



Level



Pressure



Flow



Temperature



Liquid
Analysis



Registration



Systems
Components



Services



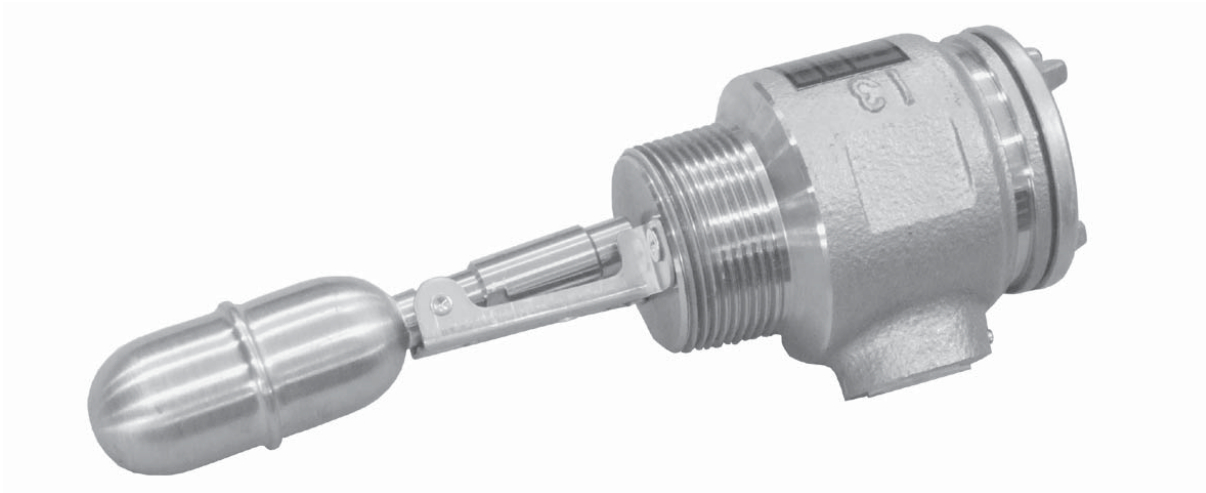
Solutions

Technical Information

Float Level Switch

CS1103/CS1113/CS1203/CS1213/CS1603/CS1613

For upper/lower alarm



Application

Float Level Switch CS1103/CS1113/CS1203/CS1213/CS1603/CS1613 are a compact level switch with a stainless steel float. It is horizontally mounted on tanks to give an alarm with a reed switch activated by change in liquid level. The system is suited to fuel oil storage tanks and the likes.

Features and benefit

- Simple function
- Extremely compact design
- Safety operation
- Reliable mechanical contact
- Easy mounting
- High corrosion resistance (stainless steel)
- Automatic pump and valve control with Nivotester "FTW325"

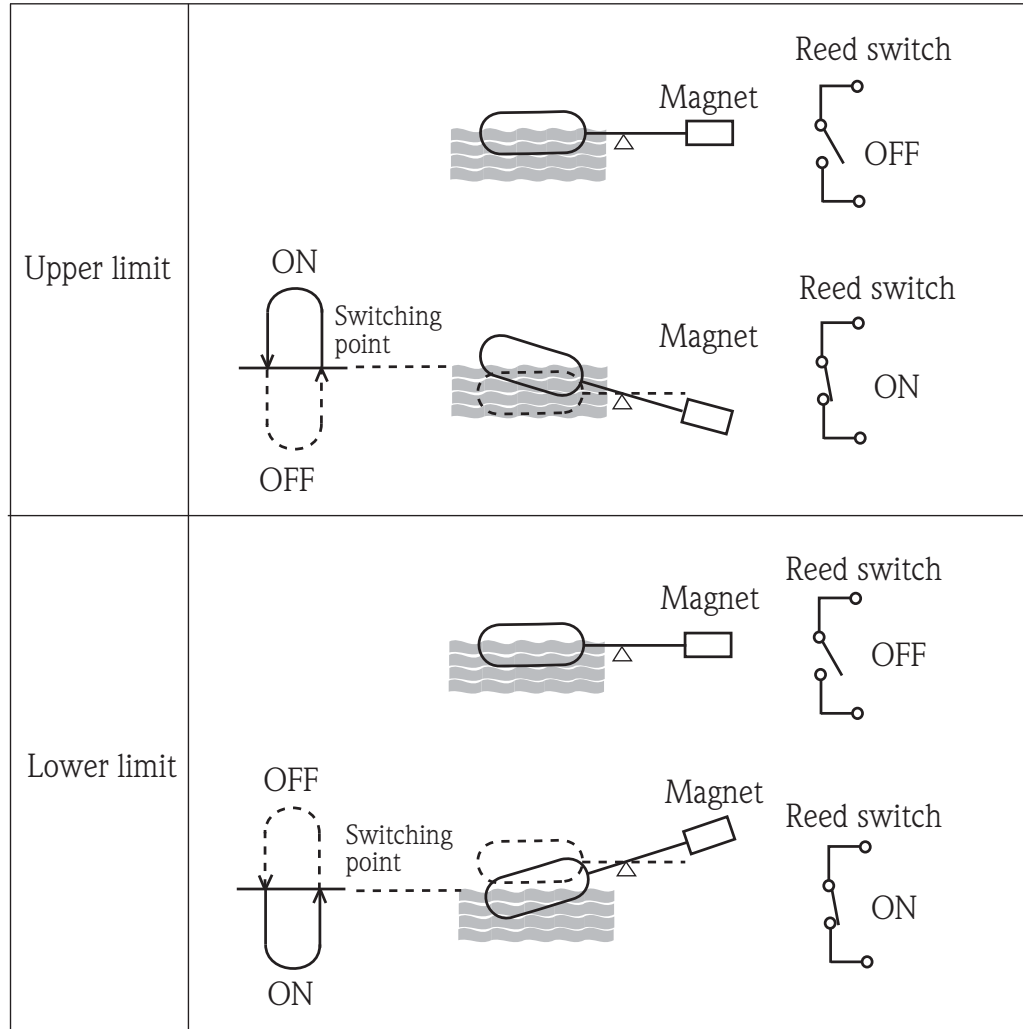
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Function and system design

Operating Principle

A float detects liquid level in a tank and a magnet attached to the rear side of the float turns ON and OFF the reed switch. The reed switch is turned OFF when the magnet is positioned near its center, and is turned ON when the magnet is located apart from its center.

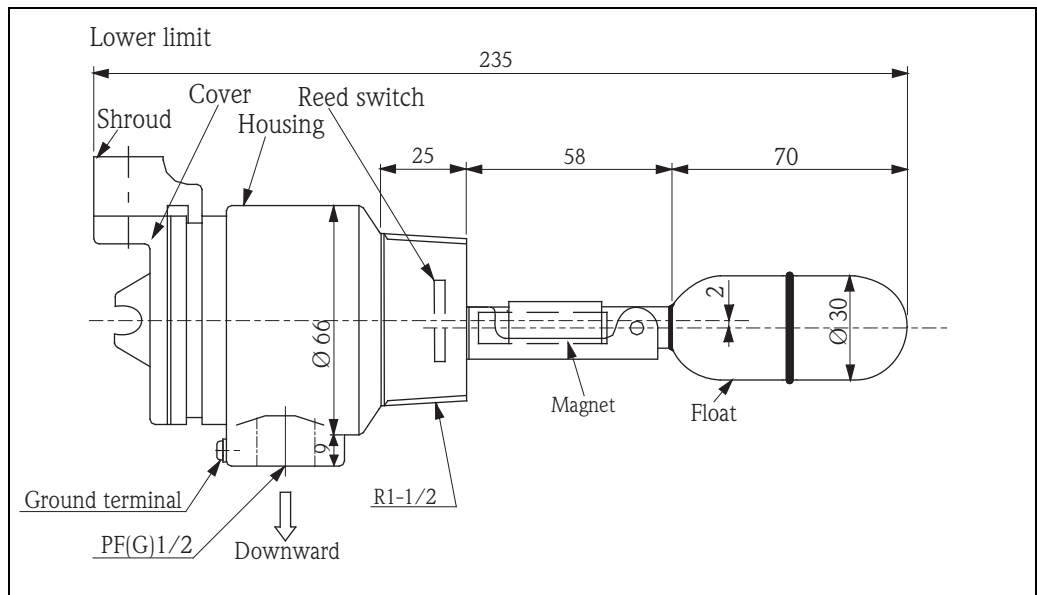


Standard specification

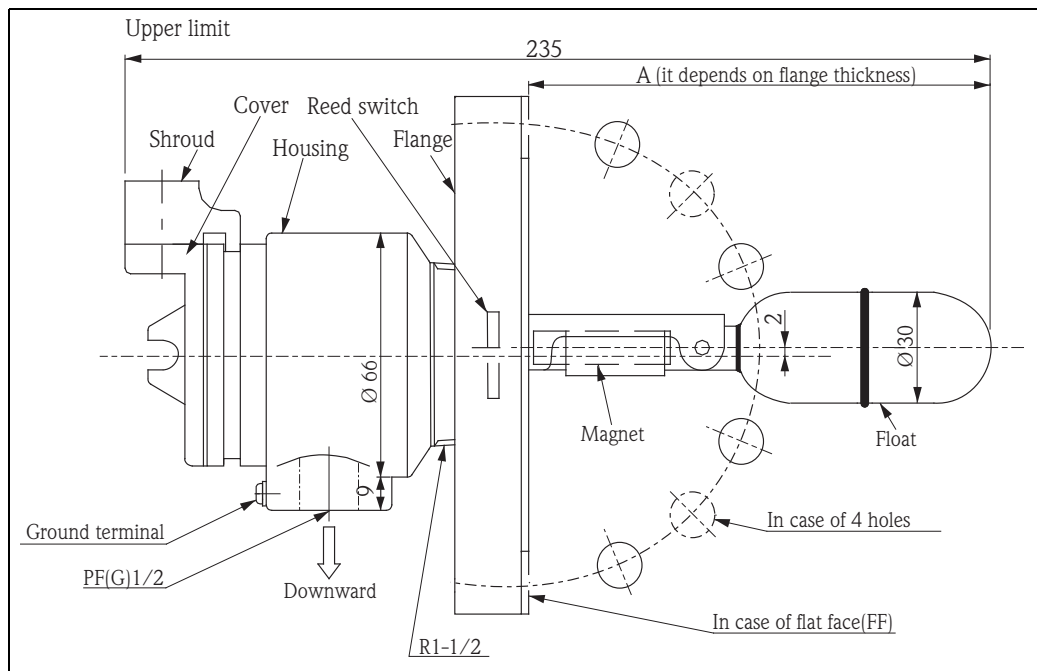
Contact operation for upper limit alarm	ON when liquid level exceeds the set position
Contact operation for lower limit alarm	ON when liquid level becomes lower than the set position
Measured liquid temperature	-20 ...+80 °C (operation not possible in freezing temperature)
Ambient temperature	-10 ...+40 °C (operation not possible in freezing temperature)
Maximum allowable working pressure	1.96MPa (20kg / cm ²)
Measured liquid specific density	0.7...2.0g/cm ³
Level Accuracy (50 mm displacer)	within ±5mm (specific density=1g/cm ³)
Approval	Flame proof, TlIS, d2G4
Protection class	IP65
Installation	<p>horizontally on the sidewall of a tank</p> <p>CS1103 thread connection :Thread JIS B0203 R1-1/2</p> <p>CS1113 thread connection :Thread JIS B0203 R1-1/2</p> <p>CS1203 flange, low pressure: 10 80A RF, flange JIS B2220 10 100A RF, flange JIS 2220 3" 150lbs RF, flange ANSI 16.5 4" 150lbs RF, flange ANSI 16.5</p> <p>CS1213 Thread JIS B0203 R1-1/2</p> <p>CS1603 flange, low pressur : 10 80A RF, flange JIS B2220 10 100A RF, flange JIS B2220 20 100A RF, flange JIS B2220 20 100A RF, flange JIS B2220 3" 150lbs RF, flange ANSI B 16.5 4" 150lbs RF, flange ANSI B 16.5 3" 300lbs RF, flange ANSI B 16.5 4" 300lbs RF, flange ANSI B 16.5</p> <p>CS1613 flange, high pressure:10 80A RF, flange JIS B2220 10 100A RF, flange JIS B2220 20 100A RF, flange JIS B2220 20 100A RF, flange JIS B2220 3" 150lbs RF, flange ANSI B 16.5 4" 150lbs RF, flange ANSI B 16.5</p> <p>Use more than *3"/80A flange, 4" 100A flange (in case of spherical float)</p>
Material	Stainless-steel (JIS SUS304)
Cable Entry	PF(G)1/2, PF(G)3/4
Weight	CS1103:approx. 1kg CS1113:approx. 4.8kg CS1203:approx. 4.4kg (depends on Process Connection) CS1213:approx. 7kg (depends on External Chamber) CS1603:approx. 5.4g (depends on Process Connection)
Paint color	Silver

Dimensions

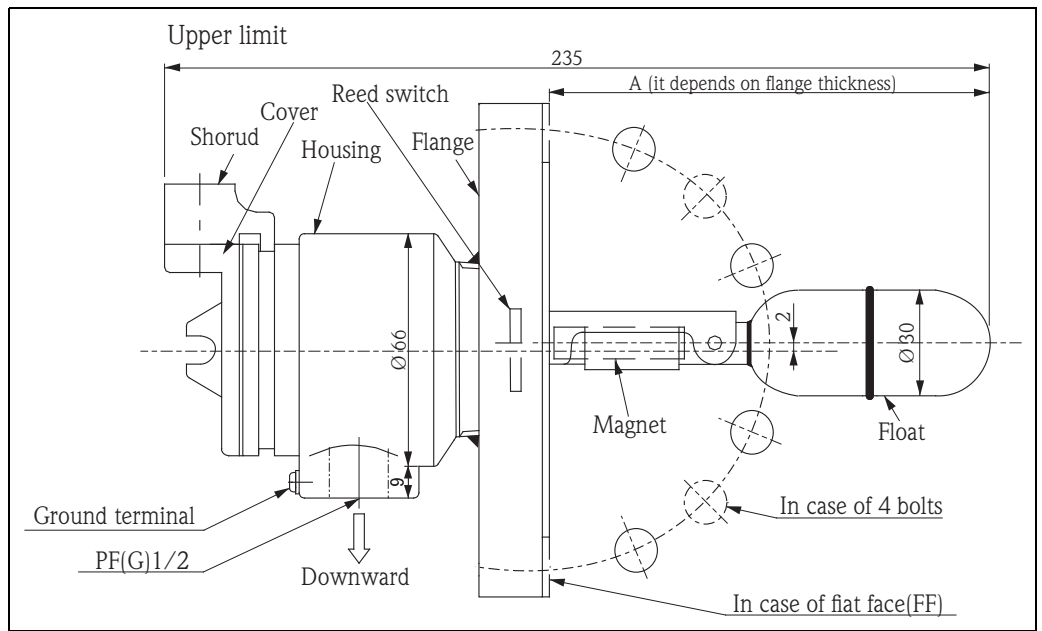
CS1103 (Threaded)



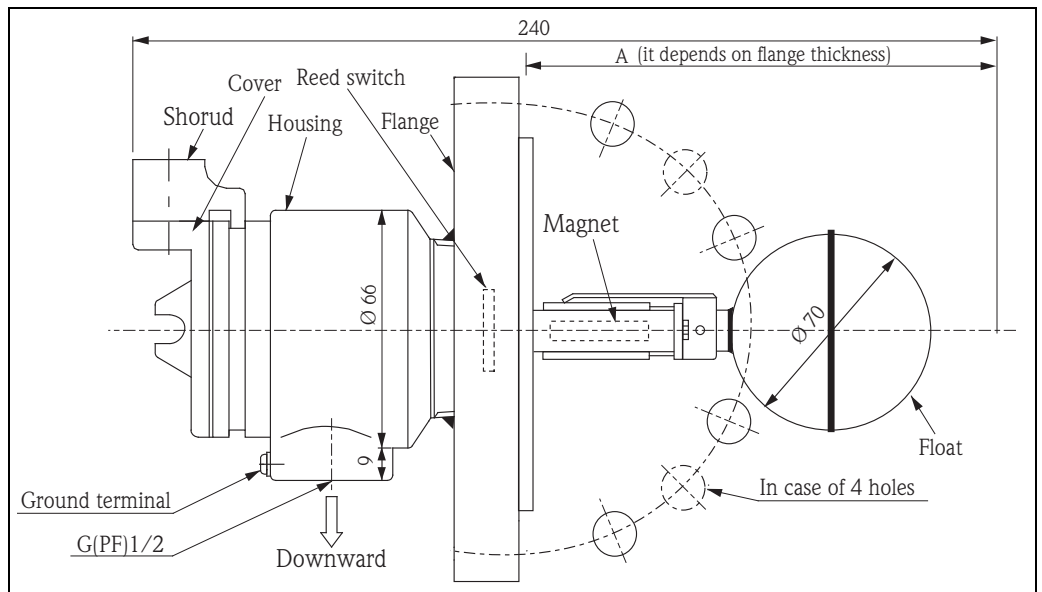
CS1203 (Flange, low pressure)



CS1603 (Flange, high pressure) Cylindrical float



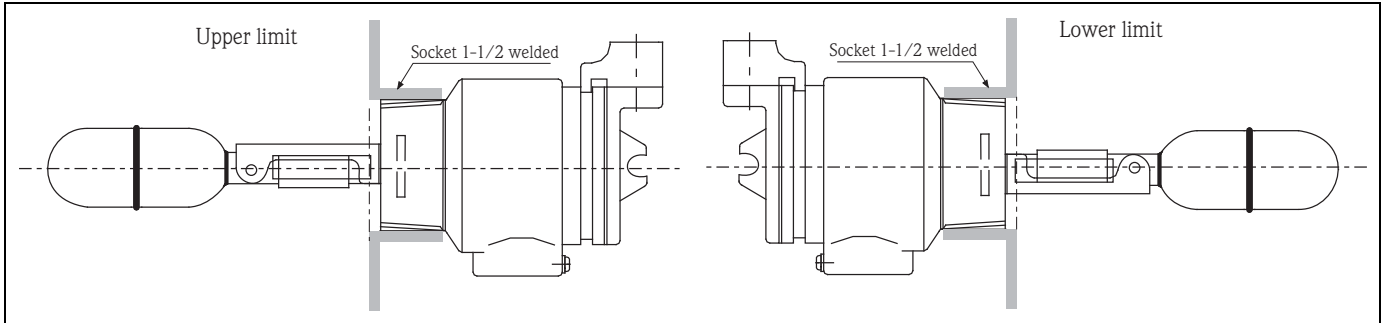
Spherical float



Installation

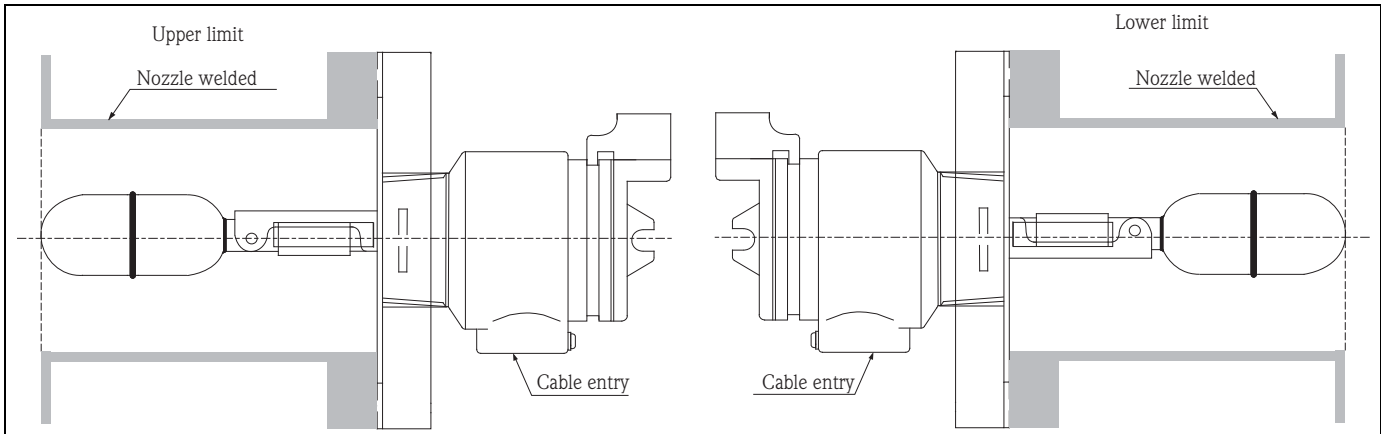
Threaded connection type installation

The level float switch should be mounted horizontally on sidewall of a tank. The level float switch of standard type is designed thread-connection (R1-1/2) with a socket welded to side wall of a tank. The socket must have an inside diameter of at least 45mm. If the inside diameter is smaller than 45mm, it may be malfunctioning.

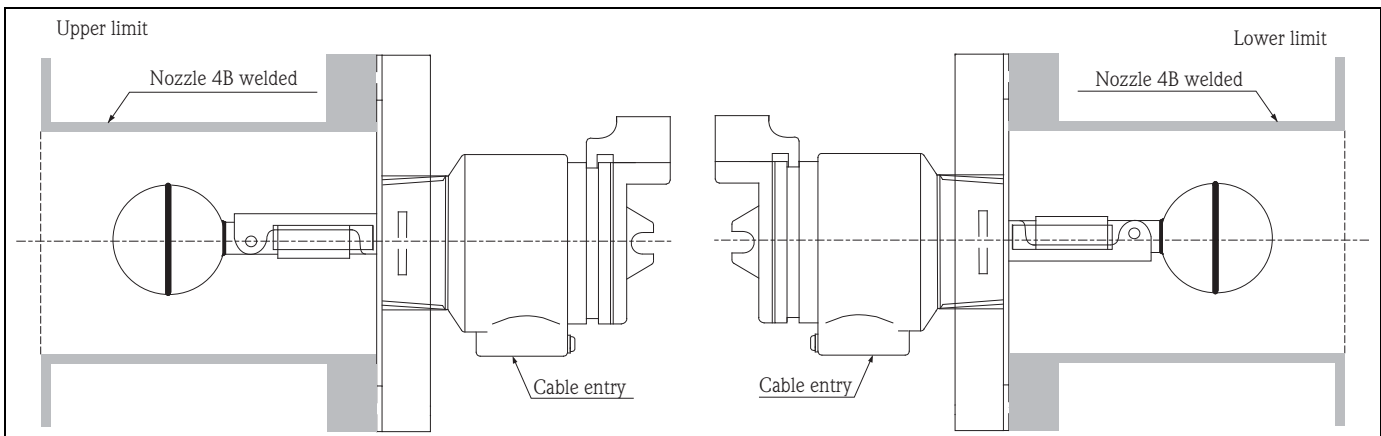


Flange connection type installation (cylindrical float)

The level float switch of flange connection must prepare a nozzle of at least 3B. In case of spherical float must prepare a nozzle 4B.



Flange connection type installation (spherical float)



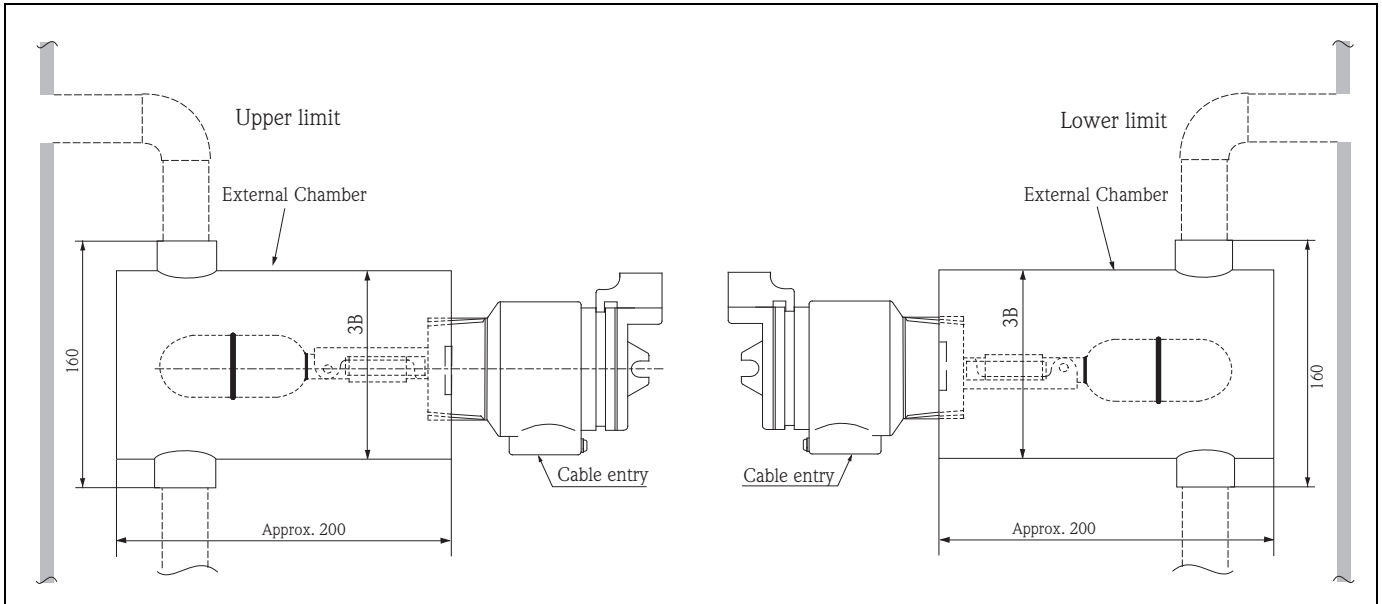
External Chamber type installation

The pipe connection for the level float switch of external chamber type has threaded connection and flange connection.

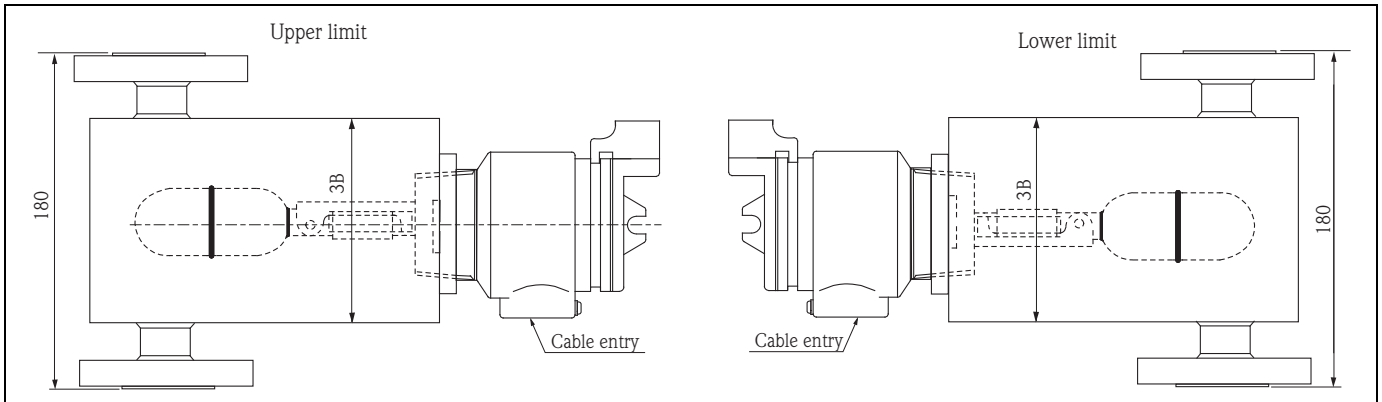
Note!

The conduit connection must always be set downside.

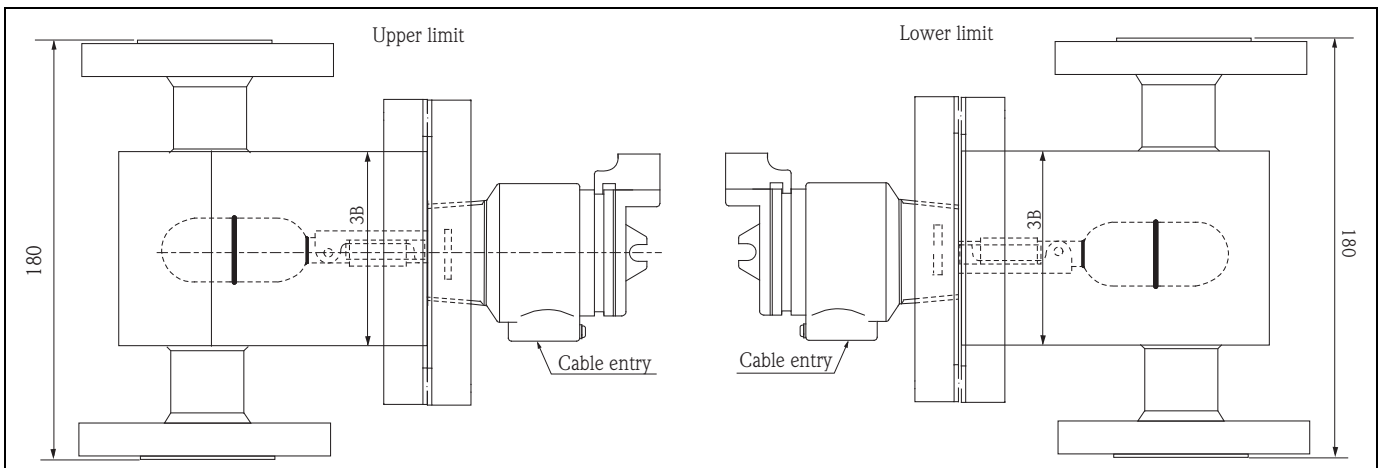
CS1113 threaded connection



CS1213 flange connection, low pressure



CS1613 flange connection, High pressure

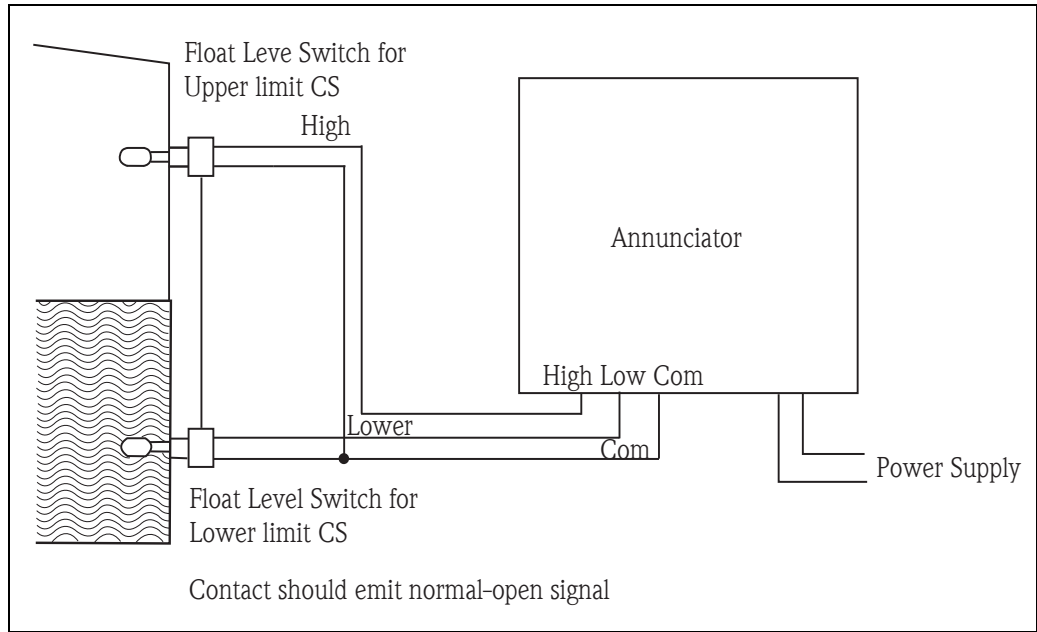


Application

- Contact signal for controlling pump and valve
- Contact signal for protecting overflow
- It is usable for a pressure vessel

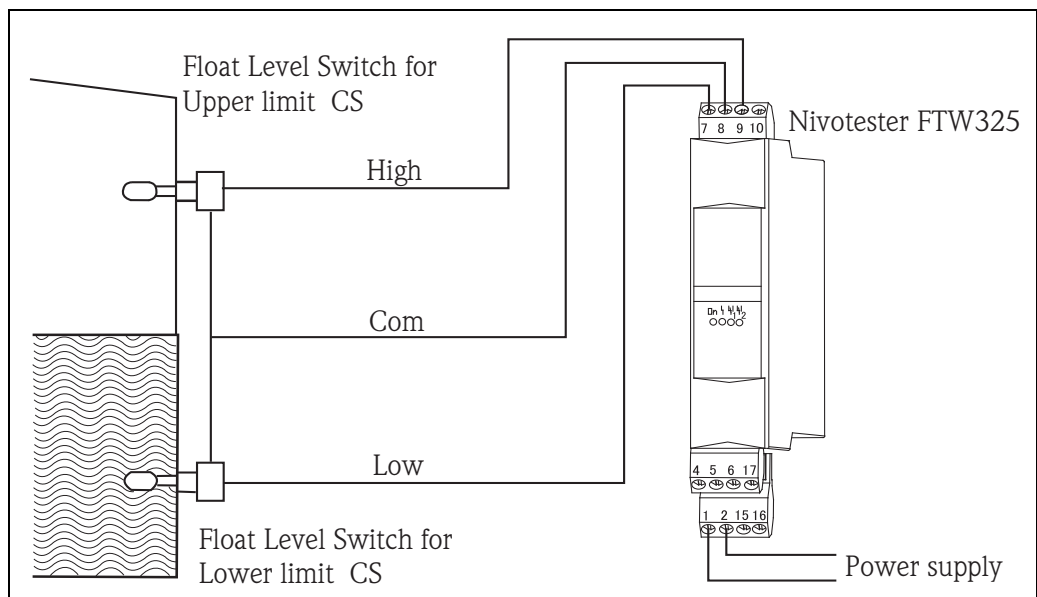
For alarming

When the level float switch is combined with annunciator, It is possible that a lamp comes on and sounds for alarming.



For controlling pump and valve

When the level float switch is combined with Nivotester FTW325, no control circuit is required. It is available that you only connect the contact output from Nivotester to pump and valve.



Certificates and approvals

Ex approval	TIIS TIIS d2G4
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Protection class	IP65
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Order Information

CS1103

010	Function:	
	0	Standard function
	1	Not Standard function
020	Process Connection:	
	0	Thread JIS B0203 R1-1/2
	9	Special version, TSP-no. to be spec..
030	Material Process Connection ;Float:	
	J1	SCS13 ; SUS304, cylindrical
	J9	Special version, TSP-no.to be spec.
040	Protection class:	
	2	Flame proof d2G4 E ¹ , IP65
	3	Flame proof d2G4 EB ² , IP65
	9	Special version, TSP-no.to be spec.
050	External Chamber:	
	0	Not used
	9	Special version, TSP-no.to be spec.
060	Switch position:	
	1	High
	2	Low
070	Cable entry:	
	0	PF(G)1/2
	1	PF(G) 3/4 Cable Gland, TF16-11
	2	PF (G)3/4 Cable Gland, TF16-12
	3	PF(G) 3/4 Cable Gland, TF16-9
	4	NPT1/2
	9	Special version, TSP-no.to be spec.
CS1103-	Order code	

¹ TIIS d2G4 (E)

² TIIS d2G4 + cable gland (EB)

Standard

Old	New
PT male screw	R
PT female screw	Rc
PS	Rp
PF	PF(G)

CS1113

010	Function:			
	0	Standard function		
	1	Non standard function		
020	Switch Head Connection:			
	0	Thread JIS B0203 R1-1/2		
	9	Special version, TSP-no.to be spec.		
030	Material Process Connection; Float:			
	J1	SCS13;SUS304, cylindrical		
	J9	Special version, TSP-no.to be spec.		
040	Approval:			
	2	Flame proof d2G4 E ^{*1} , IP65		
	3	Flame proof d2G4 EB ^{*2} , IP65		
	9	Special version, TSP-no.to be spec.		
050	External Chamber:			
	1	STPG370,thread JIS B0203 Rp3/4, STPG370		
	2	SUS304, thread JIS B0203 Rp3/4, SUS304		
	5	STPG370,thread ANSI NPT3/4, STPG370		
	6	SUS304, thread ANSI NPT3/4, SUS304		
	9	Special version, TSP-no.to be spec.		
060	Switch Position:			
	1	High		
	2	Low		
070	Cable entry:			
	0	PF(G)1/2		
	1	PF (G)3/4 cable gland, TF16-11		
	2	PF (G) 3/4 cable gland, TF16-12		
	3	PF (G)3/4 cable gland, TF16-9		
	4	NPT1/2		
	9	Special version, TSP-no.to be spec.		
CS1113-				Order code

*1 TIIS d2G4 (E)

*2 TIIS d2G4 + cable gland (EB)

Standard

Old	New
PT male screw	R
PT female screw	Rc
PS	Rp
PF	PF(G)

CS1203

010		Function:	
	0	Standard function	
	1	Non standard function	
020		Process Connection:	
	1	10K 80A RF, flange JIS B2220	
	3	10K 100A RF, flange JIS B2220?	
	5	3" 150lbs RF, flange ANSI B 16.5	
	7	4" 150lbs RF, flange ANSI B 16.5	
	9	Special version, TSP-no.to be spec.	
030		Material Process Connection;Float:	
	J2	SUS304; SUS304, cylindrical	
	J9	Special version, TSP-no.to be spec.	
040		Approval:	
	2	Flame proof d2G4 E ¹ , IP65	
	3	Flame proof d2G4 EB ² , IP65	
	9	Special version, TSP-no.to be spec.	
050		External Chamber:	
	0	Not used	
	9	Special version, TSP-no.to be spec.	
060		Switch Position:	
	1	High	
	2	Low	
070		Cable entry:	
	0	PF(G) 1/2	
	1	PF(G) 3/4 cable gland, TF16-11	
	2	PF(G) 3/4 cable gland, TF16-12	
	3	PF (G) 3/4 cable gland, TF16-9	
	4	NPT1/2	
	9	Special version, TSP-no.to be spec.	
CS1203-		Order code	

*1 TIIS d2G4 (E)
 *2 TIIS d2G4 + Cable gland (EB)

Standard

old	New
PT male screw	R
PT female screw	Rc
PS	Rp
PF	PF(G)

CS1213

010										Function:									
					0					Standard function									
					1					Non standard function									
020										Switch Head Connection:									
					0					Thread JIS B0203 R1-1/2									
					9					Special version, TSP-no.to be spec.									
030										Material Process Connection;Float:									
					J1					SCS13; SUS304, cylindrical									
					J9					Special version, TSP-no.to be spec.									
040										Approval:									
					2					Flame proof d2G4 E ^{*1} , IP65									
					3					Flame proof d2G4 EB ^{*2} , IP65									
					9					Special version, TSP-no.to be spec.									
050										External Chamber:									
					3					STPG370, 10K 25A RF, SS400, flange JIS B2220									
					4					SUS304, 10K 25A RF, SUS304, flange JIS B2220									
					7					STPG370, 1" 150lbs RF, SS400, flange ANSI 16.5									
					8					SUS304, 1" 150lbs RF, SUS304, flange ANSI 16.5									
					9					Special version, TSP-no.to be spec.									
060										Switch Position:									
					1					High									
					2					Low									
070										Cable entry:									
					0					PF(G)1/2									
					1					PF(G)3/4 cable gland, TF16-11									
					2					PF(G) 3/4 cable gland, TF16-12									
					3					PF(G) 3/4 cable gland, TF16-9									
					4					NPT1/2									
					9					Special version, TSP-no.to be spec.									
CS1213-										Order code									

*1 TIIS d2G4 (E)

*2 TIIS d2G4 + Cable gland (EB)

Standard

Old	New
PT male thread	R
PT female thread	Rc
PS	Rp
PF	PF(G)

CS1603

010		Function:	
	0	Standard function	
	1	Non standard function	
020		Process Connection:	
	1	10K 80A RF, flange JIS B2220	
	2	20K 80A RF, flange JIS B2220	
	3	10K 100A RF, flange JIS B2220	
	4	20K 100A RF, flange JIS B2220	
	5	3" 150lbs RF, flange ANSI B16.5	
	6	3" 300lbs RF, flange ANSI B16.5	
	7	4" 150lbs RF, flange ANSI B16.5	
	8	4" 300lbs RF, flange ANSI B16.5	
	9	Special version, TSP-no.to be spec.	
030		Material Process Connection;Float:	
	J2	SUS304;SUS304, cylindrical	
	J3	SUS304;SUS316, spherical	
	J9	Special version, TSP-no.to be spec.	
040		Approval:	
	2	Flame proof d2G4 E ^{*1} , IP65	
	3	Flame proof d2G4 EB ^{*2} , IP65	
	9	Special version, TSP-no.to be spec.	
050		External Chamber:	
	0	Not used	
	9	Special version, TSP-no.to be spec.	
060		Switch Position:	
	1	High	
	2	Low	
070		Cable entry:	
	0	PF(G)1/2	
	1	PF (G)3/4 cable gland, TF16-11	
	2	PF(G) 3/4 cable gland, TF16-12	
	3	PF (G)3/4 cable gland, TF16-9	
	4	NPT1/2	
	9	Special version, TSP-no.to be spec.	
CS1603-		Order code	

*1 TIIS d2G4 (E)

*2 TIIS d2G4 + cable gland (EB)

Standard

Old	New
PT male thread	R
PT female thread	Rc
PS	Rp
PF	G(PF)

CS1613

010		Function:	
	0	Standard function	
	1	Non standard function	
020		Switch Head Connection:	
	1	10K 80A RF, flange JIS B2220	
	3	10K 100A RF, flange JIS B2220	
	5	3" 150lbs RF, flange ANSI 16.5	
	7	4" 150lbs RF, flange ANSI 16.5	
	9	Special version, TSP-no.to be spec.	
030		Material Process Connection;Float:	
	J2	SUS304; SUS304, cylindrical	
	J3	SUS304; SUS316, spherical	
	J9	Special version, TSP-no.to be spec.	
040		Approval:	
	2	Flame proof d2G4 E ^{*1} , IP65	
	3	Flame proof d2G4 EB ^{*2} , IP65	
	9	Special agreement, TSP-no.to be spec.	
050		External Chamber:	
	3	STPG370, 10K 25A RF, SS400 , flange JIS B2220	
	4	SUS304, 10K 25A RF, SUS304, flange JIS B2220	
	7	STPG370, 1"150lbs RF, SS400 , flange ANSI 16.5	
	8	SUS304, 1"150lbs RF, SUS304, flange ANSI 16.5	
	9	Special version, TSP-no.to be spec.	
060		Switch Position:	
	1	High	
	2	Low	
070		Cable entry:	
	0	PF(G)1/2	
	1	PF (G)3/4 cable gland, TF16-11	
	2	PF(G) 3/4 cable gland, TF16-12	
	3	PF (G)3/4 cable gland, TF16-9	
	4	NPT1/2	
	9	Special version, TSP-no.to be spec.	
CS1613-		Order code	

*1 TIIS d2G4 (E)

*2 TIIS d2G4 + cable gland (EB)

Standard

Old	New
PT male thread	R
PT female thread	Rc
PS	Rp
PF	PF(G)

Documentation

Technical Information

TI 373F

Technical Information Nivotester FTW325

Operating Instructions

BA 1043N

Operating Instructions Float Level Switch CS1103/CS1113/CS1203/CS1213/CS1603/CS1613

KA199F

Compact Instructions Nivotester FTW325

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