



External Cage Liquid Level Switches for the Power Generation Industry

DESCRIPTION

The models included in this bulletin are sealed external cage liquid level switches selected specifically for use in power generation plants. All models are float-activated and provide highly reliable control in critical applications. Finned cooling extensions and a selection of dry contact switches are available for use in installations with process temperatures as high as +1200° F (+649° C). Magnetrol float level switches are designed to ensure a long service life with little required maintenance.

FEATURES

- Process pressures up to 3300 psi (228 bar)
- Process temperatures up to +1000° F (+538° C) with standard models
- Finned temperature extensions for applications to +1200° F (+649° C)
- Specific gravity ratings as low as 0.59
- Numerous snap switches to choose from
- Gold contact switch options available
- Carbon steel, stainless steel, and chrome-moly float chambers
- All stainless steel floats & trim parts

APPLICATIONS

- Drip legs
- Hot wells
- Deaerators
- Feedwater heaters
- Steam drums
- Flash tanks



Model B75

Model B73



Model B40

MODEL NUMBER

MODEL NUMBER CODE

Model	Minimum S.G.	Pressure Ratings – psi (bar)					
		+100° F (+38° C)	+450° F (+232° C)	+550° F (+288° C)	+750° F (+399° C)	+900° F (+482° C) ①	+1000° F (+538° C) ①
B73-1B30	0.59	400 (28)	275 (19)	n/a			
B72-1B20	0.76	500 (34)	465 (32)	435 (30)	400 (28)	n/a	
B75-1B20	0.67	1000 (69)	930 (64)	870 (60)	716 (49)	357 (25)	138 (10)
V75-1B20	0.74	2240 (154)	1980 (137)	1913 (132)	1455 (100)	728 (50)	n/a
Z75-1B20	0.68	2193 (151)	1980 (137)	1913 (132)	1425 (98)	713 (49)	n/a
B40-5C20	0.65	2085 (144)	1845 (127)	1794 (124)	1350 (93)	665 (46)	165 (11)
B40-1B60	0.65	2067 (143)	1793 (124)	1751 (121)	1670 (115)	1268 (87)	651 (45)
B40-4C40	0.65	3300 (228)	3221 (222)	3132 (216)	2956 (204)	2824 (195)	2735 (189)

Model	Minimum S.G.			Process ② Connections
	Chamber	Float	Trim	
B73-1B30	Carbon steel	316/L SS	300 & 400 Series SS	1" NPT/SW, side/bottom
B72-1B20	Carbon steel	316/L SS	300 & 400 Series SS	1" NPT/SW, side/bottom
B75-1B20	Carbon steel	316/L SS	300 & 400 Series SS	1" NPT/SW, side/bottom
V75-1B20	Carbon steel	17-7 ph SS	300 & 400 Series SS	1" NPT/SW, side/bottom
Z75-1B20	Carbon steel	17-7 ph SS	300 & 400 Series SS	1" NPT/SW, side/bottom
B40-5C20	Carbon steel	321/347 SS	300 & 400 Series SS	1" SW, top/bottom
B40-1B60	Chrome-moly	321/347 SS	300 & 400 Series SS	1" SW, top/bottom
B40-4C40	316 SS	321/347 SS	300 & 400 Series SS	1½" SW, top/bottom

ELECTRIC SWITCH MECHANISM AND ENCLOSURE

Switch Description	Process Temp. Range °F (°C)	Contacts	Models B73 & B72 only		Model B75 only		Models V75 and Z75 only		Model B40-1 and B40-4 only		Model B40-5 only	
			Nema 4X	ATEX IP66	Nema 4X	ATEX IP66	Nema 4X	ATEX IP66	Nema 4X	ATEX IP66	Nema 4X	ATEX IP66
Series B Snap Switch ③	-40 to +250 (-40 to +121)	SPDT	BAR	BAC	BAD	BCC	BAM	BC9	n/a			
		DPDT	BDR	BBC	BDD	BFC	BDM	BF9	n/a			
Series C Snap Switch	-40 to +450 (-40 to +232)	SPDT	CAR	CAC	CAD	CCC	CAM	CC9	n/a		CAM	CC9
		DPDT	CDR	CBC	CDD	CFC	CDM	CF9	n/a		CDM	CF9
Series F Hermetically Sealed Snap Switch ③	-50 to +750 (-46 to +399)	SPDT	FAR	FAC	FAD	FCC	FAM	FC9	FAM	FC9	FAM	FC9
		DPDT	FDR	FBC	FDD	FFC	FDM	FF9	FDM	FF9	FDM	FF9
Series HS Herm. Sealed 5 amp Snap Switch w/Terminal Block	-50 to +400 (-46 to +208)	SPDT	HS2	HA9	HS2	HA9	HS2	HA9	n/a		HS2	HA9
		DPDT	HS6	HB9	HS6	HB9	HS6	HB9	n/a		HS6	HB9
Series R High Temperature Snap Switch	-40 to +1000 (-40 to +538)	SPDT	n/a		R1M	RC9	R1M	RC9	R5M	RW5 ④	R1M	RU5 ④
		DPDT	n/a		n/a		n/a		n/a			
Series S High Temperature Snap Switch	-40 to +550 (-40 to +288)	SPDT	n/a		n/a		n/a		SAM	SA9	n/a	
		DPDT	n/a		n/a		n/a		SDM	SB9	n/a	

① Use caution when specifying carbon and stainless steels for temperature greater than +800° F (+427° C), as it becomes sensitized.

② Other types and sizes of process connections available. Consult factory.

③ Standard contacts are silver. Gold contacts available. Consult Factory.

④ The ATEX housing provided with codes RW5 and RU5 is cast iron. All other ATEX codes specify cast aluminum enclosures.

CONSTRUCTION OPTIONS

- Most models available designed, built and certified to ASME B31.1 power piping code. Consult factory.
- Model B40-1B60 is available in high pressure design rated for 2533 psi @ +100° F (175 bar @ +38° C) or 1200 psi @ +1000° F (83 bar @ +538° C). Consult factory.
- Other process connection types and sizes available. Consult factory.
- Series B, F and HS switch available with gold contacts. Consult factory.
- Second switch mechanism available on models B75, V75, and Z75. Consult factory.

PROCESS TEMPERATURE RATING OF SWITCH

Switch Series	Number of Finned Extensions Required ①				
	0	1	2	3	4
B	+250° F (+121° C)	n/a	n/a	n/a	n/a
C	+450° F (+232° C)	+500° F (+260° C)	+550° F (+288° C)	+600° F (+316° C)	+650° F (+343° C)
F	+750° F (+399° C)	+850° F (+454° C)	+950° F (+510° C)	+1050° F (+566° C)	+1150° F (+621° C)
HS	+400° F (+204° C)	n/a	n/a	n/a	n/a
R	+1000° F (+538° C)	+1150° F (+621° C)	+1200° F (+649° C)	n/a	n/a
S ②	+550° F (+288° C)	+600° F (+316° C)	+700° F (+371° C)	+750° F (+399° C)	+800° F (+427° C)

① For model B40s with one standard finned extension, the number of required extensions is in addition to the one standard finned extension

② Applies to the S Series switch for AC Applications only (codes SA, SD, SK, and SN).



Finned Heat Extensions

SWITCH ENCLOSURES

- NEMA 4X blue polymer coated carbon steel, weather resistant for non-hazardous areas
- ATEX, IP66, NEMA 4X/7/9 blue polymer coated aluminum and cast iron enclosures



**ATEX, IP66, NEMA 4X/7/9
Aluminum Enclosure**



**NEMA 4X
Carbon Steel Enclosure**






**ATEX, IP66, NEMA 4X/7/9
Cast Iron Enclosure**

BASIC ELECTRICAL RATINGS

Voltage	Switch Series and Non-inductive Ampere Rating									
	B	Gold B	C	F	Gold F	HS	Gold HS	R	S	3
120 VAC	15.00	1.00	15.00	2.50	—	5.00	1.00	1.00	15.00	13.00
240 VAC	15.00	—	15.00	—	—	5.00	—	1.00	15.00	6.50
24 VDC	6.00	1.00	10.00	4.00	1.00	5.00	1.00	1.00	—	10.00
120 VDC	0.50	—	1.00	0.30	—	0.50	—	0.40	1.00	10.00
240 VDC	0.25	—	0.50	—	—	0.25	—	—	0.50	5.00

AGENCY APPROVALS

AGENCY	MODEL APPROVED	APPROVAL CLASSES
FM 	All with an electric switch mechanism and a housing listed as NEMA 4X	Non-hazardous NEMA 4X
CSA 	All with an electric switch mechanism and a housing listed as NEMA 4X/7/9	Non-hazardous CSA Type 4X
ATEX	All with an electric switch mechanism and an ATEX housing	ATEX II 2 G EEx d IIC T6 94/9/EC IP66
CE 	All models	Installation Category II Pollution Degree 2 Low Voltage Directives 2006/95/EC per Harmonized Standard EN 61010-1/1993 & Amendment No. 1

QUALITY



The quality assurance system in place at Magnetrol guarantees the highest level of quality throughout the company. Magnetrol is committed to providing full customer satisfaction both in quality products and quality service.

The Magnetrol quality assurance system is registered to ISO 9001 affirming its commitment to known international quality standards providing the strongest assurance of product/service quality available.

WARRANTY



All Magnetrol mechanical level and flow controls are warranted free of defects in materials or workmanship for five full years from the date of original factory shipment.

If returned within the warranty period; and, upon factory inspection of the control, the cause of the claim is determined to be covered under the warranty; then, Magnetrol will repair

or replace the control at no cost to the purchaser (or owner) other than transportation.

Magnetrol shall not be liable for misapplication, labor claims, direct or consequential damage or expense arising from the installation or use of equipment. There are no other warranties expressed or implied, except special written warranties covering some Magnetrol products.



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BULLETIN: 46-160.1
EFFECTIVE: August 2010
SUPERSEDES: June 2004