Fuji Molded Case Circuit Breakers Overview

Overview

Fuji Molded Case Circuit Breakers are more compact (especially 100A, 125A, 250A frames) than any breakers on the market, so they take up less space in control panels.

This product group maintains conformity to all Worldwide standards.

Agency Approvals

- UL listed, MCCB, File: E90584
- UL listed, Accessories, File E93289
- CE marked
- CCC marked
- · TUV certified

Standards

- UL 489
- CSA C22.2 No.5
- IEC 60947-2
- EN 60947-2
- GB 14048.2
- JIS C8201-2-1, 2 (ANN.1, 2)







	Fuji Electric Molded Case Circuit Breakers Technical Specifications										
Circuit Breaker	Ampere Rating at		Vo	lts		(upting Ratings al Amperes) (kA)		
Туре	40°C	No. Poles	40	00	Type of Trip*	Volts AC (50/60 Hz)			Volts DC		
			AC	DC		240	480	600	250**		
BW125JAGU	15-125	3	600	250	N.I.T.U	50	30	10	10		
BW250JAGU	125-250	3	600	250	N.I.T.U	50	30	10	10		
BW400SAGU	250-400	3	480	250	N.I.T.U	50	35	-	10		
BW630RAGU	500-600	3	480	250	N.I.T.U	100	50	-	10		
BW800RAGU	700-800	3	480	250	N.I.T.U	100	50	_	10		

Operating Range: -10 to 50°C [14 to 122°F]

*Note: N.I.T.U denotes non-interchangeable trip unit.

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^{**}Note: For DC or 1-phase AC applications, use the two outside poles of the 3-pole circuit breaker

Fuji Molded Case Circuit Breakers – 630A





Fuji BW630A series MCCBs are 630 amp frame, 3-pole, non-adjustable magnetic trip, molded case circuit breakers (MCCB). The BW630 series is suitable for reverse feed applications. Included

with each MCCB are Line and Load-side lug terminals and mounting hardware. Accessories are not pre-installed and are sold separately.

BW630RAGU-3P500SB

BW630-Frame Series Three Pole Molded Case Circuit Breakers										
			Rated Interrupting Capacity (kA)							
Part Number	Price	Frequency	Rated Current	UL489 CAN/CS/	A C22.2 No. 5	IEC60947-2, JIS C 8201-2-1 lcu/lcs		GB14048.2 lcu/lcs		
			Ampere Rating	Voltage	Interrupt Capacity	Voltage	Interrupt Capacity	Voltage	Interrupt Capacity	
BW630RAGU-3P500SB	\$1,807.00		500			690V AC	15/8 kA			
BW630RAGU-3P600SB	\$1,807.00	50/60 Hz	600	480V/Delta AC 480V/Y AC 240V AC 250V DC	50 kA 50 kA 100 kA 10 kA	500V AC 440V AC 400V AC 380V AC 240V AC 250V DC	36/18 kA 50/25 kA 50/25 kA 50/25 kA 100/50 kA 40/20 kA	400V AC 230V AC	50/25 kA 100/50 kA	

Note: SCCR = UL489 interrupting capacity

	BW630-Frame Accessory Selection Guide									
Part Number	Price	Description								
BW9W1SHA	\$36.00	Field installable auxiliary contact switch, use with BW400, BW630 and BW800 series MCCBs. SPDT. 20AWG lead wires, 19.69" long, left side mount only								
BW9FHA-R	\$81.00	Field installable DC shunt trip, use with BW400, BW630 and BW800 series MCCBs; 24 VDC/AC, 20 AWG lead wires 19.69" long, left and right side mount								
BW9FHA-A	\$81.00	Field installable AC shunt trip, use with BW400, BW630 and BW800 series MCCBs; 100-240 VAC/100-220 VDC, 20 AWG lead wires 19.69" long, left and right side mount								
BW9RHA-R	\$78.00	Field installable DC undervoltage release, for BW400, BW630 and BW800 series MCCBs; 24-48 VDC, 20AWG lead wires, 19.69" long, left side mount only								
BW9RHA-1	\$81.00	Field installable AC undervoltage release, for BW400, BW630 and BW800 series MCCBs; 120-130 VAC, 20AWG lead wires, 19.69" long, left side mount only								
BW9BTJA-L3W*	\$84.00	Terminal cover for BW400-frame MCCBs, line and load side, package of 2								
BW9V0JA	\$130.00	NEMA 12 rotary handle for BW630-Frame. Position indicating; lock-off feature. Shaft length: 0.39"								
BZ-VS2	\$14.00	NEMA 12 rotary handle shaft for BW9V0HA and BW9V0JA, BW400, BW630 and BW800 Frames. Steel shaft length: 3.48" (88 mm)								
BZ-VS2-24	\$47.50	NEMA 12 rotary handle shaft for BW9V0HA and BW9V0JA, BW400, BW630 and BW800 Frames. Steel shaft length: 24" (610 mm)								
BW9F0JA-15A**	\$631.00	NEMA 12 flexible shaft handle for BW630 and BW800 frames. Flange mounted. Lockable. Flex cable shaft length: 4.92' (1.5m)								
BW9F0JA-20A**	\$648.00	NEMA 12 flexible shaft handle for BW630 and BW800 frames. Flange mounted. Lockable. Flex cable shaft length: 6.56' (2m)								
BW9QNHA	\$47.50	Lockout attachment, use to lock out BW400, BW630 and BW800 series MCCBs. Lock not included.								

^{*}Terminal covers are not supplied as standard.

^{**}Terminal covers for line side and load side included with Flange Disconnects. 2/pk Note: Terminals are factory-installed only. No replacement terminals available.



BW9V0JA









BW9RHA-R

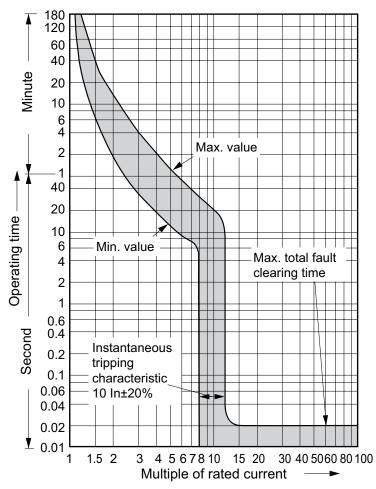
BW9QNHA

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Circuit Protection

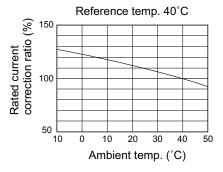
Fuji Molded Case Circuit Breakers 630A Frame Characteristic Curves







BW630 (Current Range: 500 - 600A)

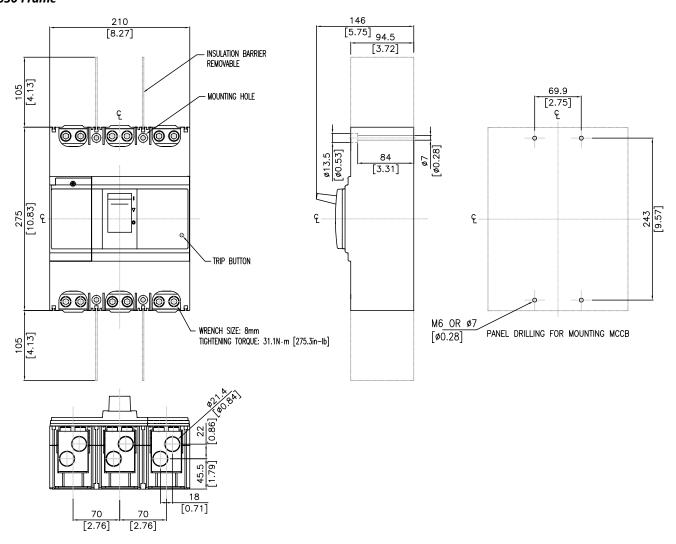


Fuji Molded Case Circuit Breakers Dimensions

Dimensions

mm [inches]

500A to 600A BW630 Frame



Fuji Molded Case Circuit Breakers Products And Accessory Compatibility

	Match the Accessories with Fuji Mol	ded Case	Circuit B	reakers		
Part Number	Description	BW125JAGU	BW250JAGU	BW400SAGU	BW630RAGU	BW800RAGU
BW9W1SG0	Auxiliary Switch (Mounting Left and right side)	Х	Х			
BW9W1SHA	Auxiliary Switch (Mounting Left side ONLY)			Х	Х	Χ
BW9FRG0	Shunt Trip 24 VAC/VDC (Mounting both Left and Right sides)	Х	Х			
BW9FHA-R	Shunt Trip 24-48 VAC/VDC (Mounting Left side ONLY)			Х	Х	Χ
BW9FAG0	Shunt Trip 100-120 VAC, 100-110 VDC (Mounting both Left and Right sides)	X	Х			
BW9FHA-A	Shunt Trip 100-280 VAC, 100-220 VDC (Mounting Left side ONLY)			X	X	Χ
BW9RGAR	UnderVoltage Release 24VDC (Left side ONLY)	Х	Х			
BW9RHA-R	UnderVoltage Release 24 VAC/VDC (Left side ONLY)			Х	X	Χ
<u>BW9RGAT</u>	UnderVoltage Release 110-130 VAC (Left side ONLY)	Х	Х			
BW9RHA-1	UnderVoltage Release 120-130 VAC, 125VDC (Left side ONLY)			X	X	Χ
BW9SL0CA-3	Replacement Lugs Kit for 125 Amp frame	Х				
BW9SL0GA-3	Replacement Lugs Kit for 250 Amp frame up to 175A		Х			
BW9SL1GA-3	Replacement Lugs Kit for 250 Amp frame 200A to 250A		X			
BW9V0CA	Rotary Handle	Х				
BW9V0GA	Rotary Handle		X			
BW9VSG0	Optional Shaft for BW9V0CA and BW9V0GA, 6.063"	X	Х			
BW9VSG0-24	Optional Shaft for BW9V0CA and BW9V0GA, 24"	X	Х			
BW9V0HA	Rotary Handle,			Х		
BW9V0JA	Rotary Handle,				Х	Χ
BZ-VS2	Optional Shaft for BW9V0HA and BW9V0JA, 3.48"			Х	X	Х
BZ-VS2-24	Optional Shaft for <u>BW9V0HA</u> and <u>BW9V0JA</u> , H = 24"			Х	X	Χ
BW9F0CA-15A	Flange Handle (flex shaft), NEMA 12, 59" (1.5m) cable, 125 Amp frame	Х				
BW9F0CA-20A	Flange Handle (flex shaft), NEMA 12, 78.7" (2.0m) cable, 125 Amp frame	Х				
BW9F0GA-15A	Flange Handle (flex shaft), NEMA 12, 59" (1.5m) cable, 250 Amp frame		Х			
BW9F0GA-20A	Flange Handle (flex shaft), NEMA 12, 78.7" (2.0m) cable, 250 Amp frame		Х			
BW9F0HA-15A	Flange Handle (flex shaft), NEMA 12, 59" (1.5m) cable, 400 Amp frame			Х		
BW9F0HA-20A	Flange Handle (flex shaft), NEMA 12, 78.7" (2.0m) cable, 400 Amp frame			Х		
BW9F0JA-15A	Nema 12 flexible shaft handle for 630A or 800A frame. 59.06" (1.5m) cable				X	Χ
BW9F0JA-20A	Nema 12 flexible shaft handle for 630A or 800A frame. 78.74" (2m) cable				X	X
BW9BTHA-L3W	Terminal Cover for the 400A frame			Х		
BW9BTJA-L3W	Terminal Cover for the 630A AND 800A frame				X	X
BW9Q1CA	Lockout Attachment 125A and 250A frames	Х	Х			
BW9QNHA	Lockout Attachment 400A, 630A and 800A frames			Х	X	Х

Internal Accessory Combinations for BW Series

Available configurations	Left - Right	Undervoltage trip Shunt trip	O Auxiliary switch
МССВ		BW125 BW250	BW400 BW630 BW800
Pole		3	3
Auxiliary switch SPDT		0	0
Shunt trip			
Undervoltage trip			
Auxiliary Switch + Shunt Trip			
Undervoltage + Auxiliary Switch			o I

Fuji Molded Case Circuit Breakers Wire Range Specifications



Wiring

- When connecting the wires, follow NEC (National Electric Code, USA) or CEC (Canadian Electrical code Part 1, Canada) instructions.
- Use copper wire rated for 75°C (167°F) for connecting. UL or CSA approved wire is recommended.
- Tighten the wire connections adequately, as a very large electromagnetic force will be generated when short circuit current is generated.
- Perform additional tightening of the terminal screws periodically.

Allowable Wire Specifications for Lug Terminals						
Wire Size AWG or MCM (mm²)	Number of Wire Strands					
14 to 2 (2.1 to 33.6)	7					
1 to 4/0 (42.4 to 107.2)	19					
250 to 500 (127 to 250)	37					



- Adhere to the allowable number of strands of wire indicated in the table on the left.
- Two wires cannot be connected together to a single connecting hole of lug terminal except BW400SAGU-3P400SB.
- Follow the number of strands of wire indicated on the table.
 (Wire size and number of wire strands not listed on table can not be connected)
- · Do not solder the end of the wire.







Rated current 400A 3/0 AWG x 2 19 strands each



Rated current 500A to 700A



Rated current 800A 300 MCM x 3 37 strands each

	Allowable \		Tightening Torque		
Туре	Current (A)	Wire Size (AWG or MCM [mm²]	Lug Terminal*		
	15	14 AWG [2.1 mm ²]			
	20	12 AWG [3.3 mm ²]			
	30	10 AWG [5.3 mm ²]			
	40	8 AWG [8.4 mm ²]			
	50	8 AWG [8.4 mm ²]			
D14/405	60	6 AWG [13.3 mm ²]	51 lb•in		
BW125	70	4 AWG [21.1 mm ²]	[5.8 N•m]		
	75	4 AWG [21.1 mm ²]			
	80	4 AWG [21.1 mm ²]			
	90	3 AWG [26.7 mm ²]			
	100	3 AWG [26.7 mm ²]			
	125	1 AWG [42.4 mm ²]			
	125	1 AWG [42.4 mm ²]			
	150	1/0 AWG [53.5 mm ²]			
BW250	175	2/0 AWG [67.4 mm ²]	204 lb•in		
DVVZOU	200	3/0 AWG [85.0 mm ²]	[23 N•m]		
	225	4/0 AWG [107.2 mm ²]			
	250	250 MCM [127 mm ²]			
	250	250 MCM [127mm ²]	00= 11 1		
	300	350 MCM [177mm ²]	385 lb•in [43.5 N•m]		
BW400	350	500 MCM [253mm ²]	[10.014 III]		
	400	3/0 AWGx2 [85.0 mm ² x2]	282 lb•in [31.9 N•m]		
BW630	500	250 MCMx2	275 lb•in		
DIVOSU	600	350 MCMx2	[31.07 N•m]		
BW800	700	500 MCMx2	275 lb•in		
DVVOUU	800	300 MCMx3	[31.07 N•m]		

*Lug terminals are supplied as standard.

Note: Terminals are factory-installed only for BW400, BW630 and BW800 series. No replacement terminals available.

Fuji Molded Case Circuit Breakers Field-mountable Accessories



	Rotary Operating Handles for Fuji MCCBs – Selection Guide										
Davidson Millson		V-type Handle		optional shaft 3.504 (89))		ptional shaft ! (609.6))	Mounting	V-type Handle			
Breaker Type	V-type Handle	Price	H: inch(mm)	Max. Mounting Depth H: inch(mm)	Range in which the hinge with H can be installed	Max. Mounting Depth H: inch(mm)	Range in which the hinge with H can be installed	Mounting Screw	Mass Ib. (kg)		
BW400	BW9V0HA	\$110.00									
BW630 BW800	BW9V0JA	\$130.00	7.48±0.078 (190±2)	9.843±0.078 (250±2)	7.95 to 9.843 (202to 250)	30.35±0.078 (771±2)	7.95 - 30.35 (202 - 771)	M4 x 3.35 (85)	1.48 (0.67)		

Notes:

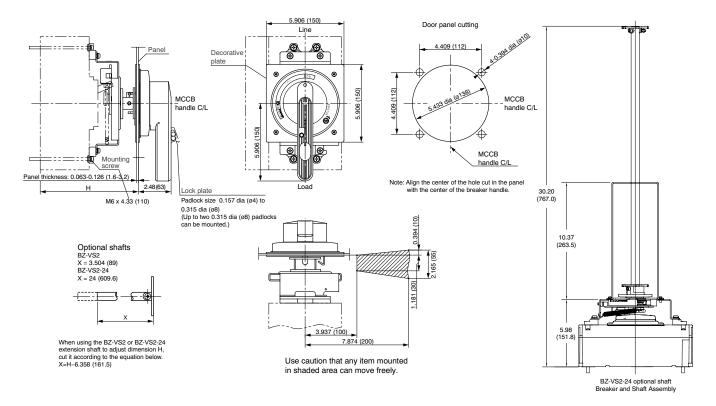
- · Handle is an operating mechanism only; not for sealing enclosure door.
- · Not available for side mounting

Dimensions

mm [inches]

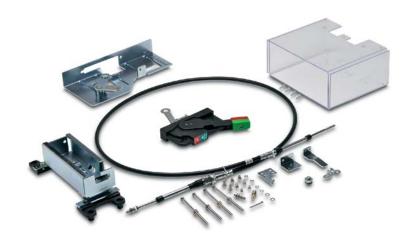
400A, 630A, 800A Frame V type handle

• BW9V0HA, BW9V0JA (BZ-VS2, BZ-VS2-24: optional shafts)



Fuji Molded Case Circuit Breakers Field-mountable Accessories

Defeatable Flexible Handle Operating Mechanisms





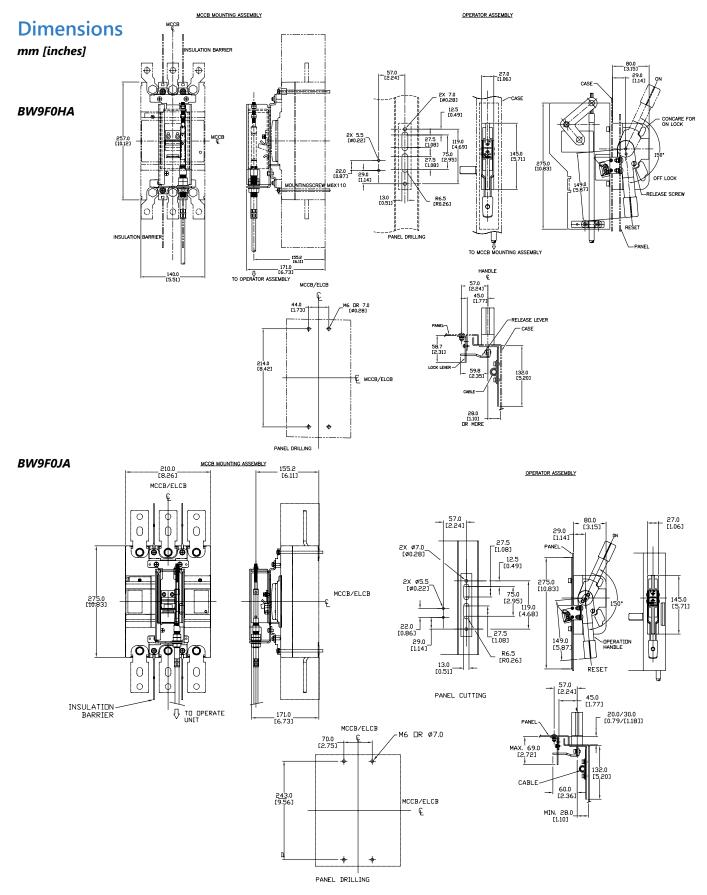
BW9F0JA-20A shown

	Flex Shaft Handles for Fuji MCCBs – Selection Guide								
Breaker Type Handle Type Price Description									
BW125	BW9F0CA-15A	\$386.00	Nema 12 flexible shaft handle for 125A frame. 59.06" (1.5m)cable						
BW125	BW9F0CA-20A	\$401.00	Nema 12 flexible shaft handle for 125A frame. 78.74" (2m) cable						
BW250	BW9F0GA-15A	\$401.00	Nema 12 flexible shaft handle for 250A frame. 59.06" (1.5m)cable						
BW250	BW9F0GA-20A	\$421.00	Nema 12 flexible shaft handle for 250A frame. 78.74" (2m) cable						
BW400*	BW9F0HA-15A	\$584.00	Nema 12 flexible shaft handle for 400A frame. 59.06" (1.5m)cable						
BVV400*	BW9F0HA-20A	\$601.00	Nema 12 flexible shaft handle for 400A frame. 78.74" (2m) cable						
BW630*&	BW9F0JA-15A	\$631.00	Nema 12 flexible shaft handle for 630A or 800A frame. 59.06" (1.5m)cable						
BW800*	BW9F0JA-20A	\$648.00	Nema 12 flexible shaft handle for 630A or 800A frame. 78.74" (2m) cable						

^{*}Terminal covers for line side and load side included with Flange Disconnects. 2/pk

Flex Handle Specifications									
Operating instructions	Operati Panel door cannot be	 Operating handle facing up, Breaker is in ON position. Operating handle facing down, Breaker is in OFF position or is reset. Panel door cannot be opened when in ON, OFF or Trip position. In order to open the door, the handle must be turned toward reset position. Release screw is standard. If you want to open a panel door in ON position, please turn the release screw using flat head screwdriver. 							
Frame Size	125A frame	250A frame	400A frame	630A/800 frame					
Mechanical Endurance (cycles)	10,000	8,000	6,000	6,000					
Ambient Temperature		14 to 140F (-	10 to 40°C)						
Relative Humidity		less than	95% RH						
Protection		NEMA Type12 II	P54 (IEC60529)						
Conforming Standards	NFPA 79(20	007), ANSI(Lockout), OSHA(1910.147, Lockout/tagout),	UL489(cUL)					
Environment	No excess	sive dust, smoke, corrosive g	ases, flammable gases, ste	am or salt.					

Fuji Molded Case Circuit Breakers Field-mountable Accessories



Fuji Molded Case Circuit Breakers Accessories F Fuji Electric



BW9W1SHA shown

Auxiliary Contacts

The auxiliary contacts are accessory contacts for the indication of circuit breaker open-closed or tripped.

	Auxiliary Contacts for Fuji MCCBs – Selection Guide								
Breaker Type	Part Number	Price	Description						
BW125 BW250	BW9W1SG0	\$40.00	Auxiliary switch for for 125A and 250A frame. Mounting left and right side						
BW400 BW630 BW800	BW9W1SHA	\$36.00	Auxiliary switch for for 400A , 630A and 800A frame. Mounting left side ONLY						

Ratings of Auxiliary Switches											
	Standard Type										
	Rated			Make/Break	Current (A)						
Breaker Type	Thermal Current (A)		AC			DC		Minimum Load Current			
		Voltage (V)	Res. Load	Ind. Load	Voltage (V)	Res. Load	Ind. Load	Current			
		24	5	5	24	4	3				
BW125, BW250,	E	48	5	5	48	2.5	1	5V DC 160 mA 30V DC 30 mA			
BW400 BW630, BW800	5	125	5	3	125	0.4	0.4				
		250	3	2	250	0.2	0.2				

Operation of auxiliary switches

Accessory	Handle position				
	ON	OFF	Trip		
Auxiiary switch	11/AXcL 14/AXaL		11/AXcL 14/AXaL		
SPDT	4)				
(1) 12/AXbL		12/AXbL		



BW9FRG0 shown

Shunt Trips

Shunt Trip is for remote tripping (opening) of crircuit breaker.

Shunt Trips for Fuji MCCBs – Selection Guide						
Part Number	Part Number Price Description					
BW9FRG0	\$81.00	Field installable 24 VAC/VDC shunt trip for BW125 and BW250 series MCCB. Left and right side mounting. Lead wires 20AWG, 19.69" long.				
BW9FHA-R	\$81.00	Field installable 24/48 VAC/VDC shunt trip for BW400, BW630 and BW800 series MCCB. Left side mounting only. Lead wires 20AWG, 19.69" long.				
BW9FAG0	\$81.00	ield installable 100/120 VAC, 100-110 VDC shunt trip for BW125 and BW250 series MCCE Left and right side mounting. Lead wires 20AWG, 19.69" long.				
BW9FHA-A	\$81.00	Field installable 100/240 VAC, 100-220 VDC shunt trip for BW400, BW630 and BW800 series MCCB.Left side mounting only. Lead wires 20AWG, 19.69" long.				

Ratings of Shunt Trips							
Brooker Tree	AC		DC		Time Deline of Oak	One and the Time (ma)	
Breaker Type	Voltage (V)	e (V) VA Voltage (V) W		Time Rating of Coil	Operating Time (ms)		
DIMAGE DIMAGO	24	50	24	50	Continuous	13-21	
BW125, BW250	100-120	50	100-110	50	(with 1 N.O. contact to prevent coil burnout)	13-21	
BW400, BW630,	24-48	2	24-48	2	Continuous		
BW800	100-240	3	100-220	3	Continuous	8-20	

Note: Allowable operating voltage AC voltage: 85% to 110% of coil rated voltage DC voltage: 75% to 125% of coil rated voltage

Fuji Molded Case Circuit Breakers Accessories



Undervoltage Releases

Undervoltage Release will trip the circuit breaker when the connected voltage drops to less than 70% of undervoltage release voltage rating. It will allow the circuit breaker to close (ON) when voltage is approximately 85% of rated voltage.

Undervoltage Releases for Fuji MCCBs – Selection Guide					
Breaker Type Part Number Price Description					
BW125, BW250	BW9RGAR	\$81.00	Undervoltage Release 24V DC (Left side ONLY)		
BW125, BW250 <u>BW9RGAT</u> \$81.00		\$81.00	Undervoltage Release 110 to 130 VAC VAC/VDC (Left side ONLY)		
BW400, BW630, BW800	BW9RHA-R	\$78.00	Undervoltage Release 24 VAC/VDC (Left side ONLY)		
BW400, BW630, BW800	BW9RHA-1	\$81.00	Undervoltage Release 120 to 130 VAC 125 VDC (Left side ONLY)		



BW9RGAR shown

Ratings of Undervoltage Trip						
Drankov Time	A	С	DC			
Breaker Type	Voltage (V) VA		Voltage (V) W			
BW125*1 BW250*1	_	-	24	5		
BW250 **	110 - 130	5	_	-		
BW400*2	24	2	24	2		
BW630*2 BW800*2	120 - 130	3	125	3		

Note: Allowable operating voltage: AC voltage: 85% to 110% of coil rated voltage DC voltage: 75% to 125% of coil rated voltage.

Turning ON with the undervoltage trip coil not energized causes normal tripping.



BW9SL0GA-3 shown

Replacement Lugs

Rep	Replacement Lug Kits for Fuji MCCBs – Selection Guide					
Part Number Price Description		Description				
BW9SL0CA-3	\$82.00	Replacement lug kit for BW125 series MCCB. 75°C. Cu only Package of 3				
BW9SL0GA-3	LOGA-3 \$92.00 Replacement lug kit for BW250 series up to 175A MCCB. 75°C. Cu only Package of 3					
BW9SL1GA-3	\$102.00	Replacement lug kit for BW250 MCCB series 200A to 250A. 75°C. Cu only Package of 3				

Note: Terminals are factory-installed only for BW400, BW630 and BW800 series. No replacement terminals available.

^{*1} Reset-allowed type: When the breaker handle is in the OFF or RESET state, tripping does not occur, even if the undervoltage trip coil is not energized.

^{*2} Reset-prohibited type: When the undervoltage trip coil is not energized, reset operation cannot reset the tripped breaker to the OFF state.

Fuji Molded Case Circuit Breakers Accessories



Terminal Covers

Terminal covers act as guards to shield the operator from touching live terminations. They fit either the line or load side.

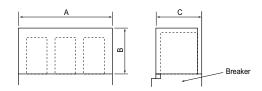


BW9BTHA-L3W shown

Terminal Covers for Fuji MCCBs – Selection Guide							
Drankov Time	Dowl Normbon	Duine	ice Description	Dimensions inch (mm)			
Breaker Type Pai	Part Number	riice		Α	В	С	
BW400	BW9BTHA-L3W	\$81.00	Gray-white Long type terminal cover for Fuji MCCBs. For line side and load side. 2/pk	6.772 (172)	4.331 (110)	3.858 (98)	
BW630, BW800	BW9BTJA-L3W	\$84.00	Gray-white Long type terminal cover for Fuji MCCBs. For line side and load side. 2/pk	8.268 (210)	6.102 (155)	3.858 (98)	

Note: Gray-white short type terminal covers are provided with breakers as standard for 125 and 250 Amp frames.

Dimensions of Terminal Covers: inch (mm)



Lockout Attachment

Lockout Attachments for Fuji MCCBs – Selection Guide						
Breaker Type Part Number Price Description						
BW125 BW250	BW9Q1CA	\$19.50	Use to lock out BW125 and BW 250 series MCCBs. Lock not included			
BW400, BW630, BW800	BW9QNHA	\$47.50	Use to lock out BW400, BW600 and BW800 MCCBs. Lock not included.			



BW9Q1CA shown