>AGU= connection housing alu 64x58x35 unpainted with screw gland metal AGN= connection housing alu 64x58x35 painted with screw gland plastic / blue (only for gas atmosphere) AGE= connection housing stainless steel Ø68x40 with screw gland metal</p>		<p>Standard flange 203 - OD120 PCD100 stainless steel 204 - stainless steel with conduit</p>	
		<p>Standard flange stainless steel 205 - OD74 PCDL60</p> <p>Dimensions in mm</p>	

Data sheet

UniEx-Float switch combinable with temperature measurement

Type: UniEx.SS...

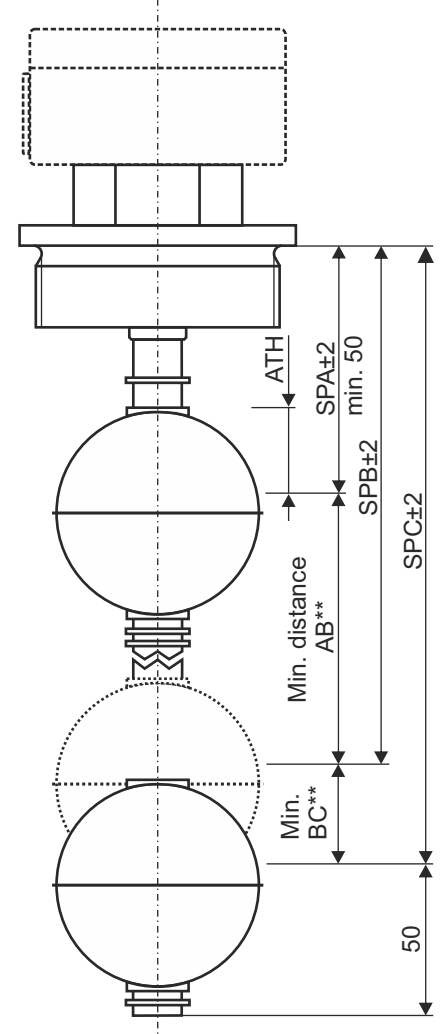
Process connection 200



Float S4	
Process connection	minimum distance SPA
200	40
201	45
203	35
204	35
205	35
206	40
207	40
208	40
214	40

S4	Distances between the switching points	
	AB: min. distance between SPA and SPB	BC: min. distance between SPB and SPC
2	10	-
3	70	10
3	10	70

Process connection 201



Float S7	
Process connection	minimum distance SPA
201	50
203	35
206	45
207	45
208	45
214	45

S7	distances between the switching points	
	AB: min. distance between SPA and SPB	BC: min distance between SPB and SPC
2	10	-
3	70	10
3	10	70

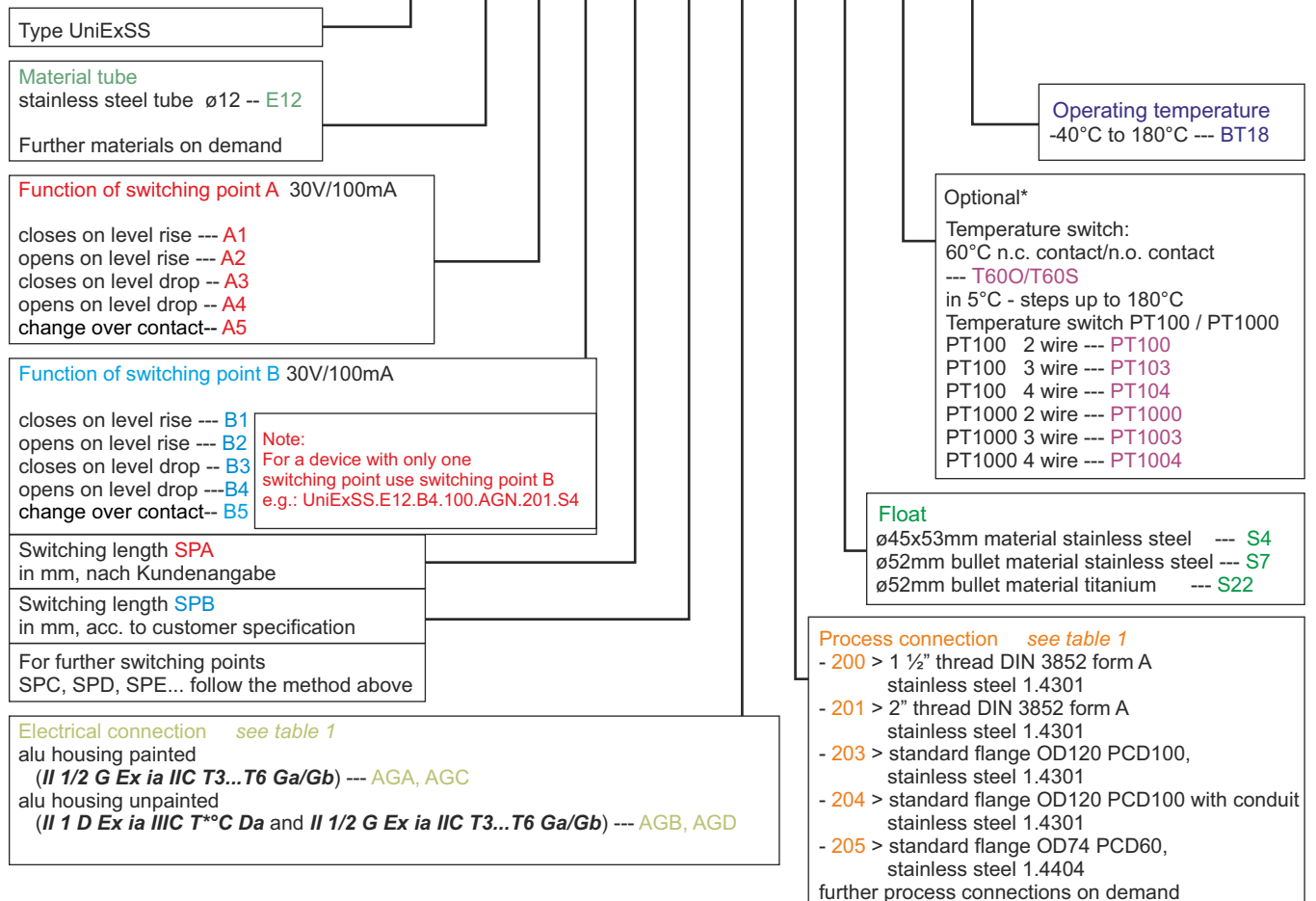
Data sheet for temperature range -40°C...+180°C

UniEx-Float switch combinable with temperature measurement

Type: UniEx.SS...BT18

Order key

Example for 2 switching points: UniExSS.E12.A1.B4.100.200.AGC.200.S4.T600.BT18



Function	Connection	Selection
n.c. contact / n.o. contact	2	-the number of connections is added up for each desired function -the AGA, AGB, AGC, AGD housings can be used up to and including 6 connections -from 7 connections, AGC or AGD must be used -maximum of 10 connections can be used Example: UniExSS.E12.A1.B5.100.200.AGC.S4.T1300.BT180 = 7 connection = AGC or AGD
change-over contact	3	
Temperature switch	2	
PT100 / PT1000 2 - wire	2	
PT103 / PT1003 3 - wire	3	
PT104 / PT1004 4 - wire	4	

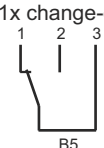

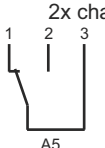

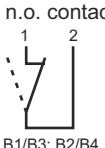

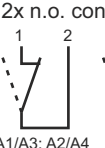

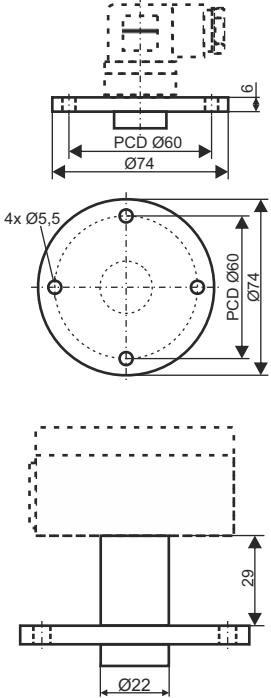
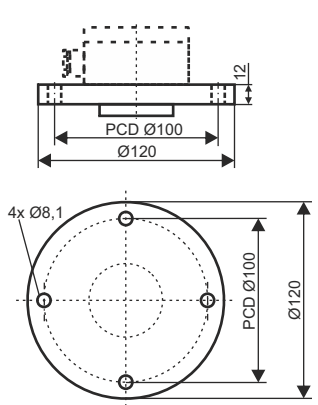
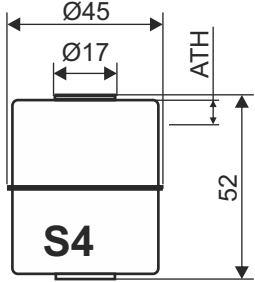
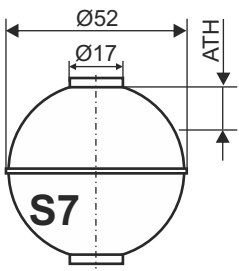
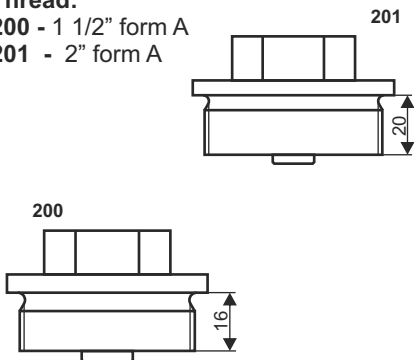
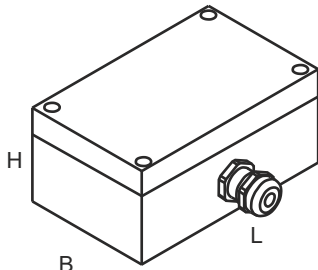
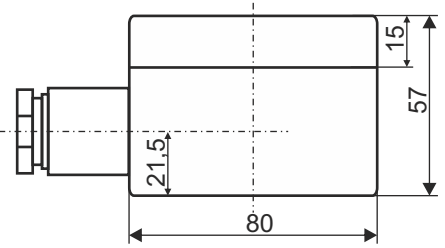
Technical data

Connection: Housing with clamps
 Process connection: see respective design, special fastenings on request
 Tube: ø12mm - material stainless steel 1.4571, other materials on request
 Tube length: according to instructions, max. 3000mm
 Float: ø45x52mm cylinder, material stainless steel 1.4571, type S4
 ø52mm bullet, material stainless steel 1.4571 or titanium, type S7
 Switching capacity: 30V / 100mA - **to be operated in intrinsically safe circuits, type of protection Ex i!**
 Pressure: max. 20bar (float S4), max 40bar (float S7)
 Protection rating: IP 66
 Operating temperature: -40°C to 180°C in medium, -40°C to 180°C above process connection

Data sheet for temperature range -40°C...+180°C

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Type: UniEx.SS...BT18

Connection		Further terminal diagrams on demand	
1x change-over contact  PE/PAL  B5	2x change-over contact  PE/PAL  A5 B5	1x n.o. contact/n.c. contact  PE/PAL  B1/B3; B2/B4	2x n.o. contacts/n.c. contacts  PE/PAL  A1/A3; A2/A4 B1/B3; B2/B4
Float		Process connection	
Cylindrical and bullet float material stainless steel - ATH: Height above medium b _{surface} : 0,998 g/cm ³ S4: 12mm / S7: 21mm		Standard flange stainless steel 205 - OD74 PCD60 	Standard flange 203 - OD120 PCD100 stainless steel 204 - stainless steel with conduit 
 		Thread: 200 - 1 1/2" form A 201 - 2" form A 	
Connections			
Connections housing: AGA, AGB, AGC, AGD in the housing circuit board with terminals 1.5mm ²			
			
AGA=connection housing alu 80x75x57 painting with screw gland metall II 1/2 G Ex ia IIC T3...T6 Ga/Gb AGB=connection housing alu 80x75x57 unpainted with screw gland metall II 1 D Ex ia IIC T°C Da and II 1/2 G Ex ia IIC T3...T6 Ga/Gb AGC=connection housing alu 125x80x57 painting with screw gland metall II 1/2 G Ex ia IIC T3...T6 Ga/Gb AGD=connection housing alu 125x80x57 unpainted with screw gland metall II 1 D Ex ia IIC T°C Da and II 1/2 G Ex ia IIC T3...T6 Ga/Gb			

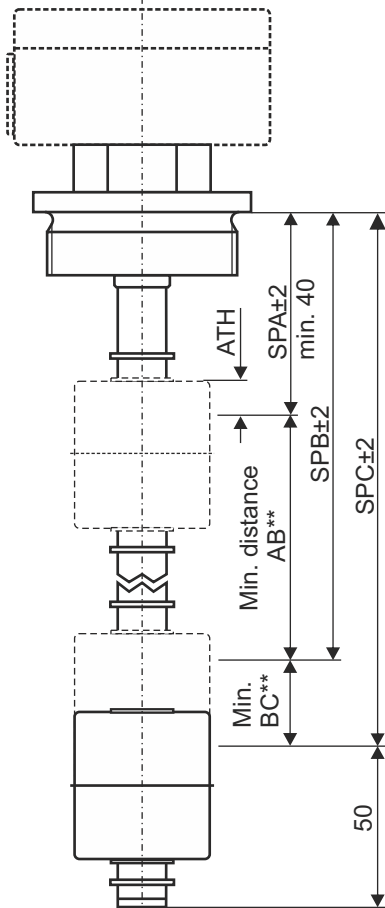
Dimensions in mm

Data sheet für Temperaturbereich -40°C...+180°C

UniEx-Float switch combinable with temperature measurement

Type: UniEx.SS... BT18

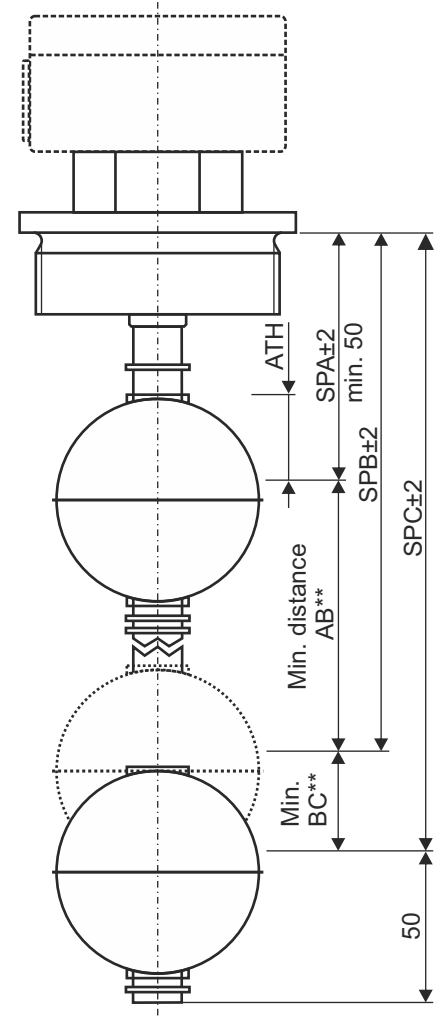
Process connection 200



Float S4	
Process connectio	minimum distance SPA
200	40
201	45
203	35
204	35
205	35

S4	Distances between the switching points	
	AB: min. distance between SPA and SPB	BC: min distance between SPB and SPC
2	10	–
3	70	10
3	10	70

Process connection 201



Float S7	
Process connection	minimum distance SPA
201	50
203	35

S7	Distances between the switching points	
	AB: min. distance between SPA and SPB	BC: min. distance between SPA and SPB
2	10	–
3	70	10
3	10	70

Data sheet

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Technical data

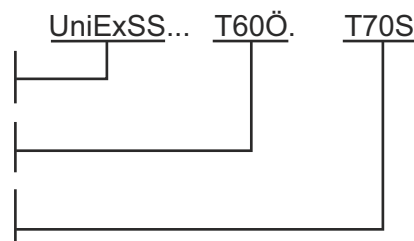
Connection:	see electrical connection above, further electrical connections on demand
Process connection:	see respective design, special mounting on demand
Tube:	ø12mm - material stainless steel 1.4571, further materials on demand
Tube length:	according to specification, max. 3000mm
Float:	ø45x52mm cylinder, material stainless steel 1.4571, type S4 ø52mm bullet, material stainless steel 1.4571 or titanium, Typ S7
Reed contacts:	max. 6x n.o. contact / n.c. contact or change-over contact
Switching capacity:	30V / 100mA - to be operated in intrinsically safe circuits - type of protection Ex i!
Pressure:	max. 6bar
Protection rating:	IP 65
Operating temperature:	-20°C to 105°C in medium, -20°C to 70°C above process connection

Formular types

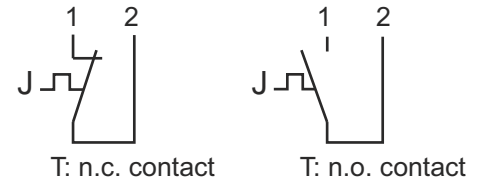
Type - see page 2
float switch

Temperature switch 1
e.g. 60°C n.c. contact

Temperature switch 2
e.g. 70°C n.o. contact



Terminal diagram



Technical data temperature switch

Temperature switch:	Bi-Metal
Switching function:	normally closed / normally open contact
Accuracy:	±5°C, smaller tolerances on demand reset-temperature = Temp.-switching point - 30°C±15°C
Number of contacts:	max. 2 temperature switches
Switching capacity:	30V / 100mA

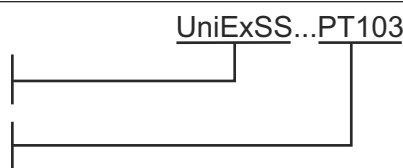
Platinum Resistors according to DIN EN 60751 - class B are used in all float switches with PT100 / PT1000 temperature sensors.

PT100 / PT1000 temperature sensors are designed in 2-, 3- and 4-wire technology. When combined with float switches it provides a space-saving and cost-effective solution.

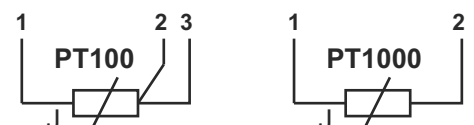
formular types

Type - see page 2
float switch

Temperature sensor
e.g. PT100-3-wire



Terminal diagram



Technical data temperature sensor

Temperature sensor:	platinum resistor PT100 / PT1000 according DIN EN 60751, class B
Nominal resistance	
PT100:	100 Ohm
PT1000:	1000 Ohm
Temperature coefficient:	0.00385
Tolerance class:	DIN EN 60751, class B
Self-heating	0,4 K/mW
PT100:	0,2 K/mW
PT1000:	
Long-term stability after 1000h at 150°C:	R0 Drift < 0.06 %

Subject to change