Fuji Molded Case Circuit Breakers – Field-mountable Accessories

Defeatable Rotary Handle Operating Mechanisms

BW9V0CA shown

Rotary Operating Handles for Fuji MCCBs – Selection Guide

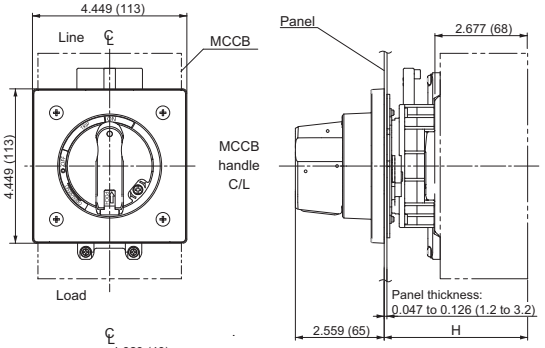
Breaker Type	V-type Handle	Price	Standard Type	With the optional shaft (x= 6.063 (154))		Mounting Screw	Mass lb. (kg)
			H: inch(mm)	H: inch(mm)	Area in which the hinge with H can be installed		
BW125	BW9V0CA	<--->	4.134±0.078 (105±2)	9.843±0.078 (250±2)	5.512 to 9.843 (140 to 250)	M4 x 3.35 (85)	1.48 (0.67)
BW250	BW9V0GA	<--->	4.134±0.078(105±2)	9.843±0.078 (250±2)	5.512 to 9.843 (140 to 250)	M4 x 3.35 (85)	1.48 (0.67)
BW400	BW9V0HA	<--->	7.48±0.078 (190±2)	9.843±0.078 (250±2)	7.953 to 9.843 (202 to 250)	M6 x 4.33 (110)	4.85 (2.2)
BW630 BW800	BW9V0JA	<--->					

Notes:
- ***Handle is an operating mechanism only; not for sealing enclosure door.***
- ***Not available for side mounting***
- ***When mounting a terminal cover, cut away part of it because it hides the mounting screws for the breaker.***

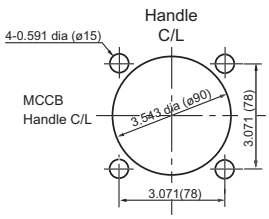
Dimensions

125A, 250A Frame V type handle

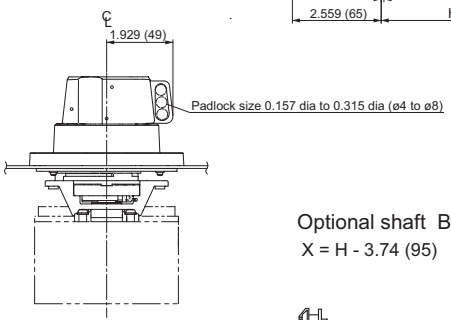
• BW9V0CA, BW9V0GA (BW9VSG0: optional shaft)

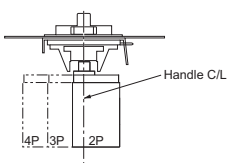


Door panel cutting



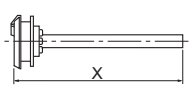
Note: Align the center of the hole cut in the panel with the center of the breaker handle.



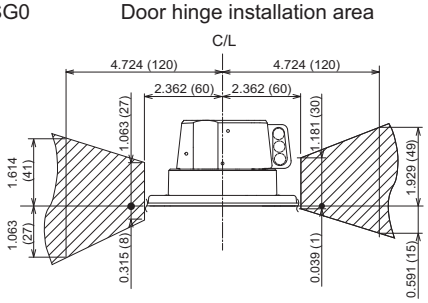


Optional shaft BW9VSG0

X = H - 3.74 (95)



Door hinge installation area

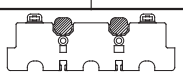


Install the door hinge in the shaded area.

Dimensions: inch (mm)

Breaker type	Handle type	Standard type H: inch(mm)	With the optional shaft (X=6.063(154)) H: inch(mm)	Area in which the hinge with H can be installed	Mounting screw	Mass lb. (kg)
BW125	BW9V0CA	4.134±0.078 (105±2)	9.843±0.078 (250±2)	5.512 to 9.843 (140 to 250)	M4 x 3.35(85)	1.48 (0.67)
BW250	BW9V0GA	4.134±0.078 (105±2)	9.843±0.078 (250±2)	5.512 to 9.843 (140 to 250)	M4 x 3.35(85)	1.48 (0.67)

Notes:
- The handle does not have any means to hold the door. Provide it separately.
- Not available for side mounting.
- * For BW250 series only: When mounting a terminal cover, cut away part of it because it hides the mounting screws for the breaker.



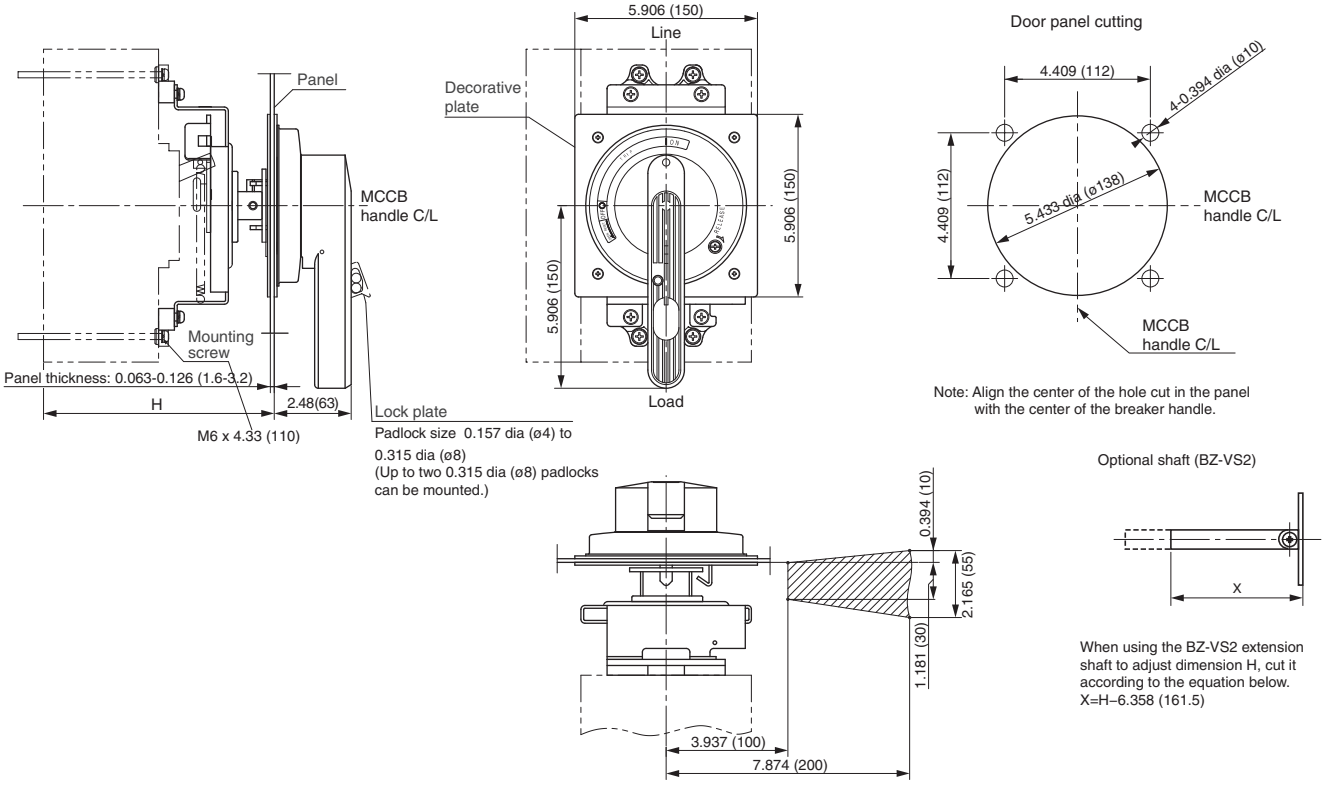
Remove the shaded parts in the figure .

Fuji Molded Case Circuit Breakers – Field-mountable Accessories

Dimensions

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

• BW9V0HA, BW9V0JA (BZ-VS2: optional shaft)



Install the door hinge in the shaded area.

Breaker type	Handle type	Standard type H: inch(mm)	With the optional shaft (X = 3.48 (88.5))		Mass lb. (kg)
			H: inch(mm)	Area in which the hinge with H can be installed	
BW400	**BW9V0HA**	7.48±0.078 (190±2)	9.843±0.078 (250±2)	7.953 to 9.843 (202 to 250)	4.85 (2.2)
BW630, BW800	**BW9V0JA**				

Note: • The handle is an operating mechanism only; not for sealing enclosure door.
• Not available for side mounting

Dimensions: inch (mm)

Fuji Molded Case Circuit Breakers – Field-mountable Accessories

Defeatable Flexible Handle Operating Mechanisms

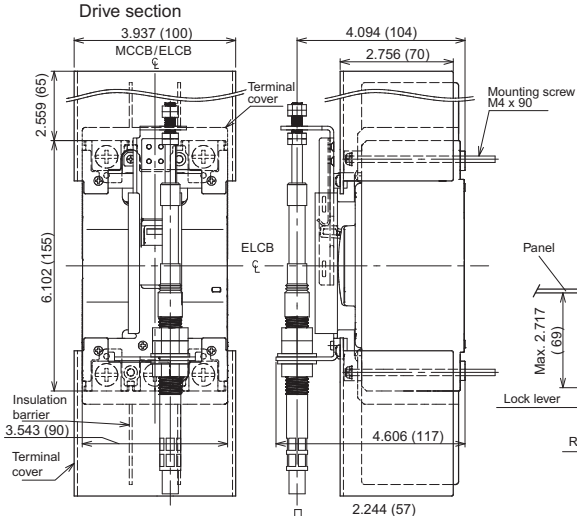
BW9F0CA-15A shown

Flex Shaft Handles for Fuji MCCBs – Selection Guide			
Breaker Type	**Handle Type**	**Price**	**Description**
BW125	BW9F0CA-15A	<--->	Nema 12 flexible shaft handle for 125A frame. 59.06" (1.5m)cable
	BW9F0CA-20A	<--->	Nema 12 flexible shaft handle for 125A frame. 78.74" (2m) cable
BW250	BW9F0GA-15A	<--->	Nema 12 flexible shaft handle for 250A frame. 59.06" (1.5m)cable
	BW9F0GA-20A	<--->	Nema 12 flexible shaft handle for 250A frame. 78.74" (2m) cable
BW400	BW9F0HA-15A	<--->	Nema 12 flexible shaft handle for 400A frame. 59.06" (1.5m)cable
	BW9F0HA-20A	<--->	Nema 12 flexible shaft handle for 400A frame. 78.74" (2m) cable

Flex Handle Specifications			
Operating instructions	• 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**
Mechanical Endurance (cycles)	10,000	8,000	6,000
Ambient Temperature	14 to 140F (- 10 to 40°C)		
Relative Humidity	less than 95% RH		
Protection	NEMA Type12 IP54 (IEC60529)		
Conforming Standards	NFPA 79(2007), ANSI(Lockout), OSHA(1910.147, Lockout/tagout), UL489(cUL)		
Environment	No excessive dust, smoke, corrosive gases, flammable gases, steam or salt.		

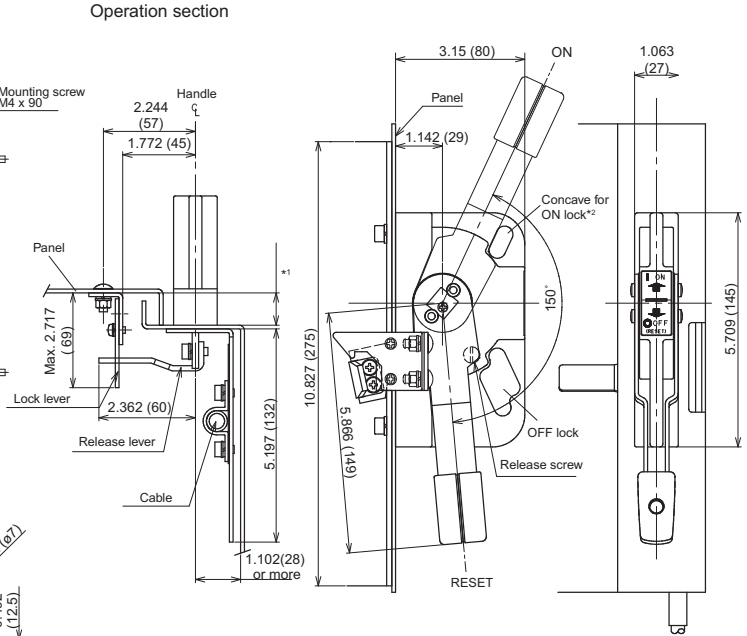
• BW9F0CA

Drive section



Panel drilling

Operation section



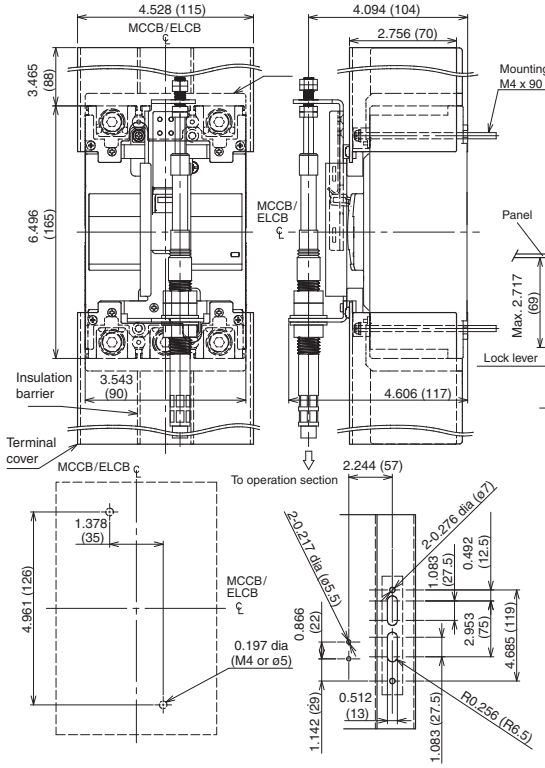
- This product consists of a drive section and an operation section.
- The operation section can be mounted either to the right or to the left on the panel depending on the mounting position of the release lever.
- For the OFF lock, up to three 0.394 dia (φ10) padlocks can be used at one time

*1 Set the height to 20mm or 30mm (0.787" or 1.181"). Adjust the lock lever depending on the setting.
*2 In the ON position, up to two padlocks or lockout hasps up to 0.394 dia (10mm) can be used at one time.

Fuji Molded Case Circuit Breakers – Field-mountable Accessories

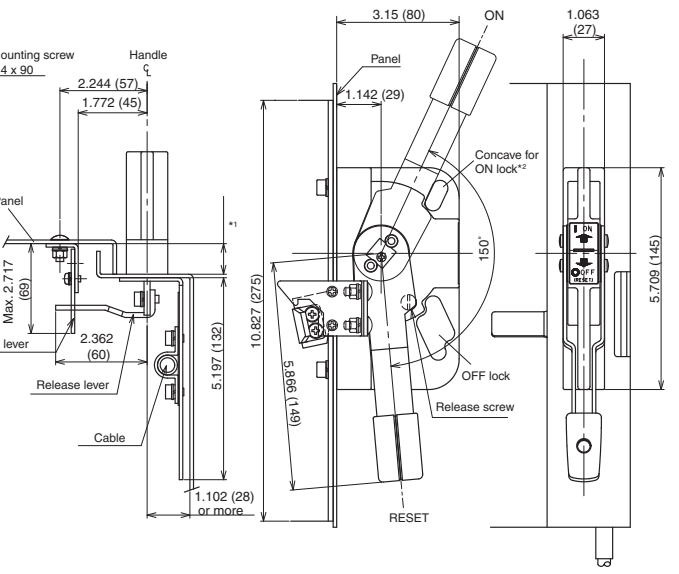
• BW9F0GA

Drive section



Panel drilling

Operation section



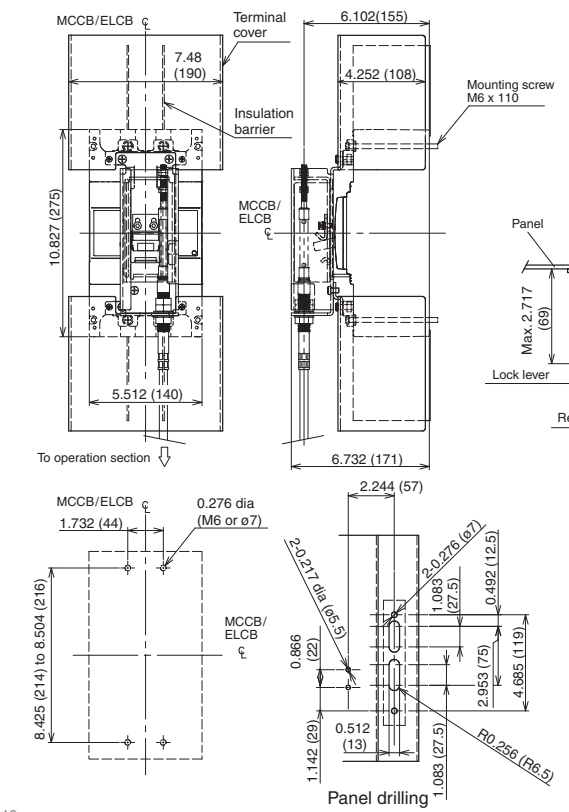
- This product consists of a drive section and an operation section.
- The operation section can be mounted either to the right or to the left on the panel depending on the mounting position of the release lever.
- For the OFF lock, up to three 0.394 dia (φ10) padlocks can be used at one time

*1 Set the height to 20mm or 30mm (0.787" or 1.181"). Adjust the lock lever depending on the setting.
*2 In the ON position, up to two padlocks or lockout hasps up to 0.394 dia (10mm) can be used at one time.

• BW9F0HA

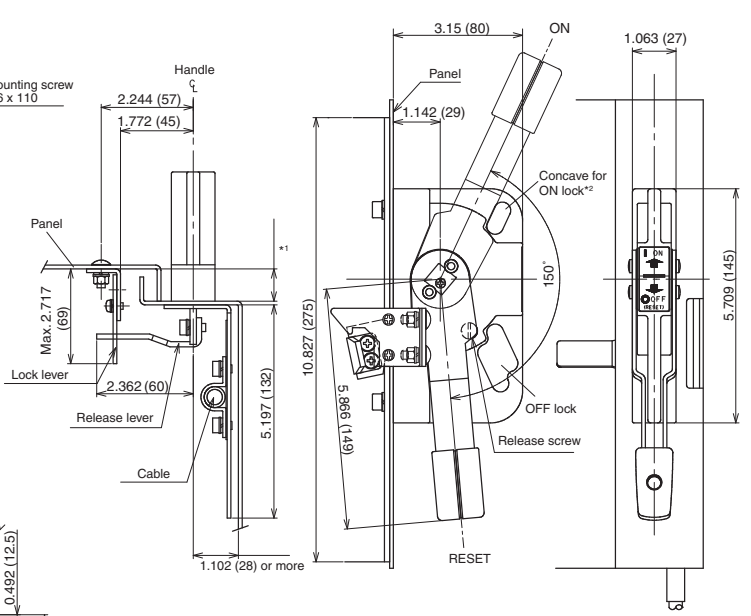
Dimensions: inch (mm)

Drive section



Panel drilling

Operation section



- This product consists of a drive section and an operation section.
- The operation section can be mounted either to the right or to the left on the panel depending on the mounting position of the release lever.
- For the OFF lock, up to three 0.394 dia (φ10) padlocks can be used at one time

*1 Set the height to 20mm or 30mm (0.787" or 1.181"). Adjust the lock lever depending on the se
*2 In the ON position, up to two padlocks or lockout hasps up to 0.394 dia (10mm) can be used at one time.

Fuji Molded Case Circuit Breakers – Accessories

BW9W1SHA shown

Auxiliary Contacts

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

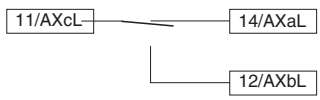
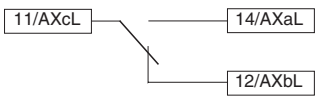
Auxiliary Contacts for Fuji MCCBs – Selection Guide			
Breaker Type	**Part Number**	**Price**	**Description**
BW125 BW250	BW9W1SG0	<---> <--->	Auxiliary switch for for 125A and 250A frame. Mounting left and right side
BW400 BW630 BW800	BW9W1SHA	<---> <--->	Auxiliary switch for for 400A , 630A and 800A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

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

5V DC 160 mA

30V DC 30 mA

Operation of auxiliary switches

Accessory	Handle position		
	ON	OFF	Trip
Auxiliary switch SPDT (1)			

BW9FRG0 shown

Shunt Trips

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

Shunt Trips for Fuji MCCBs – Selection Guide		
Part Number	**Price**	**Description**
BW9FRG0	<--->	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	<--->	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	<--->	Field installable 100/120 VAC, 100-110 VDC shunt trip for BW125 and BW250 series MCCB. Left and right side mounting. Lead wires 20AWG, 19.69" long.
BW9FHA-A	<--->	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						
Breaker Type	**AC**		**DC**		**Time Rating of Coil**	**Operating Time (ms)**
	Voltage (V)	**VA**	**Voltage (V)**	**W**		
BW125, BW250	24	50	24	50	Continuous (with 1 N.O. contact to prevent coil burnout)	13-21
	100-120	50	100-110	50		
BW400, BW630, BW800	24-48	2	24-48	2	Continuous	8-20
	100-240	3	100-220	3		

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 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***	<--->	Undervoltage Release 24V DC (Left side ONLY)
BW125, BW250	***BW9RGAT***	<--->	Undervoltage Release 110 to 130 VAC VAC/VDC (Left side ONLY)
BW400, BW630, BW800	***BW9RHA-R***	<--->	Undervoltage Release 24 VAC/VDC (Left side ONLY)
BW400, BW630, BW800	***BW9RHA-1***	<--->	Undervoltage Release 120 to 130 VAC 125 VDC (Left side ONLY)

BW9RGAR shown

Ratings of Undervoltage Trip				
Breaker Type	***AC***		***DC***	
	Voltage (V)	***VA***	***Voltage (V)***	***W***
BW125*1 BW250*1	–	–	24	5
	110 - 130	5	–	–
BW400*2 BW630*2 BW800*2	24	2	24	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.

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

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

BW9SL0GA-3 shown

Replacement Lugs

Replacement Lug Kits for Fuji MCCBs – Selection Guide		
Part Number	***Price***	***Description***
BW9SL0CA-3	<--->	Replacement lug kit for BW125 series MCCB. 75°C. Cu only Package of 3
BW9SL0GA-3	<--->	Replacement lug kit for BW250 series up to 175A MCCB. 75°C. Cu only Package of 3
BW9SL1GA-3	<--->	Replacement lug kit for BW250 MCCB series 200A to 250A. 75°C. Cu only Package of 3

Fuji Molded Case Circuit Breakers – Accessories

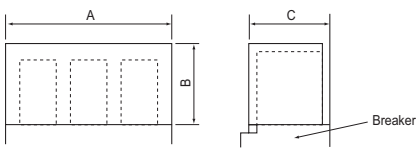
Terminal Covers

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						
Breaker Series	***Part Number***	***Price***	***Description***	***Dimensions inch (mm)***		
				A	B	C
BW400	***BW9BTHA-L3W***	<--->	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***	<--->	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 Series	***Part Number***	***Price***	***Description***
BW125 BW250	***BW9Q1CA***	<--->	Use to lock out BW125 and BW 250 series MCCBs. Lock not included
BW400, BW630, BW800	***BW9QNHA***	<--->	Use to lock out BW400, BW600 and BW800 MCCBs. Lock not included.

BW9Q1CA shown

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 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.

Caution

- **Adhere to the number of strands of wire indicated in the table.**
- **Multiconductor wire can not be connected.**
- **Two wires cannot be connected to the lug terminal at once.**
- **Do not solder the end of the wire.**

Allowable Wire Specifications for Lug Terminals	
Wire Size AWG or MCM (mm^2)	***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

Maximum Wire Sizes and Tightening Torque			
Type	***Rated Current (A)***	***Wire Size AWG or MCM (mm2)***	***Tightening Torque Lug Terminal****
BW125	15	14 AWG (2.1mm^2)	51 lb.-in. (5.8 N-m)
	20	12 AWG (3.3mm^2)	
	30	10 AWG (5.3mm^2)	
	40	8 AWG (8.4mm^2)	
	50	8 AWG (8.4mm^2)	
	60	6 AWG (13.3mm^2)	
	70	4 AWG (21.1mm^2)	
	75	4 AWG (21.1mm^2)	
	80	4 AWG (21.1mm^2)	
	90	3 AWG (26.7mm^2)	
	100	3 AWG (26.7mm^2)	
	125	1 AWG (42.4mm^2)	
BW250	125	1 AWG (42.4mm^2)	204 lb.-in. (23 N-m)
	150	1/0 AWG (53.5mm^2)	
	175	2/0 AWG (67.4mm^2)	
	200	3/0 AWG (85.0mm^2)	
	225	4/0 AWG (107.2mm^2)	
	250	250 MCM (127mm^2)	
BW400	250	250 MCM (127mm^2)	385 lb.-in (43.5 N-m)
	300	350 MCM (177mm^2)	
	350	500 MCM (253mm^2)	
	400	3/0 AWGx2 (85.0mm^2x2)	282 lb-in (31.9 N-m)
BW630	500	250-500 MCMx2	275 lb.-in. (31.07 N-m)
	600	250-500 MCMx2	
BW800	700	250-500 MCMx2	275 lb.-in. (31.07 N-m)
	800	3/0 AWG-300 MCMx3	

Note: Lug terminals are supplied as standard.