SM Ex
float switches

Controlling devices with rod operated microswitch, for signalling or regulation of liquid levels

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The units described in this documentation may only be installed, connected and started up by suitably qualified personnel!

Subject to deviations from the diagrams and technical data.

The details in this brochure are product specification descriptions and do not constitute assured properties in the legal sense.

SM Ex float switches

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Electrical Ex float switches SM/./E/EL/Ex-0G ⟨Ex⟩ II 1/2 G Ex ia IIC T6 Ga/Gb, with microswitch

Mode of operation

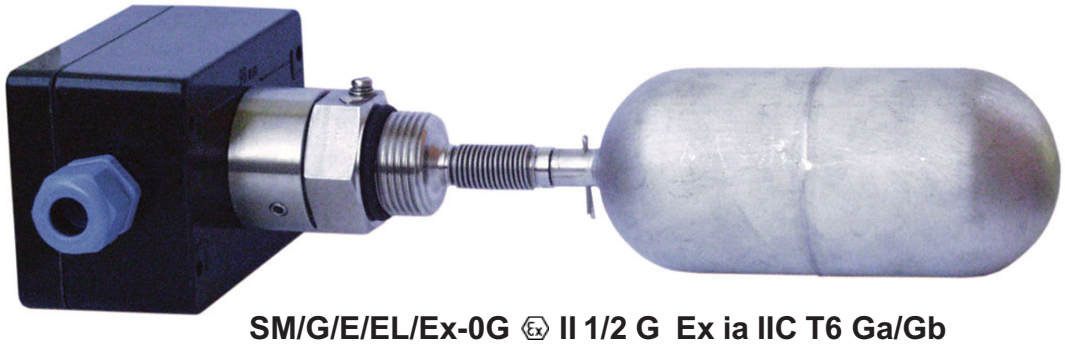
The rising or falling liquid level causes the float to move marginally up or down.
When the float rises, it activates a microswitch in the form of a changeover contact.

Special precondition for safe use of the float switches

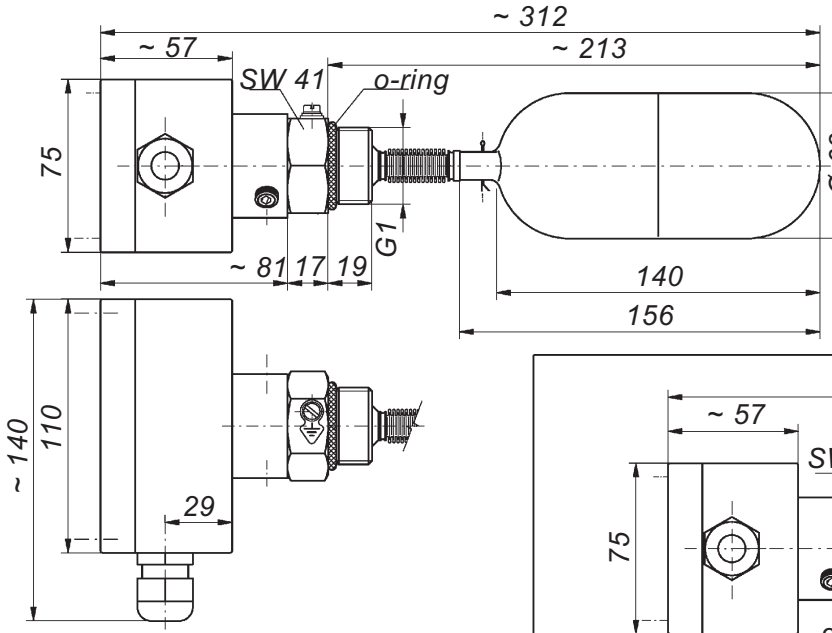
The thickness of the bellow of the float switch is only 0.2 mm. The float switch has therefore only to be installed in a non-corrosive environment in order to grant the separation of the zones. Precautions have to be taken for the same reason before or during the installation of the float switch in order to protect the float switch efficiently against mechanic damages which may for example be caused by turbulences or heavy wave movements of the liquid to be monitored.

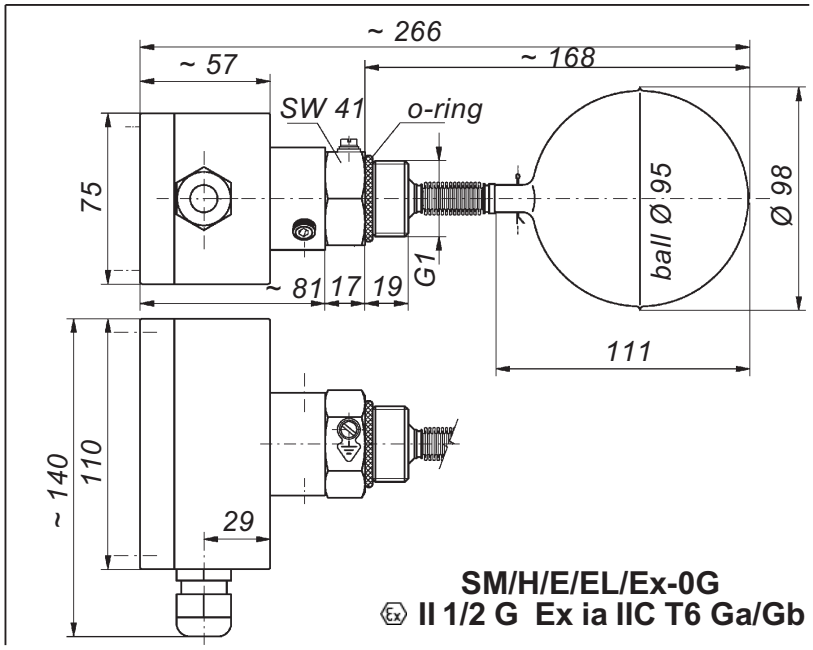
Technical data	**SM/G/E/EL/Ex-0G ⟨Ex⟩ II 1/2 G Ex ia IIC T6 Ga/Gb**	**SM/H/E/EL/Ex-0G ⟨Ex⟩ II 1/2 G Ex ia IIC T6 Ga/Gb**
Application	**for use in intrinsically safe circuits in potentially explosive atmospheres • float side: zone 0, 1 or 2, • terminal box: zone 1 or 2; EC type examination certificate INERIS 03ATEX0224X**	
Operating principle	rod operated microswitch, potential-free changeover contact	
Recommended application	via Jola Ex protection relay	
Float	stainless steel 316 Ti, 63 mm Ø x 140 mm	95 mm Ø
On request: extension piece for float	horizontal or vertical, as desired	
Bellow	stainless steel 316 Ti, 15 mm Ø x 38 mm, wall thickness 0.2 mm	
Screw-in nipple	stainless steel 316 Ti, G1	
On request: flange	square blind flange with G1 thread made of stainless steel 316 Ti (dimensions see page 2-2-4) or other flanges with any desired dimensions	blind flange DN 100 with G1 thread made of stainless steel 316 Ti
Protection class of float, bellow and screw-in nipple	IP68	
Terminal box	made of glass fibre and graphite reinforced polyester, A 301, 110 x 75 x 55 mm, protection class IP65	
Mounting orientation	horizontal	
Temperature range	0°C to + 60°C	
Pressure resistance	for pressureless applications only, use only under atmospheric conditions	
Application	only for use in liquids with a specific gravity ≥ 0.7 g/cm³ (specification without the optional extension piece for the float)	

Versions for use in mines susceptible to firedamp with a ⟨Ex⟩ I M2 Ex ia I Mb protection level on request.



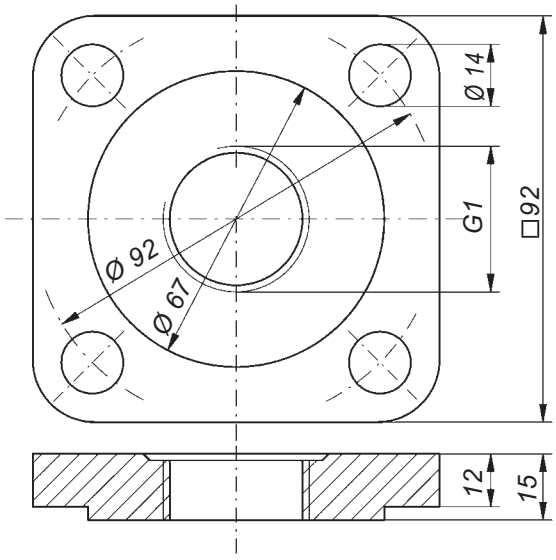
SM/G/E/EL/Ex-0G ⟨Ex⟩ II 1/2 G Ex ia IIC T6 Ga/Gb

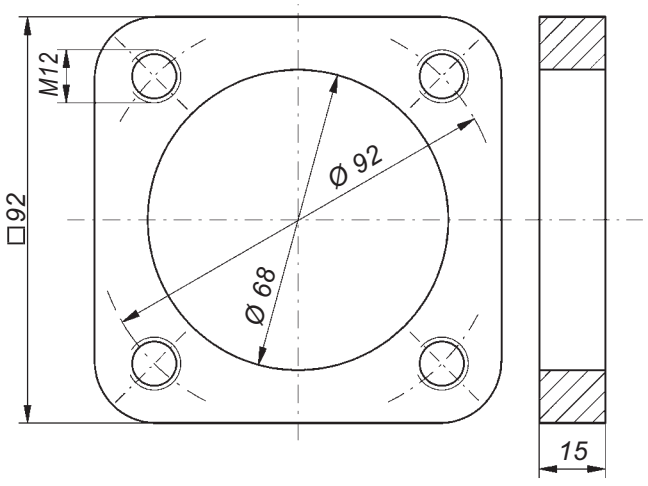




These units are not suitable for use in turbulent liquids (e.g. in stirrer tanks).

SM/H/E/EL/Ex-0G
⟨Ex⟩ II 1/2 G Ex ia IIC T6 Ga/Gb





Electrical Ex float switches SM/V.../E/EL/Ex-0G ⟨Ex⟩ II 1/2 G Ex ia IIC T6 Ga/Gb, with microswitch

Mode of operation

The rising or falling liquid level causes the float to move marginally up or down.
When the float rises, it activates a microswitch in the form of a changeover contact.

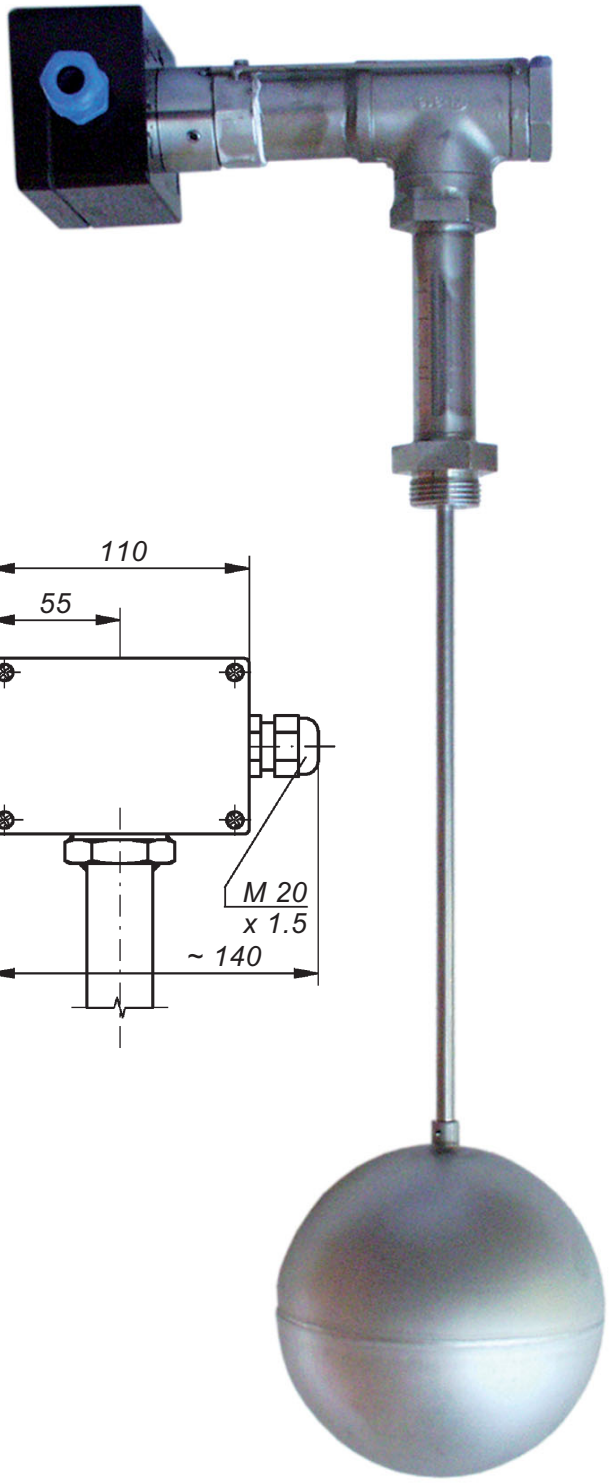
Special precondition for safe use of the float switches

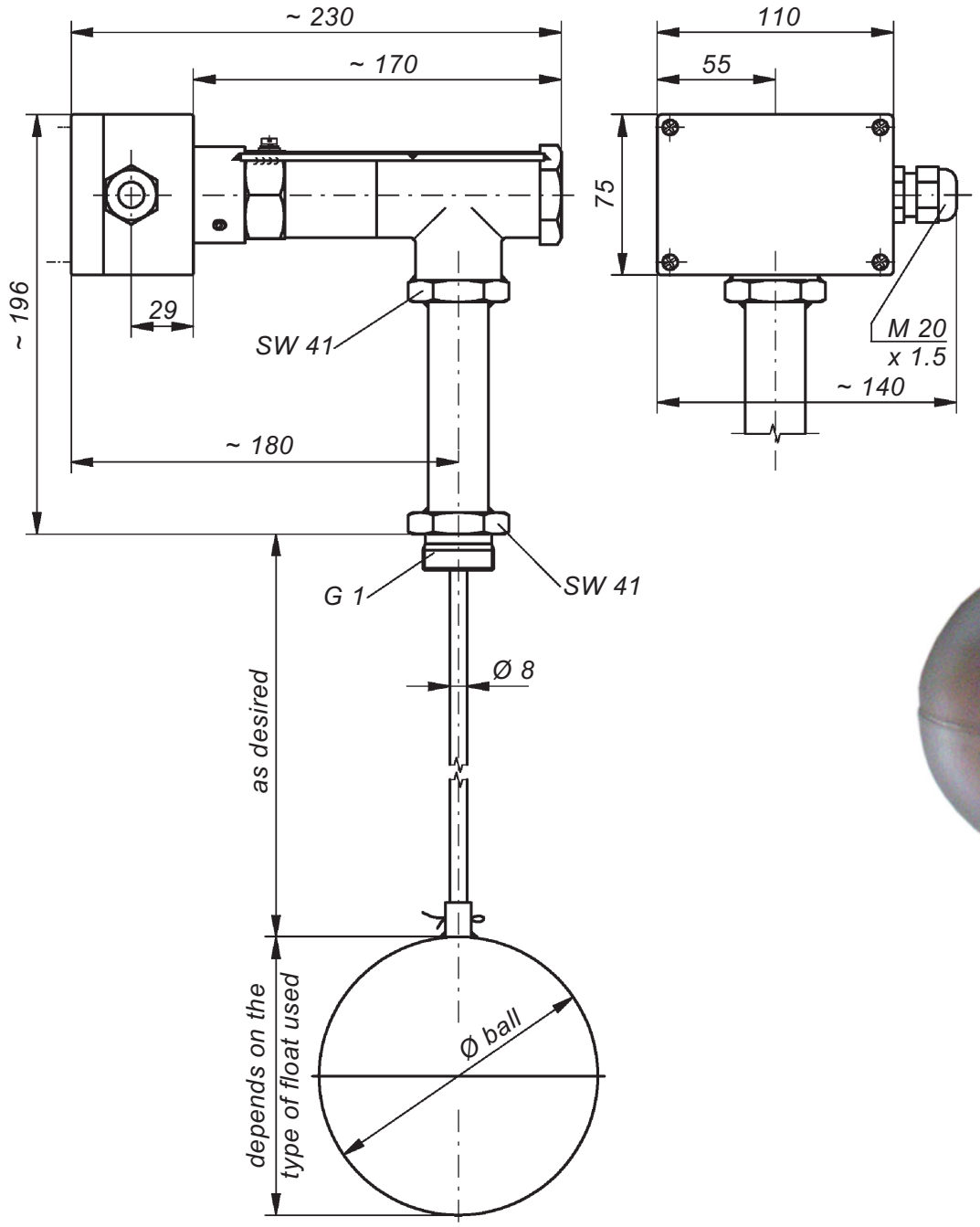
The thickness of the bellow of the float switch is only 0.2 mm. The float switch has therefore only to be installed in a non-corrosive environment in order to grant the separation of the zones. Precautions have to be taken for the same reason before or during the installation of the float switch in order to protect the float switch efficiently against mechanic damages which may for example be caused by turbulences or heavy wave movements of the liquid to be monitored.

Technical data	**SM/V130/E/ | SM/V148/E/ | SM/V180/E/ | SM/V200/E/ EL/Ex-0G ⟨Ex⟩ II 1/2 G Ex ia IIC T6 Ga/Gb**
Application	**for use in intrinsically safe circuits in potentially explosive atmospheres • float side: zone 0, 1 or 2, • terminal box: zone 1 or 2; EC type examination certificate INERIS 03ATEX0224X**
Operating principle	rod operated microswitch, potential-free changeover contact
Recommended application	via Jola Ex protection relay
All parts in contact with the liquid	stainless steel 316 Ti
Float dimensions	130 mm Ø | 148 mm Ø | 180 mm Ø | 200 mm Ø
Length of the float rod less float (measured from sealing surface of screw-in nipple)	as desired, 200 mm if not otherwise specified; guide tube for the float rod for rod length over 500 mm included (for rod lengths under 500 mm on request)
Screw-in nipple	stainless steel 316 Ti, G1
On request: flange	blind flange with any desired dimensions tapped with G1 thread
Protection class of all parts in contact with the liquid	IP68
Terminal box	made of glass fibre and graphite reinforced polyester, A 301, 110 x 75 x 55 mm, protection class IP65
Mounting orientation	vertical
Temperature range	0°C to + 60°C
Pressure resistance	for pressureless applications only, use only under atmospheric conditions
Application	for various liquids, depending on the length of the float rod and the type of float used – please contact us for information on different options

Versions for use in mines susceptible to firedamp with a ⟨Ex⟩ I M2 Ex ia I Mb protection level on request.

These units are not suitable for use in turbulent liquids (e.g. in stirrer tanks).





SM/V.../E/EL/Ex-0G ⟨Ex⟩ II 1/2 G Ex ia IIC T6 Ga/Gb

Pneumatic Ex float switches SM/./E/PN/Ex-0G ⟨Ex⟩ II 1/2 G c IIC ΔT = 0, with pneumatic 3/2-way valve

Mode of operation

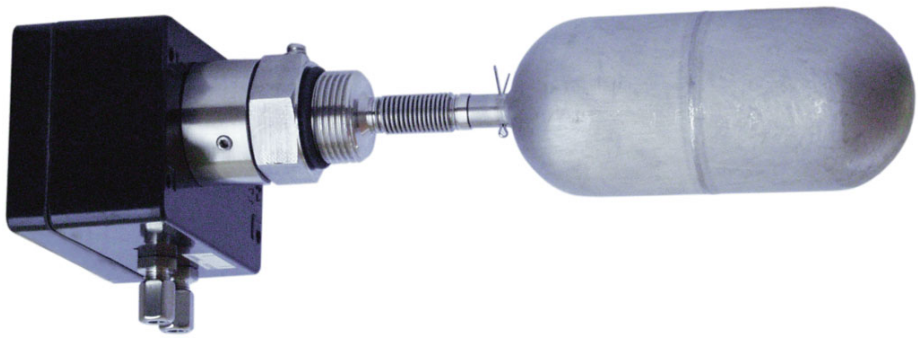
The rising or falling liquid level causes the float to move marginally up or down. When the float rises, it activates a pneumatic 3/2-way valve.

Special precondition for safe use of the float switches

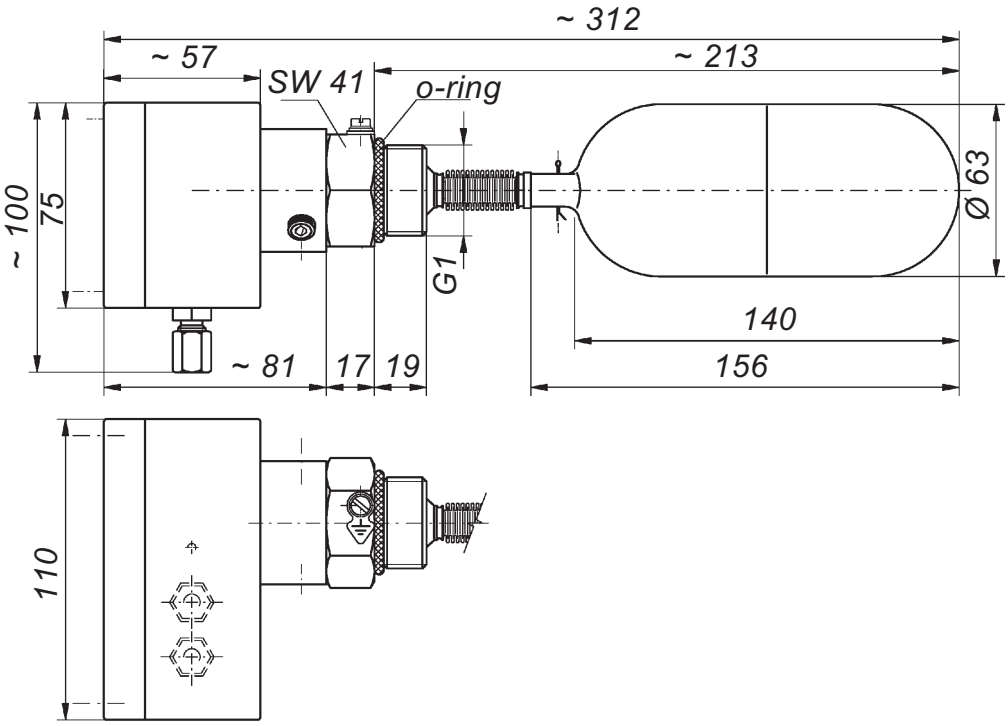
The thickness of the bellow of the float switch is only 0.2 mm. The float switch has therefore only to be installed in a non-corrosive environment in order to grant the separation of the zones. Precautions have to be taken for the same reason before or during the installation of the float switch in order to protect the float switch efficiently against mechanic damages which may for example be caused by turbulences or heavy wave movements of the liquid to be monitored.

Technical data	**SM/G/E/PN/Ex-0G ⟨Ex⟩ II 1/2 G c IIC ΔT = 0**	**SM/H/E/PN/Ex-0G ⟨Ex⟩ II 1/2 G c IIC ΔT = 0**
Application	**for use in intrinsically safe circuits in potentially explosive atmospheres • float side: zone 0, 1 or 2, • terminal box: zone 1 or 2; EC type examination certificate INERIS 03ATEX0224X**	
Operating principle	pneumatic 3/2-way valve	
Pressure range	1.5 bar to max. 6 bar	
Operation	**“UP” operation:** float in “max. position”: air is able to flow; float in “min. position”: air passage is blocked on request: **“DOWN” operation:** float in “max. position”: air passage is blocked; float in “min. position”: air is able to flow	
Float	stainless steel 316 Ti, 63 mm Ø x 140 mm	95 mm Ø
On request: extension piece for float	horizontal or vertical, as desired	
Bellow	stainless steel 316 Ti, 15 mm Ø x 38 mm, wall thickness 0.2 mm	
Screw-in nipple	stainless steel 316 Ti, G1	
On request: flange	square blind flange with G1 thread made of stainless steel 316 Ti (dimensions see page 2-2-4) or other flanges with any desired dimensions	blind flange DN 100 with G1 thread made of stainless steel 316 Ti
Protection class of float, bellow and screw-in nipple	IP68	
Terminal box	made of glass fibre and graphite reinforced polyester, A 301, 110 x 75 x 55 mm, with 2 connections for air hoses DN 6	
Mounting orientation	horizontal	
Temperature range	0°C to + 40°C	
Pressure resistance	for pressureless applications only, use only under atmospheric conditions	
Application	for various liquids, depending on the pressure at the valve - please contact us for information on different options	

Versions for use in mines susceptible to firedamp with a ⟨Ex⟩ I M2 c IIC ΔT = 0 protection level on request.



SM/G/E/PN/Ex-0G ⟨Ex⟩ II 1/2 G c IIC ΔT = 0



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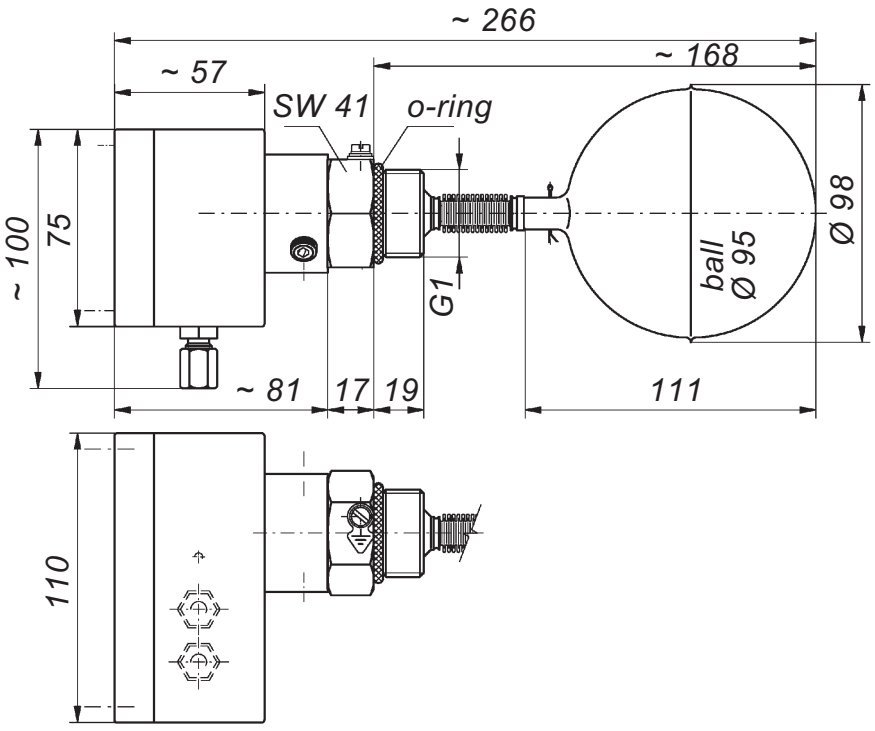

SM/H/E/PN/Ex-0G ⟨Ex⟩ II 1/2 G c IIC ΔT = 0

Pneumatic Ex float switches SM/V.../E/PN/Ex-0G Ⓔx II 1/2 G c IIC ΔT = 0, with pneumatic 3/2-way valve

Mode of operation

The rising or falling liquid level causes the float to move marginally up or down. When the float rises, it activates a pneumatic 3/2-way valve.

Special precondition for safe use of the float switches

The thickness of the bellow of the float switch is only 0.2 mm. The float switch has therefore only to be installed in a non-corrosive environment in order to grant the separation of the zones. Precautions have to be taken for the same reason before or during the installation of the float switch in order to protect the float switch efficiently against mechanic damages which may for example be caused by turbulences or heavy wave movements of the liquid to be monitored.

Technical data	**SM/V130/E/ ǀ SM/V148/E/ ǀ SM/V180/E/ ǀ SM/V200/E/ PN/Ex-0G Ⓔx II 1/2 G c IIC ΔT = 0**
Application	**for use in intrinsically safe circuits in potentially explosive atmospheres • float side: zone 0, 1 or 2, • terminal box: zone 1 or 2; EC type examination certificate INERIS 03ATEX0224X**
Operating principle	pneumatic 3/2-way valve
Pressure range	1.5 bar to max. 6 bar
Operation	**“UP” operation:** float in “max. position”: air is able to flow; float in “min. position”: air passage is blocked on request: **“DOWN” operation:** float in “max. position”: air passage is blocked; float in “min. position”: air is able to flow
All parts in contact with the liquid	stainless steel 316 Ti
Float dimensions	130 mm Ø ǀ 148 mm Ø ǀ 180 mm Ø ǀ 200 mm Ø
Length of the float rod less float (measured from sealing surface of screw-in nipple)	as desired, 200 mm if not otherwise specified; guide tube for the float rod for rod length over 500 mm included (for rod lengths under 500 mm on request)
Screw-in nipple	stainless steel 316 Ti, G1
On request: flange	blind flange with any desired dimensions tapped with G1 thread
Protection class of all parts in contact with the liquid	IP68
Terminal box	made of glass fibre and graphite reinforced polyester, A 301, 110 x 75 x 55 mm, protection class IP65
Mounting orientation	vertical
Temperature range	0°C to + 40°C
Pressure resistance	for pressureless applications only, use only under atmospheric conditions
Application	for various liquids, depending on the length of the float rod, the type of float used and the pressure at the valve – please contact us for information on different options

Versions for use in mines susceptible to firedamp with a Ⓔx I M2 c IIC ΔT = 0 protection level on request.

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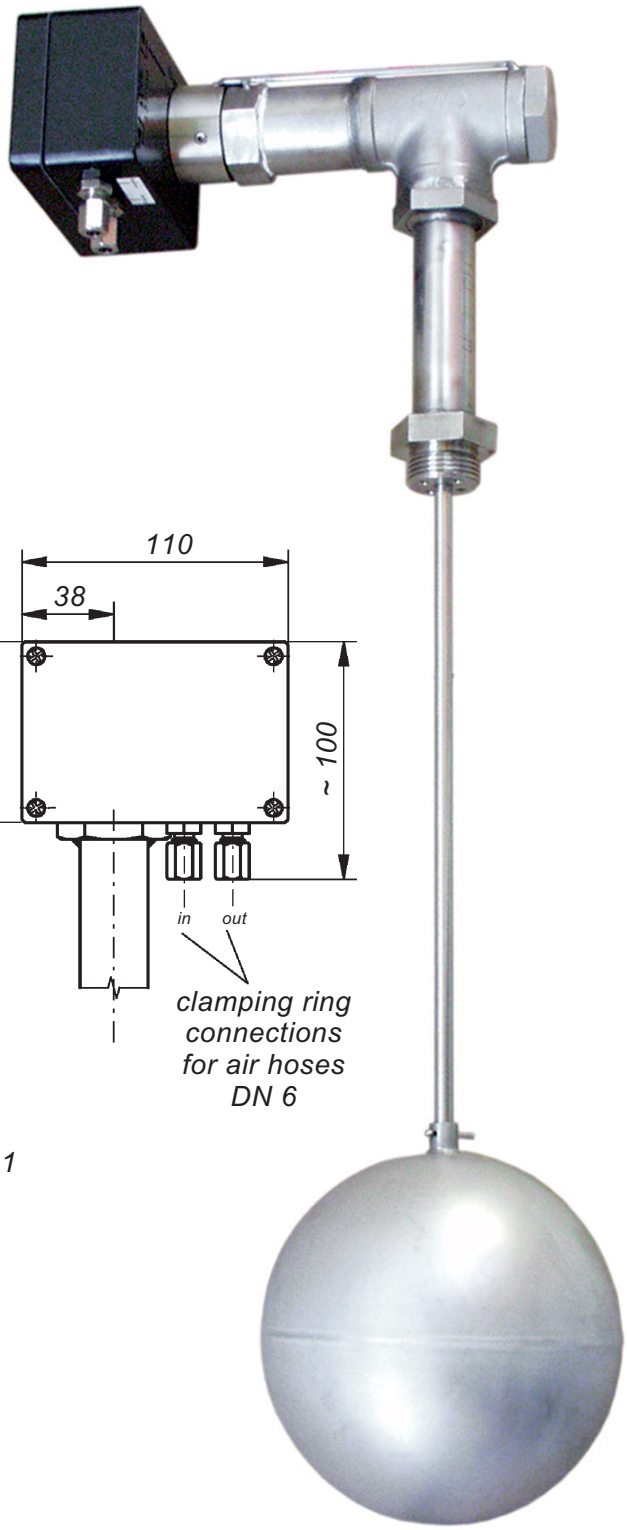

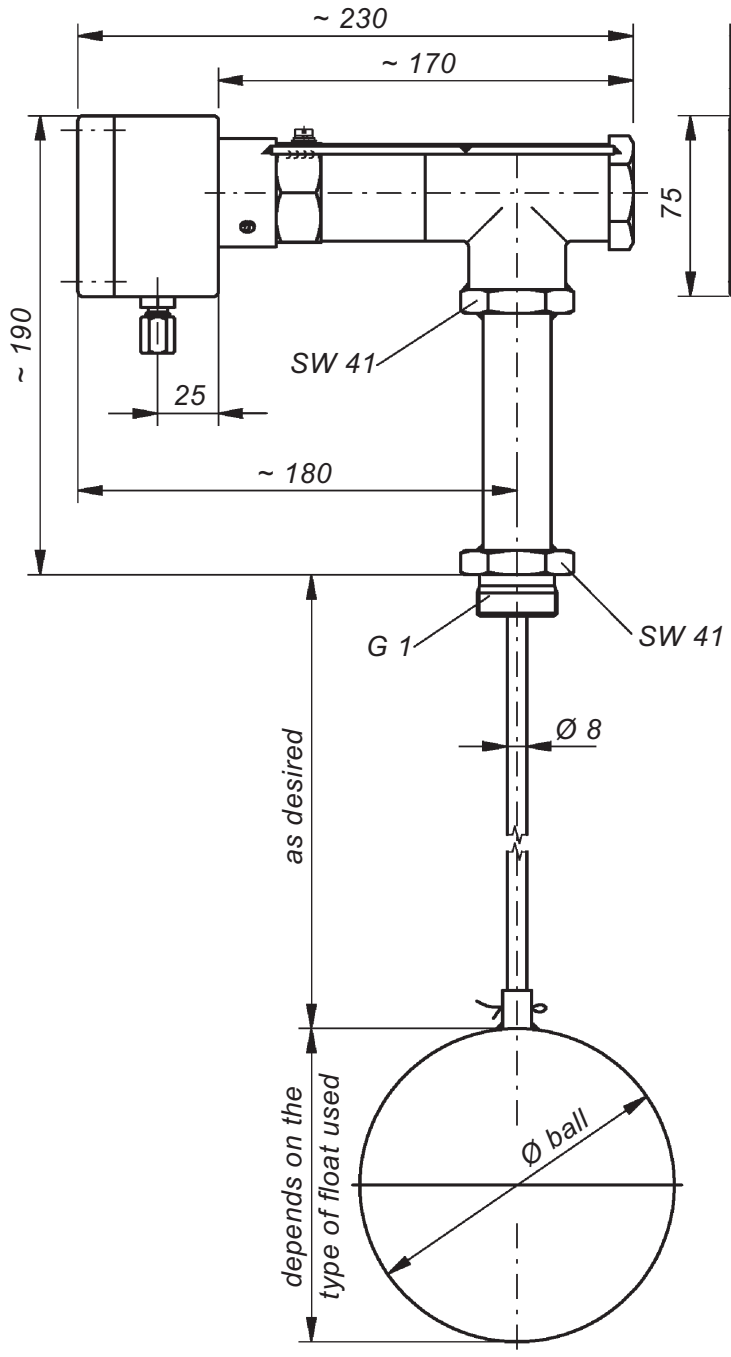

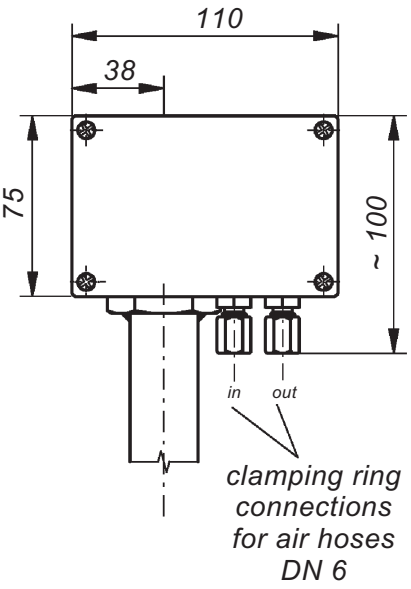

SM/V.../E/PN/Ex-0G ⟨Ex⟩ II 1/2 G c IIC ΔT = 0