

7A.170-E Issue 4.1 - 2016

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 vassels 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

These products are designed and constructed in accordance with the directive 2014/68/EU and are not $C \in$ 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

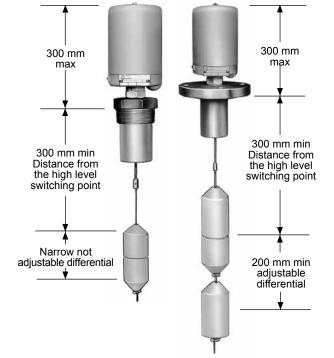
Maximum pressure: 70 bar at 250°C (with porcelain displacers) / 40 bar at 250°C (with stainless steel displacers) On the flanged process connection models the maximum pressure can be limited by the flange rating and its material of construction.

Model	Switch Function	Process Connection	Displacer Material (2)	rela	ted to the	n specific process 1) (kg/dm ³	tempera	3" NPT	
				40°C	100°C	150°C	200°C	250°C	92 112 Ø 72
7701	Narrow Different. (fixed)	Screwed	Porcelain		0.60	0.60	0.70		Mod. 7701-7702-7705-7706
7702			Stain. Steel	0.50				0.70	
7703		Flanged	Porcelain						3" ANSI
7704			Stain. Steel						36 36 36 36 36 36 36 36 36 36 36 36 36 3
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	112 Ø 72
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	Mod. 7703-7704-7707-7708

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.

First for Steam Solutions



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

od. 7701 - Mod. 7703	Specific	40	°C	10	0°C	15)°C	200	0°C	25	0°C
Л	Gravity	В	С	В	С	В	С	В	С	В	
	0.50	51	63								
	0.60	72	55	56	73	46	84				.
	0.70	87	49	73	64	64	74	56	83	47	9
<u> </u>	0.80	98	45	86	58	78	66	71	74	63	8
vel ow	0.90	106	41	96	53	89	60	83	68	76	7
Vel C	1.00	113	39	104	49	98	56	92	62	86	6
\	1.10	119	37	110	46	105	52	99	58	94	6
	1.20	124	35	116	43	111	49	106	54	101	6
02 - Mod. 7704		40°C		100°C		150°C		200°C		250°C	
T	Specific Gravity	B	C C	B	C C	B	с С	 B	C C	25 B	
	0.50	49	61	<u>Б</u> 						<u>Б</u> 	
	0.50	71	53	54	71	43	83				-
				-		-					
B	0.70	86 98	47	72 85	63 56	63 77	73 65	54 70	82 73	45 62	8
ligh D evel 	0.80	107	42 39	96	50	89	59	82	66	62 75	7
level C	1.00	114	39	104	47	98	59 54	82 92	61	75 85	6
Ϋ́	1.10	120	30	111	47	105	54 50	92 100	56	94	6
	1.10	120	32	117	41	112	47	100	50	101	5
05 - Mod. 7707	1.20	120	52	1 117	-1	112	-1	100	52	101	
	Specific	40	°C	10	0°C	15	0°C	20	0°C	25	0°C
	Gravity	В	С	В	С	В	С	В	С	В	(
	0.60	05	F 4								-
	0.60	65	51								
B	0.80	65 104	43	80	 72	 65	 91				1
			-								-
n	0.70	104	43	80	72	65	91 79 70	 86 114			
	0.70 0.80	104 133	43 38	80 112	72 63	65 99	91 79	 86	 95		- - -
	0.70 0.80 0.90	104 133 155	43 38 34	80 112 137	72 63 56	65 99 125	91 79 70	 86 114	 95 85	 102	
High level Low Low Low Low	0.70 0.80 0.90 1.00	104 133 155 174	43 38 34 30	80 112 137 157	72 63 56 51	65 99 125 146	91 79 70 63	 86 114 136	 95 85 76	 102 125	و ع 8
High level Low level C	0.70 0.80 0.90 1.00 1.10	104 133 155 174 188	43 38 34 30 28	80 112 137 157 173	72 63 56 51 46	65 99 125 146 164	91 79 70 63 58	 86 114 136 154	 95 85 76 69	 102 125 145	
	0.70 0.80 0.90 1.00 1.10 1.20	104 133 155 174 188 201 125	43 38 34 30 28 25 32	80 112 137 157 173 187 117	72 63 56 51 46 42 41	65 99 125 146 164 178 112	91 79 70 63 58 53 47	 86 114 136 154 169 106	 95 85 76 69 63 52	 102 125 145 161 101	
High level	0.70 0.80 0.90 1.00 1.10 1.20 1.20 Specific	104 133 155 174 188 201 125 40	43 38 34 30 28 25 32	80 112 137 157 173 187 117 10	72 63 56 51 46 42 41	65 99 125 146 164 178 112 15	91 79 70 63 58 53 47	 86 114 136 154 169 106 20	 95 85 76 69 63 52	 102 125 145 161 101 25	9 9 8 8 7 5
High level Low level C	0.70 0.80 0.90 1.00 1.10 1.20 1.20 Specific Gravity	104 133 155 174 188 201 125 40 B	43 38 34 30 28 25 32 °C C	80 112 137 157 173 187 117 10 B	72 63 56 51 46 42 41 0°C C	65 99 125 146 164 178 112 15 B	91 79 70 63 58 53 47 9°C C	 86 114 136 154 169 106 200 B	 95 85 76 69 63 52 0°C C	 102 125 145 161 101 25 B	
Figh level Low Low C F 6 - Mod. 7708	0.70 0.80 0.90 1.00 1.10 1.20 1.20 Specific Gravity 0.60	104 133 155 174 188 201 125 40 B 61	43 38 34 30 28 25 32 °℃ ℃ € 64	80 112 137 157 173 187 117 117 10 B 	72 63 56 51 46 42 41 0°C C 	65 99 125 146 164 178 112 15 B 	91 79 70 63 58 53 47 9°C C C	 86 114 136 154 169 106 200 B 	 95 85 76 69 63 52 0°C C 	 102 125 145 161 101 25 B 	
Herel Low Low Level C T T B6 - Mod. 7708	0.70 0.80 0.90 1.00 1.10 1.20 1.20 Specific Gravity 0.60 0.70	104 133 155 174 188 201 125 40 B 61 114	43 38 34 30 28 25 32 32 ℃ C 64 56	80 112 137 157 173 187 117 117 100 B 91	72 63 56 51 46 42 41 0°C C 86	65 99 125 146 164 178 112 15 B 77	91 79 70 63 58 53 47 °C C 105	 86 114 136 154 169 106 200 B 62	 95 85 76 69 63 52 0°C C 124	 102 125 145 161 101 25 B 48	0°C
High level Low level C F Mod. 7708	0.70 0.80 0.90 1.00 1.10 1.20 1.20 Specific Gravity 0.60 0.70 0.80	104 133 155 174 188 201 125 40 B 61 114 154	43 38 34 30 28 25 32 [●] C C 64 56 50	80 112 137 157 173 187 117 100 B 91 134	72 63 56 51 46 42 41 0°C C 86 77	65 99 125 146 164 178 112 150 B 77 77 121	91 79 70 63 58 53 47 °C C 105 93	 86 114 136 154 169 106 200 B 62 109	 95 85 76 69 63 52 0°C C 124 110	 102 125 145 161 101 25 B 48 96	0°C
High level Law Law C T T T T High	0.70 0.80 0.90 1.00 1.10 1.20 1.20 5pecific Gravity 0.60 0.70 0.80 0.90	104 133 155 174 188 201 125 40 B 61 114 154 185	43 38 34 30 28 25 32 *C C 64 56 50 46	80 112 137 157 173 187 117 117 10 B 91 134 167	72 63 56 51 46 42 41 0°C C 86 77 69	65 99 125 146 164 178 112 15 B 77 121 156	91 79 70 63 58 53 47 °C C 105 93 84	 86 114 136 154 169 106 20 0 B 62 109 145	 95 85 76 69 63 52 0°C C 124 110 99	 102 125 145 161 101 25 B 48 96 134	0°C
High High High	0.70 0.80 0.90 1.00 1.10 1.20 1.20 1.20 Specific Gravity 0.60 0.70 0.80 0.90 1.00	104 133 155 174 188 201 125 40 B 61 114 154 185 210	43 38 34 30 28 25 32 32 ••••••••••••••••••••••••••••••	80 112 137 157 173 187 117 117 100 B 91 134 167 194	72 63 56 51 46 42 41 41 0°C C 86 77 69 64	65 99 125 146 164 178 112 15 B 77 121 156 184	91 79 70 63 58 53 47 C 105 93 84 77	 86 114 136 154 169 106 200 B 62 109 145 174	 95 85 76 69 63 52 0°C C 124 110 99 90	 102 125 145 161 101 25 B 48 96 134 164	0°C 11, 1, 1, 1, 1, 1, 1, 1, 1, 1
6 - Mod. 7708	0.70 0.80 0.90 1.00 1.10 1.20 1.20 1.20 Specific Gravity 0.60 0.70 0.80 0.90 1.00 1.10	104 133 155 174 188 201 125 40 B 61 114 154 185 210 230	43 38 34 30 28 25 32 32 °C C 64 56 50 46 42 39	80 112 137 157 173 187 117 117 100 B 91 134 167 194 216	72 63 56 51 46 42 41 0°C C 86 77 69 64 59	65 99 125 146 164 178 112 156 8 77 121 156 184 206	91 79 70 63 58 53 47 0°C C 105 93 84 77 71	 86 114 136 154 169 106 20 8 62 109 145 174 197	 95 85 76 69 63 52 D°C C 124 110 99 90 83	 102 125 145 161 101 25 B 48 96 134 164 188	0°C
6 - Mod. 7708	0.70 0.80 0.90 1.00 1.10 1.20 1.20 1.20 Specific Gravity 0.60 0.70 0.80 0.90 1.00	104 133 155 174 188 201 125 40 B 61 114 154 185 210	43 38 34 30 28 25 32 32 ••••••••••••••••••••••••••••••	80 112 137 157 173 187 117 117 100 B 91 134 167 194	72 63 56 51 46 42 41 41 0°C C 86 77 69 64	65 99 125 146 164 178 112 15 B 77 121 156 184	91 79 70 63 58 53 47 C 105 93 84 77	 86 114 136 154 169 106 200 B 62 109 145 174	 95 85 76 69 63 52 0°C C 124 110 99 90	 102 125 145 161 101 25 B 48 96 134 164	0°C

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)

* When options are required, an S is added after the Switch Housing Code and the option required described.