

B40 Liquid Level Switch

DESCRIPTION

The Magnetrol B40 liquid level switch is specifically designed and constructed for high pressure, high temperature service conditions.

FEATURES

- Choices of chamber materials include carbon steel, stainless steel and chrome-moly
- 300 series stainless steel float.
- Choice of switch mechanism:
 Dry contact
 Hermetically sealed
- Minimum specific gravity 0.65
- Choice of switch mechanism enclosure:
 TYPE 4X polymer coated steel
 TYPE 4X/7/9 Class I, Div. 1, Groups C & D,
 polymer coated aluminum or cast iron
 TYPE 4X/7/9 Class I, Div. 1, Group B,
 polymer coated aluminum or cast iron
- Choice of tank connection:1" welding nipples
 - 1" or 1½" socket welds

OPTIONS

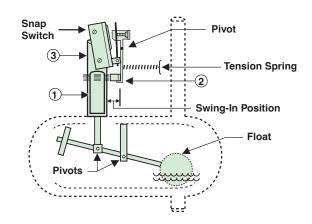
- ATEX housing
- Flanged connections
- · Temperature extensions
- Low specific gravity



APPLICATIONS

- Accumulators
- Receivers
- Flare pots
- Scrubbers
- Flash tanks
- Knock-out drums
- · Storage tanks
- Separators

B40 level switches employ permanent magnetic force as the only link between the float and the switching element. As the pivoted float follows liquid level changes, it moves a magnetic sleeve ① into or out of the field of a switch actuating magnet ② causing switch operation. A non-magnetic barrier tube ③ effectively isolates the switch mechanism from the controlled liquid.



AGENCY APPROVALS

AGENCY	APPROVED MODEL	APPROVAL CLASSES
FM FM	All with an electric switch mechanism and a housing listed as Type 4X/7/9	Class I, Div 1, Groups C & D Class II, Div 1, Groups E, F & G
APPROVED	All with an electric switch mechanism and a housing listed as Type 4X/7/9 Class I, Div 1, Group B	Class I, Div 1, Groups B, C & D Class II, Div 1, Groups E, F & G
CSA (D)	All with a Series F, HS, 8 or 9 electric switch mechanism and a housing listed as CSA Type 4X	Class I, Div 2, Groups B, C & D
	All with an electric switch mechanism and a housing listed as Type 4X/7/9	Class I, Div 1, Groups C & D Class II, Div 1, Groups E, F & G
	All with an electric switch mechanism and a housing listed as Type 4X/7/9 Class I, Div 1, Group B	Class I, Div 1, Groups B, C & D Class II, Div 1, Groups E, F & G
ATEX / IEC Ex ①	All with an electric switch mechanism and an ATEX housing	ATEX II 2 G EEx d IIC T6 94/9/EC IEC Ex Ex d IIC T6
CE ((Low Voltage Directive 2006/95/EC Per Harmonized Standard: EN 61010-1/1993 & Amendment No. 1	Installation Category II Pollution Degree 2

① IEC Installation Instructions:

The cable entry and closing devices shall be Ex d certified suitable for the conditions of use and correctly installed.

For ambient temperatures above $+55^{\circ}$ C or for process temperatures above $+150^{\circ}$ C, suitable heat resistant cables shall be used.

Heat extensions (between process connection and housing) shall never be insulated.

Special conditions for safe use:

When the equipment is installed in process temperatures higher than $+85^{\circ}$ C the temperature classification must be reduced according to the following table as per IEC60079-0.

Maximum Process Temperature	Temperature Classification
< 85° C	T6
< 100° C	T5
< 135° C	T4
< 200° C	ТЗ
< 300° C	T2
< 450° C	T1

These units are in conformity with IECEx KEM 05.0020X Classification Ex d IIC T6 $\rm T_{ambient}$ $^{-40^{\circ}}$ to $+70^{\circ}$ C

SWITCH MECHANISMS AND ENCLOSURES



SERIES C, D, R & S DRY CONTACT SWITCHES

- Designed for AC and DC current applications
- Process temperatures to +1000° F (+538° C)



SERIES F, HS, 8 & 9 HERMETICALLY SEALED SWITCHES

- Ideal for use in salt and other corrosive atmospheres
- Positively pressurized capsule for entire mechanism and contacts
- Process temperatures to +1000° F (+538° C)

SWITCH ENCLOSURE

- TYPE 4X blue polymer coated carbon steel, weather resistant for non-hazardous areas
- TYPE 4X/7/9 blue polymer coated aluminum and cast iron enclosures
- Designed to meet Class I, Div. 1 Groups C & D and Class I, Div. 1 Group B



TYPE 4X/7/9 Aluminum Enclosure



NEMA 4X/7/9 Cast Iron Enclosure

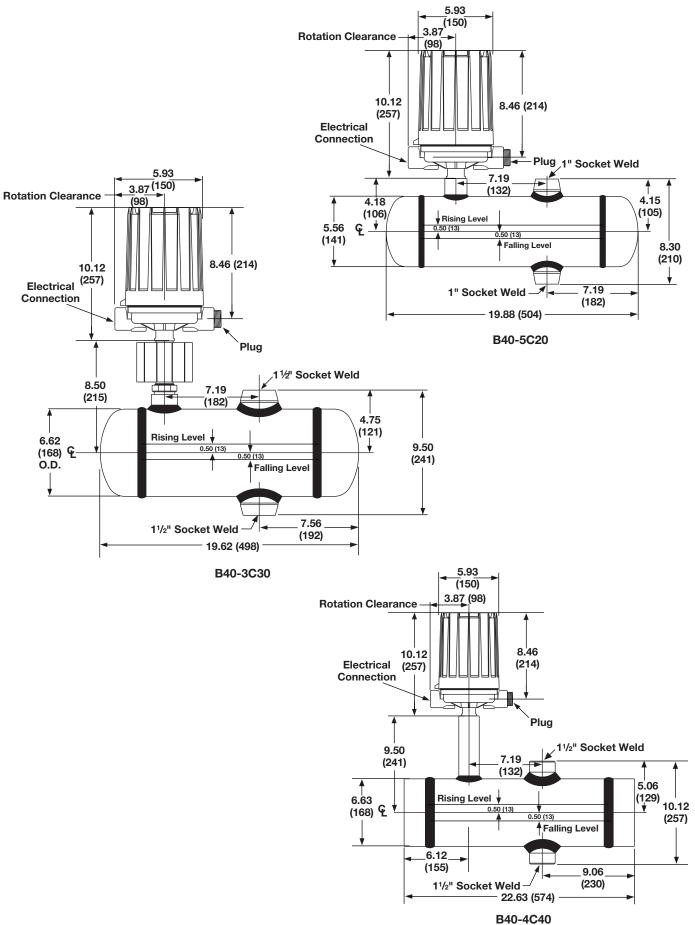


TYPE 4X Carbon Steel Enclosure

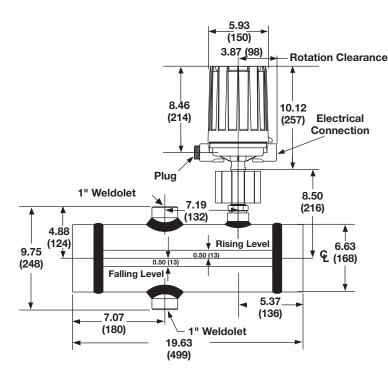
BASIC ELECTRICAL RATINGS

Voltage	Switch Series and Non-Inductive Ampere Rating									
	С	D	F	HS	R	S (AC)	S (DC)	8	9	
120 VAC	15.00	10.00	2.50	5.00	1.00	15.00	10.00	1.00	_	
240 VAC	15.00	_	_	5.00	1.00	15.00	_	_	_	
24 VDC	10.00	10.00	4.00	5.00	1.00	10.00	10.00	3.00	0.50	
120 VDC	1.00	10.00	0.30	0.50	0.40	1.00	4.00	_	_	
240 VDC	0.50	3.00	_	0.25	_	0.50	3.00	_	_	

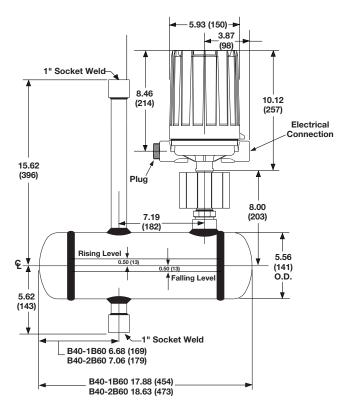
INCHES (MM)



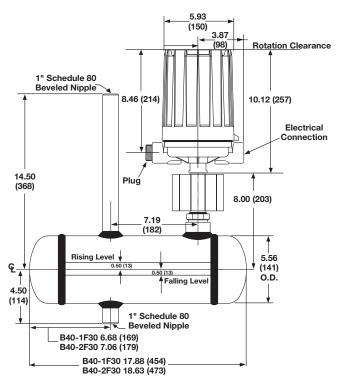
INCHES (MM)



B40-1C50



B40-1B60 and B40-2B60



B40-1F30 and B40-2F30

NOTES:

- 1. Allow 8 in (203 mm) overhead clearance for cover removal.
- 2. Maximum ambient temperature at switch head should not exceed +140° F (+60° C).

BASIC MODEL

B40 B40 Liquid Level Switch

MATERIALS OF CONSTRUCTION/PRESSURE RATING (psig)

Code	Chamber Material	Float Material ^①	Tank Connection	Min.	Temperature (°F)				
Code				S.G.	100	500	750	800	1000
1F30	Chrome-Moly	321/347 SS	1" welding nipple	0.65	2067	1777	1670	1668	651
1B60	Official e-work		1" socket weld						
2F30	304 SS	316 SS	1" welding nipple		1857	1566	1294	1240	n/a
2B60	304 33		1" socket weld						
3C30	Carbon Steel		1 ¹ / ₂ " socket weld	0.00	1925	1820	1250	1100	215
4C40	316 SS	321/347 SS	1½" socket weld		3700	3543	3169	3129	3011
5C20	Carbon Steel	321/347 33	1" socket weld		2085	1820	1350	1110	165
1C50	Chrome-Moly		1" weld coupling		2533	2010	1872	1845	956

- $\, \oplus \,$ Float material based on availability. Both 321SS and 347SS are stabilized austenitic stainless steels.
- ② Consult factory for TYPE 4X/7/9 cast iron housings.
- ③ Aluminum enclosure limited to +750° F (+399° C) in hazardous locations.
- ${\ }^{\textcircled{4}}$ Process temperature based on +100° F (+38° C) ambient.
- $\ \,$ On steam applications, temperature down-rated to +400° F (+204° C) process at +100° F (+38° C) ambient.

ELECTRIC SWITCH MECHANISM AND ENCLOSURE FOR ALL MODELS EXCEPT B40-5C20 ②

	Process	One	TYPE 4X/7/9 Aluminum Enclosure 23			
Switch Description	Temperature Range ④	Set Point	Class I, Div. 1 Groups C & D	Class I, Div. 1 Group B	ATEX Ex II 2 G EEx d IIC T6	
Series F Snap Switch	-50° to +750° F	SPDT	FKB	FKK	FC9	
Hermetically Sealed	(-46° to +399° C)	DPDT	FNB	FNK	FF9	
Series H1 Hermetically Sealed 1 Amp Snap Switch with Wiring Leads	-50° to +750° F (-46° to +399° C)	SPDT	HKJ	HKK	N/A	
Carias D Chan Cuitah	-40° to +750° F	SPDT	RKB	RKK	RC9	
Series R Snap Switch	(-40° to +399° C)	DPDT	RNB	RNK	RF9	
Series S Snap Switch for	-40° to +550° F (-40° to +288° C)	SPDT	SKB	SKK	SA9	
AC Current Applications		DPDT	SNB	SNK	SB9	
Series S Snap Switch for	-40° to +250° F (-40° to +121° C)	SPDT	SLB	SLK	SC9	
DC Current Applications		DPDT	SOB	SOK	SF9	
Series 8 Hermetically	-50° to +750° F (-46° to +399° C)	SPDT	8KB	8KK	8C9	
Sealed Snap Switch		DPDT	8NB	8NK	8F9	
Series 9 Hermetically	-50° to +750° F (-46° to +399° C)	SPDT	9KB	9KK	9C9	
Sealed Snap Switch		DPDT	9NB	9NK	9F9	
			CS/Aluminum	Cast I	ron	
			TYPE 4X	Class I, Div 1, Groups C & D	Class I, Div 1, Group B	
Series R	-40° to +1000° F	SPDT	R1M	RKM	RKW	
Snap Switch	(-40° to +538° C)	DPDT	RDM	RNM	RNW	
Series 9 Hermetically	-50° to +1000° F	SPDT	9AM	9KM	9KW	
Sealed Snap Switch	(-46° to +538° C)	DPDT	9DM	9NM	9NW	
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ELECTRIC SWITCH MECHANISM AND ENCLOSURE FOR MODEL B40-5C20 ONLY

	Process Temperature Range ④	One Set Point	TYPE 4X/7/9 Aluminum Enclosure 23			
Switch Description			Class I, Div. 1 Groups C & D	Class I, Div. 1 Group B	ATEX Ex II 2 G EE d IIC T6	
Sorios C Span Switch	-40° to +450° F (-40° to +232° C)	SPDT	CKB	CKK	CC9	
Series C Snap Switch		DPDT	CNB	CNK	CF9	
Series D Snap Switch for	-40° to +250° F (-40° to +121° C)	SPDT	DKB	DKK	DC9	
DC Current Applications		DPDT	DNB	DNK	DF9	
Series F Snap Switch	-50° to +750° F (-46° to +399° C)	SPDT	FKB	FKK	FC9	
Hermetically Sealed		DPDT	FNB	FNK	FF9	
Series HS 5 amp Snap Switch Hermetically Sealed	-50° to +550° F (-46° to +288° C)	SPDT	HM3	HM4	HA9	
w/Terminal Block ®		DPDT	HM7	HM8	HB9	
Series HS 5 amp Snap Switch Hermetically Sealed	-50° to +550° F (-46° to +288° C)	SPDT	HMJ	HMK	_	
w/Wiring Leads ®		DPDT	HMS	HMT	_	
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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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