spirax/sarco

SENSILEVEL - Series 7700 Displacer Operated Level Control Internal Top Mounted Single Stage

Description

Series 7700 displacer operated level controls are suitable for a wide range of applications on open or pressurized vessels of all dimensions: the use of displacers allows for wide switching differential, field adjustable switching points and use on high pressure applications. The single stage series are equipped with a single switch mechanism and are available with narrow or wide switching differential. The narrow range models are factory set to work with a fixed differential (40 mm average) slightly variable according to the liquid specific gravity: the switching level can be adjusted readily by changing the displacer position on the suspension cable. The wide switching differential models are fitted with two separate displacers for rising or falling level; by changing the relative position of the displacers on the cable the differential setting as well as the switching level can be adjusted.

The carbon steel connection to the vessel can be screwed 3" NPT or flanged 3" ANSI 150 as standard; the trim is in AISI 316 stainless steel, the attraction sleeve in series 400 AISI stainless steel and the displacer spring is in INCONEL. The displacer can be supplied in AISI 316L or in porcelain with AISI 316 suspension cable 3 meters long.

Use

This device should be considered a component used to control level and should not be considered a safety device.

These products are designed and constructed in accordance with the directive 2014/68/EU and are not CE marked because they are not considered to be operating under pressure.

Switch Selection

To select the correct model according to the operating conditions and the data on the liquid whose level has to be controlled refer to the table below and see bulletin 7A.100-E to select the switch mechanism and housing.

Options and Special Features

• AISI 316 process connection
• Special corrosion resistant materials
• Shielded attraction sleeve
• Extra lenght suspension cable (up to 15 m)
• Interface control setting

Specifications

|				Minimum specific gravity related to the process temperature (1) (kg/dm³)					
Maximum pressure: 70 bar at 250°C (with porcelain displacers) / 40 bar at 250°C (with stainless steel displacers) On the flanged process connection models the maximum pressure can be limited by the flange rating and its material of construction.									
Model	Switch Function	Process Connection	Displacer Material (2)	40°C	100°C	150°C	200°C	250°C	
7701	Narrow Different. (fixed)	Screwed	Porcelain	0.50	0.60	0.60	0.70	0.70	
7702			Stain. Steel						
7703		Flanged	Porcelain						
7704			Stain. Steel						
7705	Large Different. (adjust.)	Screwed	Porcelain	0.60	0.70	0.70	0.80	0.90	
7706			Stain. Steel	0.60	0.70	0.70	0.70	0.70	
7707		Flanged	Porcelain	0.60	0.70	0.70	0.80	0.90	
7708			Stain. Steel	0.60	0.70	0.70	0.70	0.70	

Note: (1) The single stage narrow differential model can operate with all values of specific gravity from the minimum in the table to the maximum of 2 kg/dm³ and to a maximum of 1.2 kg/dm³ for the large differential types: the latter type can accept from the setting, liquid specific gravity alteration of ± 20% and temperature deviation of ± 25°C.

(2) Porcelain displacers can be used up to a maximum temperature of 95°C in pressurized vessels containing water or condensate.

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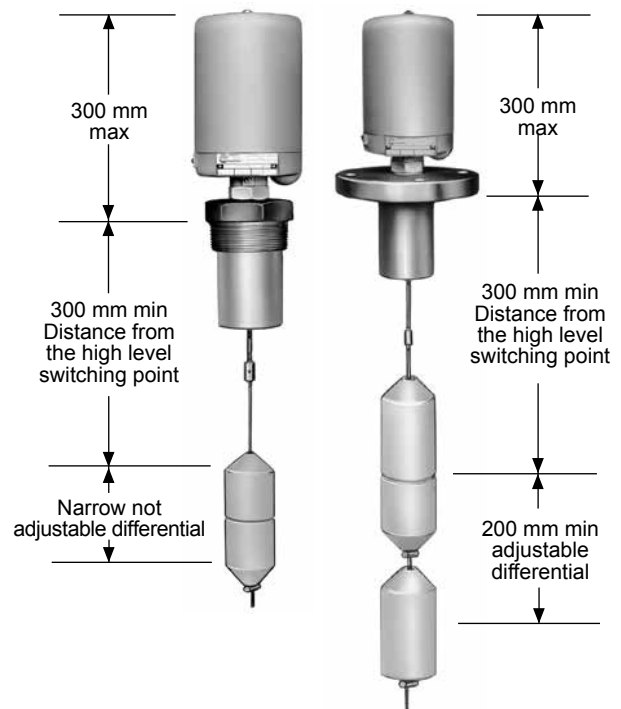
Switching Levels (mm) as a function of Specific Gravity and Temperature

Mod. 7701 - Mod. 7703
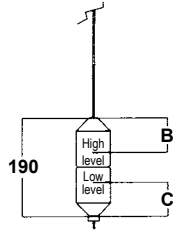
Specific Gravity	40°C		100°C		150°C		200°C		250°C	
	B	C	B	C	B	C	B	C	B	C
0.50	51	63	--	--	--	--	--	--	--	--
0.60	72	55	56	73	46	84	--	--	--	--
0.70	87	49	73	64	64	74	56	83	47	92
0.80	98	45	86	58	78	66	71	74	63	83
0.90	106	41	96	53	89	60	83	68	76	75
1.00	113	39	104	49	98	56	92	62	86	69
1.10	119	37	110	46	105	52	99	58	94	64
1.20	124	35	116	43	111	49	106	54	101	60

Mod. 7702 - Mod. 7704
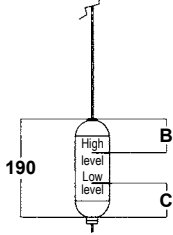
Specific Gravity	40°C		100°C		150°C		200°C		250°C	
	B	C	B	C	B	C	B	C	B	C
0.50	49	61	--	--	--	--	--	--	--	--
0.60	71	53	54	71	43	83	--	--	--	--
0.70	86	47	72	63	63	73	54	82	45	92
0.80	98	42	85	56	77	65	70	73	62	82
0.90	107	39	96	51	89	59	82	66	75	74
1.00	114	36	104	47	98	54	92	61	85	68
1.10	120	34	111	44	105	50	100	56	94	62
1.20	125	32	117	41	112	47	106	52	101	58

Mod. 7705 - Mod. 7707
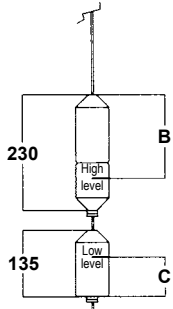
Specific Gravity	40°C		100°C		150°C		200°C		250°C	
	B	C	B	C	B	C	B	C	B	C
0.60	65	51	--	--	--	--	--	--	--	--
0.70	104	43	80	72	65	91	--	--	--	--
0.80	133	38	112	63	99	79	86	95	--	--
0.90	155	34	137	56	125	70	114	85	102	99
1.00	174	30	157	51	146	63	136	76	125	89
1.10	188	28	173	46	164	58	154	69	145	81
1.20	201	25	187	42	178	53	169	63	161	74
1.20	125	32	117	41	112	47	106	52	101	58

Mod. 7706 - Mod. 7708
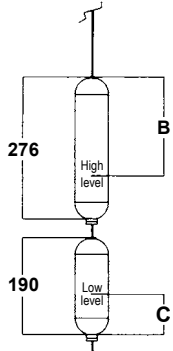
Specific Gravity	40°C		100°C		150°C		200°C		250°C	
	B	C	B	C	B	C	B	C	B	C
0.60	61	64	--	--	--	--	--	--	--	--
0.70	114	56	91	86	77	105	62	124	48	143
0.80	154	50	134	77	121	93	109	110	96	127
0.90	185	46	167	69	156	84	145	99	134	114
1.00	210	42	194	64	184	77	174	90	164	103
1.10	230	39	216	59	206	71	197	83	188	95
1.20	247	37	234	55	225	66	217	77	209	88
1.20	125	32	117	41	112	47	106	52	101	58

Note: for intermediate values of specific gravity and temperature between those indicated on the tables, B and C can be calculated by interpolating between the corresponding values at the conditions closest to those of service.
For specific gravity values not indicated on the tables, refer to the special instructions provided with the device.

Model number code system

The model number for each control is determined by selecting three basic modules which describe a complete control. They are:
   Model series (Sensing unit)
   Switch mechanism/s
   Switch housings
Each module has a corresponding numeric code wich, when combined toghether, forms the MODEL NUMBER. The model number coding arrangement is as follows:

```
0000(x)    -    000    -    0    -    S ——— Option/s (if any *)
                                            Switch housing
                                            Switch mechanism/s
                                            Model Series (Sensing unit)
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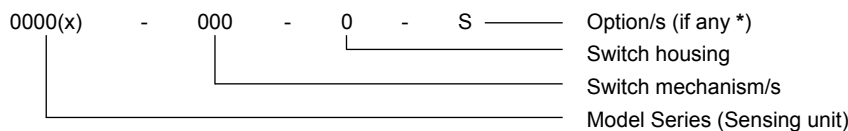
* When options are required, an S is added after the Switch Housing Code and the option required described.