

W6/W9 Series Magnetic Hydraulic P&B Circuit Breakers

- Designed for the international market. UL Recognzied (UL1077 and UL1500), CSA Accepted and VDE approved.
- Ratings to 50 amps.
- Heavy duty #10-32 stud connections. (W9)
- Quick-connect or screw terminals. (W6)
- Several delay curve options.
- Trip-free operation.

Agency Approvals

- **UL:** Recognized as Supplementary Protector under UL 1077. Available models meet Ignition Protection requirements in accordance with UL1500. File E69543
- CSA: Accepted as a Supplementary Protector. File LR15734.
- VDE: Approved to VDE 0642/EN 60 934 (Circuit Breakers for Equipment) License No. 73782

Users should thoroughly review the technical data before selecting a product part number. It is recommended that users also seek out the pertinent approvals files of the agencies/ laboratories and review them to confirm the product meets the requirements for a given application.

Electrical Data

Calibration:

Breakers will hold 100% of rated current.

Breakers may trip between 101% and 124% of rated load (134% for AC/ DC units).

Breakers must trip at 125% of rated load and above (135% for AC/DC units).

Dielectric Strength: 50/60 Hz., 1500V: DC, 1100V Insulation Resistance: 100 Megaohms at 500VDC

Endurance:

10,000 on/off cycles - 6000 at rated load, 4000 at no load.

Units tested at six cycles per minute, 1 second on and 9 seconds off at 25°C ambient.

Typical Resistance and Impedance

DC	50/60	
Resistance	Impedance	
(Ohms)	(Ohms)	
90	90	
1.2	1.2	
0.28	0.28	
0.04	0.04	
0.013	0.013	
0.004	0.005	
0.0027	0.004	
0.002	0.002	
0.0015	0.0015	
	Resistance (Ohms) 90 1.2 0.28 0.04 0.013 0.004 0.0027 0.002	Resistance (Ohms) Impedance (Ohms) 90 90 1.2 1.2 0.28 0.28 0.04 0.04 0.013 0.013 0.004 0.005 0.0027 0.004

Tolerance: 0.1 - 4.99 ± 15%; 5 - 9.99 ± 20%; 10 - 15 ± 25%; 16 - 30 ± 50%.

Mechanical/Environmental Data	
Operating Temperature: -40°C to +85°C.	
Humidity: Meets requirements of Mil-STD-202 method 103.	
Shock: Tested per Mil-STD-202, method 213, test condition C	
(100g @ 6 ms)	
Vibration: Tested per Mil-STD-202, method 201, 10-55 Hz., 0.06"	
(1.52mm) total excursion in 2 planes.	

Mechanical/Environmental Data (continued)

Fungus and Moisture Resistance:

Special moisture resistant finish applied to all ferrous parts. Plastic parts are made of inherently fungus resistant material.

Marking:

International "1" and "0" symbols are marked on the toggle for both W6 and W9. W9 units have "ON" and "OFF" molded into the area at the base of the toggle.

Mounting:

Units are mounted with two #6-32 screws from the front of the panel. Metric models for use with M3 x 0.5 screws are available. To maintain published performance specifications, units should not be mounted more than 90° from their normal upright position. **Weight:** Approximately 2.5 ounces per pole.

Approvals and Ratings Table 1

W6 Series	ies UL1077/CSA (All Circuit Functions)						
Maximum Voltage	Frequency (Hz)			Interrupting Capacity (Amps)			
65	DC	-	0.2 - 50	2,000			
277	50/60	1	0.2 - 20	5,000			
277	50/60	1	21 - 50	2,500			
277/480	50/60	3Ø-Wye	0.2 - 20	5,000			

W9 Series

UL1077/CSA (All Circuit Functions)

Maximum Voltage	Frequency (Hz)	Phase	Current In Phase Rating ((Amps)	
65	DC	-	0.2 - 50	2,000
277	50/60	1	0.2 - 50	5,000
277/480	50/60	3Ø-Wye	0.2 - 20	5,000

W6 or W9 Series VDE (Circuit Function X)

Maximum Voltage	Frequency (Hz)	Phase	Current Rating (Amps)	Interrupting Capacity (Amps)
65	DC	-	0.2 - 50	2,000
250	50/60	1	0.2 - 30	5,000
250	50/60	1	31 - 50	2,000
415/240	50/60	ЗØ	0.2 - 30	5,000

W6 or W9 Series UL1500 (Circuit Function X)

Maximum Voltage	Frequency (Hz)	Phase	Current Rating (Amps)	Interrupting Capacity (Amps)
48	DC	-	0.2 - 50	3,000
125/250	50/60	1	0.2 - 50	1,000
250	50/60	3Ø-Wye	0.2 - 50	1,000

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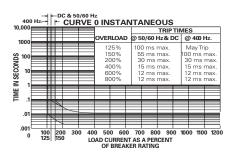
TIME

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W6/W9 Series Magnetic Hydraulic P&B Circuit Breakers (Continued)

Time vs Current Trip Curves For W6 Series and W9 Series

AC 50/60 Hz.



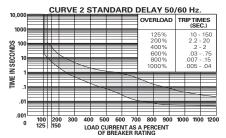
MOTOR START / LONG DELAY URVE 10 HIGH INRUSH 50/60 Hz AC

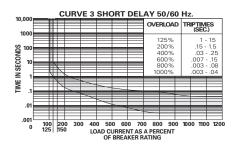
500 600 700

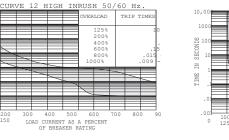
LOAD CURRENT AS A PERCENT OF BREAKER RATING

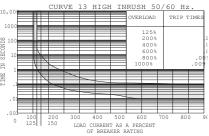
800 900

1000 1100 120









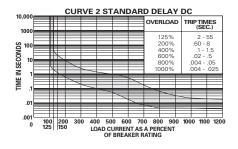
DC

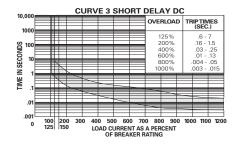
.001

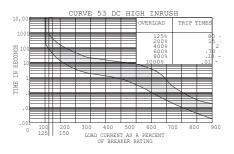
100 200 300 400 125 150 LOA

10,000

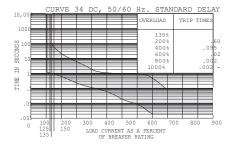
TIME IN SECONDS







AC/DC



Note:

2

For instantaneous curves for all voltages refer to Curve 0 instananeous under the AC 50/60 Hz. heading

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W6 Se	ict code structure	Typical product code	W 67	7- X	2 G	! 1	2-	20
	Breaker Mounting							
W	#6-32 mounting threads							
M	M3.0 x 0.5 mounting threads							
67 68 69	er of Poles Single Pole Two Pole Three Pole Four Pole							
Circuit	t Function (Only X is VDE approv	ved)						
1	tor actuator per pole Black toggle 9 Red toggle White toggle							
	actuator per unit Black toggle 8 White toggle							
Termir Q S T U V	nation .250" QC (DIN 46 244) [30A Max.] #8-32 screw [30A Max.] #10-32 screw [50A Max.] #8-32 screw, nickel plated, bent ir #10-32 screw, nickel plated, bent	nward 30° [30A Max.]						
#10-	es: 32 termination must be used for al 32 termination must be specified for .250" QC.			uipped				
	see outline dimension 5 65VDC 7 AC/DC 277VAC, 50/6 (Time delay curve 34 r 8 AC/DC 120VAC, 120/2	z. [20A Max.] (Requires insulating drawing) 0 Hz. or 65VDC nust be specified)		ied)				
VDE Type		240VAC, 65VDC						
0 2 3	Standard delay12AdShort delay13Ad	C high inrush motor start / long de C high inrush version of #2 C high inrush version of #3 ombination AC/DC standard delay						
	0.50 1.0 2.0 3.0 4.0	6.0 7.5 9.0 11.0 15.0 7.0 8.0 10.0 12.0 20.0	25.0 35.0 30.0 40.0		Consult factory f ther values	or		
	y Approval Ik UL1077/CSA breaker VDE approved breaker UL1077/UL1500 ignition prote	cted breaker						

Authorized distributors are more likely to stock the following items.

W67-X2Q10-3	W67-X2Q12-10	W67-X2Q13-3	W67-X2Q50-5	W67-X2Q52-30	W68-X2Q12-10	W68-X2Q110-10	W69-X2Q12-25
W67-X2Q10-5	W67-X2Q12-15	W67-X2Q13-10	W67-X2Q50-10	W67-X2Q110-15	W68-X2Q12-15	W68-X2Q110-20	W69-X2Q12-30
W67-X2Q12-2	W67-X2Q12-20	W67-X2Q13-15	W67-X2Q52-5	W67-X2Q110-20	W68-X2Q12-20	W69-X2Q12-5	W69-X2Q110-20
W67-X2Q12-3	W67-X2Q12-30	W67-X2Q13-20	W67-X2Q52-10	W68-X2Q12-3	W68-X2Q12-25	W69-X2Q12-10	W69-X2Q110-30
W67-X2Q12-5	W67-X2Q13-1	W67-X2Q13-25	W67-X2Q52-15	W68-X2Q12-5	W68-X2Q12-30	W69-X2Q12-15	
W67-X2Q12-7	W67-X2Q13-2	W67-X2Q13-30	W67-X2Q52-20	W68-X2Q12-7	W68-X2Q13-15	W69-X2Q12-20	

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Product code structure W9 Series	Typical product code	W 91-	X 1	1	2-	20	
Circuit Breaker MountingW#6-32 mounting threadsMM3.0 x 0.5 mounting threads							
Number of Poles91Single Pole92Two Pole93Three Pole94Four Pole							
Circuit Function (Only X is VDE approved) X Series trip							
Actuator One actuator per pole 1 Black toggle 2 White toggle							
Maximum Line Voltage (see Table 1 for cur UL/CSA 1 277VAC, 50/60 Hz. Types 2 2777/480/VAC, 50/60 Hz. [20] 5 65VDC 7 AC/DC 277VAC, 50/60 Hz. [20] (Time delay curve 34 must 8 AC/DC 120VAC, 120/240V. (Agency Approval M [UL150]))A Max.] or 65VDC pe specified)	nust be specified)					
VDE 1 250VAC, 415/240VAC Types 5 65VDC 7 AC/DC 250VAC, 415/240V/ (Time delay curve 34 must)							
2Standard delay12AC hig3Short delay13AC hig	h inrush motor start / long de n inrush version of #2 n inrush version of #3 nation AC/DC standard delay	2					
Amp Rating 0.20 0.75 2.0 3.5 6.0 8.0 11. 0.25 1.00 2.5 4.0 7.0 9.0 12. 0.50 1.50 3.0 5.0 7.5 10.0 15.	0 25.0 40.0 Consult f	factory for other va	lues				
Agency ApprovalBlankUL1077/CSA approved breakerVVDE approved breakerMUL1077/UL1500 ignition protected	oreaker						

Authorized distributors are more likely to stock the following items.

W91-X112-1	W91-X112-15	W91-X113-15	W91-X152-40	W92-X112-5	W92-X112-30	W92-X1110-30	W93-X112-30
W91-X112-2	W91-X112-20	W91-X150-5	W91-X152-50	W92-X112-7	W92-X112-40	W93-X112-5	W93-X112-40
W91-X112-3	W91-X112-40	W91-X152-10	W91-X1110-20	W92-X112-10	W92-X112-50	W93-X112-10	W93-X112-50
W91-X112-5	W91-X112-50	W91-X152-15	W92-X112-1	W92-X112-15	W92-X113-15	W93-X112-15	W93-X1110-20
W91-X112-7	W91-X113-5	W91-X152-20	W92-X112-2	W92-X112-20	W92-X113-20	W93-X112-20	W93-X1110-30
W91-X112-10	W91-X113-10	W91-X152-30	W92-X112-3	W92-X112-25	W92-X1110-20	W93-X112-25	

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.750 (19.05)

Ø .156 (3.96) [2 PLACES PER POLE]

1.660

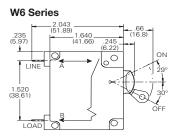
Panel Mounting Cutout

Ø .625 +.010 -.000

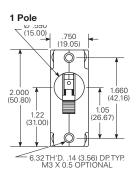
(15.88 +0.25) -0.00 1 PER POLE

> 1.048 (26.62)

Outline Dimensions - Toggle Actuator Models



W6 Series - One Actuator Per Pole

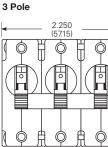


2 Pole

1.500

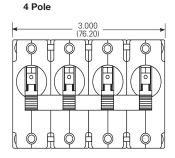
500

2 Pole

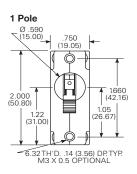


3 Pole

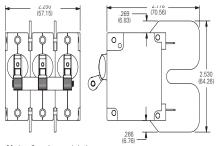
Note: Multi-pole models furnished with seperate handle tie hardware



W6 Series - One Actuator Per Unit



480V Model with Barriers



Note: 3-pole model shown

Notes:

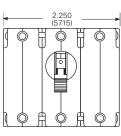
- Terminal protrusion dimensions are referenced from back of mounting panel
 Main terminals are male quick connect type .250 (6.35) wide x .031 (.79) thick x .377 (9.58) long. Optional 8-32 x .250 (6.35) or 10-32 x .250 (6.35) screw type
- 3. Panel mounting cutout detail mtg. detail tol.: ± .005 (.13) unless noted. Add additional cutouts to correspond to number of poles. Outline drawing tolerance ± .015 (.35) unless noted

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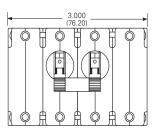
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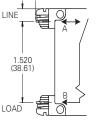


4 Pole



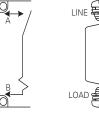
Note: 4-pole models furnished with sperate handle tie hardware

Termination Options



LINE

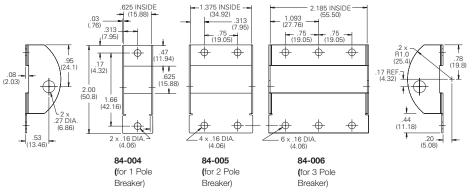
I OAD





Outline Dimensions - Optional Toggle Guards







84-004 toggle guard shown with W67 series circuit breaker mounted in a panel.

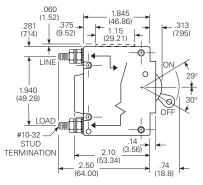
Optional toggle guards may be ordered seperately for use on W6 toggle actuator models. These guards help to prevent accidental operation and allow the breaker to be locked in the "off" position.



Outline Dimensions

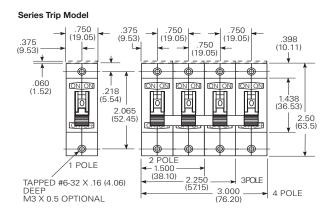
W9 Series

Series Trip Model

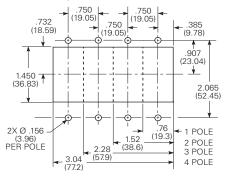


Note:

1. Top mounted plate (shown with broken line) is present only on UL1500 models



Panel Mounting Cutout Detail



Notes:

1. Terminal protrusion dimensions are referenced from the back of the mounting panel

2. Mounting detail tolerance \pm .005 (13) unless noted 3. Outline drawing tolerance \pm .015 (.38) unless noted Dimensions in brackets () are in milimeters.

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