

# Molded Case Circuit Breakers Earth Leakage Circuit Breakers

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br



50A Frame ~ 800A Frame  
Max Voltage 600V



The Fuji Electric UL489 Molded Case Circuit Breaker and Earth Leakage Circuit Breaker (GLOBAL TWIN series) provide the ultimate in compact design, unprecedented value, and use anywhere in the world.



50A Frame



125A Frame



250A Frame



400A Frame



MORE COMPACT (especially 100A Frame, 125A Frame, 250A Frame) than any breaker on the market, so control panels take up less space than ever before.

Competitive pricing.

Conformity to all WORLDWIDE STANDARDS, including UL / CSA / IEC / CE Marking / JIS (Japan) / CCC (China).



**Fuji Electric's GLOBAL TWIN series gives you the features and flexibility you need:**

- 1) Suitable for branch circuit protection.
- 2) Rated current of 3-800A, Max 600V.
- 3) Standard type and High interrupting capacities are available in identically sized breakers.
- 4) Shunt trip (F), Under voltage release (R) and other accessories are available.
- 5) Screw, Flat, or Lug terminal are available.
- 6) Auxiliary switch, Alarm switch, and Shunt trip can be installed in the field.
- 7) Choose Breaker-Mounted (N type) or Panel Door-Mounted (V type), Flange-Mounted (F type), operating handles.

# Evolutionary form of small breaker for machine equipment and control panels!

Molded Case Circuit Breakers / Earth Leakage Circuit Breakers

## G-TWIN $\Lambda$ (Lambda) Series

New lines of small and high-performance 50AF molded case circuit breakers and earth leakage circuit breakers enables size reduction and globalization of machine equipment and control panels!



Along with functional enhancement of machine equipment, the number of electrical circuits in control panels is increasing and downsizing of control panel devices is a common challenge. In addition, globalization of the control panel market is progressing rapidly.

As new products of MCCB/ELCB, Fuji Electric released the (Alpha)  $\alpha$ -TWIN Series in 2001, and the G-TWIN Series in 2007. The G-TWIN Series are downsized, modular and multi-standard products conforming to Japanese and overseas standards. They have helped Fuji Electric stay ahead of changes in the market.

Inheriting the philosophy of the G-TWIN Series, we have now released the G-TWIN  $\Lambda$  (Lambda) Series as a series of smaller breakers that meet the needs of the machine equipment and control panel markets.







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# Molded Case Circuit Breakers - G-TWIN $\lambda$ (Lambda) Series Specifications

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

## ■ Molded Case Circuit Breakers for Line Protection Use (Global Products)

Ampere frame		50			
Type		BW50RBGU			
Appearance					
Numbers of poles and elements		2P2E	3P3E		
Rated insulation voltage $U_i$ [V]		AC	440		
		DC	125		
Rated impulse withstand voltage $U_{imp}$ [kV]		6			
Rated current Reference temperature 40°C $I_n$ [A]		3,5,10,15,20,30,40,50			
Rated frequency [Hz]		50-60			
Rated breaking capacity $I_{cu}/I_{cs}$ [kA]	UL489, CAN/CSA22.2 No.5(cUL) IEC60947-2 EN60947-2 JISC8201-2-1	AC	240V	18	
			440V	7.5/4	
			415V	10/5	
			400V	10/5	
			380V	10/5	
			240V	15/15	
			230V	15/15	
			DC	125V 10/10	
	GB14048.2	AC	400V	10/5	
			230V	15/15	
	DC	125V	10/10		
Isolation compliance		Compliant			
Reverse connection		Possible			
Utilization category		A			
Use environment condition		Pollution degree 3			
Outline dimensions [mm]		a	36	54	
		b	120 (including the terminal cover)		
		c	68		
		d	90		
Front mounting type product mass [kg]		Page	0.5	0.6	
Mounting and connection	Front mounting type (screw mounting, IEC 35 mm rail mounting)	35, 37	○		
Accessories	Auxiliary switch	W 26	○		
	Alarm switch	K 26	○		
	Shunt trip device	F □ 26	○		
	Undervoltage trip device*1	R □ 26	-	○	
	Lead wire terminal block	A 30	○		
Separately sold parts	Auxiliary switch	W 25	○		
	Alarm switch	K 25	○		
	Shunt trip device	F □ 25	○		
	External operating handle	Panel mounting	V 33	○	
		Main unit mounting	N 33	○	
	Terminal cover	Short type	TS 33	○ (Included)	
		Long type	TL 33	○	
	Insulation barrier	Interphase barrier	B 33	○	
	Handle locking cover	L1	33	○	
	Handle key lock	Q2	33	○	
Conformance to standards	UL489/CSA22.2No.5(cUL)	 (File No.E90584)			
	IEC60947-2 (TÜV certificate)				
	EN60947-2 (CE marking)				
	GB14048.2 (CCC certificate)				
	JISC8201-2-1	Self-declaration of conformity			
	Electrical Appliances and Materials Safety Act	Specified Electrical Appliances and Materials 			
Tripping device		Thermal-electromagnetic method			
Trip button		Provided			
Characteristics curves and dimensions on pages		15,19			

Note: All circuit breakers rated at 80%







\*1 Only available as factory-installed

○ : Available, - : Not available

# Earth Leakage Circuit Breakers - G-TWIN $\lambda$ (Lambda) Series Specifications

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

## ■ Earth Leakage Circuit Breakers for Line Protection Use (Global Products)

Ampere frame		50		
Type		EW50RBGU		
Appearance				
Numbers of poles and elements		2P2E	3P3E	
Applied circuit		1ø2W	1ø2W,3ø3W	
Rated operational voltage Ue[V]		IEC 100-240V AC	100-440V AC	
		UL 240V AC	240V AC	
Rated impulse withstand voltage Uimp[kV]		4	6	
Rated current Reference temperature 40°C In[A]		5,10,15,20,30,40,50		
Rated frequency [Hz]		50-60		
Rated sensitive current IΔn [mA]		30	30,50,100,200,500	
Maximum operating time [sec]		IΔn 0.1		
		5IΔn 0.04		
Rated breaking capacity Icu/Ics [kA]	UL489, CAN/CSA22.2 No.5(cUL)	AC 240V	18	
		AC 440V	-/-	
		415V	-/-	
		400V	-/-	
		380V	-/-	
	GB14048.2	AC 240V	15/15	
		230V	15/15	
		100V	15/15	
		400V	-/-	
		230V	15/15	
Isolation compliance		Compliant		
Reverse connection		Not possible		
Utilization category		A		
Use environment condition		Pollution degree 3		
Outline dimensions [mm]		a 36	54	
		b 120 (including the terminal cover)		
		c 68		
		d 90		
Front mounting type product mass [kg]		Page 0.5	0.6	
Mounting and connection		Front mounting type (screw mounting, IEC 35 mm rail mounting)	35, 37	
Accessories	Auxiliary switch	W 26	○	
	Alarm switch	K 26	○	
	Shunt trip device	F □ 26	-	
	Undervoltage trip device*	R □ 26	○	
	Lead wire terminal block	A 32	○	
Separately sold parts	Auxiliary switch	W 25	○	
	Alarm switch	K 25	○	
	Shunt trip device	F □ 25	-	
	External operating handle	Panel mounting	V 33	○
		Main unit mounting	N 33	○
	Terminal cover	Short type	TS 33	○ (Included)
		Long type	TL 33	○
	Handle locking cover	L1 33	○	
	Handle key lock	Q2 33	○	
Conformance to standards	UL489/CSA22.2No.5(cUL)	 (File No.E90584)		
	IEC60947-2 (TÜV certificate)			
	EN60947-2 (CE marking)			
	GB14048.2 (CCC certificate)			
	JISC8201-2-1	Self-declaration of conformity		
	Electrical Appliances and Materials Safety Act	Specified Electrical Appliances and Materials 		
Tripping device		Thermal-electromagnetic method		
Trip button		Provided		
Earth leakage indication		Mechanical button		
Characteristics curves and dimensions on pages		15, 19		

Note: All circuit breakers rated at 80%


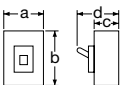
\*Only available as factory-installed

○ : Available, - : Not available

Standards	Rated voltage (V)	Operational voltage range (V)
UL	240V AC	80 to 264V AC
IEC	100-240V AC	80 to 264V AC
	100-440V AC	80 to 484V AC

# Molded Case Circuit Breakers - G-TWIN Series Specifications

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

Frame size (A)		50				100					
Type		BW50RAGU-2P		BW50RAGU-3P		BW100EAGU-2P		BW100EAGU-3P			
Appearance (with Screw Terminals, 3 poles)											
SCCR=UL489 interrupting capacity											
Rated insulation voltage (V) (IEC60947-2)		AC	690		690		690		690		
		DC	-		-		-		-		
Rated voltage (V) (UL489)		AC	240		240		240		240		
Rated current (A)		3,5   10,15,20,30,32,40,50		3,5   10,15,20,30,32,40,50		60,63,70,75,80,90,100					
Poles		2		3		2		3			
Rated frequency (Hz)		50/60		50/60		50/60		50/60			
Rated interrupting capacity sym (kA)	UL489 CAN/CSA C22.2 No.5	AC	600V/Δ	-		-		-		-	
			600V/Y	-		-		-		-	
			480V/Δ	-		-		-		-	
			480V/Y	-		-		-		-	
			240V	14	14	14	14				
			DC	250V	-		-		-		-
	IEC60947-2 JIS C 8201-2-1 Icu/Ics	AC	690V	-		-		-		-	
			600V	5/3	5/3	5/3	5/3				
			500V	7.5/4	7.5/4	7.5/4	7.5/4				
			440V	10/5	10/5	10/5	10/5				
			400V	10/5	10/5	10/5	10/5				
			230V	25/13	25/13	25/13	25/13				
	DC	250V	5/3	5/3	5/3	5/3					
		GB14048.2 Icu/Ics	AC	400V	7/4	10/5	7/4	10/5	10/5	10/5	
230V	14/7			25/13	14/7	25/13	25/13	25/13			
Isolation compliance		Compliant		Compliant		Compliant		Compliant			
Utilization category		A		A		A		A			
Dimension inch (mm)		a	1.969(50)		2.953(75)		1.969(50)		2.953(75)		
		b	4.724(120)		4.724(120)		4.724(120)		4.724(120)		
		c	2.362(60)		2.362(60)		2.362(60)		2.362(60)		
		d	3.307(84)		3.307(84)		3.307(84)		3.307(84)		
Terminal construction	Screw terminals	None	●	●	●	●					
	Flat terminals	SF	●	●	●	●					
	Lug terminals	SB	-	-	●	●					
Internal accessories *4	Auxiliary switch	W	BZ6WR10CU	BZ6W*10CU	BZ6WR10CU	BZ6W*10CU					
	Auxiliary switch for low current	WD	BZ6WDR10CU	BZ6WD*10CU	BZ6WDR10CU	BZ6WD*10CU					
	Alarm switch	K	BZ6KR10CU	BZ6K*10CU	BZ6KR10CU	BZ6K*10CU					
	Alarm switch for low current	KD	BZ6KDR10CU	BZ6KD*10CU	BZ6KDR10CU	BZ6KD*10CU					
	Auxiliary & Alarm switch	WK	BZ6WKR10CU	BZ6WK*10CU	BZ6WKR10CU	BZ6WK*10CU					
	Aux and Alarm for low current	WDKD	BZ6WDKDR10CU	BZ6WDKD*10CU	BZ6WDKDR10CU	BZ6WDKD*10CU					
	Shunt trip	F	BZ6F*10CU	BZ6F*10CU	BZ6F*10CU	BZ6F*10CU					
	Under voltage trip	R	BZ6R*10CAU	BZ6R*10CU	BZ6R*10CAU	BZ6R*10CU					
Accessories with terminal block	A	*1	*1	*1	*1						
External accessories	Padlocking device (Cap type)*5	Q1	BZ6L10CA	BZ6L10CA	BZ6L10CA	BZ6L10CA					
			BZ6L10C	BZ6L10C	BZ6L10C	BZ6L10C					
	External operating handle	V	BZ6V10D	BZ6V10D	BZ6V10D	BZ6V10D					
		N	BZ6N10D	BZ6N10D	BZ6N10D	BZ6N10D					
	Field Installable terminal Kit	Flat terminal kit	BZ-SU20B	BZ-SU20B	BZ-SU25B	BZ-SU25B					
		Lug terminal kit	-	-	-	-					
	Terminal covers *3	for screw, short type	Provided	Provided	Provided	Provided					
		for screw, long type	BW9BTAA-L2W	BW9BTAA-L3W	BW9BTAA-L2W	BW9BTAA-L3W					
		for Flat terminal	-	-	-	-					
		for Lug terminal	-	-	-	-					
Insulation barrier *2		BZ6B10C		BZ6B10C		BZ6B10C		BZ6B10C			

\*1 For internal accessories with terminal block, specify "A" in the accessory P/N. When 50A Frame & 100A Frame are ordered w/UVT, the UVT is supplied with terminal block as standard.

\*2 Insulation barriers are only required with flat terminal.

\*3 Short terminal covers are supplied as standard. If long terminal covers are required, please order BW9BTAA-L2W or BW9BTAA-L3W.

\*4 These internal accessories can be installed in the field. (see page 39 for part number)



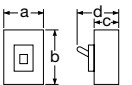
\*5 Non-UL item

● : Available, - : Not available

Note: All circuit breakers rated at 80%

# Molded Case Circuit Breakers - G-TWIN Series Specifications

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

Frame size (A)		125						250											
Type		BW125JAGU			BW125RAGU			BW250EAGU		BW250JAGU		BW250RAGU							
Appearance (with Screw Terminals, 3 poles)																			
SCCR=UL489 interrupting capacity																			
Rated insulation voltage (V) (IEC60947-2)		AC 690			690			690		690		690							
		DC 250			250			250		250		250							
Rated voltage (V) (UL489)		AC 600Y/347			600Y/347			240		600Y/347		600Y/347							
Rated current (A)		15,20,30,40,50,60,70,75,80,90,100,125						125,150,160,175,200,225,250											
Poles		2		3		4		2,3		4		2		3		2,3		4	
Rated frequency (Hz)		50/60						50/60											
Rated interrupting capacity sym (kA)	UL489 CAN/CSA C22.2 No.5	AC	600V/Δ	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
			600V/Y	10	10	10	18	18	-	-	10	10	25	25					
			480V/Δ	-	30	-	50	-	-	-	30	-	50	-					
			480V/Y	30	30	30	50	50	-	-	30	30	50	50					
			240V	50	50	50	100	100	22	-	50	50	100	100					
			250V	10	10	10	10	10	10	10	10	10	10	10					
	IEC60947-2 JIS C 8201-2-1 Icu/Ics	AC	690V	-	-	-	5/3	-	-	-	-	5/3	-						
			500V	15/8	-	-	36/18	-	-	10/5	-	36/18	36/18						
			440V	30/15	-	-	50/25	-	-	18/9	-	36/18	50/25						
			400V	30/15	-	-	50/25	-	-	18/9	-	30/15	50/25						
			380V	30/15	-	-	50/25	-	-	18/9	-	30/15	50/25						
			240V	50/25	-	-	100/50	-	-	36/18	-	50/25	100/50						
DC	250V	15/8	-	-	40/20	-	-	10/5	-	20/10	40/20								
	250V	15/8	-	-	40/20	-	-	10/5	-	20/10	40/20								
GB14048.2 Icu/Ics	AC	400V	30/15	-	-	50/25	-	-	18/9	-	30/15	50/25							
		230V	50/25	-	-	100/50	-	-	36/18	-	50/25	100/50							
Isolation compliance		Compliant						Compliant											
Utilization category		A						A											
Dimension inch (mm)		a	2.362(60)	3.543(90)	4.724(120)	3.543(90)	4.724(120)	4.134(105)	4.134(105)	6.496(165)	4.134(105)	6.496(165)							
		b	6.372(171)			6.372(171)			7.126(181)			7.126(181)							
		c	2.677(68)			2.677(68)			2.677(68)			2.677(68)							
		d	3.740(95)			3.740(95)			3.740(95)			3.740(95)							
Terminal construction	Screw terminals (standard)	None	●	●	●	●	●	●	●	●	●	●							
	Flat terminals	SF	●	●	●	●	●	●	●	●	●	●							
	Lug terminals	SB	●	●	●	●	●	●	●	●	●	●							
Internal accessories	Auxiliary switch	W	BW9W1SG0(-R)	BW9W1SG0(-R)	BW9W1SG0(-R)	BW9W1SG0(-R)	BW9W1SG0(-R)	BW9W1SG0(-R)	BW9W1SG0(-R)	BW9W1SG0(-R)	BW9W1SG0(-R)	BW9W1SG0(-R)							
	Auxiliary switch for low current	1	BW9W1DG0(-R)	BW9W1DG0(-R)	BW9W1DG0(-R)	BW9W1DG0(-R)	BW9W1DG0(-R)	BW9W1DG0(-R)	BW9W1DG0(-R)	BW9W1DG0(-R)	BW9W1DG0(-R)	BW9W1DG0(-R)							
	Alarm switch	K	BW9K1SG0(-R)	BW9K1SG0(-R)	BW9K1SG0(-R)	BW9K1SG0(-R)	BW9K1SG0(-R)	BW9K1SG0(-R)	BW9K1SG0(-R)	BW9K1SG0(-R)	BW9K1SG0(-R)	BW9K1SG0(-R)							
	Alarm switch for low current	8	BW9K1DG0(-R)	BW9K1DG0(-R)	BW9K1DG0(-R)	BW9K1DG0(-R)	BW9K1DG0(-R)	BW9K1DG0(-R)	BW9K1DG0(-R)	BW9K1DG0(-R)	BW9K1DG0(-R)	BW9K1DG0(-R)							
	Auxiliary & Alarm switch	WK	BW9WKSG0(-R)	BW9WKSG0(-R)	BW9WKSG0(-R)	BW9WKSG0(-R)	BW9WKSG0(-R)	BW9WKSG0(-R)	BW9WKSG0(-R)	BW9WKSG0(-R)	BW9WKSG0(-R)	BW9WKSG0(-R)							
	Aux & Alarm for low current	18	BW9WKDG0(-R)	BW9WKDG0(-R)	BW9WKDG0(-R)	BW9WKDG0(-R)	BW9WKDG0(-R)	BW9WKDG0(-R)	BW9WKDG0(-R)	BW9WKDG0(-R)	BW9WKDG0(-R)	BW9WKDG0(-R)							
	Shunt trip	F	BW9F*G0	BW9F*G0	BW9F*G0	BW9F*G0	BW9F*G0	BW9F*G0	BW9F*G0	BW9F*G0	BW9F*G0	BW9F*G0							
	Under voltage trip	R	-	BW9RGA*	BW9RGA*	BW9RGA*	BW9RGA*	BW9RGA*	BW9RGA*	BW9RGA*	BW9RGA*	BW9RGA*							
	Accessories with terminal block	A	See page 41			See page 41			See page 41			See page 41							
External accessories	Padlocking device *2	Q1	BW9Q1CA	BW9Q1CA	BW9Q1CA	BW9Q1CA	BW9Q1CA	BW9Q1CA	BW9Q1CA	BW9Q1CA	BW9Q1CA	BW9Q1CA							
		Q2	BW9Q2CA	BW9Q2CA	BW9Q2CA	BW9Q2GA	BW9Q2GA	BW9Q2GA	BW9Q2GA	BW9Q2GA	BW9Q2GA	BW9Q2GA							
	External operating handle	V	-	BW9V0CA	BW9V0CA	BW9V0CA	BW9V0GA	BW9V0GA	BW9V0GA	BW9V0GA	BW9V0GA	BW9V0GA							
		N	-	BW9N0CA	BW9N0CA	BW9N0CA	BW9N0GA	BW9N0GA	BW9N0GA	BW9N0GA	BW9N0GA	BW9N0GA							
		F	-	BW9F0CA	BW9F0CA	BW9F0CA	BW9F0GA	BW9F0GA	BW9F0GA	BW9F0GA	BW9F0GA	BW9F0GA							
Field Installable terminal kit	Flat terminal kit	BW9SS0CA-3 GLOBAL						BZ-S50B-2253 GLOBAL											
	Lug terminal kit	BW9SLOCA-3 GLOBAL						Please see page 47											
Terminal covers *1	Short type,gray-white	Provided						Provided											
	Short type,transparent	BW9BTCA-S2	BW9BTCA-S3	BW9BTCA-S4	BW9BTCA-S3	BW9BTCA-S4	BW9BTGA-S3	BW9BTGA-S3	BW9BTGA-S4	BW9BTGA-S3	BW9BTGA-S4								
	Long type,gray-white	BW9BTCA-L2W	BW9BTCA-L3W	BW9BTCA-L4W	BW9BTCA-L3W	BW9BTCA-L4W	BW9BTGA-L3W	BW9BTGA-L3W	BW9BTGA-L4W	BW9BTGA-L3W	BW9BTGA-L4W								
	Long type,transparent	BW9BTCA-L2	BW9BTCA-L3	BW9BTCA-L4	BW9BTCA-L3	BW9BTCA-L4	BW9BTGA-L3	BW9BTGA-L3	BW9BTGA-L4	BW9BTGA-L3	BW9BTGA-L4								
Insulation barrier		BW9BPCA						BW9BPGA											

\*1 Short type terminal covers (gray-white) are supplied as standard.

\*2 Non-UL item


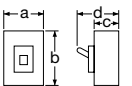
● : Available, - : Not available

Note: All circuit breakers rated at 80%



# Molded Case Circuit Breakers - G-TWIN Series Specifications

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

Frame size (A)		400							
Type		BW400EAGU		BW400SAGU		BW400RAGU		BW400HAGU	
Appearance (with Flat Terminals, 3 poles)									
SCCR=UL489 interrupting capacity									
Rated insulation voltage (V) (IEC60947-2)		AC	690	690	690	690	690	690	690
		DC	250	250	250	250	250	250	250
Rated voltage (V) (UL489)		AC	240	480	480	480	480Y/278	600	600Y/347
Rated current (A)		250, 300, 350, 400							
Poles		2		3		2		3	
		2,3		4		2,3		4	
Rated frequency (Hz)		50/60		50/60		50/60		50/60	
Rated interrupting capacity sym (kA)	UL489 CAN/CSA C22.2 No.5	AC	600V/Δ	–	–	–	–	25	–
			600V/Y	–	–	–	–	25	25
			480V/Δ	–	35	50	50	65 (50 <sup>3</sup> )	–
			480V/Y	–	35	50	50	65 (50 <sup>3</sup> )	65 (50 <sup>3</sup> )
		240V	22	50	100	100	125	100	
		DC	250V	10	10	10	10	10	10
	IEC60947-2 JIS C 8201-2-1 Icu/Ics	AC	690V	–	10/5	15/8	15/8	–	
			500V	18/9	20/11	36/18	42/21	–	
			440V	30/15	36/18	50/25	70/35	–	
			400V	30/15	36/18	50/25	70/35	–	
		380V	30/15	36/18	50/25	70/35	–		
		240V	50/25	85/43	100/50	125/63	–		
DC	250V	20/10	20/10	40/20	40/20	–			
GB14048.2 Icu/Ics	AC	400V	30/15	36/18	50/25	70/35	–		
		230V	50/25	85/43	100/50	125/63	–		
Isolation compliance		Compliant		Compliant		Compliant		Compliant	
Utilization category		A		A		A		A	
Dimension inch (mm)		a	5.512(140)	5.512(140)	5.512(140)	7.283(185)	5.512(140)	7.283(185)	
		b	10.12(257)	10.12(257)	10.12(257)	10.12(257)	10.12(257)	10.12(257)	
		c	4.055(103)	4.055(103)	4.055(103)	4.055(103)	4.055(103)	4.055(103)	
		d	5.748(146)	5.748(146)	5.748(146)	5.748(146)	5.748(146)	5.748(146)	
Terminal construction	Screw terminals	–	–	–	–	–	–		
	Flat terminals (standard)	None	●	●	●	●	●		
	Lug terminals	SB	●	●	●	●	●		
Internal accessories	Auxiliary switch	W	BW9W1SHA	BW9W1SHA	BW9W1SHA	BW9W1SHA	BW9W1SHA		
	Auxiliary switch 2 contacts	V	BW9W2SHA	BW9W2SHA	BW9W2SHA	BW9W2SHA	BW9W2SHA		
	Aux. low current	1	BW9W1DHA	BW9W1DHA	BW9W1DHA	BW9W1DHA	BW9W1DHA		
	Aux. low current 2 contacts	2	BW9W2DHA	BW9W2DHA	BW9W2DHA	BW9W2DHA	BW9W2DHA		
	Alarm switch	K	BW9K1SHA	BW9K1SHA	BW9K1SHA	BW9K1SHA	BW9K1SHA		
	Alarm switch 2 contacts	J	BW9K2SHA	BW9K2SHA	BW9K2SHA	BW9K2SHA	BW9K2SHA		
	Alarm low current	8	BW9K1DHA	BW9K1DHA	BW9K1DHA	BW9K1DHA	BW9K1DHA		
	Alarm low current 2 contacts	9	BW9K2DHA	BW9K2DHA	BW9K2DHA	BW9K2DHA	BW9K2DHA		
	Shunt trip	F	BW9FHA-*	BW9FHA-*	BW9FHA-*	BW9FHA-*	BW9FHA-*		
	Under voltage trip	R	BW9RHA-*	BW9RHA-*	BW9RHA-*	BW9RHA-*	BW9RHA-*		
Accessories with terminal block	A	See page 41	See page 41	See page 41	See page 41	See page 41			
External accessories	Padlocking device *2	QN	BW9QNHA	BW9QNHA	BW9QNHA	BW9QNHA	BW9QNHA		
		Q2	BW9Q2HA	BW9Q2HA	BW9Q2HA	BW9Q2HA	BW9Q2HA		
	External operating handle	V	BW9V0HA	BW9V0HA	BW9V0HA	BW9V0HA	BW9V0HA		
		N	BW9N0HA	BW9N0HA	BW9N0HA	BW9N0HA	BW9N0HA		
		F	BW9F0HA	BW9F0HA	BW9F0HA	BW9F0HA	BW9F0HA		
	Field Installable terminal	–	–	–	–	–	–		
	Terminal covers *1	Short type, gray-white	BW9BTHA-S3W	BW9BTHA-S3W	BW9BTHA-S3W	BW9BTHA-S4W	BW9BTHA-S3W	BW9BTHA-S4W	
		Short type, transparent	BW9BTHA-S3	BW9BTHA-S3	BW9BTHA-S3	BW9BTHA-S4	BW9BTHA-S3	BW9BTHA-S4	
		Long type, gray-white	BW9BTHA-L3W	BW9BTHA-L3W	BW9BTHA-L3W	–	BW9BTHA-L3W	–	
		Long type, transparent	BW9BTHA-L3	BW9BTHA-L3	BW9BTHA-L3	BW9BTHA-L4	BW9BTHA-L3	BW9BTHA-L4	
Insulation barrier		B-43A	B-43A	B-43A	B-43A	B-43A			

\*1 Terminal covers are NOT supplied as standard.

\*2 Non-UL item


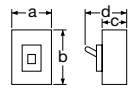
\*3 With lug terminals

● : Available, –: Not available

Note: All circuit breakers rated at 80%

# Molded Case Circuit Breakers - G-TWIN Series Specifications


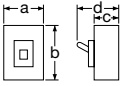
MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

Frame size (A)		630		800			
Type		BW630RAGU	BW630HAGU	BW800RAGU	BW800HAGU		
Appearance (with Flat Terminals, 3 poles)							
SCCR=UL489 interrupting capacity							
Rated insulation voltage (V) (IEC60947-2)		AC 690 DC 250	690 250	690 250	690 250		
Rated voltage (V) (UL489)		AC 480	600	480	600		
Rated current (A)		500, 600, 630		700, 800			
Poles		3		3			
Rated frequency (Hz)		50/60		50/60			
Rated interrupting capacity sym (kA)	UL489 CAN/CSA C22.2 No.5	AC	600V/Δ	–	25	–	25
			600V/Y	–	25	–	25
			480V/Δ	50	65 (50: with lug terminals)	50	65 (50: with lug terminals)
			480V/Y	50	65 (50: with lug terminals)	50	65 (50: with lug terminals)
			240V	100	100	100	125
	IEC60947-2 JIS C 8201-2-1 Icu/Ics	AC	690V	15/8	15/8	15/8	15/8
			500V	36/18	42/21	36/18	42/21
			440V	50/25	70/35	50/25	70/35
			400V	50/25	70/35	50/25	70/35
			380V	50/25	70/35	50/25	70/35
	GB14048.2 Icu/Ics	AC	240V	100/50	125/63	100/50	125/63
			250V	40/20	40/20	40/20	40/20
			400V	50/25	70/35	50/25	70/35
			230V	100/50	125/63	100/50	125/63
			–	–	–	–	–
Isolation compliance		Compliant		Compliant			
Utilization category		A		A			
Dimension inch (mm)		a	8.268(210)	8.268(210)	8.268(210)	8.268(210)	
		b	10.83(275)	10.83(275)	10.83(275)	10.83(275)	
		c	4.055(103)	4.055(103)	4.055(103)	4.055(103)	
		d	5.748(146)	5.748(146)	5.748(146)	5.748(146)	
Terminal construction	Screw terminals	–	–	–	–		
	Flat terminals	None	●	● <sup>*2</sup>	● <sup>*2</sup>		
	Lug terminals	SB	● <sup>*1</sup>	● <sup>*1</sup>	●		
Internal accessories	Auxiliary switch	W	BW9W1SHA	BW9W1SHA	BW9W1SHA	BW9W1SHA	
	Auxiliary switch 2 contacts	V	BW9W2SHA	BW9W2SHA	BW9W2SHA	BW9W2SHA	
	Aux. low current	1	BW9W1DHA	BW9W1DHA	BW9W1DHA	BW9W1DHA	
	Aux. low current 2 contacts	2	BW9W2DHA	BW9W2DHA	BW9W2DHA	BW9W2DHA	
	Alarm switch	K	BW9K1SHA	BW9K1SHA	BW9K1SHA	BW9K1SHA	
	Alarm switch 2 contacts	J	BW9K2SHA	BW9K2SHA	BW9K2SHA	BW9K2SHA	
	Alarm low current	8	BW9K1DHA	BW9K1DHA	BW9K1DHA	BW9K1DHA	
	Alarm low current 2 contacts	9	BW9K2DHA	BW9K2DHA	BW9K2DHA	BW9K2DHA	
	Shunt trip	F	BW9FHA-*	BW9FHA-*	BW9FHA-*	BW9FHA-*	
	Under voltage trip	R	BW9RHA-*	BW9RHA-*	BW9RHA-*	BW9RHA-*	
Accessories with terminal block	A	See page 41	See page 41	See page 41	See page 41		
External accessories	Padlocking device *4	QN	BW9QNHA	BW9QNHA	BW9QNHA	BW9QNHA	
		Q2	BW9Q2JA	BW9Q2JA	BW9Q2JA	BW9Q2JA	
	External operating handle	V	BW9V0JA	BW9V0JA	BW9V0JA	BW9V0JA	
		N	BW9N0JA	BW9N0JA	BW9N0JA	BW9N0JA	
	Field Installable terminal	–	–	–	–		
	Terminal covers *3	Short type, gray-white	–	–	–	–	
		Short type, transparent	–	–	–	–	
Long type, gray-white		BW9BTJA-L3W	BW9BTJA-L3W	BW9BTJA-L3W	BW9BTJA-L3W		
Long type, transparent		BW9BTJA-L3	BW9BTJA-L3	BW9BTJA-L3	BW9BTJA-L3		
Insulation barrier	B-43A	B-43A	B-43A	B-43A			

\*1 Lug terminal is NOT available for 630 ampere.  
 \*2 Flat terminal is NOT available for 800 ampere.  
 \*3 Terminal covers are NOT supplied as standard.  
 \*4 Non-UL item  
 ● : Available, –: Not available  
 Note: All circuit breakers rated at 80%

# Earth Leakage Circuit Breakers - G-TWIN Series Specifications

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

Frame size (A)		50	100			
Type		EW50RAGU-3P	EW100EAGU-2P EW100EAGU-3P			
Appearance (with Screw Terminals, 3 poles)						
SCCR=UL489 interrupting capacity						
Rated voltage AC (V)		UL 240 IEC 100-230-440	240 100-230 240 100-230-440			
Rated current (A)		3, 5, 10, 15, 20, 30, 32, 40, 50	60, 63, 70, 75, 80, 90, 100			
Rated Sensitive Current (mA)		30, 50, 100/200/500	30, 100/200 30, 50, 100/200/500			
Poles		3	2 3			
Rated frequency (Hz)		50/60	50/60 50/60			
Rated interrupting capacity sym (kA)	UL489 CAN/CSA C22.2 No.5	AC	480V/Δ	-	-	
			480V/Y	-	-	
			240V	14	14	
	IEC60947-2 JIS C 8201-2-2 Icu/Ics	AC	440V	10/5	-	10/5
			415V	10/5	-	10/5
			380V	10/5	-	10/5
			230V	25/13	10/5	25/13
			100V	25/13	10/5	25/13
	GB14048.2 Icu/Ics	AC	400V	10/5	7.5/4	10/5
			230V	25/13	10/5	25/13
Isolation compliance		Compliant	Compliant Compliant			
Utilization category		A	A A			
Dimension inch (mm)		a	2.953(75)	2.953(75)	2.953(75)	
		b	4.724(120)	4.724(120)	4.724(120)	
		c	2.362(60)	2.362(60)	2.362(60)	
		d	3.307(84)	3.307(84)	3.307(84)	
Terminal construction	Screw terminals	None	●	●	●	
	Flat terminals	SF	●	●	●	
	Lug terminals	SB	-	-	-	
Internal accessories *4	Auxiliary switch	W	BZ6W*10CU	BZ6W*10CU	BZ6W*10CU	
	Alarm switch	K	BZ6K*10CU	BZ6K*10CU	BZ6K*10CU	
	Shunt trip	F	BZ6F*10CAU	BZ6F*10CAU	BZ6F*10CAU	
	Under voltage trip	R	BZ6R*10CAU	BZ6R*10CAU	BZ6R*10CAU	
	Accessories with terminal block	A	*1	*1	*1	
External accessories	Padlocking device (Cap type) *5	Q1	BZ6L10CA	BZ6L10CA	BZ6L10CA	
			BZ6L10C	BZ6L10C	BZ6L10C	
	External operating handle	V	BZ6V10D	BZ6V10D	BZ6V10D	
		N	BZ6N10D	BZ6N10D	BZ6N10D	
	Field Installable terminal kit	Flat terminal kit	BZ-SU20B	BZ-SU25B	BZ-SU25B	
		Lug terminal kit	-	-	-	
	Terminal covers *3	for screw, short type	Provided	Provided	Provided	
		for screw, long type	BW9BTAA-L3W	BW9BTAA-L3W	BW9BTAA-L3W	
		for flat terminal	-	-	-	
		for Lug terminal	-	-	-	
Insulation barrier *2		BZ6B10C	BZ6B10C	BZ6B10C		

\*1 For Internal accessories with terminal block, specify "A" in the accessory P/N. When 50A Frame & 100A Frame are ordered w/UVT, the UVT is supplied with terminal block as standard.

\*2 Insulation barriers are only required with flat terminal.

\*3 Short terminal covers are supplied as standard. If long terminal covers are required, please order BZ6TB10C2U or BZ6TB10C3U.

\*4 These internal accessories can be installed in the field. (see page 39 for part number)



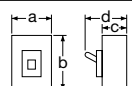
\*5 Non-UL item

● : Available, - : Not available

Note: All circuit breakers rated at 80%

# Earth Leakage Circuit Breakers - G-TWIN Series Specifications

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

Frame size (A)		125				250					
Type		EW125JAGU		EW125RAGU		EW250JAGU		EW250RAGU			
Appearance (with Screw Terminals, 3 poles & 4 poles)											
SCCR=UL489 interrupting capacity											
Rated voltage AC (V)		UL 240-480		240-480		240-480		240-480			
		IEC 100-230-440		100-230-440		100-230-440		100-230-440			
Rated current (A)		15,20,30,40,50,60,75,100,125				125,150,160,175,200,225,250					
Instantaneous trip type	Rated Sensitive Current (mA)	B 30		30		30		30			
	Tripping time (s)	0.1 or less		0.1 or less		0.1 or less		0.1 or less			
Instantaneous /time-delay trip type	Rated Sensitive Current (mA)	K 100/200/500/1000		100/200/500/1000		100/200/500/1000		100/200/500/1000			
	Tripping time (s)	0.1/0.4/1/2		0.1/0.4/1/2		0.1/0.4/1/2		0.1/0.4/1/2			
	Inertia non-tripping time (s)	0/0.2/0.5/1		0/0.2/0.5/1		0/0.2/0.5/1		0/0.2/0.5/1			
Poles		3 4		3 4		3 4		3 4			
Rated frequency (Hz)		50/60		50/60		50/60		50/60			
Rated interrupting capacity sym (kA)	UL489 CAN/CSA C22.2 No.5	AC	480V/Δ	30	-	50	-	30	-	50	-
			480V/Y	30	30	50	50	30	30	50	50
			240V	50	50	100	100	50	50	100	100
	IEC60947-2 JIS C 8201-2-2 lcu/lcs	AC	440V	30/15		50/25		30/15		50/25	
			415V	30/15		50/25		30/15		50/25	
			380V	30/15		50/25		30/15		50/25	
			240V	50/25		100/50		50/25		100/50	
	GB14048.2 lcu/lcs	AC	400V	30/15		50/25		30/15		50/25	
			230V	50/25		100/50		50/25		100/50	
Isolation compliance		Compliant		Compliant		Compliant		Compliant			
Utilization category		A		A		A		A			
Dimension inch (mm)		a	3.543(90)	4.724(120)	3.543(90)	4.724(120)	4.134(105)	5.512(140)	4.134(105)	5.512(140)	
		b	6.372(171)		6.372(171)		7.126(181)		7.126(181)		
		c	2.677(68)		2.677(68)		2.677(68)		2.677(68)		
		d	3.740(95)		3.740(95)		3.740(95)		3.740(95)		
Terminal construction	Screw terminals	None	●	●	●	●	●	●	●		
	Flat terminals	SF	●	●	●	●	●	●	●		
	Lug terminals	SB	●	●	●	●	●	●	●		
Internal accessories	Auxiliary switch	W	BW9W1SG0(-R)	BW9W1SG0(-R)	BW9W1SG0(-R)	BW9W1SG0(-R)	BW9W1SG0(-R)	BW9W1SG0(-R)	BW9W1SG0(-R)		
	Auxiliary switch for low current	1	BW9W1DG0(-R)	BW9W1DG0(-R)	BW9W1DG0(-R)	BW9W1DG0(-R)	BW9W1DG0(-R)	BW9W1DG0(-R)	BW9W1DG0(-R)		
	Alarm switch	K	BW9K1SG0(-R)	BW9K1SG0(-R)	BW9K1SG0(-R)	BW9K1SG0(-R)	BW9K1SG0(-R)	BW9K1SG0(-R)	BW9K1SG0(-R)		
	Alarm switch for low current	8	BW9K1DG0(-R)	BW9K1DG0(-R)	BW9K1DG0(-R)	BW9K1DG0(-R)	BW9K1DG0(-R)	BW9K1DG0(-R)	BW9K1DG0(-R)		
	Auxiliary & Alarm switch	WK	BW9WKSG0(-R)	BW9WKSG0(-R)	BW9WKSG0(-R)	BW9WKSG0(-R)	BW9WKSG0(-R)	BW9WKSG0(-R)	BW9WKSG0(-R)		
	Aux. & Alarm for low current	18	BW9WKDG0(-R)	BW9WKDG0(-R)	BW9WKDG0(-R)	BW9WKDG0(-R)	BW9WKDG0(-R)	BW9WKDG0(-R)	BW9WKDG0(-R)		
	Shunt trip	F	BW9F*G0	BW9F*G0	BW9F*G0	BW9F*G0	BW9F*G0	BW9F*G0	BW9F*G0		
	Under voltage trip	R	BW9RGA*	BW9RGA*	BW9RGA*	BW9RGA*	BW9RGA*	BW9RGA*	BW9RGA*		
	Earth alarm switch *2	L	▲	▲	▲	▲	▲	▲	▲		
Accessories with terminal block	A	See page 41		See page 41		See page 41		See page 41			
External accessories	Padlocking device *3	Q1	BW9Q1CA	BW9Q1CA	BW9Q1CA	BW9Q1CA	BW9Q1CA	BW9Q1CA	BW9Q1CA		
		Q2	BW9Q2CA	BW9Q2CA	BW9Q2CA	BW9Q2CA	BW9Q2CA	BW9Q2CA	BW9Q2CA		
	External operating handle	V	BW9V0CA	BW9V0CA	BW9V0CA	BW9V0CA	BW9V0CA	BW9V0CA	BW9V0CA		
		N	BW9N0CA	BW9N0CA	BW9N0CA	BW9N0CA	BW9N0CA	BW9N0CA	BW9N0CA		
		F	BW9F0CA	BW9F0CA	BW9F0CA	BW9F0CA	BW9F0CA	BW9F0CA	BW9F0CA		
	Field Installable terminal kit	Flat terminal kit	BW9SS0CA-3 GLOBAL				BZ-S50B-2253 GLOBAL				
		Lug terminal kit	BW9SLOCA-3 GLOBAL				Please see page 47				
Terminal covers *1	Short type, gray-white	Provided				Provided					
	Short type, transparent	BW9BTCA-S3	BW9BTCA-S4	BW9BTCA-S3	BW9BTCA-S4	BW9BTGA-S3	BW9BTGA-S4	BW9BTGA-S3	BW9BTGA-S4		
	Long type, gray-white	BW9BTCA-L3W	BW9BTCA-L4W	BW9BTCA-L3W	BW9BTCA-L4W	BW9BTGA-L3W	BW9BTGA-L4W	BW9BTGA-L3W	BW9BTGA-L4W		
	Long type, transparent	BW9BTCA-L3	BW9BTCA-L4	BW9BTCA-L3	BW9BTCA-L4	BW9BTGA-L3	BW9BTGA-L4	BW9BTGA-L3	BW9BTGA-L4		
Insulation barrier		BW9BPCA		BW9BPCA		BW9BPGA		BW9BPGA			

\*1 Short type terminal covers (gray-white) are supplied as standard.

\*2 Right-side mount only.



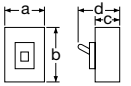
\*3 Non-UL item

● : Available, - : Not available, ▲ : Factory-install Order P/N Ex: EW125JAGU-3P015SBL

Note: All circuit breakers rated at 80%

# Earth Leakage Circuit Breakers - G-TWIN Series Specifications

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

Frame size (A)		400				630				
Type		EW400SAGU		EW400RAGU		EW400HAGU		EW630RAGU		
Appearance (with Flat Terminals, 3 poles)										
SCCR=UL489 interrupting capacity										
Rated voltage AC (V)		UL 240-480		240-480		240-480		240-480		
		IEC 100-230-440		100-230-440		100-230-440		100-230-440		
Rated current (A)		250, 300, 350, 400				500, 600, 630				
Instantaneous trip type	Rated Sensitive Current (mA)	B 30		30		30		-		
	Tripping time (s)	0.1 or less		0.1 or less		0.1 or less		-		
Instantaneous /time-delay trip type	Rated Sensitive Current (mA)	K 100/200/500/1000		100/200/500/1000		100/200/500/1000		100/200/500/1000		
	Tripping time (s)	0.1/0.4/1/2		0.1/0.4/1/2		0.1/0.4/1/2		0.1/0.4/1/2		
	Inertia non-tripping time (s)	0/0.2/0.5/1		0/0.2/0.5/1		0/0.2/0.5/1		0/0.2/0.5/1		
Poles		3 4		3 4		3 4		3		
Rated frequency (Hz)		50/60				50/60				
Rated interrupting capacity sym (kA)	UL489 CAN/CSA C22.2 No.5	AC	480V/Δ	35	-	50	-	65 (50: with lug terminals)		50
			480V/Y	35	35	50	50	65 (50: with lug terminals)		50
			240V	50	50	100	100	125		100
	IEC60947-2 JIS C 8201-2-2 lcu/lcs	AC	440V	36/18		50/25		70/35		50/25
			415V	36/18		50/25		70/35		50/25
			380V	36/18		50/25		70/35		50/25
			240V	85/43		100/50		125/63		100/50
			100V	85/43		100/50		125/63		100/50
	GB14048.2 lcu/lcs	AC	400V	36/18		50/25		70/35		50/25
			230V	85/43		100/50		125/63		100/50
Isolation compliance		Compliant				Compliant				
Utilization category		A				A				
Dimension inch (mm)		a	5.512(140)	7.283(185)	5.512(140)	7.283(185)	5.512(140)	7.283(185)	8.268(210)	
		b	10.12(257)		10.12(257)		10.12(257)		10.83(275)	
		c	4.055(103)		4.055(103)		4.055(103)		4.055(103)	
		d	5.748(146)		5.748(146)		5.748(146)		5.748(146)	
Terminal construction	Screw terminals	-	-	-	-	-	-	-		
	Flat terminals	None	●	●	●	●	●	●		
	Lug terminals	SB	●	●	●	●	●	●*1		
Internal accessories	Auxiliary switch	W	BW9W1SHA		BW9W1SHA		BW9W1SHA		BW9W1SHA	
	Auxiliary switch, 2 contacts	V	BW9W2SHA		BW9W2SHA		BW9W2SHA		BW9W2SHA	
	Aux. low current	1	BW9W1DHA		BW9W1DHA		BW9W1DHA		BW9W1DHA	
	Aux. low current, 2 contacts	2	BW9W2DHA		BW9W2DHA		BW9W2DHA		BW9W2DHA	
	Alarm switch	K	BW9K1SHA		BW9K1SHA		BW9K1SHA		BW9K1SHA	
	Alarm switch, 2 contacts	J	BW9K2SHA		BW9K2SHA		BW9K2SHA		BW9K2SHA	
	Alarm low current	8	BW9K1DHA		BW9K1DHA		BW9K1DHA		BW9K1DHA	
	Alarm low current, 2 contacts	9	BW9K2DHA		BW9K2DHA		BW9K2DHA		BW9K2DHA	
	Shunt trip	F	BW9FHA-*		BW9FHA-*		BW9FHA-*		BW9FHA-*	
	Under voltage trip	R	BW9RHA-*		BW9RHA-*		BW9RHA-*		BW9RHA-*	
Earth alarm switch *2	L	▲		▲		▲		▲		
Accessories with terminal block	A	See page 41		See page 41		See page 41		See page 41		
External accessories	Padlocking device *3	QN	BW9QNHA		BW9QNHA		BW9QNHA		BW9QNHA	
		Q2	BW9Q2HA		BW9Q2HA		BW9Q2HA		BW9Q2HA	
	External operating handle	V	BW9V0HA		BW9V0HA		BW9V0HA		BW9V2JA	
		N	BW9N0HA		BW9N0HA		BW9N0HA		BW9N0JA	
		F	BW9F0HA		BW9F0HA		BW9F0HA		-	
	Field Installable terminal	-	-		-		-		-	
	Terminal covers *4	Short type, gray-white	BW9BTHA-S3W	BW9BTHA-S4W	BW9BTHA-S3W	BW9BTHA-S4W	BW9BTHA-S3W		-	
		Short type, transparent	BW9BTHA-S3	BW9BTHA-S4	BW9BTHA-S3	BW9BTHA-S4	BW9BTHA-S3		-	
		Long type, gray-white	BW9BTHA-L3W	-	BW9BTHA-L3W	-	BW9BTHA-L3W		BW9BTHA-L3W	
		Long type, transparent	BW9BTHA-L3	BW9BTHA-L4	BW9BTHA-L3	BW9BTHA-L4	BW9BTHA-L3		BW9BTHA-L3	
Insulation barrier		B43-A		B43-A		B43-A		B43-A		

\*1 Lug Terminal is NOT available for 630 ampere.

\*2 Right-side mount only

\*3 Non-UL item

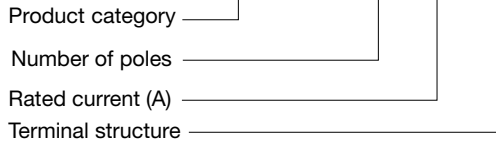
\*4 Terminal covers are NOT supplied as standard.

● : Available, - : Not available, ▲ : Factory-install Order P/N Ex: EW400SAGU-3P250SBL

Note: All circuit breakers rated at 80%

Molded Case Circuit Breakers (50 - 800AF)

**BW250EAGU - 3P 100 SF**

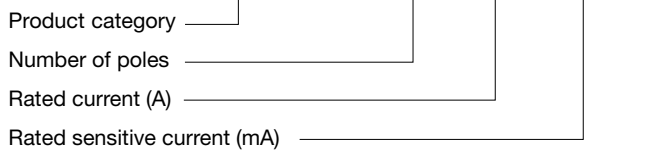


Code	Line side	Load side	BW50RBGU	BW50RAGU	BW100EAGU, BW125RAGU, BW125RAGU BW250EAGU, BW125JAGU, BW250RAGU	BW400EAGU, BW400SAGU, BW400RAGU, BW400HAGU BW630RAGU, BW630HAGU, BW800RAGU, BW800HAGU
None	Screw	Screw	●	●	●	-
None	Flat	Flat	-	-	-	●
SB	Lug	Lug	-	-	●	●*1
SF	Flat	Flat	-	●	●	-

\*1 Lug terminal is Not available for BW630□AGU-3P630 (Rated current 630 ampere in BW630).

Earth Leakage Circuit Breakers (50 - 630AF)

**EW50RAGU - 3P 050 K SF L**



Earth Alarm Switch  
(Factory install optional accessory)  
Only for EW125,EW250,EW400,EW630

G-TWIN Series

Code	Line side	2 poles	3 poles	4 poles
B	30mA	●	●	●
D	50mA*	-	●	-
K	100/200mA** changeable	●	-	-
K	100/200/500* or 100/200/500/1000mA changeable	-	●	●

\*Only for EW50RAGU-3P, EW100EAGU-3P

\*\*Only for EW100EAGU-2P

G-TWIN Λ (Lambda) Series

Code	Line side	2 poles	3 poles
B	30mA	●	●
D	50mA	-	●
C	100mA	-	●
E	200mA	-	●
H	500mA	-	●

Terminal structure

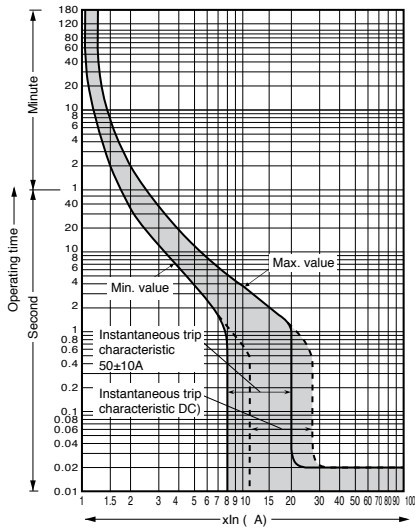
Code	Line side	Load side	EW50RBGU	EW50RAGU EW100EAGU	EW125JAGU, EW125RAGU EW125JAGU, EW250RAGU	EW400SAGU, EW400RAGU, EW400HAGU EW630RAGU
None	Screw	Screw	●	●	●	-
None	Flat	Flat	-	-	-	●
SB	Lug	Lug	-	-	●	●*1
SF	Flat	Flat	-	●	●	-

\*1 Lug terminal is Not available for EW630RAGU-3P630 (Rated current 630 ampere in EW630).

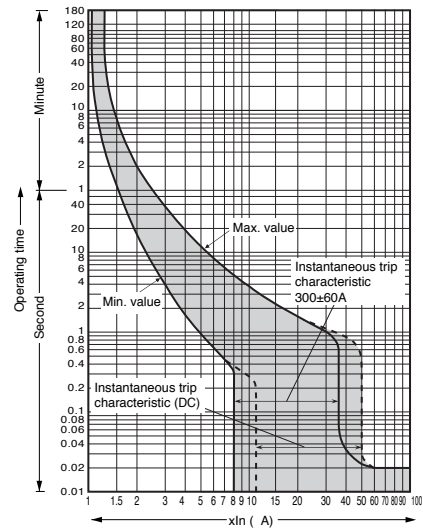
# Characteristic Curves - G-TWIN $\lambda$ (Lambda) Series

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

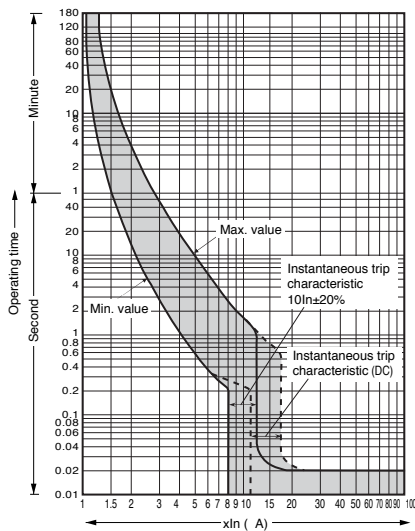
- BW50RBGU, EW50RBGU (Rated current: 3A, 5A)



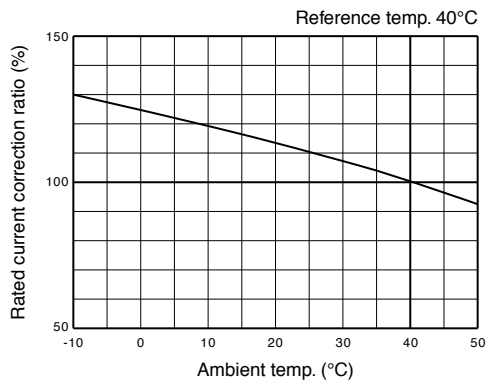
- BW50RBGU, EW50RBGU (Rated current: 10A to 30A)



- BW50RBGU, EW50RBGU (Rated current: 40A, 50A)



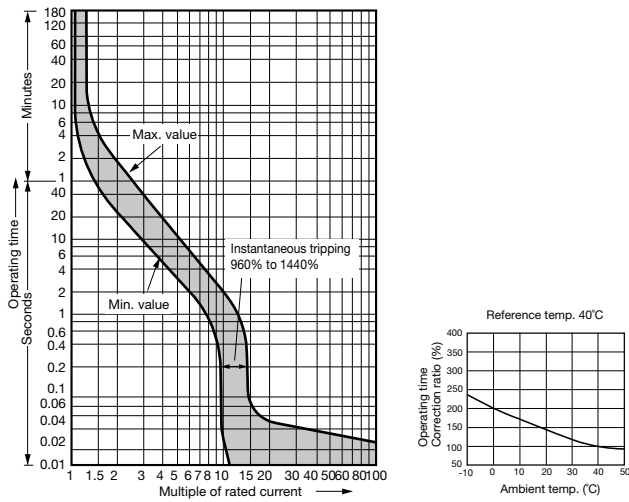
- Temperature correction curve



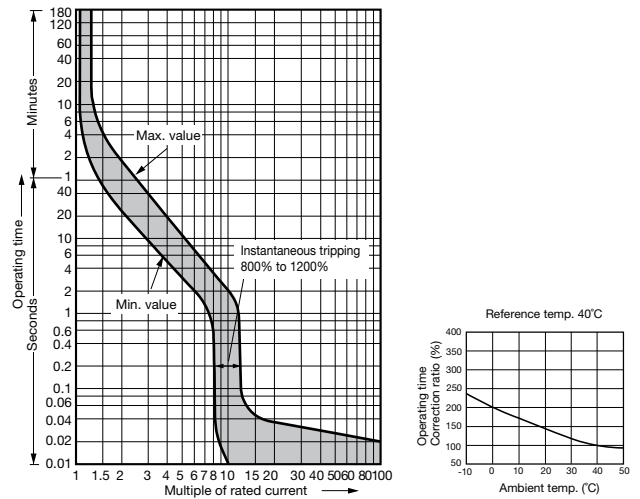
# Characteristic Curves - G-TWIN Series

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

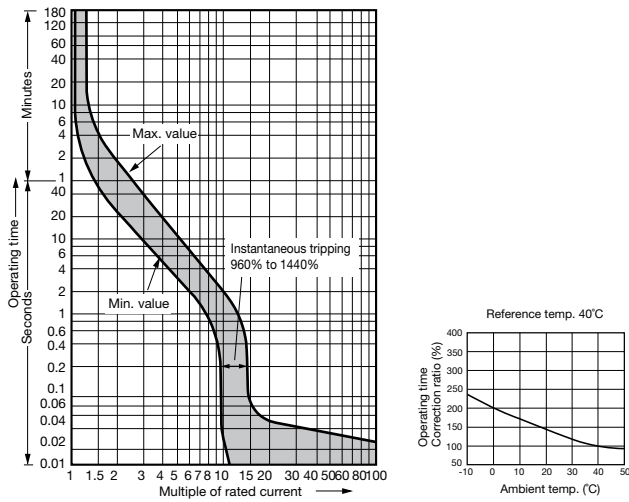
- BW50RAGU, EW50RAGU (Rated current: 5A, 10A, 32A, 40A)



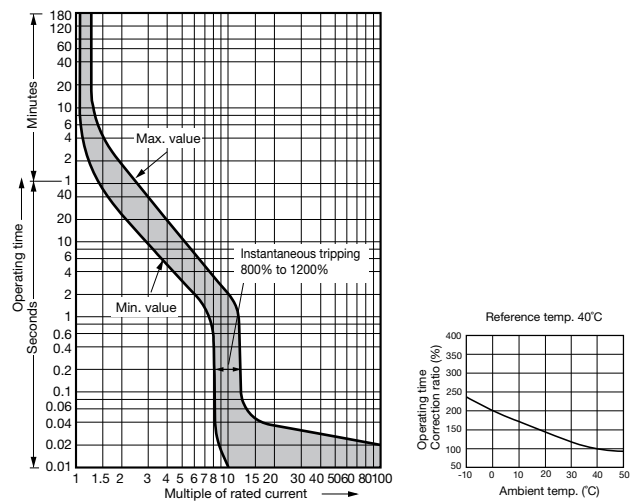
- BW50RAGU, EW50RAGU (Rated current: 3A, 15A, 20A, 30A, 50A)



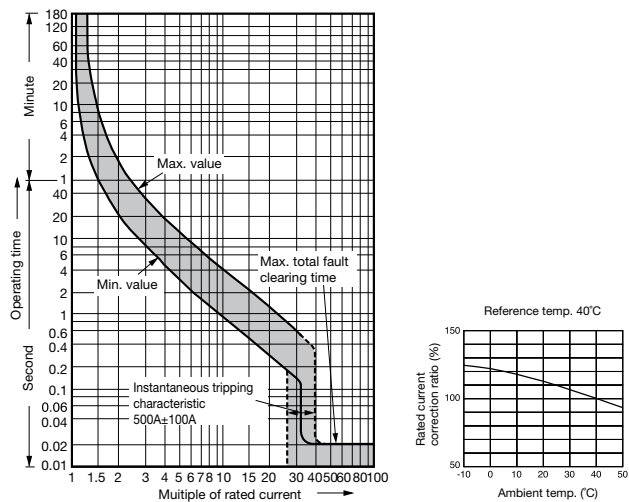
- BW100EAGU, EW100EAGU (Rated current: 60A, 63A, 75A, 80A, 90A)



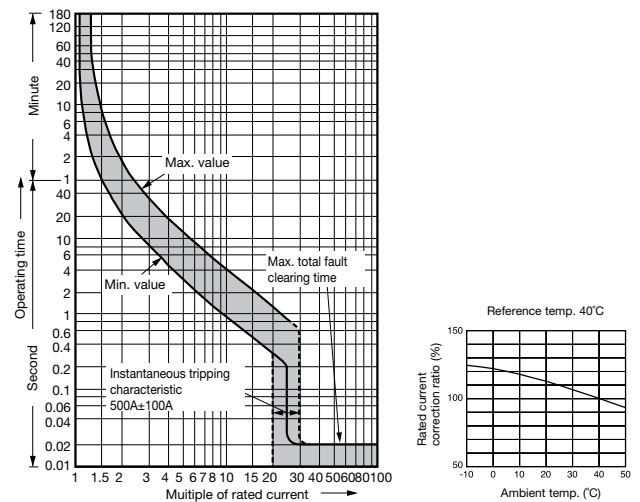
- BW100EAGU, EW100EAGU (Rated current: 100A)



- BW125, EW125 (Rated current: 15A)



- BW125, EW125 (Rated current: 20A)

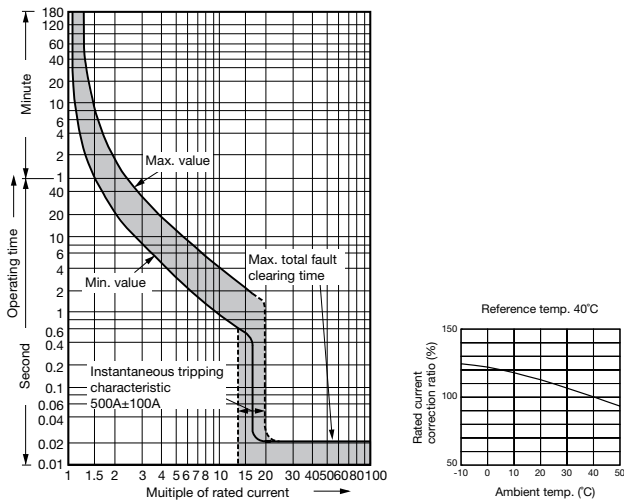




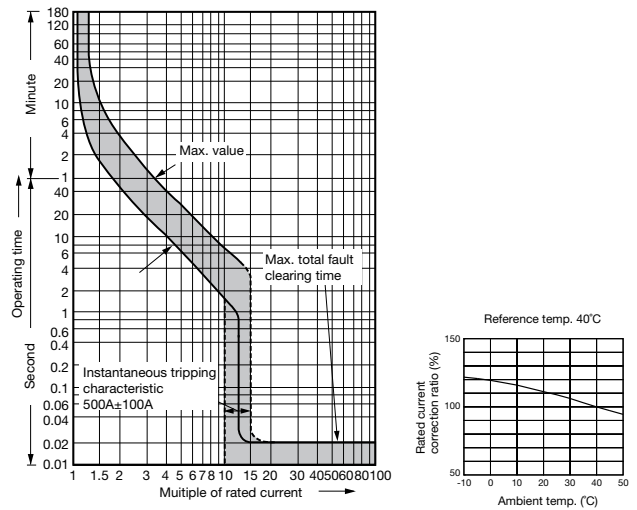
# Characteristic Curves - G-TWIN Series

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

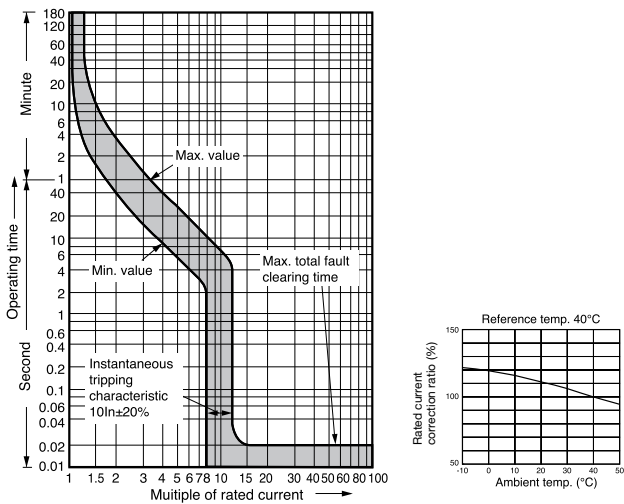
- BW125, EW125 (Rated current: 30A)



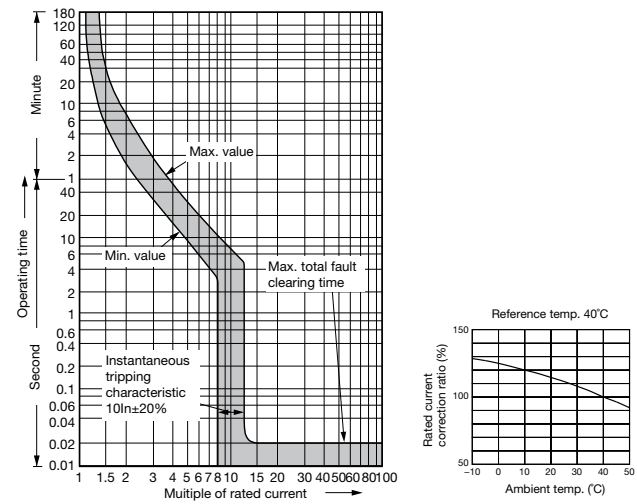
- BW125, EW125 (Rated current: 40A)



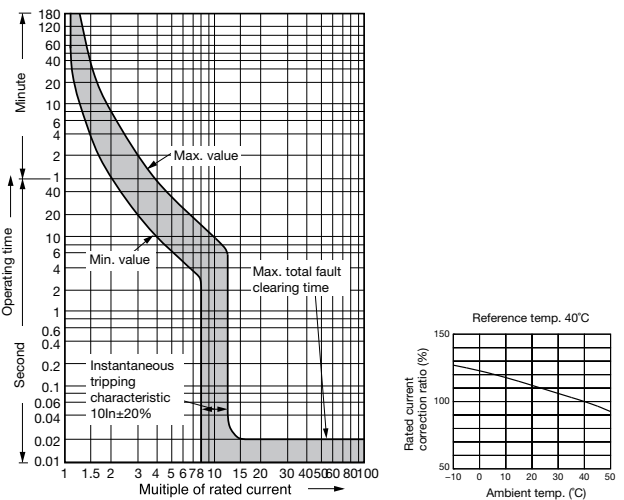
- BW125, EW125 (Rated current: 50 - 125A)



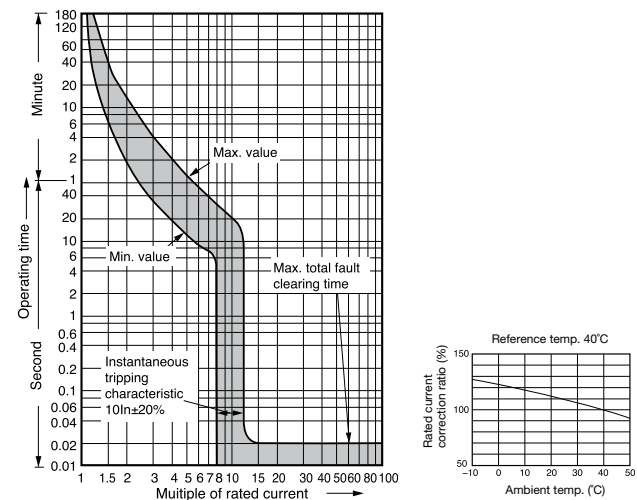
- BW250, EW250



- BW400, EW400



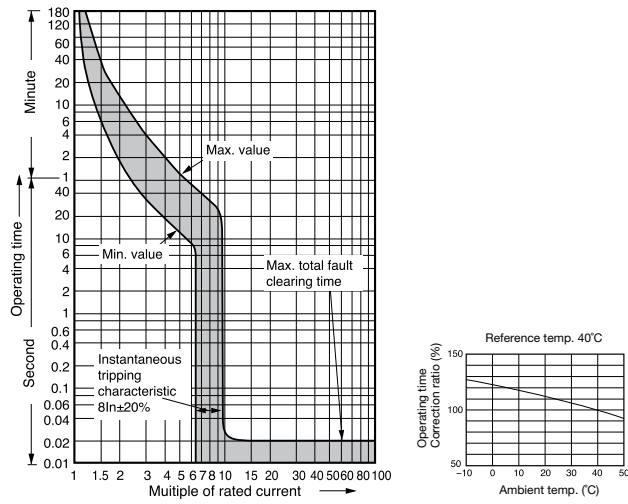
- BW630, EW630



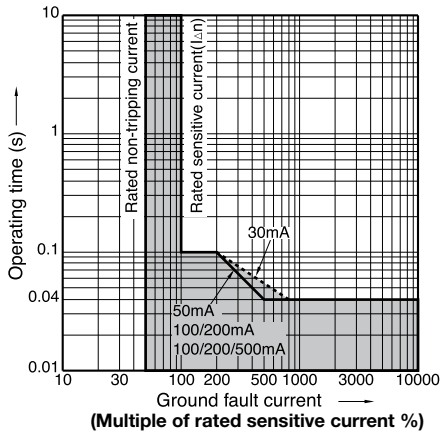
# Characteristic Curves - G-TWIN Series

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

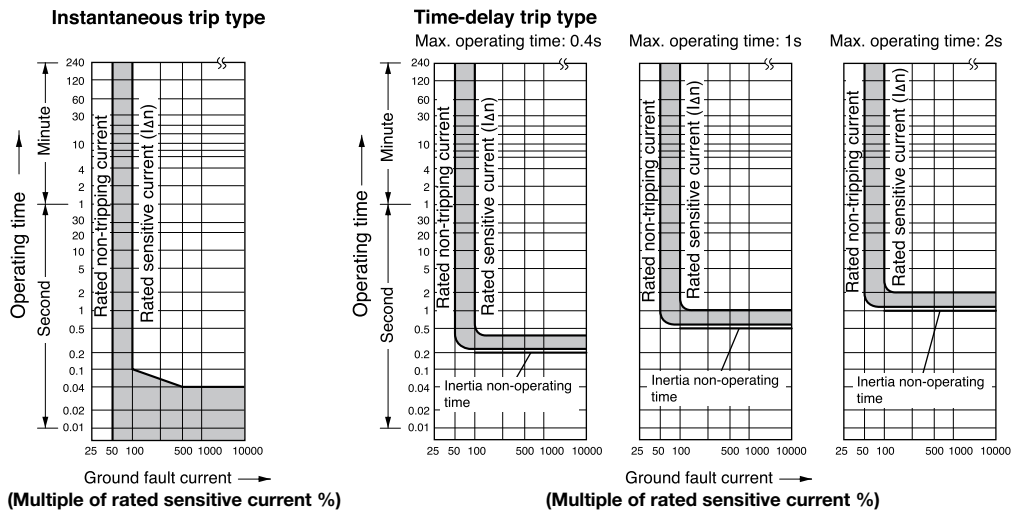
- BW800



- Earth leakage tripping (EW50, EW100)



- Earth leakage tripping (EW125, EW250, EW400, EW630)



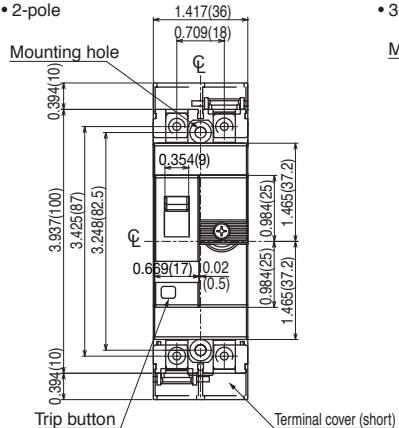
# Dimensions: inch (mm) - G-TWIN $\Lambda$ (Lambda) Series

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

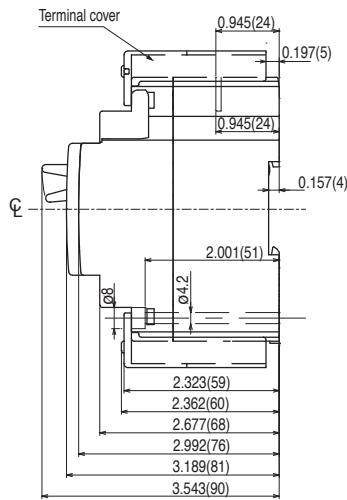
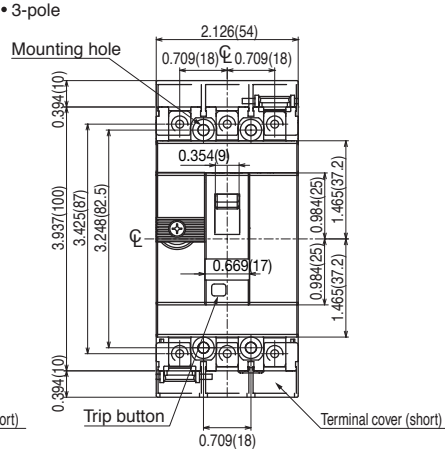
## BW50RBGU

### Front mounting type

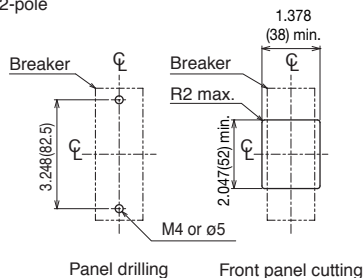
• 2-pole



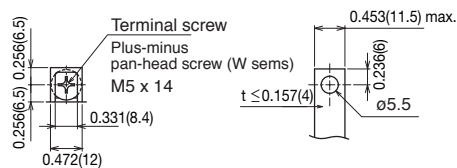
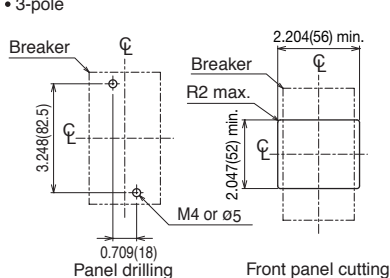
• 3-pole



• 2-pole



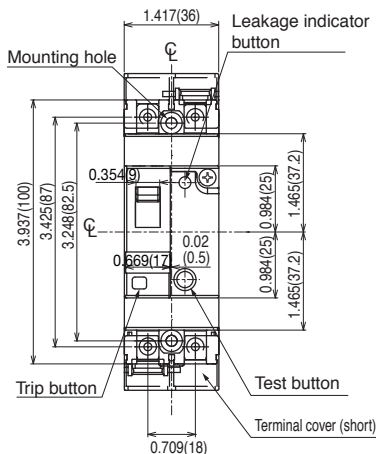
• 3-pole



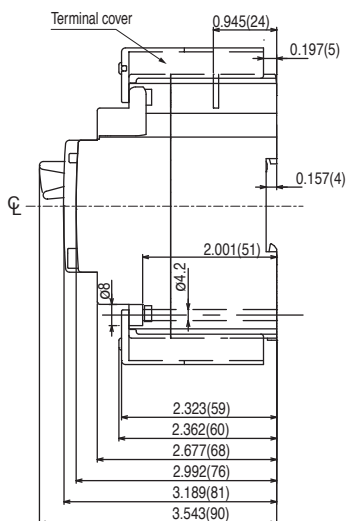
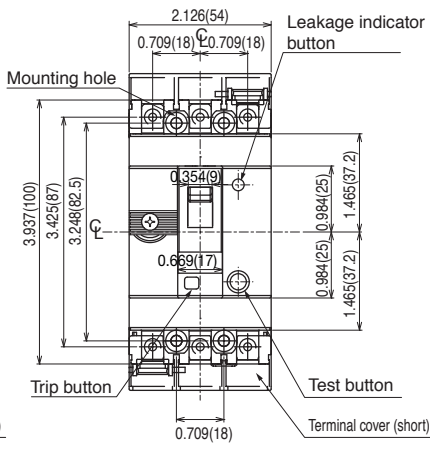
## EW50RBGU

### Front mounting type

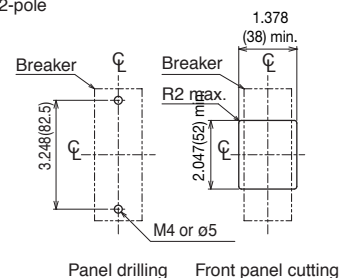
• 2-pole



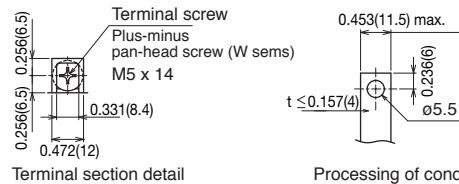
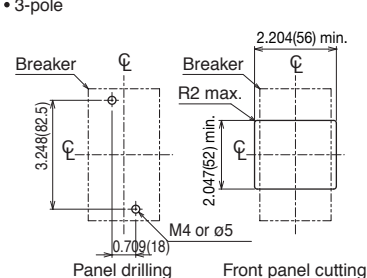
• 3-pole



• 2-pole



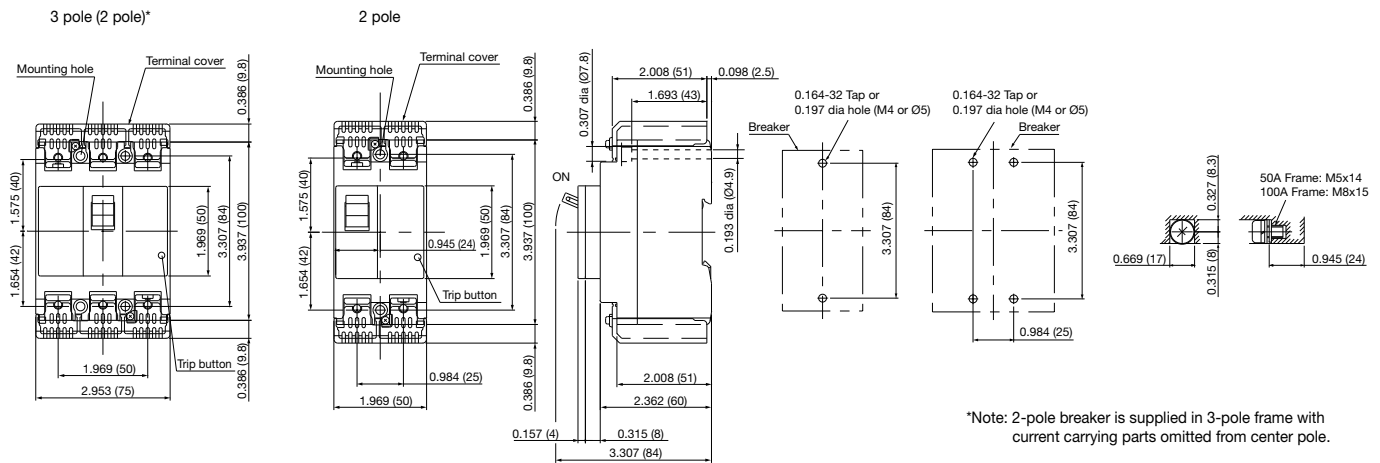
• 3-pole



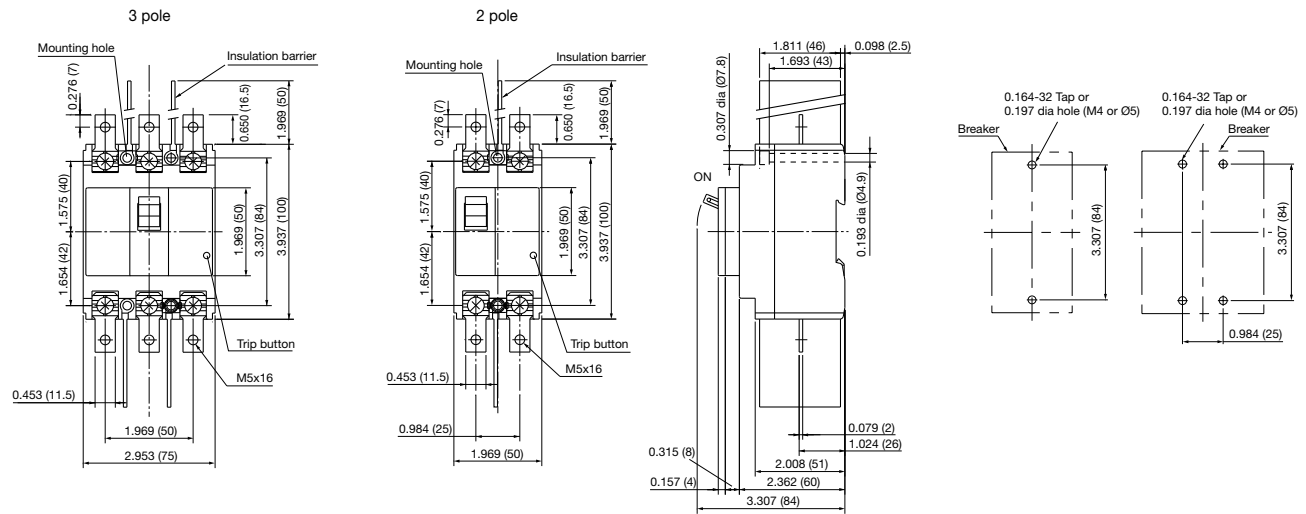
# Dimensions: inch (mm) - G-TWIN Series

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

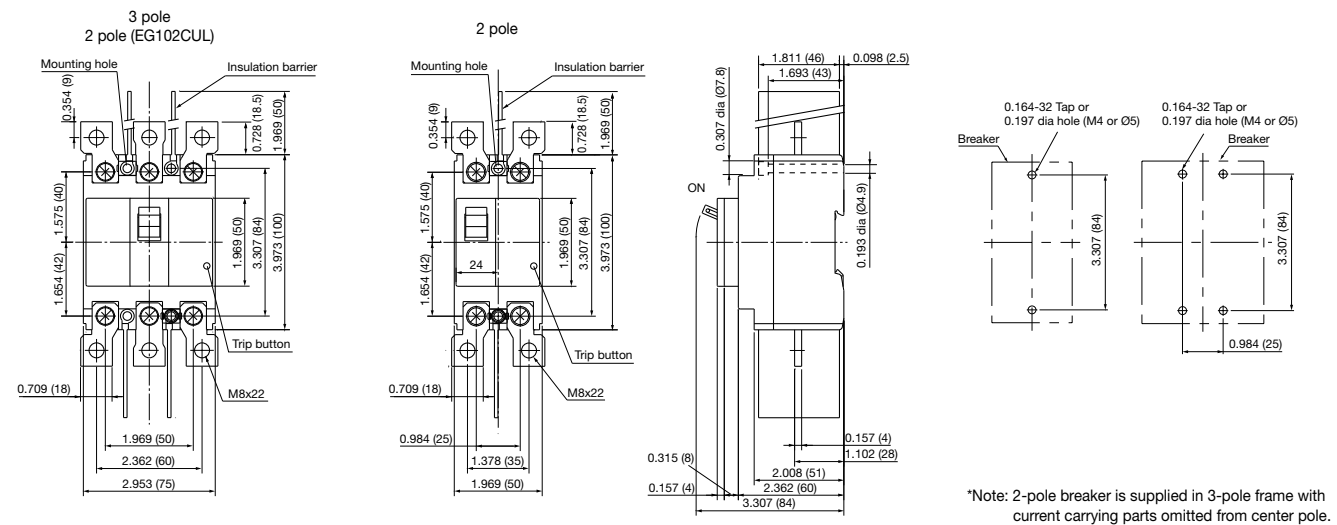
BW50RAGU-2P, 3P, BW100EAGU-2P, 3P, EW50RAGU-3P, EW100EAGU-2P\*, 3P



BW50RAGU-2P, 3P(SF), EW50RAGU-3P(SF)



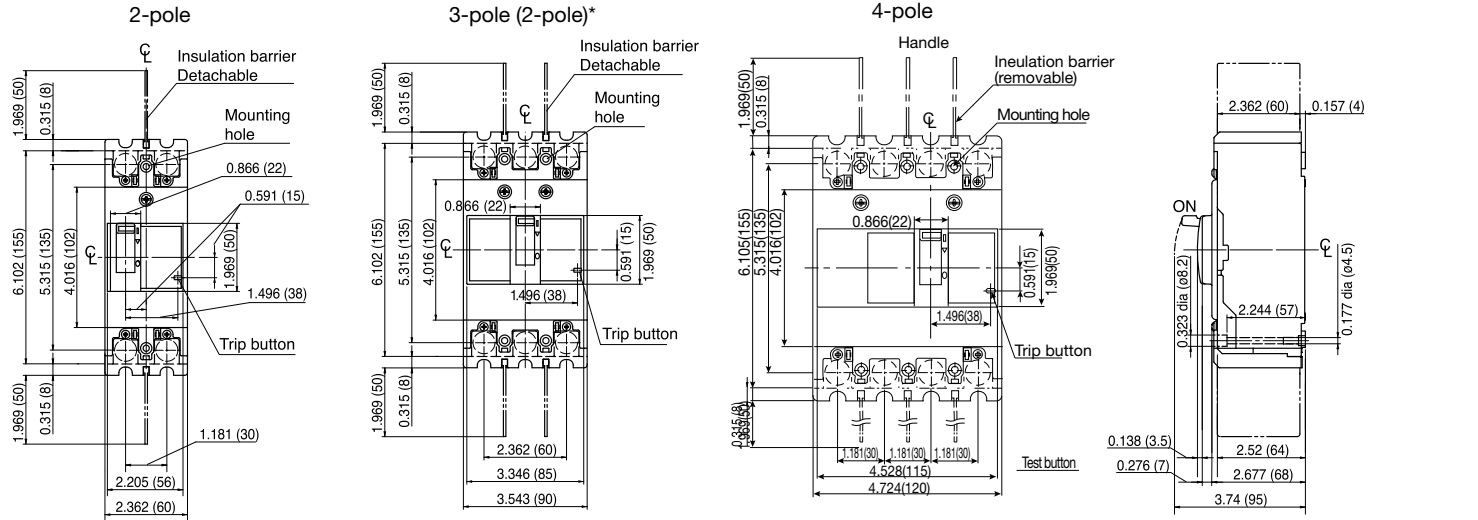
BW100EAGU-2P, 3P(SF), EW100EAGU-2P\*, 3P(SF)



# Dimensions: inch (mm) - G -TWIN Series

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

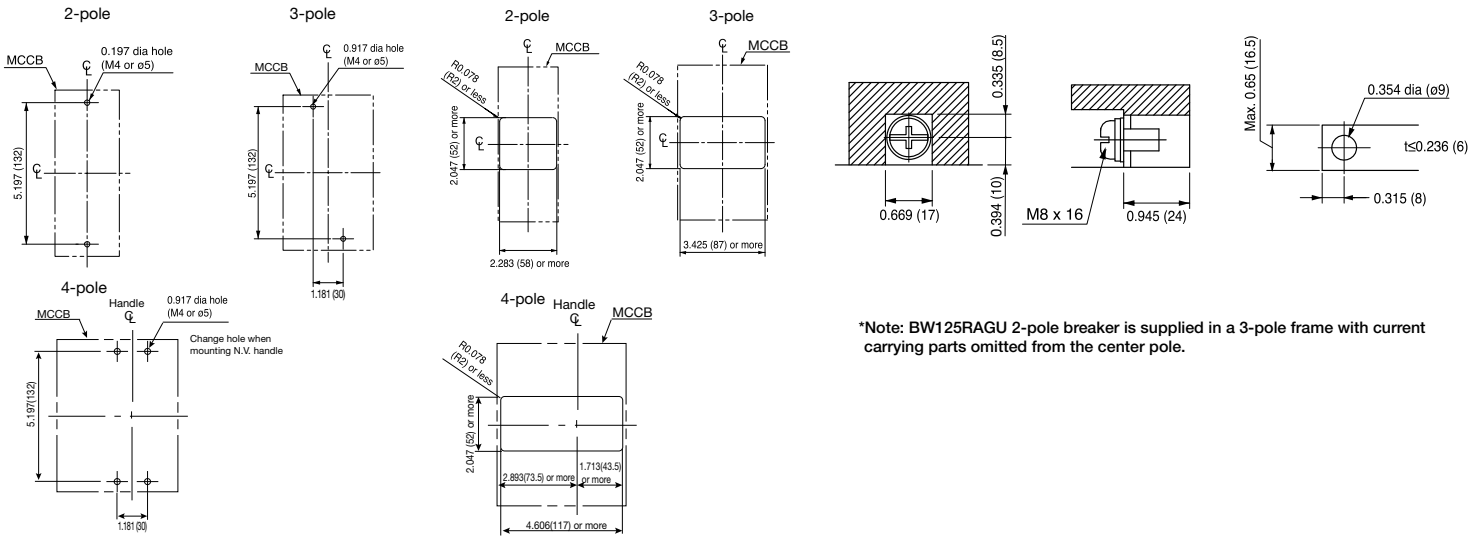
BW125\*U-2P, 3P, 4P



Panel drilling

Front panel cutting

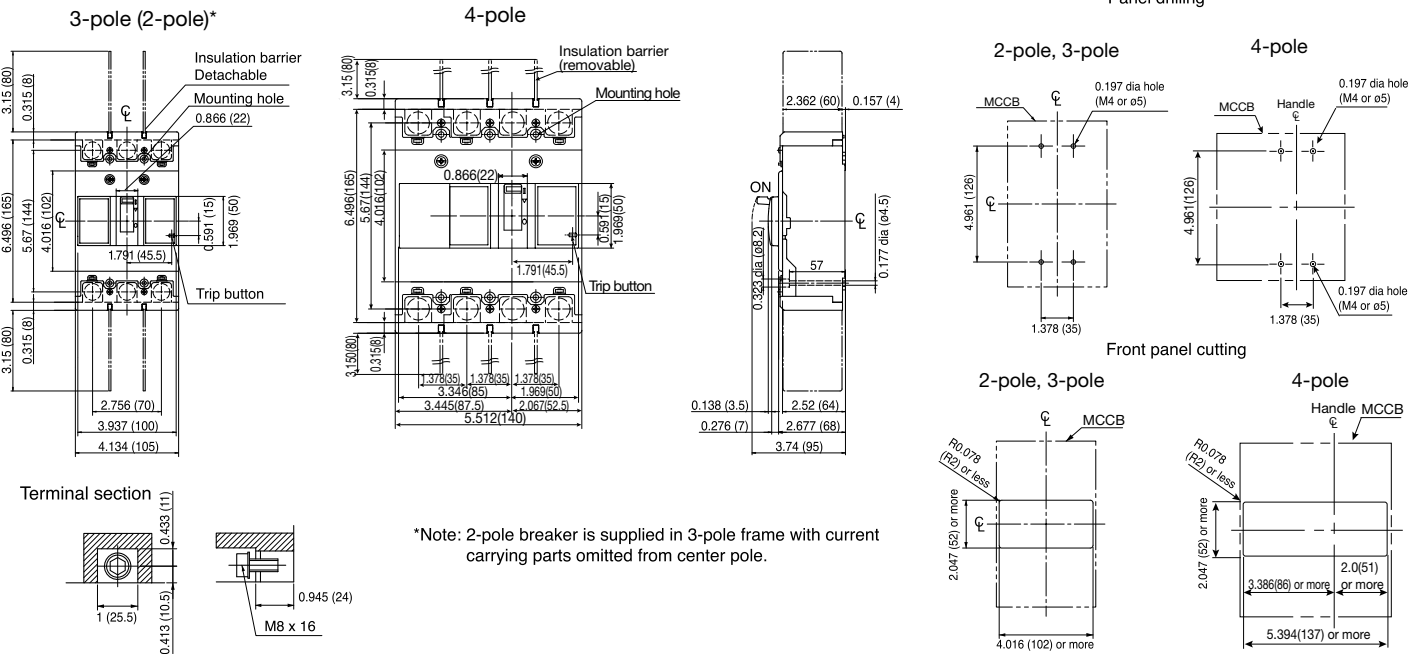
Terminal section



\*Note: BW125RAGU 2-pole breaker is supplied in a 3-pole frame with current carrying parts omitted from the center pole.

BW250\*U-2P, 3P, 4P

Panel drilling



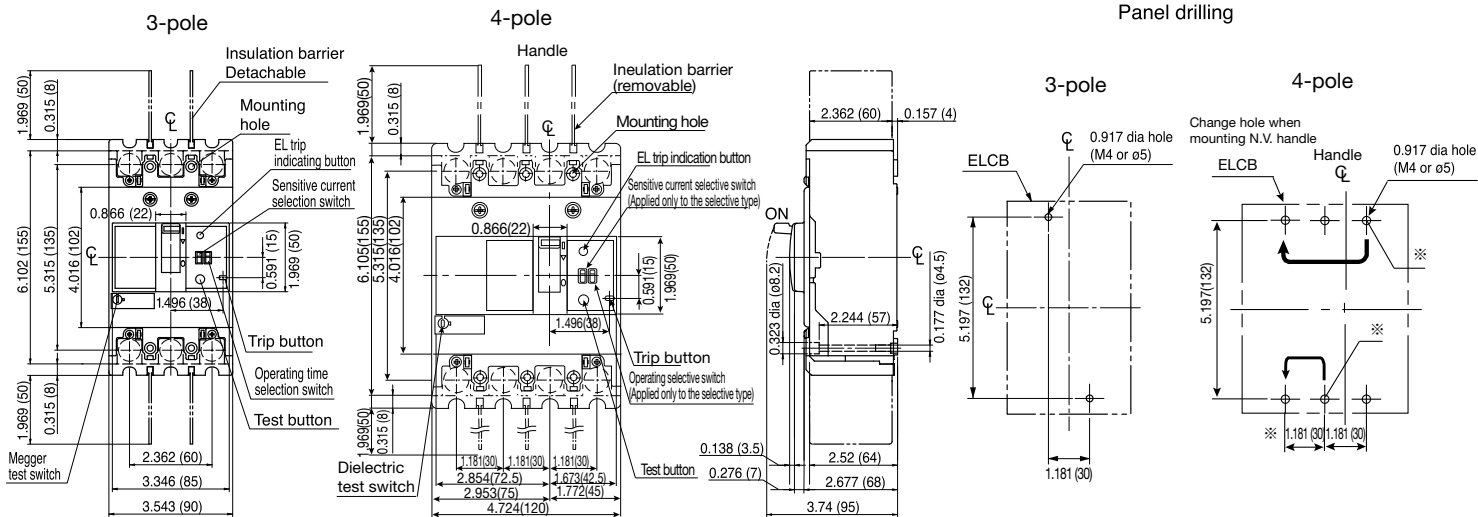
\*Note: 2-pole breaker is supplied in 3-pole frame with current carrying parts omitted from center pole.



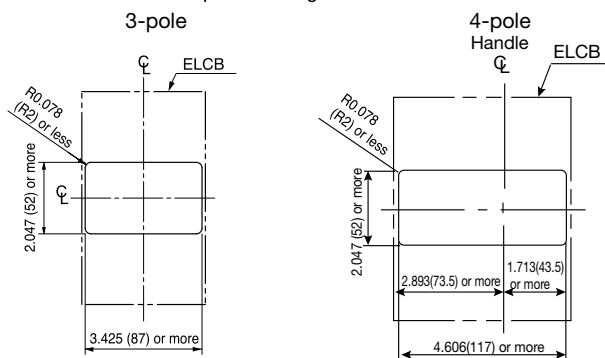
# Dimensions: inch (mm) - G -TWIN Series

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

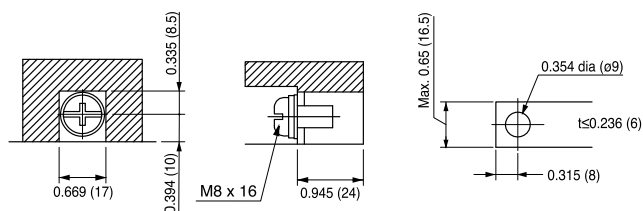
EW125\*U-3P, 4P



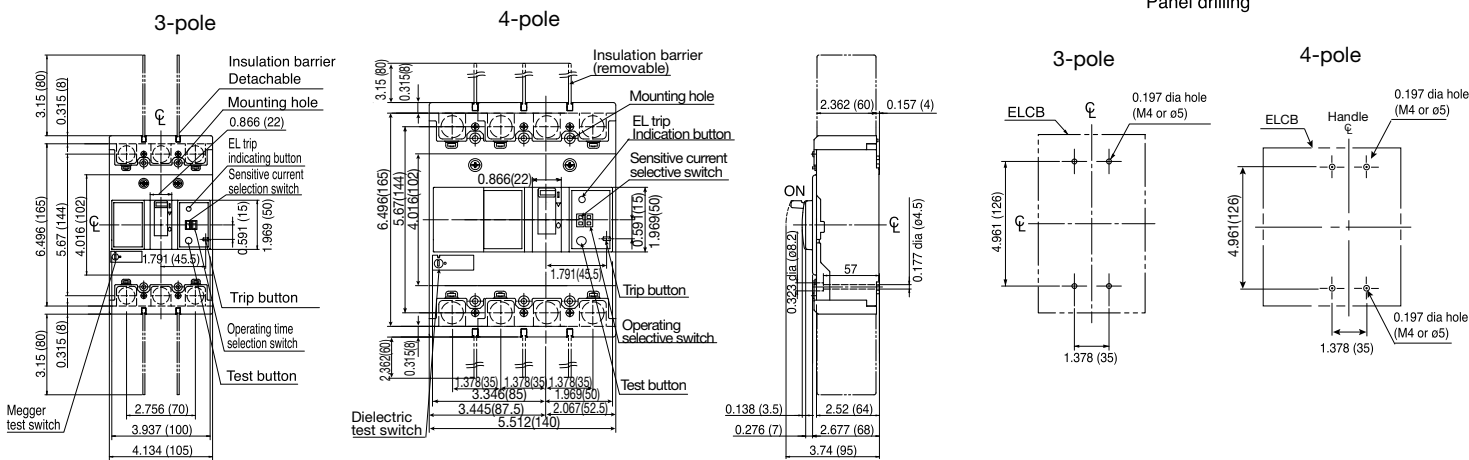
Front panel cutting



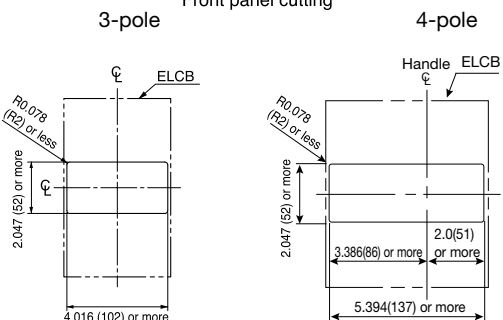
Terminal section



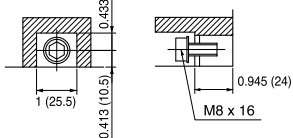
EW125\*U-3P, 4P



Front panel cutting



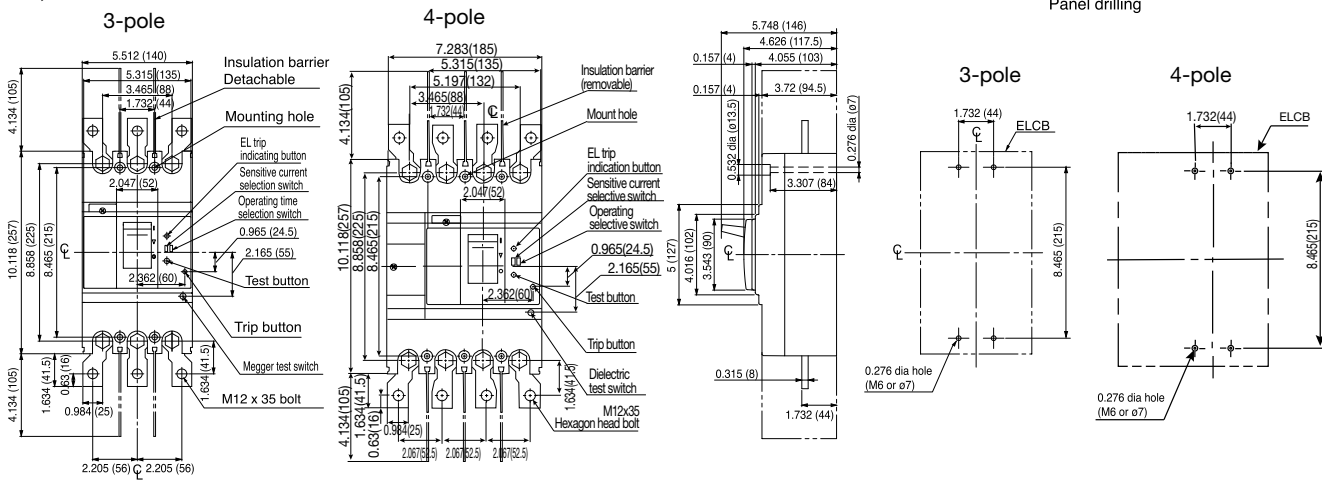
Terminal section



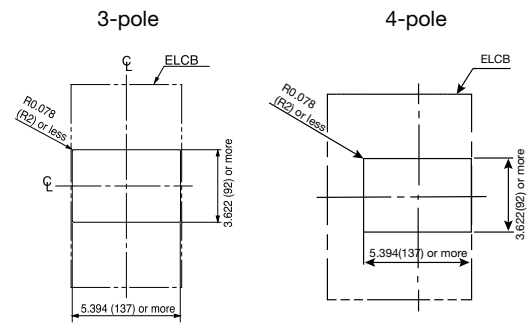
# Dimensions: inch (mm) - G -TWIN Series

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

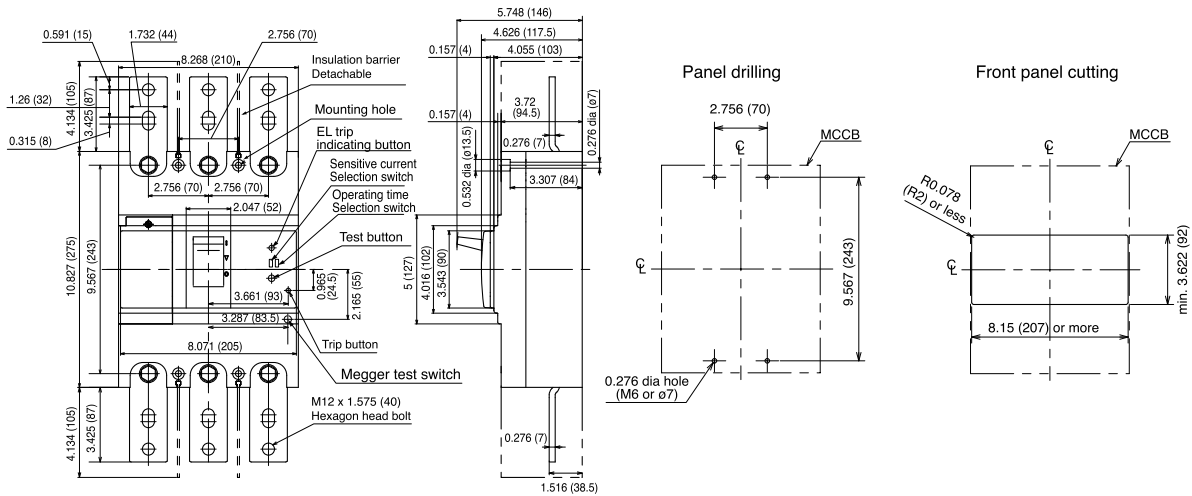
EW400\*U-3P, 4P



Front panel cutting



EW630RAGU-3P





# Internal Accessories for G-TWIN $\Lambda$ (Lambda) Series

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

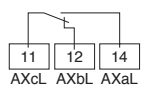
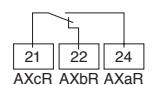
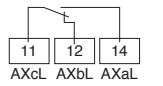
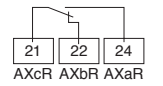
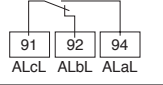
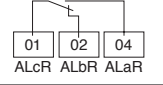
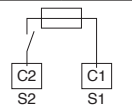
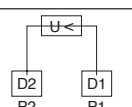
## 50AF

Breaker type: BW50RBGU, EW50RBGU

Type	Terminal connection	Lead wire pull-out direction	Type	Voltage rating	Mountability					
					MCCB		ELCB			
					2P	3P	2P	3P		
Auxiliary switch (standard type)	Lead wire type	Left side	BW9W1SB1	/	-	○	-	○		
		Right side	BW9W1SB1-R		○	○	○	○		
		Left side	BW9W1DB1		-	○	-	○		
		Right side	BW9W1DB1-R		○	○	○	○		
		Left side	BW9K1SB1		-	○	-	○		
		Right side	BW9K1SB1-R		○	○	○	○		
		Left side	BW9K1DB1		-	○	-	○		
		Right side	BW9K1DB1-R		○	○	○	○		
		Left side	BW9WKS1B1		-	○	-	○		
		Right side	BW9WKS1B1-R		○	○	○	○		
		Left side	BW9WK1DB1		-	○	-	○		
		Right side	BW9WK1DB1-R		○	○	○	○		
		Shunt trip device	Left side		BW9FRB1	AC/DC24V	-	○	-	○
					BW9F6B1	AC100-130V/DC100-110V				
					BW9FKB1	AC200-240V/DC200-220V				
					BW9FPB1	AC380-440V				
Auxiliary switch (standard type)	Terminal block type	Left side	BW9W1SB1-A	/	-	○	-	○		
		Right side	BW9W1SB1-RA		○	○	○	○		
		Left side	BW9W1DB1-A		-	○	-	○		
		Right side	BW9W1DB1-RA		○	○	○	○		
		Left side	BW9K1SB1-A		-	○	-	○		
		Right side	BW9K1SB1-RA		○	○	○	○		
		Left side	BW9K1DB1-A		-	○	-	○		
		Right side	BW9K1DB1-RA		○	○	○	○		
		Left side	BW9WKS1B1-A		-	○	-	○		
		Right side	BW9WKS1B1-RA		○	○	○	○		
		Left side	BW9WK1DB1-A		-	○	-	○		
		Right side	BW9WK1DB1-RA		○	○	○	○		
		Shunt trip device	Left side		BW9FRB1-A	AC/DC24V	-	○	-	○
					BW9F6B1-A	AC100-130V/DC100-110V				
					BW9FKB1-A	AC200-240V/DC200-220V				
					BW9FPB1-A	AC380-440V				

Note: All units provided above are sold separately.

## Types and terminal numbers of internal accessories

Type	Terminal number	Terminal number		Remarks
		Left side mounting	Right side mounting	
Auxiliary switch Standard: W, V Low level circuit: 1, 2	For one switch (W) (1)			For the rated operational voltage and current, see page 26. For details of mounting positions, see the List of internal accessory combinations on pages 27 to 32.
	For two switches (V) (2)			
Alarm switch Standard: K Low level circuit: 8	For one switch (K) (8)			
Shunt trip device: F	With burn-out preventive contact (standard)			For the operating voltage, see page 26.
Undervoltage trip device				For the operating voltage, see page 26.

# Internal Accessories for G-TWIN $\Lambda$ (Lambda) Series

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## Operations and ratings of auxiliary and alarm switches [IEC 60947-5-1, JIS C 8201-5-1]

### Operation

Type of switches		State of MCCB/ELCB		
		ON	OFF	Tripped
Auxiliary switch	For left side			
	For right side			
Alarm switch	For left side			
	For right side			

### Rating

	IEC60947-5-1			Reference: NECA C4505		Minimum load
	Voltage [V]	Switching current [A]		Voltage [V]	Switching current [A]	
		AC15	DC13			
Standard type	125V AC	5	—	125V AC	5	5V DC 160mA 30V DC 30mA
	250V AC	5	—	250V AC	3	
	—	—	—	30V DC	4	
	125V DC	—	0.6	125V DC	0.4	
	250V DC	—	0.3	250V DC	0.2	
Microload	—	—	—	30V DC	0.1	5V DC 1mA

## Shunt trip device

### Rating

Main unit applicable type (basic designation)		Mounting position	AC		DC		Voltage rating	Product code	Time rating	Operating time [ms]
MCCB	ELCB		Voltage [V]	Input [VA]	Voltage [V]	Input [W]				
<b>BW50</b>	<b>EW50</b>	Built-in	24	40	24	40	24V AC/DC	FR	Continuous (With burn-out preventive contact)	6-13
			100-130 (50/60Hz)	60	100-110	60	100-130V AC/100-110V DC	F6		
			200-240 (50/60Hz)	70	200-220	70	200-240V AC/200-220V DC	FK		
			380-440 (50/60Hz)	70	—	—	380-440V AC	FP		

Note 1: Specify the voltage rating in the order.

Note 2: The operating range of the trip voltage of the shunt trip device is 70 to 110% of the rated operating voltage.

## Undervoltage trip device

### Rating

Main unit applicable type (basic designation)		Mounting position	AC		DC		Voltage rating	Product code
MCCB	ELCB		Voltage [V]	Input [VA]	Voltage [V]	Input [W]		
<b>BW50</b>	<b>EW50</b>	External	—	—	24	1	24V DC	RR
			—	—	100-110	2	100-110V DC	RL
			24	1	—	—	24V AC	RZ
			100-130	3	—	—	100-130V AC	R6
			200-240	5	—	—	200-240V AC	R4
			380-415	8	—	—	380-415V AC	RP
400-440	9	—	—	400-440V AC	RO			

Note 1: Specify the voltage rating in the order.

Note 2: The pick-up voltages of the undervoltage trip device are: Trip voltage: 70 to 35% of the rated voltage; voltage allowing closing operation: 85% to 110% of the rated voltage

## Accessory lead wire pull-out system

### Specifications of lead wire

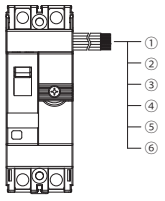
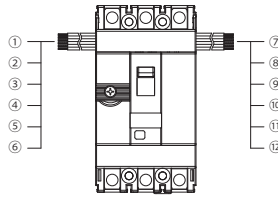
Type of lead wire	Size of lead wire	Length of lead wire	Indication on lead wire
50AF	0.4mm <sup>2</sup> (AWG22)	About 500mm	Each lead wire has a ring mark indicating a terminal symbol.

# Internal Accessory Combination for G-TWIN $\Lambda$ (Lambda) Series

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## Details of combinations of internal accessories

(a) Lead wire type (BW50RBGU)

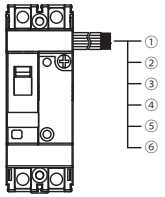
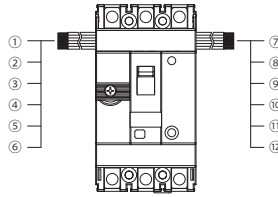
Lead wire type	MCCB (2P)				MCCB (3P)			
								
Type	BW50RBGU				BW50RBGU			
Accessory type	Left side		Right side		Left side		Right side	
	Position	Ring mark	Position	Ring mark	Position	Ring mark	Position	Ring mark
Auxiliary switch  <input type="checkbox"/> W(1)*	Cannot be pulled out to the left side.		①	21/AXc : Yellow	①	11/AXc : White	①	21/AXc : Yellow
			②	24/AXa : Red	②	14/AXa : Brown	②	24/AXa : Red
			③	22/AXb : Blue	③	12/AXb : Green	③	22/AXb : Blue
			—	—	—	—	—	—
			—	—	—	—	—	—
			—	—	—	—	—	—
Auxiliary switch x 2  <input type="checkbox"/> V(2)*	Cannot be mounted.		—	—	①	11/AXc : White	⑦	21/AXc : Yellow
			—	—	②	14/AXa : Brown	⑧	24/AXa : Red
			—	—	③	12/AXb : Green	⑨	22/AXb : Blue
			—	—	—	—	—	—
			—	—	—	—	—	—
			—	—	—	—	—	—
Alarm switch  <input type="checkbox"/> K(8)*	Cannot be pulled out to the left side.		①	01/ALc : Yellow	①	91/ALc : White	①	01/ALc : Yellow
			②	04/ALa : Red	②	94/ALa : Brown	②	04/ALa : Red
			③	02/ALb : Blue	③	92/ALb : Green	③	02/ALb : Blue
			—	—	—	—	—	—
			—	—	—	—	—	—
			—	—	—	—	—	—
Auxiliary switch + alarm switch  <input type="checkbox"/> W(1)* <input type="checkbox"/> K(8)*	Cannot be pulled out to the left side.		①	01/ALc : Yellow	①	91/ALc : White	①	01/ALc : Yellow
			②	04/ALa : Red	②	94/ALa : Brown	②	04/ALa : Red
			③	02/ALb : Blue	③	92/ALb : Green	③	02/ALb : Blue
			④	21/AXc : Yellow	④	11/AXc : White	④	21/AXc : Yellow
			⑤	24/AXa : Red	⑤	14/AXa : Brown	⑤	24/AXa : Red
			⑥	22/AXb : Blue	⑥	12/AXb : Green	⑥	22/AXb : Blue
Auxiliary switch x 2 + alarm switch  <input type="checkbox"/> V(2)* <input type="checkbox"/> K(8)*	Cannot be mounted.		—	—	①	91/ALc : White	⑦	21/AXc : Yellow
			—	—	②	94/ALa : Brown	⑧	24/AXa : Red
			—	—	③	92/ALb : Green	⑨	22/AXb : Blue
			—	—	④	11/AXc : White	—	—
			—	—	⑤	14/AXa : Brown	—	—
			—	—	⑥	12/AXb : Green	—	—
Shunt trip device  <input type="checkbox"/> F <input type="checkbox"/>	Cannot be pulled out to the left side.		①	C1/S1 : White	①	C1/S1 : White	—	—
			②	C2/S2 : White	②	C2/S2 : White	—	—
			—	—	—	—	—	—
			—	—	—	—	—	—
			—	—	—	—	—	—
			—	—	—	—	—	—
Auxiliary switch + shunt trip device  <input type="checkbox"/> W(1)* <input type="checkbox"/> F <input type="checkbox"/>	Cannot be mounted.		—	—	①	C1/S1 : White	⑦	21/AXc : Yellow
			—	—	②	C2/S2 : White	⑧	24/AXa : Red
			—	—	—	—	⑨	22/AXb : Blue
			—	—	—	—	—	—
			—	—	—	—	—	—
			—	—	—	—	—	—
Alarm switch + shunt trip device  <input type="checkbox"/> K(8)* <input type="checkbox"/> F <input type="checkbox"/>	Cannot be mounted.		—	—	①	C1/S1 : White	⑦	01/ALc : Yellow
			—	—	②	C2/S2 : White	⑧	04/ALa : Red
			—	—	—	—	⑨	02/ALb : Blue
			—	—	—	—	—	—
			—	—	—	—	—	—
			—	—	—	—	—	—
Auxiliary switch + alarm switch + shunt trip device  <input type="checkbox"/> W(1)* <input type="checkbox"/> K(8)* <input type="checkbox"/> F <input type="checkbox"/>	Cannot be mounted.		—	—	①	C1/S1 : White	⑦	01/ALc : Yellow
			—	—	②	C2/S2 : White	⑧	04/ALa : Red
			—	—	—	—	⑨	02/ALb : Blue
			—	—	—	—	⑩	21/AXc : Yellow
			—	—	—	—	⑪	24/AXa : Red
			—	—	—	—	⑫	22/AXb : Blue

Note: \* ( ) code of Low level circuit

# Internal Accessory Combination for G-TWIN $\Lambda$ (Lambda) Series

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## (b) Lead wire type (EW50RBGU)

Lead wire type	ELCB (2P)				ELCB (3P)			
								
Type	<b>EW50RBGU</b>				<b>EW50RBGU</b>			
Accessory type	Left side		Right side		Left side		Right side	
	Position	Ring mark	Position	Ring mark	Position	Ring mark	Position	Ring mark
Auxiliary switch	Cannot be pulled out to the left side.		①	21/AXc : Yellow	①	11/AXc : White	①	21/AXc : Yellow
			②	24/AXa : Red	②	14/AXa : Brown	②	24/AXa : Red
			③	22/AXb : Blue	③	12/AXb : Green	③	22/AXb : Blue
			—	—	—	—	—	—
			—	—	—	—	—	—
<input type="checkbox"/> W(1)*			—	—	—	—	—	—
Auxiliary switch x 2	Cannot be mounted.				①	11/AXc : White	⑦	21/AXc : Yellow
					②	14/AXa : Brown	⑧	24/AXa : Red
					③	12/AXb : Green	⑨	22/AXb : Blue
					—	—	—	—
					—	—	—	—
<input type="checkbox"/> V(2)*					—	—	—	—
Alarm switch	Cannot be pulled out to the left side.		①	01/ALc : Yellow	①	91/ALc : White	①	01/ALc : Yellow
			②	04/ALa : Red	②	94/ALa : Brown	②	04/ALa : Red
			③	02/ALb : Blue	③	92/ALb : Green	③	02/ALb : Blue
			—	—	—	—	—	—
			—	—	—	—	—	—
<input type="checkbox"/> K(8)*			—	—	—	—	—	—
Auxiliary switch + alarm switch	Cannot be pulled out to the left side.		①	01/ALc : Yellow	①	91/ALc : White	①	01/ALc : Yellow
			②	04/ALa : Red	②	94/ALa : Brown	②	04/ALa : Red
			③	02/ALb : Blue	③	92/ALb : Green	③	02/ALb : Blue
			④	21/AXc : Yellow	④	11/AXc : White	④	21/AXc : Yellow
			⑤	24/AXa : Red	⑤	14/AXa : Brown	⑤	24/AXa : Red
			⑥	22/AXb : Blue	⑥	12/AXb : Green	⑥	22/AXb : Blue
<input type="checkbox"/> W(1)* <input type="checkbox"/> K(8)*								
Auxiliary switch x 2 + alarm switch	Cannot be mounted.				①	91/ALc : White	⑦	21/AXc : Yellow
					②	94/ALa : Brown	⑧	24/AXa : Red
					③	92/ALb : Green	⑨	22/AXb : Blue
					④	11/AXc : White	—	—
					⑤	14/AXa : Brown	—	—
					⑥	12/AXb : Green	—	—
<input type="checkbox"/> V(2)* <input type="checkbox"/> K(8)*					—	—	—	—
Shunt trip device	Cannot be mounted.				①	C1/S1 : White	—	—
					②	C2/S2 : White	—	—
					—	—	—	—
					—	—	—	—
					—	—	—	—
<input type="checkbox"/> F <input type="checkbox"/>					—	—	—	—
Auxiliary switch + shunt trip device	Cannot be mounted.				①	C1/S1 : White	⑦	21/AXc : Yellow
					②	C2/S2 : White	⑧	24/AXa : Red
					—	—	⑨	22/AXb : Blue
					—	—	—	—
					—	—	—	—
<input type="checkbox"/> W(1)* <input type="checkbox"/> F <input type="checkbox"/>					—	—	—	—
Alarm switch + shunt trip device	Cannot be mounted.				①	C1/S1 : White	⑦	01/ALc : Yellow
					②	C2/S2 : White	⑧	04/ALa : Red
					—	—	⑨	02/ALb : Blue
					—	—	—	—
					—	—	—	—
<input type="checkbox"/> K(8)* <input type="checkbox"/> F <input type="checkbox"/>					—	—	—	—
Auxiliary switch + alarm switch + shunt trip device	Cannot be mounted.				①	C1/S1 : White	⑦	01/ALc : Yellow
					②	C2/S2 : White	⑧	04/ALa : Red
					—	—	⑨	02/ALb : Blue
					—	—	⑩	21/AXc : Yellow
					—	—	⑪	24/AXa : Red
					—	—	⑫	22/AXb : Blue
<input type="checkbox"/> W(1)* <input type="checkbox"/> K(8)* <input type="checkbox"/> F <input type="checkbox"/>					—	—	—	—

Note: \* ( ) code of Low level circuit

# Internal Accessory Combination for G-TWIN $\Lambda$ (Lambda) Series

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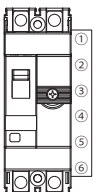
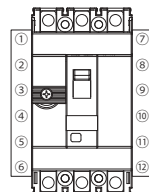
(c) Terminal block type (BW50RBGU)

Lead wire type	MCCB (2P)				MCCB (3P)			
	Position		Ring mark		Position		Ring mark	
Type	<b>BW50RBGU</b>				<b>BW50RBGU</b>			
Accessory type	Left side		Right side		Left side		Right side	
Auxiliary switch	Cannot be mounted.		①	—	①	—	①	—
			②	—	②	—	②	—
			③	—	③	—	③	—
			④	21/AXcR	④	11/AXcL	④	21/AXcR
			⑤	22/AXbR	⑤	12/AXbL	⑤	22/AXbR
			⑥	24/AXaR	⑥	14/AXaL	⑥	24/AXaR
Auxiliary switch x 2	Cannot be mounted.				①	—	⑦	—
					②	—	⑧	—
					③	—	⑨	—
					④	11/AXcL	⑩	21/AXcR
					⑤	12/AXbL	⑪	22/AXbR
					⑥	14/AXaL	⑫	24/AXaR
Alarm switch	Cannot be mounted.				①	94/ALaL	①	04/ALaR
					②	92/ALbL	②	02/ALbR
					③	91/ALcL	③	01/ALcR
							④	—
							⑤	—
							⑥	—
Auxiliary switch + alarm switch	Cannot be mounted.				①	94/ALaL	①	04/ALaR
					②	92/ALbL	②	02/ALbR
					③	91/ALcL	③	01/ALcR
					④	11/AXcL	④	21/AXcR
					⑤	12/AXbL	⑤	22/AXbR
					⑥	14/AXaL	⑥	24/AXaR
Auxiliary switch x 2 + alarm switch	Cannot be mounted.				①	94/ALaL	⑦	—
					②	92/ALbL	⑧	—
					③	91/ALcL	⑨	—
					④	11/AXcL	⑩	21/AXcR
					⑤	12/AXbL	⑪	22/AXbR
					⑥	14/AXaL	⑫	24/AXaR
Shunt trip device	Cannot be mounted.		①	—	①	—	Cannot be mounted.	
			②	—	②	—		
			③	—	③	—		
			④	C2/S2	④	C2/S2		
			⑤	—	⑤	—		
			⑥	C1/S1	⑥	C1/S1		
Auxiliary switch + shunt trip device	Cannot be mounted.				①	—	⑦	—
					②	—	⑧	—
					③	—	⑨	—
					④	C2/S2	⑩	21/AXcR
					⑤	—	⑪	22/AXbR
					⑥	C1/S1	⑫	24/AXaR
Alarm switch + shunt trip device	Cannot be mounted.				①	—	⑦	04/ALaR
					②	—	⑧	02/ALbR
					③	—	⑨	01/ALcR
					④	C2/S2	⑩	—
					⑤	—	⑪	—
					⑥	C1/S1	⑫	—

# Internal Accessory Combination for G-TWIN $\lambda$ (Lambda) Series

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Terminal block type (BW50RBGU) ...continued

Lead wire type	MCCB (2P)				MCCB (3P)			
	Type		Type		Type		Type	
								
Type	<b>BW50RBGU</b>				<b>BW50RBGU</b>			
Accessory type	Left side		Right side		Left side		Right side	
	Position	Ring mark	Position	Ring mark	Position	Ring mark	Position	Ring mark
Auxiliary switch + alarm switch + shunt trip device  W(1)* K (8)* F <input type="checkbox"/> A	Cannot be mounted.				①	—	⑦	04/ALaR
Undervoltage trip device  <input type="checkbox"/> R <input type="checkbox"/>	Cannot be mounted.				②	—	⑧	02/ALbR
					③	—	⑨	01/ALcR
					④	C2/S2	⑩	21/AXcR
					⑤	—	⑪	22/AXbR
					⑥	C1/S1	⑫	24/AXaR
					①	—	Cannot be mounted.	
Auxiliary switch + Undervoltage trip device  W(1)* R <input type="checkbox"/> A	Cannot be mounted.				②	—	⑧	—
					③	—	⑨	—
					④	D2/P2	⑩	21/AXcR
					⑤	—	⑪	22/AXbR
					⑥	D1/P1	⑫	24/AXaR
					①	—	⑦	—
Alarm switch + Undervoltage trip device  K(8)* R <input type="checkbox"/> A	Cannot be mounted.				②	—	⑧	02/ALbR
					③	—	⑨	01/ALcR
					④	D2/P2	⑩	—
					⑤	—	⑪	—
					⑥	D1/P1	⑫	—
					①	—	⑦	04/ALaR
Auxiliary switch + alarm switch + Undervoltage trip device  W(1)* K(8)* R <input type="checkbox"/> A	Cannot be mounted.				②	—	⑧	02/ALbR
					③	—	⑨	01/ALcR
					④	D2/P2	⑩	21/AXcR
					⑤	—	⑪	22/AXbR
					⑥	D1/P1	⑫	24/AXaR
					①	—	⑦	04/ALaR

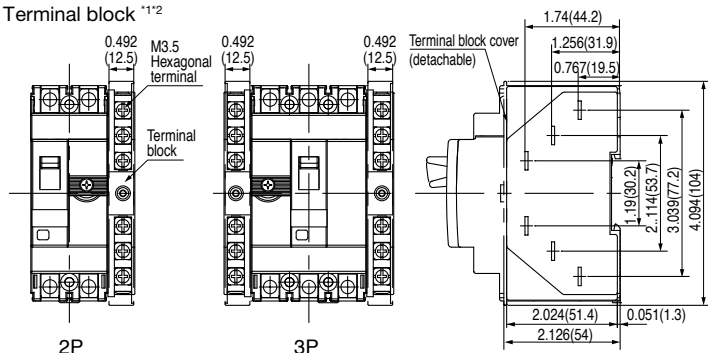
Note: \* ( ) code of Low level circuit

Remarks

1) The undervoltage trip device is factory-mounted when the product is shipped. Specify in the order for the main unit.

## Dimensions: inch (mm)

Terminal block <sup>\*\*2</sup>



(Note \*1) The terminal block is mounted on the accessory mounting side. For the accessory mounting positions, see the List of internal accessory combinations on pages 29 to 30.

(Note \*2) Connectable wire: single wire: 1 to 1.6  $\phi$ , stranded wire: 0.5 to 2 mm<sup>2</sup>

# Internal Accessory Combination for G-TWIN $\Lambda$ (Lambda) Series

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(d) Terminal block type (EW50RBGU)

Lead wire type	ELCB (2P)				ELCB (3P)			
	Left side		Right side		Left side		Right side	
Type	Position	Ring mark	Position	Ring mark	Position	Ring mark	Position	Ring mark
Auxiliary switch	Cannot be mounted.				①	—	①	—
					②	—	②	—
W(1)* A					③	—	③	—
					④	21/AXcR	④	21/AXcR
					⑤	22/AXbR	⑤	22/AXbR
					⑥	24/AXaR	⑥	24/AXaR
Auxiliary switch x 2	Cannot be mounted.				①	—	⑦	—
					②	—	⑧	—
V(2)* A					③	—	⑨	—
					④	11/AXcL	⑩	21/AXcR
					⑤	12/AXbL	⑪	22/AXbR
					⑥	14/AXaL	⑫	24/AXaR
					①	94/ALaL	①	04/ALaR
					②	92/ALbL	②	02/ALbR
Alarm switch	Cannot be mounted.				③	91/ALcL	③	01/ALcR
					④	—	④	—
					⑤	—	⑤	—
					⑥	—	⑥	—
					①	04/ALaR	①	04/ALaR
					②	02/ALbR	②	02/ALbR
K(8)* A					③	01/ALcR	③	01/ALcR
					④	21/AXcR	④	21/AXcR
					⑤	22/AXbR	⑤	22/AXbR
					⑥	24/AXaR	⑥	24/AXaR
					①	94/ALaL	⑦	—
					②	92/ALbL	⑧	—
Auxiliary switch + alarm switch	Cannot be mounted.				③	91/ALcL	⑨	—
					④	11/AXcL	⑩	21/AXcR
					⑤	12/AXbL	⑪	22/AXbR
					⑥	14/AXaL	⑫	24/AXaR
					①	—	⑦	—
					②	—	⑧	—
V(2)* K(8)* A					③	—	⑨	—
					④	C2/S2	⑩	21/AXcR
					⑤	—	⑪	22/AXbR
					⑥	C1/S1	⑫	24/AXaR
					①	—	⑦	04/ALaR
					②	—	⑧	02/ALbR
Shunt trip device	Cannot be mounted.				③	—	⑨	01/ALcR
					④	C2/S2	⑩	—
					⑤	—	⑪	—
					⑥	C1/S1	⑫	—
					①	—	⑦	04/ALaR
					②	—	⑧	02/ALbR
F □ A					③	—	⑨	01/ALcR
					④	C2/S2	⑩	21/AXcR
					⑤	—	⑪	22/AXbR
					⑥	C1/S1	⑫	24/AXaR
					①	—	⑦	04/ALaR
					②	—	⑧	02/ALbR
Auxiliary switch + shunt trip device	Cannot be mounted.				③	—	⑨	01/ALcR
					④	C2/S2	⑩	21/AXcR
					⑤	—	⑪	22/AXbR
					⑥	C1/S1	⑫	24/AXaR
					①	—	⑦	04/ALaR
					②	—	⑧	02/ALbR
W(1)* F □ A					③	—	⑨	01/ALcR
					④	C2/S2	⑩	21/AXcR
					⑤	—	⑪	22/AXbR
					⑥	C1/S1	⑫	24/AXaR
					①	—	⑦	04/ALaR
					②	—	⑧	02/ALbR
Auxiliary switch + alarm switch + shunt trip device	Cannot be mounted.				③	—	⑨	01/ALcR
					④	C2/S2	⑩	21/AXcR
					⑤	—	⑪	22/AXbR
					⑥	C1/S1	⑫	24/AXaR
					①	—	⑦	04/ALaR
					②	—	⑧	02/ALbR
K(8)* F □ A					③	—	⑨	01/ALcR
					④	C2/S2	⑩	21/AXcR
					⑤	—	⑪	22/AXbR
					⑥	C1/S1	⑫	24/AXaR
					①	—	⑦	04/ALaR
					②	—	⑧	02/ALbR
W(1)* K(8)* F □ A					③	—	⑨	01/ALcR
					④	C2/S2	⑩	21/AXcR
					⑤	—	⑪	22/AXbR
					⑥	C1/S1	⑫	24/AXaR
					①	—	⑦	04/ALaR
					②	—	⑧	02/ALbR

# Internal Accessory Combination for G-TWIN $\lambda$ (Lambda) Series

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Terminal block type (EW50RBGU) ...continued

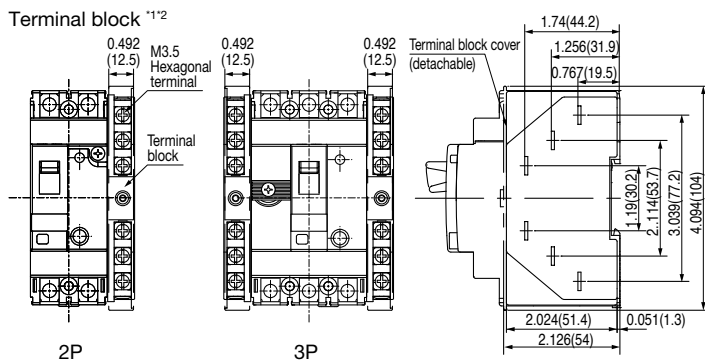
Lead wire type	ELCB (2P)				ELCB (3P)			
	Type		EW50RBGU		Type		EW50RBGU	
Accessory type	Left side		Right side		Left side		Right side	
	Position	Ring mark	Position	Ring mark	Position	Ring mark	Position	Ring mark
Undervoltage trip device	Cannot be mounted.				①	—	Cannot be mounted.	
<input type="checkbox"/> R <input type="checkbox"/>					②	—		
					③	—		
					④	D2/P2		
					⑤	—		
					⑥	D1/P1		
					⑥	D1/P1		
Auxiliary switch + Undervoltage trip device	Cannot be mounted.				①	—	⑦	—
<input type="checkbox"/> W(1)* R <input type="checkbox"/> A					②	—	⑧	—
					③	—	⑨	—
					④	D2/P2	⑩	21/AXcR
					⑤	—	⑪	22/AXbR
					⑥	D1/P1	⑫	24/AXaR
					⑥	D1/P1	⑫	24/AXaR
Alarm switch + Undervoltage trip device	Cannot be mounted.				①	—	⑦	04/ALaR
<input type="checkbox"/> K(8)* R <input type="checkbox"/> A					②	—	⑧	02/ALbR
					③	—	⑨	01/ALcR
					④	D2/P2	⑩	—
					⑤	—	⑪	—
					⑥	D1/P1	⑫	—
					⑥	D1/P1	⑫	—
Auxiliary switch + alarm switch + Undervoltage trip device	Cannot be mounted.				①	—	⑦	04/ALaR
<input type="checkbox"/> W(1)* K(8)* R <input type="checkbox"/> A					②	—	⑧	02/ALbR
					③	—	⑨	01/ALcR
					④	D2/P2	⑩	21/AXcR
					⑤	—	⑪	22/AXbR
					⑥	D1/P1	⑫	24/AXaR
					⑥	D1/P1	⑫	24/AXaR

Note: \* ( ) code of Low level circuit

Remarks

1) The undervoltage trip device is factory-mounted when the product is shipped. Specify in the order for the main unit.

## Dimensions: inch (mm)



(Note \*1) The terminal block is mounted on the accessory mounting side. For the accessory mounting positions, see the List of internal accessory combinations on pages 31 to 32


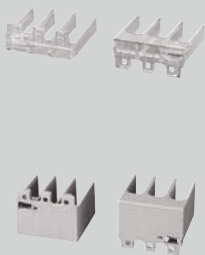

(Note \*2) Connectable wire: single wire: 1 to 1.6  $\phi$ , stranded wire: 0.5 to 2 mm<sup>2</sup>



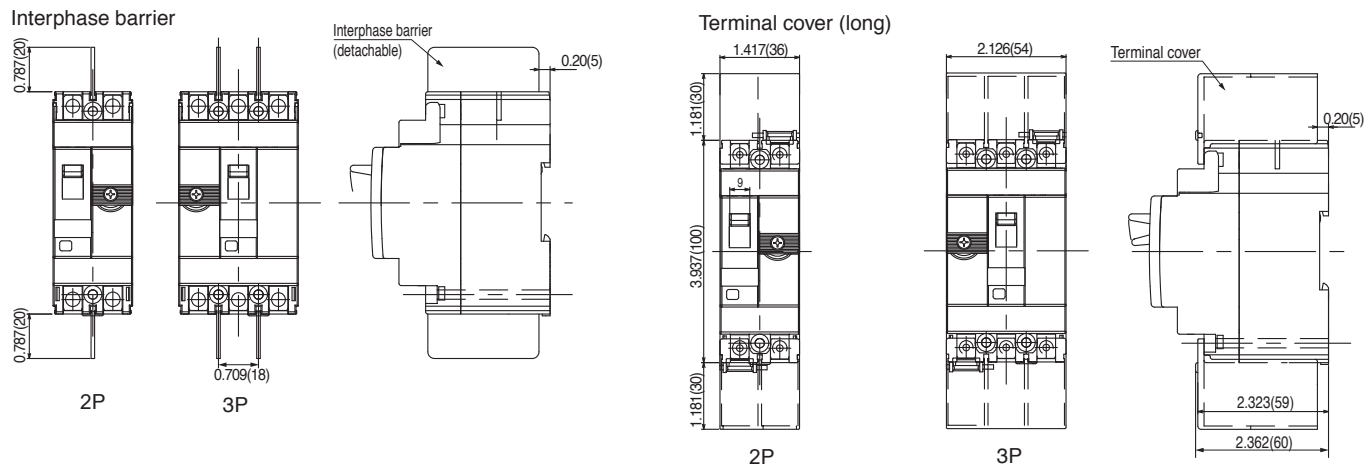
# External Accessories for G-TWIN $\lambda$ (Lambda) Series

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## List of Separately Sold Parts

Product name	Specification	Type (i.e., product code)	Quantity/type	
	V type (panel mounting)	RESET-open	<b>BW9V0BA</b>	1
		OFF-open	<b>BW9V0BA-G</b>	1
		RESET-open for emergency stop	<b>BW9V0BA-E</b>	1
		OFF-open for emergency stop	<b>BW9V0BA-EG</b>	1
	N type (main unit mounting)	RESET-open	<b>BW9N0BA</b>	1
		OFF-open	<b>BW9N0BA-G</b>	1
		RESET-open for emergency stop	<b>BW9N0BA-E</b>	1
		OFF-open for emergency stop	<b>BW9N0BA-EG</b>	1
	Short type	Manually-detachable, 2-pole, transparent	<b>BW9BTBA-S2</b>	2
		Manually-detachable, 2-pole, light gray	<b>BW9BTBA-S2W</b>	2
		Manually-detachable, 3-pole, transparent	<b>BW9BTBA-S3</b>	2
		Manually-detachable, 3-pole, light gray	<b>BW9BTBA-S3W</b>	2
		Tool-detachable, 2-pole, transparent	<b>BW9BTBA-S2H</b>	2
		Tool-detachable, 2-pole, light gray	<b>BW9BTBA-S2WH</b>	2
		Tool-detachable, 3-pole, transparent	<b>BW9BTBA-S3H</b>	2
		Tool-detachable, 3-pole, light gray	<b>BW9BTBA-S3WH</b>	2
	Long type	Manually-detachable, 2-pole, transparent	<b>BW9BTBA-L2</b>	2
		Manually-detachable, 2-pole, light gray	<b>BW9BTBA-L2W</b>	2
		Manually-detachable, 3-pole, transparent	<b>BW9BTBA-L3</b>	2
		Manually-detachable, 3-pole, light gray	<b>BW9BTBA-L3W</b>	2
		Tool-detachable, 2-pole, transparent	<b>BW9BTBA-L2H</b>	2
		Tool-detachable, 2-pole, light gray	<b>BW9BTBA-L2WH</b>	2
		Tool-detachable, 3-pole, transparent	<b>BW9BTBA-L3H</b>	2
		Tool-detachable, 3-pole, light gray	<b>BW9BTBA-L3WH</b>	2
Insulation barrier	Interphase barrier	<b>BW9BPBA</b>	4	
	Cap type L1	-	<b>BW9L1BA</b>	1
	Padlock-compatible type	-	<b>BW9L1BA-P</b>	1
Handle key lock	Plate type Q2	-	<b>BW9Q2BA</b>	1

## Dimensions: inch (mm)



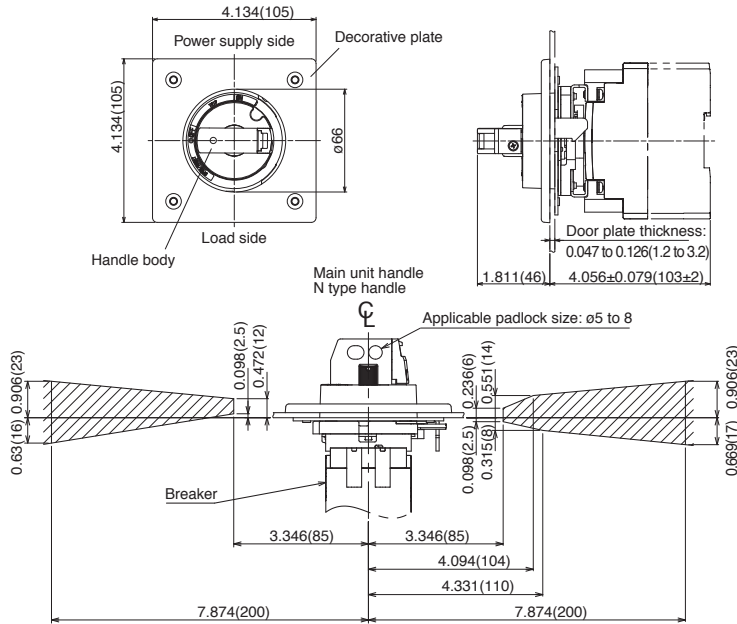
# Operating Handles for G-TWIN $\Lambda$ (Lambda) Series

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Dimensions: inch (mm)

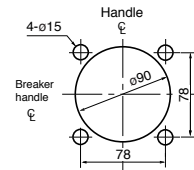
## N type handle

BW9N0BA



Install the hinge in the shaded area.

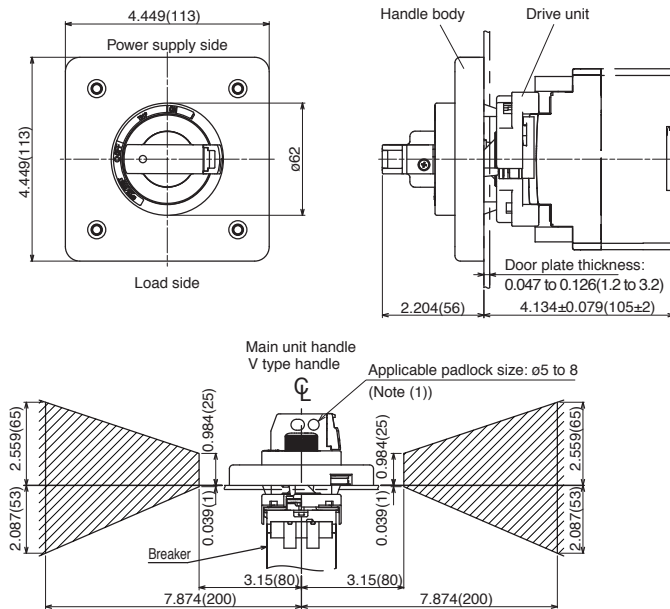
## Door panel cutout



Note: Align the center of the panel cutout with the center of the handle of the breaker main unit.

## V type handle

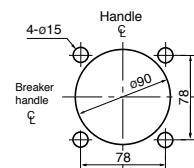
BW9V0BA



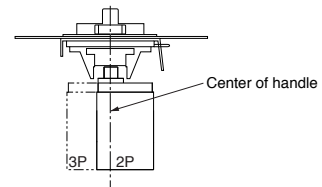
Install the hinge in the shaded area.

Note (1): Padlockable on the drive unit side when the door is open (applicable padlock size: ø5 to 6)

## Door panel cutout





Note: Align the center of the panel cutout with the center of the handle of the breaker main unit.



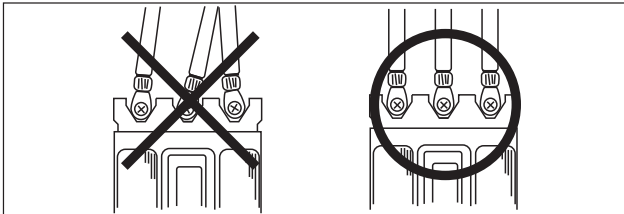
# Wiring for G-TWIN $\lambda$ (Lambda) Series

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## Front Mounting Type

Appearance		Screw		Tightening torque [N•m]	MCCB main unit applicable type (basic designation)	ELCB main unit applicable type (basic designation)
		Shape	Screw size			
For crimp terminals (front connection)			M5 x 14	2.0 to 3.0	<b>BW50</b>	<b>EW50</b>

Mount the crimp terminals to ensure that the wires for the respective poles are in parallel as shown in the figure below.



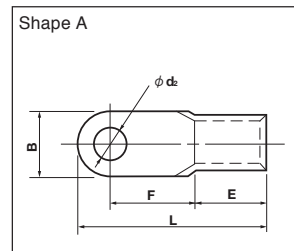
## Applicable crimp terminals

Frame [A]	Cross section area of electric wire used [mm <sup>2</sup> ]		2	5.5	8	14	22
		Allowable current [A] (600V IV electric wire 30°C Insulator wiring)		27	49	61	88
	Range of electric wire used [mm <sup>2</sup> ]		1.04 to 2.63	2.63 to 6.64	6.64 to 10.52	10.52 to 16.78	16.78 to 26.66
	MCCB main unit applicable type (basic designation)	ELCB main unit applicable type (basic designation)					
50	<b>BW50</b>	<b>EW50</b>	R2-5	R5.5-5	R8-5	R14-5	

(Explanation) R: JIS C2805, JST: provided by JST Mfg. Co., Ltd.

## Crimp terminal size

Model number	Shape	Diameter of screw used	Outline dimensions [mm]					Plate thickness	Applicable electric wire [mm <sup>2</sup> ]
			$\phi d_2$	B	L	F	E		
R2-5	A	M5	5.3	9.5	16.8	7.3	4.8	0.8	1.04 to 2.63
R2-6		M6	6.4	12.0	21.8	11.0			
R5.5-5		M5	5.3	9.5	19.8	8.3	6.8	1.0	2.63 to 6.64
R5.5-6		M6	6.4	12.0	25.8	13.0			
R8-5		M5	5.3	12.0	29.8	9.3	8.5	1.2	6.64 to 10.52
R8-6		M6	6.4			10.5	1.5	10.52 to 16.78	
R14-5		M5	5.3			13.3	10.5		1.5
R14-6		M6	6.4			13.3	10.5	1.5	
22-S5		M5	5.3	30.0	12.0	12.0	1.8	1.8	16.78 to 26.66
L330T459-23		M5	5.3						
22-S6		M6	6.4						



Note: Excerpt from JST's catalog

# Wiring for G-TWIN $\lambda$ (Lambda) Series

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## ● Wire connecting method (global products)

(1) Notes on wire (conductor) connection

- Connect wires to UL breakers according to the National Electrical Code (NEC) or Canadian Electrical Code (CEC) Part 1.
- For connection, use 75°C copper wires. Use of UL- or CSA-approved wires is recommended.
- A large current flow including a short-circuit current flow may generate a very large electromagnetic force between wires. Ensure that wires are securely supported.
- Regularly retighten the tightening screws of the terminals.
- Do not cover the arc gas outlet.

## ● Connectable wire and tightening torque

Crimp terminal connection

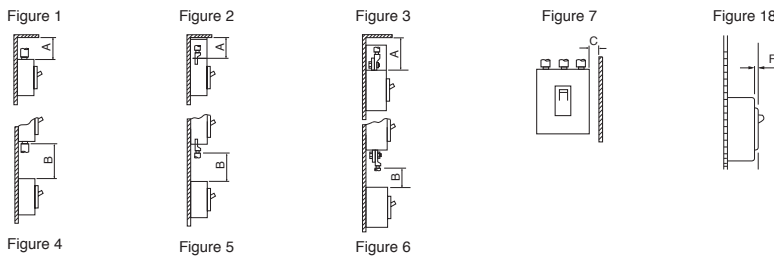
MCCB main unit type	ELCB main unit type	Rated current [A]	Applicable crimp terminal			Connectable wire size 75°C wire	Tightening torque [N•m]	Screw head type and size [mm]	
			(Provided by JST Mfg.)	Provided by Nichifu	Provided by Daido Solderless Terminal Mfg.				
<b>BW50RBGU</b>	<b>EW50RBGU</b>	3	2-M5, R2-5	R2-5, R2-5M	R2-5, R2-S5	14AWG	2.0 to 3.0	Cross-recessed pan-head screw with washer	
		5							
		10							
		15							
		20	3.5-5, 3.5-R5, 5-S5, 5.5-5NS, R5.5-5	R3.5-5S, R3.5-5L, R5.5-5, R5.5-5N, R5.5-5S	R3.5-5, R5.5-5, R5.5-L5, R5.5-S5				12AWG
		30	5-S5, 5.5-5NS, R5.5-5	R5.5-5, R5.5-5N, R5.5-5	R5.5-5, R5.5-L5, R5.5-S5				10AWG
40	8-5NS, 8-NK5, 8-5L5NS	R8-5, R8-5S	R8-5, R8-S5	8AWG					
50									

Note 1: AWG/MCM is a system to indicate UL wire sizes.

Note 2: Use 75°C wires for connection. (UL- or CSA-approved wires)

Note 3: For the crimping tool, be sure to use UL- or CSA-approved products from manufacturers.

## ■ Arc Space



Electric wire direct connection

Crimp terminal connection

Ensure the values in the table below for the insulation space according to the conditions given in the respective drawings. For wiring, take into consideration various situations that may arise in actual use conditions and provide bare conductors with taping or insulation barriers for the ranges of dimensions shown in the table below.

Insulation outside the arc space may need reinforcement depending on the use conditions.

[Unit: mm]

Basic designation		Ceiling distance	Vertical distance	Side plate distance	Front plate distance
MCCB	ELCB	A	B	C	F
<b>BW50</b>	<b>EW50</b>	10	20	10	0
		Figure 1, 2, 3	Figure 4, 5, 6	Figure 7	Figure 8

# Wiring for G-TWIN $\lambda$ (Lambda) Series

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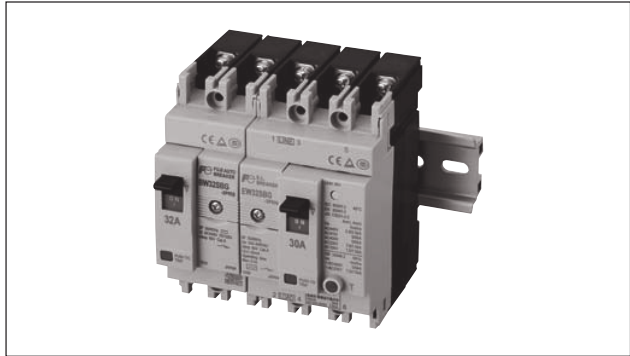
## IEC 35 mm Rail Mounting

Mounting on IEC 35 mm rails is possible as standard.

Main unit applicable type (basic designation)	
MCCB	ELCB
<b>BW50</b>	<b>EW50</b>

Note 1: Mounting pitch for rail fixing screws of within 250 mm is recommended.  
 Note 2: Applicable rails: TH35-7.5, TH35-7.5AL and TH35-15AL. (Types of Fuji Electric FA Components & Systems products)

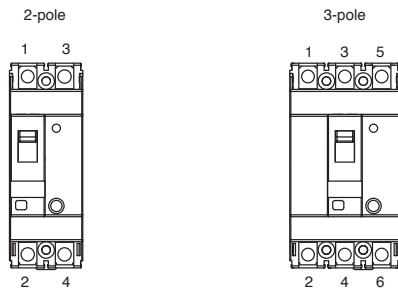
\* Main unit mounting screws are not included. When necessary, use commercially-available screws (recommended size: M4 x 60).



Note: For vertical mounting, use holding brackets (type LT9E-T1 provided by Fuji Electric Technica Co., Ltd.).

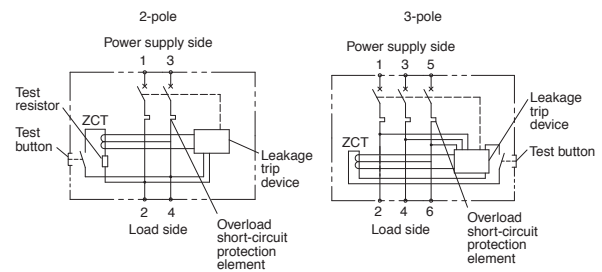
## Terminal Number

### ELCB terminal number



## Internal Wiring Diagram

### ELCB internal wiring diagram



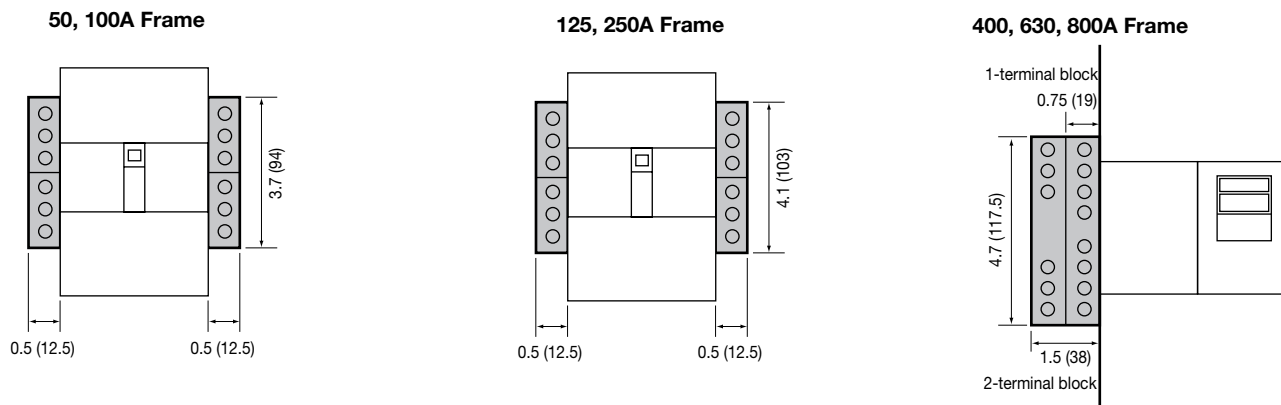
## Internal Resistance and Power Consumption

AF	Type	Rated current [A]	Internal resistance (m $\Omega$ ) (for one phase)	Power consumption (W) (for three phases)
50AF	<b>BW50RBGU</b>	3	116.0	3.1
		5	50.5	3.8
		10	13.8	4.1
		15	6.5	4.4
		20	4.1	5.2
		30	2.8	7.6
		32	2.8	8.6
50AF	<b>BW50RBGU</b>	40	1.7	8.2
		50	1.5	11.3

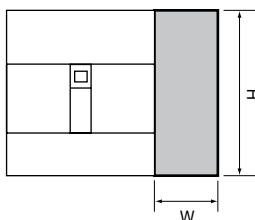
AF	Type	Rated current [A]	Internal resistance (m $\Omega$ ) (for one phase)	Power consumption (W) (for three phases)
50AF	<b>EW50RBGU</b>	5	50.5	3.8
		10	13.8	4.1
		15	6.5	4.4
		20	4.1	5.2
		30	2.8	7.6
		32	2.8	8.6
		50AF	<b>EW50RBGU</b>	40
50	1.7			12.8

## Dimensions of Terminal Blocks for Internal Accessories: inch (mm)

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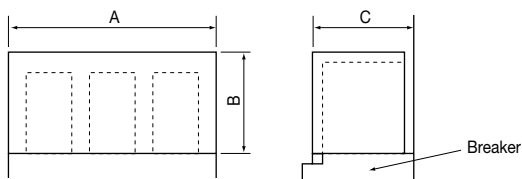


### Dimensions of Undervoltage/Shunt trip device 50 and 100AF Only



Breakers	W x H
BW50RAGU-2P, BW100EAGU-2P	1.0 (25) x 3.94 (100)
BW50RAGU-3P, BW100EAGU-3P EW50RAGU, EW100EAGU	1.0 (25) x 3.94 (100)

### Dimensions of Terminal Covers: inch (mm)



Type			Dimensions: Inch(mm)			Applicable Breakers
Black	Transparent	Gray-white	A	B	C	
-	BW9BTAA-S2 (Short)	BW9BTAA-S2W ** (Short)	1.969(50)	0.386(9.8)	2.106(53.5)	BW50RAGU-2P, BW100EAGU-2P
-	BW9BTAA-L2 (Long)	BW9BTAA-L2W (Long)	1.969(50)	1.575(40)	2.106(53.5)	
-	BW9BTAA-S3 (Short)	BW9BTAA-S3W** (Short)	2.953(75)	0.386(9.8)	2.106(53.5)	BW50RAGU-3P, BW100EAGU-3P EW50RAGU-3P, EW100EAGU-2P, EW100EAGU-3P
-	BW9BTAA-L3 (Long)	BW9BTAA-L3W (Long)	2.953(75)	1.575(40)	2.106(53.5)	
-	BW9BTCA-S2 (Short)	BW9BTCA-S2W** (Short)	2.362(60)	0.315(8)	2.618(66.5)	BW125*U-2P
-	BW9BTCA-L2 (Long)	BW9BTCA-L2W (Long)	2.362(60)	1.575(40)	2.618(66.5)	
-	BW9BTCA-S3 (Short)	BW9BTCA-S3W** (Short)	3.543(90)	0.315(8)	2.618(66.5)	BW125*U-3P, EW125*U-3P
-	BW9BTCA-L3 (Long)	BW9BTCA-L3W (Long)	3.543(90)	1.575(40)	2.618(66.5)	
-	BW9BTCA-S4 (Short)	BW9BTCA-S4W** (Short)	4.724(120)	0.315(8)	2.618(66.5)	BW125*U-4P, EW125*U-4P
-	BW9BTCA-L4 (Long)	BW9BTCA-L4W (Long)	4.724(120)	1.575(40)	2.618(66.5)	
-	BW9BTGA-S3 (Short)	BW9BTGA-S3W** (Short)	4.134(105)	0.315(8)	2.618(66.5)	BW250*U-2P, BW250*U-3P, EW250*U-3P
-	BW9BTGA-L3 (Long)	BW9BTGA-L3W (Long)	4.134(105)	1.969(50)	2.618(66.5)	
-	BW9BTGA-S4 (Short)	BW9BTGA-S4W** (Short)	5.511(140)	0.315(8)	2.618(66.5)	BW250*U-4P, EW250*U-4P
-	BW9BTGA-L4 (Long)	BW9BTGA-L4W (Long)	5.511(140)	1.969(50)	2.618(66.5)	
-	BW9BTHA-S3 (Short)	BW9BTHA-S3W (Short)	5.512(140)	2.559(65)	3.858(98)	BW400*U-2P, BW400*U-3P, EW400*U-3P
-	BW9BTHA-L3 (Long)	BW9BTHA-L3W (Long)	6.772(172)	4.331(110)	3.858(98)	
-	BW9BTHA-S4 (Short)	BW9BTHA-S4W (Short)	7.283(185)	2.559(65)	3.858(98)	BW400*U-4P, EW400*U-4P
-	BW9BTHA-L4 (Long)	-	8.661(220)	4.331(110)	3.858(98)	
-	BW9BTJA-L3 (Long)	BW9BTJA-L3W (Long)	8.268(210)	6.102(155)	3.858(98)	BW630*U-3P, BW800*U-3P, EW630*U-3P

\*\*A Gray-white terminal cover provided with BW50□U, BW100□U, BW125□U, BW250□U, EW100□U, EW125□U, EW250□U amp frame.

# Internal Accessories for G-TWIN Series

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

## 50,100AF

Breaker type: BW50, BW100, EW50, EW100

### Auxiliary switches and alarm switches

Lead wire type		BW50RAGU, EW50RAGU BW100EAGU, EW100EAGU	
		Left side	Right side
Aux	W	BZ6WL10CU*1	BZ6WR10CU
Aux low current	WD	BZ6WDL10CU*1	BZ6WDR10CU
Alarm	K	BZ6KL10CU*1	BZ6KR10CU
Alarm low current	KD	BZ6KDL10CU*1	BZ6KDR10CU
Aux & Alarm	WK	BZ6WKL10CU*1	BZ6WKR10CU
Aux & Alarm low current	WDKD	BZ6WDKDL10CU*1	BZ6WDKDR10CU

\*1 for 3 pole type only

With terminal block type		BW50RAGU, EW50RAGU BW100EAGU, EW100EAGU	
		Left side	Right side
Aux	W	BZ6WL10CAU*1	BZ6WR10CAU
Aux low current	WD	BZ6WDL10CAU*1	BZ6WDR10CAU
Alarm	K	BZ6KL10CAU*1	BZ6KR10CAU
Alarm low current	KD	BZ6KDL10CAU*1	BZ6KDR10CAU
Aux & Alarm	WK	BZ6WKL10CAU*1	BZ6WKR10CAU
Aux & Alarm low current	WDKD	BZ6WDKDL10CAU*1	BZ6WDKDR10CAU

\*1 for 3 pole type only

### Rating

Standard; Aux, Alarm

Breaker type	BW50RAGU, EW50RAGU BW100EAGU, EW100EAGU		Minimum load
	Operating voltage	Rated current (A)	
120V AC	3.6	5V DC 160mA 30V DC 30mA	
240V AC	1.8		
125V DC	0.55		
250V DC	0.27		

For low current; Aux, Alarm

Breaker type	BW50RAGU, EW50RAGU BW100EAGU, EW100EAGU		Minimum load
	Operating voltage	Rated current (A)	
30V DC	0.1	5V DC 1mA 30V DC 1mA	

### Operation

Type of switch	Condition of MCCB		
	ON	OFF	TRIP
Auxiliary switch (W)			
Alarm switch (K)			

### Shunt trip devices

Breaker type	Operating voltage	Code	Part number		Spec	Internal circuit	Time rating (ms)
			Lead wire type	With terminal block type			
BW50RAGU BW100EAGU	24VAC, 24VDC	FR	BZ6FR10CU	BZ6FR10CAU	150	Continuous with burnout prevention circuit	7-13
	100-120VAC 100-110VDC	FA	BZ6FA10CU	BZ6FA10CAU	150		
	200-240VAC	FK	BZ6FK10CU	BZ6FK10CAU	150		
	380-450VAC	FP	BZ6FP10CU	BZ6FP10CAU	200		
EW50RAGU EW100EAGU	100VAC 50Hz 100-110VAC 60Hz	F2	-	BZ6F210CAU	16	Continuous	7-13
	200VAC 50Hz 200-220VAC 60Hz	F7	-	BZ6F710CAU	16		
	400VAC 50Hz	F8	-	BZ6F810CAU	22		
	400-440VAC 60Hz						

### Undervoltage trip devices

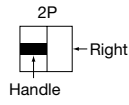
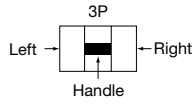
Breaker type	Operating voltage	Code	Part number		Spec	
			Lead wire type	With terminal block type	Input	Operating voltage
BW50RAGU BW100EAGU	100VAC 50Hz 100-110VAC 60Hz	R2	-	BZ6R210CAU	2.8 VA	Tripping voltage: 70% to 35% of rated voltage
	200VAC 50Hz 200-220VAC 60Hz	RW	-	BZ6RW10CAU	3.4 VA	
EW50RAGU EW100EAGU	400VAC 50Hz 400-440VAC 60Hz	R9	-	BZ6R910CAU	4.4 VA	Closing voltage: 85% or more of rated voltage
	24VDC	RF	-	BZ6RF10CAU	40W	

# Internal Accessory Combinations for G-TWIN Series

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

50,100AF

Breaker type: BW50, BW100, EW50, EW100



○ Auxiliary switch: W

□ Shunt trip: F

▭ Shunt trip: F (External mounting method)

● Alarm switch: K

■ Undervoltage trip: R

MCCB	BW50RAGU-2P BW100EAGU-2P	BW50RAGU-3P BW100EAGU-3P
Pole	2	3
Auxiliary switch SPDT W		
Alarm switch SPDT K		
Shunt trip F		
Undervoltage trip R		
W2	N/A	
W+K		
W2+K	N/A	
K2	N/A	
W+K2	N/A	
W2+K2	N/A	
W+F	N/A	
W2+F	N/A	N/A
W+R		
W2+R	N/A	
K+F	N/A	
K+R		
W+K+F	N/A	
W+K+R		
K2+F	N/A	N/A
K2+R	N/A	
W2+K+F	N/A	N/A
W2+K+R	N/A	
W+K2+F	N/A	N/A
W+K2+R	N/A	
W2+K2+F	N/A	N/A
W2+K2+R	N/A	

ELCB	EW50RAGU-3P EW100EAGU-2P EW100EAGU-3P
Pole	2, 3
Auxiliary switch SPDT W	
Alarm switch SPDT K	
Shunt trip F	
Undervoltage trip R	
W2	
W+K	
W2+K	
K2	
W+K2	
W2+K2	
W+F	
W+R	
W2+R	
K+F	
K+R	
K2+R	
W+K+F	
W+K+R	
W2+K+R	
W+K2+R	
W2+K2+R	



## Internal Accessories for G-TWIN Series

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

125, 250AF

Breaker type: BW125, EW125, BW250, EW250

Accessory	Code	Part number				Operating voltage
		Lead wire type		With terminal block type		
		Left side	Right side	Left side	Right side	
Auxiliary switch	W	BW9W1SG0	BW9W1SG0-R	BW9W1SG0-A	BW9W1SG0-RA	–
Auxiliary switch (low current)	1	BW9W1DG0	BW9W1DG0-R	–	–	
Alarm switch	K	BW9K1SG0	BW9K1SG0-R	BW9K1SG0-A	BW9K1SG0-RA	
Alarm switch (low current)	8	BW9K1DG0	BW9K1DG0-R	–	–	
Auxiliary switch + Alarm switch	WK	BW9WKSG0	BW9WKSG0-R	BW9WKSG0-A	BW9WKSG0-RA	
Auxiliary switch + Alarm switch (low current)	18	BW9WKDG0	BW9WKDG0-R	–	–	
Shunt trip device	FR	BW9FRG0	BW9FRG0	BW9FRG0-A	BW9FRG0-RA	24V AC/DC
	FS	BW9FSG0	BW9FSG0	BW9FSG0-A	BW9FSG0-RA	48V AC/DC
	FA	BW9FAG0	BW9FAG0	BW9FAG0-A	BW9FAG0-RA	100-120V AC/100-110V DC
	F1	BW9F1G0	BW9F1G0	BW9F1G0-A	BW9F1G0-RA	120-130V AC
	FK	BW9FKG0	BW9FKG0	BW9FKG0-A	BW9FKG0-RA	200-240V AC/200-220V DC
	FB	BW9FBG0	BW9FBG0	BW9FBG0-A	BW9FBG0-RA	277V AC
	FP	BW9FPG0	BW9FPG0	BW9FPG0-A	BW9FPG0-RA	380-440V AC
	FH	BW9FHG0	BW9FHG0	BW9FHG0-A	BW9FHG0-RA	440-480V AC
	FJ	BW9FJG0	BW9FJG0	BW9FJG0-A	BW9FJG0-RA	500-550V AC
Undervoltage trip device	RR	BW9RGAR	–	–	–	24V DC
	RS	BW9RGAS				48V DC
	RL	BW9RGAL				100-110V DC
	R5	BW9RGA5				125V DC
	RA	BW9RGAA				100-110V AC
	RT	BW9RGAT				110-130V AC
	RK	BW9RGAK				200-240V AC
	RB	BW9RGAB				277V AC
	RP	BW9RGAP				380-415V AC
RH	BW9RGAH				440-480V AC	

Refer to pages 44 & 45 for available accessory configurations

400, 630, 800AF

Breaker type: BW400, EW400, BW630, EW630, BW800

Accessory	Code	Part number		Operating voltage
		Lead wire type		
		Left side	Left side	
Auxiliary switch x 1	W	BW9W1SHA	BW9W1SHA-A	–
Auxiliary switch x 2	V	BW9W2SHA	–	
Auxiliary switch (low current) x 1	1	BW9W1DHA	–	
Auxiliary switch (low current) x 2	2	BW9W2DHA	–	
Alarm switch x 1	K	BW9K1SHA	BW9K1SHA-A	
Alarm switch x 2	J	BW9K2SHA	–	
Alarm switch (low current) x 1	8	BW9K1DHA	–	
Alarm switch (low current) x 2	9	BW9K2DHA	–	
Shunt trip device	FR	BW9FHA-R	BW9FHA-RA	24-48V AC/DC
	FA	BW9FHA-A	BW9FHA-AA	100-240V AC/100-220V DC
	FB	BW9FHA-B	BW9FHA-BA	277V AC
	FP	BW9FHA-P	BW9FHA-PA	380-550V AC
Undervoltage trip device	RR	BW9RHA-R	–	24V AC/DC
	RS	BW9RHA-S		48V AC/DC
	RA	BW9RHA-A		100-110 AC/DC
	R1	BW9RHA-1		120-130V AC/125V DC
	RK	BW9RHA-K		200-240V AC/200-220V DC
	RB	BW9RHA-B		277V AC
	RP	BW9RHA-P		380-480V AC

# Internal Accessories for G-TWIN Series

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

## Operation of auxiliary switches (W) and alarm switches (K)

Accessory	Handle position		
	ON	OFF	Trip
Auxiliary switch			
2PDT: V (2)			
Alarm switch			
2PDT: J (9)			

Note: Wire ring mark indication  
 ( ) Code of low current type

## Operation of earth alarm switch (L)

Accessory	Handle position	
	ON/OFF/Overcurrent trip	EL trip
Earth alarm switch L		

## Rating of auxiliary switches(W), alarm switches(K) and earth alarm switch(L)

### 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	5V DC 160mA
EW125, EW250 EW400 EW630		48	5	5	48	2.5	1	
		125	5	3	125	0.4	0.4	30V DC 30mA
		250	3	2	250	0.2	0.2	

### Low current type \*1

Breaker type	Rated thermal current (A)	Make/break current (A)				Minimum load current
		AC		DC		
		Voltage (V)	Res. load	Voltage (V)	Res. load	
BW125, BW250 BW400 BW630 BW800 EW125, EW250 EW400, EW630	0.1	30	0.1	30	0.1	5V DC 1mA

\*1 Low current type is NOT available for earth alarm switch

## Internal Accessories for G-TWIN Series

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

### Rating of shunt trip (F)

Breaker type	AC		DC		Time rating of coil	Opening time (ms)
	V	VA	V	W		
BW125, BW250 EW125, EW250	24	50	24	50	Continuous (With 1NO contact to prevent coil burn-out)	13-21
	48	50	48	50		
	100-120	50	100-110	50		
	120-130	50	-	-		
	200-240	50	200-220	50		
	277	50	-	-		
	380-440	50	-	-		
	440-480	50	-	-		
BW400, BW630, BW800 EW400, EW630	24-48	2	24-48	2	Continuous	8-20
	100-240	3	100-220	3		
	277	3	-	-		
	380-550	4	-	-		

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

### Rating of undervoltage trip (R)

Breaker type	AC		DC		Code
	V	VA	V	W	
BW125 *1	-	-	24	5	RR
BW250 *1	-	-	48	5	RS
EW125 *1	-	-	100-110	5	RL
EW250 *1	-	-	125	5	R5
	100-110	5	-	-	RA
	110-130	5	-	-	RT
	200-240	5	-	-	RK
	277	5	-	-	RB
	380-415	5	-	-	RP
	440-480	5	-	-	RH
BW400 *2	24	2	24	2	RR
EW400 *2	48	2	48	2	RS
BW630 *2	100-110	3	100-110	3	RA
EW630 *2	120-130	3	125	3	R1
BW800 *2	200-240	3	200-220	3	RK
	277	3	-	-	RB
	380-480	4	-	-	RP

Note: Allowable voltage function 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 R coil is not energized. Turning ON with the R coil not energized causes normal tripping.

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

### Lead wire specification

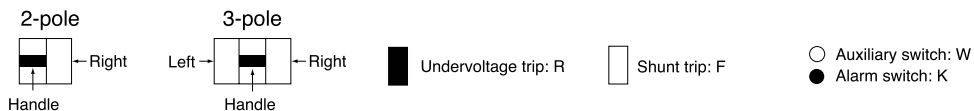
Wire size: AWG20 (0.5mm<sup>2</sup>)

Wire length: 19.69 inch (500mm)

# Internal Accessory Combinations for G-TWIN Series (MCCB)

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

## Available configurations



MCCB	BW125JAGU-2P	BW125 BW250 (Except for BW125JAGU-2P)		BW400 BW630 BW800
Pole	2	2, 3	4	2, 3, 4
Auxiliary switch SPDT: W (1)				
Alarm switch SPDT: K (8)				
Shunt trip: F				
Undervoltage trip: R				
W+K (1+8)				
Auxiliary switch 2PDT: V (2)				
Alarm switch 2PDT: J (9)				
V+K (2+8)				
W+J (1+9)				
V+J (2+9)				
W+F (1+F)				
W+R (1+R)				
K+F (8+F)				
K+R (8+R)				
W+K+F (1+8+F)				
W+K+R (1+8+R)				
V+F (2+F)				
V+R (2+R)				
J+F (9+F)				
J+R (9+R)				
V+K+F (2+8+F)				
V+K+R (2+8+R)				
W+J+F (1+9+F)				
W+J+R (1+9+R)				
V+J+F (2+9+F)			*1	
V+J+R (2+9+R)			*1	

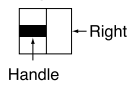
Notes: • The above table is applied to front mounting type, rear mounting type, flush mounting type, and plug-in mounting type.  
 • Terminal block is attached on the same side of the accessory.  
 • ( ) Code of low level circuit  
 \*1 Configurations with terminal block are not available.

# Internal Accessory Combinations for G-TWIN Series (ELCB)

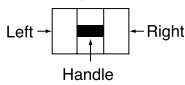
MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

## Available configurations

2-pole



3-pole



Undervoltage trip: R



Shunt trip: F

○ Auxiliary switch: W

● Alarm switch: K

▲ Earth alarm switch: L (Factory-installed accessory)

ELCB	EW125 EW250		EW400 EW630
Pole	3	4	3, 4
Auxiliary switch SPDT: W (1)			
Alarm switch SPDT: K (8)			
Shunt trip: F			
Undervoltage trip: R			
W+K (1+8)			
Auxiliary switch 2PDT: V (2)			
Alarm switch 2PDT: J (9)			
V+K (2+8)			
W+J (1+9)			
V+J (2+9)			
W+F (1+F)			
W+R (1+R)			
K+F (8+F)			
K+R (8+R)			
W+K+F (1+8+F)			
W+K+R (1+8+R)			
V+F (2+F)			
V+R (2+R)			
J+F (9+F)			
J+R (9+R)			
V+K+F (2+8+F)			
V+K+R (2+8+R)			
W+J+F (1+9+F)			
W+J+R (1+9+R)			
V+J+F (2+9+F)			
V+J+R (2+9+R)			
Earth alarm switch SPDT: L*1			

Notes: • The above table is applied to front mounting type, rear mounting type, flush mounting type, and plug-in mounting type.

• Terminal block is attached on the same side of the accessory.

• ( ) Code of low level circuit

\*1 Earth alarm switch can be mounted regardless of the combination of other accessories.

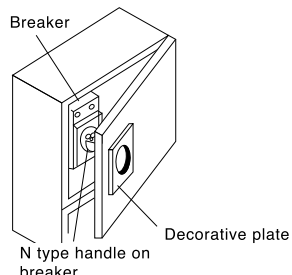
# External Accessories for G-TWIN Series

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

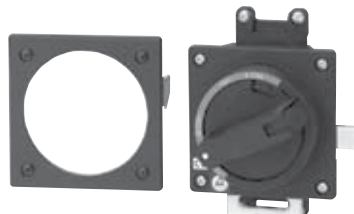
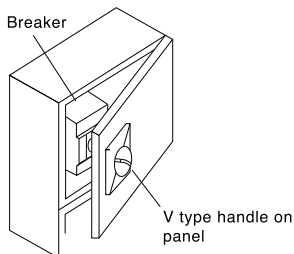
## Operating handles

Conforms to EN60947-1 isolation function.  
Available for EN60204-1 power breaking device.  
Conforms to UL489(File No. E93289)

### N type handles



### V type handles



**BW9N0CA**  
N type handle



**BW9V0CA**  
V type handle

Part number		Applicable Breakers
N type (Breaker mount)	V type (Door mount)	
BZ6N10D	BZ6V10D	BW50RAGU, BW100EAGU, EW50RAGU, EW100EAGU
BW9N0CA	BW9V0CA	BW125*1, EW125
BW9N0GA	BW9V0GA	BW250, EW250
BW9N0HA	BW9V0HA	BW400, EW400
BW9N0JA	BW9V0JA	BW630, EW630, BW800

\*1 Note that the external operating handle cannot be mounted to the BW125JAGU-2P. Use the BW125RAGU-2P.

## Terminal covers

These terminal covers are used as guards to prevent accidental touch with live line terminations. These terminal covers can be fitted to either line or load side.



**Short Type**



**Long Type**

## Short type

Black	Transparent	Gray-White	Packing QTY	Applicable Breakers
-	BW9BTAA-S2	BW9BTAA-S2W*1	2	BW50RAGU-2P, BW100EAGU-2P
-	BW9BTAA-S3	BW9BTAA-S3W*1	2	BW50RAGU-3P, BW100EAGU-3P, EW50RAGU-3P, EW100EAGU
-	BW9BTCA-S2	BW9BTCA-S2W*1	2	BW125JAGU-2P
-	BW9BTCA-S3	BW9BTCA-S3W*1	2	BW125JAGU-3P, EW125*U-3P
-	BW9BTCA-S4	BW9BTCA-S4W	2	BW125*U-4P, EW125*U-4P
-	BW9BTGA-S3	BW9BTGA-S3W*1	2	BW250*U-2P, BW250*U-3P, EW250*U-3P
-	BW9BTGA-S4	BW9BTGA-S4W	2	BW250*U-4P, EW250*U-4P
-	BW9BTHA-S3*2	BW9BTHA-S3W*2	2	BW400*U-2P, BW400*U-3P, EW400*U-3P
-	BW9BTHA-S4	BW9BTHA-S4W	2	BW400*U-4P, EW400*U-4P

Notes: \*1 Gray-white short type terminal covers are provided with breaker as standard for 50AF, 100AF, 125AF and 250AF G-TWIN breakers.

\*2 Not available with Flat terminal.

## Long type

Black	Transparent	Gray-White	Packing QTY	Applicable Breakers
-	BW9BTAA-L2	BW9BTAA-L2W	2	BW50RAGU-2P, BW100EAGU-2P
-	BW9BTAA-L3	BW9BTAA-L3W	2	BW50RAGU-3P, BW100EAGU-3P, EW50RAGU-3P, EW100EAGU
-	BW9BTCA-L2	BW9BTCA-L2W	2	BW125JAGU-2P
-	BW9BTCA-L3	BW9BTCA-L3W	2	BW125*U-3P, EW125*U-3P
-	BW9BTCA-L4	BW9BTCA-L4W	2	BW125*U-4P, EW125*U-4P
-	BW9BTGA-L3	BW9BTGA-L3W	2	BW250*U-2P, BW250*U-3P, EW250*U-3P
-	BW9BTGA-L4	BW9BTGA-L4W	2	BW250*U-4P, EW250*U-4P
-	BW9BTHA-L3	BW9BTHA-L3W	2	BW400*U-2P, BW400*U-3P, EW400*U-3P
-	BW9BTHA-L4	BW9BTHA-L4W	2	BW400*U-4P, EW400*U-4P
-	BW9BTJA-L3	BW9BTJA-L3W	2	BW630*U-3P, EW630*U-3P, BW800*U-3P

**Insulation barriers**

The barriers are installed in the molded slots between terminals. Installation of these barriers after wiring is possible even when an external accessory is installed.



Insulation barriers		Applicable Breakers
Type	Packing quantity	
BZ6B10C	4	BW50RAGU, BW100EAGU, EW50RAGU, EW100EAGU*1
BW9BPCA	2	BW125, EW125*2
BW9BPGA	2	BW250, EW250*2
B-43A	4	BW400, EW400, BW630, EW630, BW800*2

Note: \*1 Insulation Barriers are required only for flat terminal type.  
 \*2 Insulation Barriers for line side and load side are provided with the Breaker.

**Terminal kits (Field installable)**

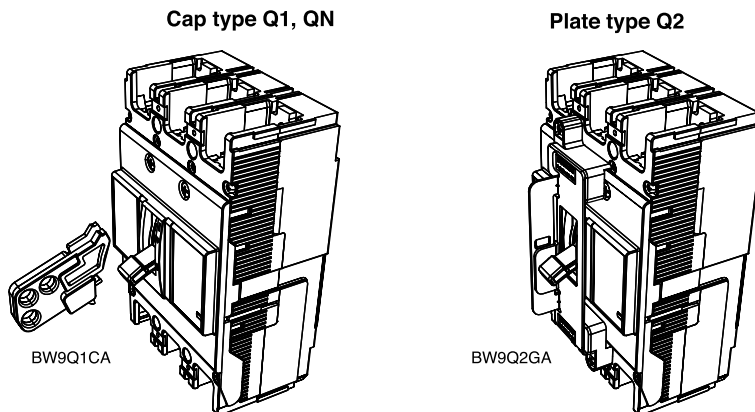
Flat Terminal Kits		Lug Terminal Kits		Applicable Breakers
Type	Packing quantity	Type	Packing quantity	
BZ-SU20B	3	-	-	BW50RAGU, EW50RAGU
BZ-SU25B	3	-	-	BW100EAGU, EW100EAGU
BW9SS0CA-3 GLOBAL	3	BW9SL0CA-3 GLOBAL	3	BW125, EW125
BZ-S50B-2253 GLOBAL	3	BW9SL0GA-3 GLOBAL	3	BW250, EW250 (125A-175A)
		BW9SL1GA-3 GLOBAL	3	BW250, EW250 (200A-250A)

**Padlocking device and Handle locking cover**

- Description
  - Padlocking device
    - These padlocking devices lock the breaker handle in the OFF position.
    - Use a commercially available padlock with a shackle diameter of 3.5 to 5mm (5mm for the BZ6L10CA).
  - Handle locking cover
    - These padlocking devices lock the breaker handle in the ON/OFF position.
    - Tripping is possible while the breaker is locked ON.

Applicable Breakers	Padlocking device			Handle locking cover
	Q1, QN: Cap type	Q2: Plate type		
BW50, BW100, EW50, EW100	BZ6L10CA	UL	Q2-0A355 *2	BZ6L10C*1 (Non-UL)
BW125, EW125	BW9Q1CA		BW9Q2CA	Not available
BW250, EW250	BW9Q1CA	Non-UL	BW9Q2GA	Not available
BW400, EW400	BW9QNHA*1		BW9Q2HA	Not available
BW630, EW630, BW800	BW9QNHA*1		BW9Q2JA	Not available

\*1 ON and OFF locking is possible  
 \*2 Only available as factory-installed; must add suffix to circuit breaker part number to order  
 Example: EW50RAGU-3P030B Q2-0A355

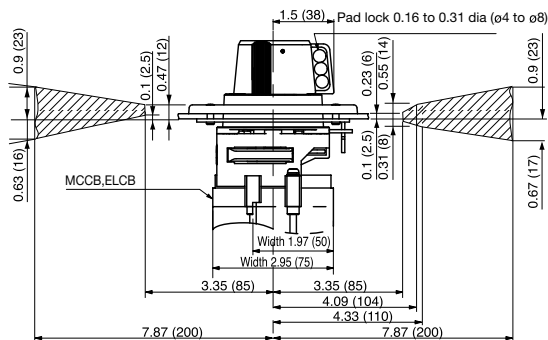
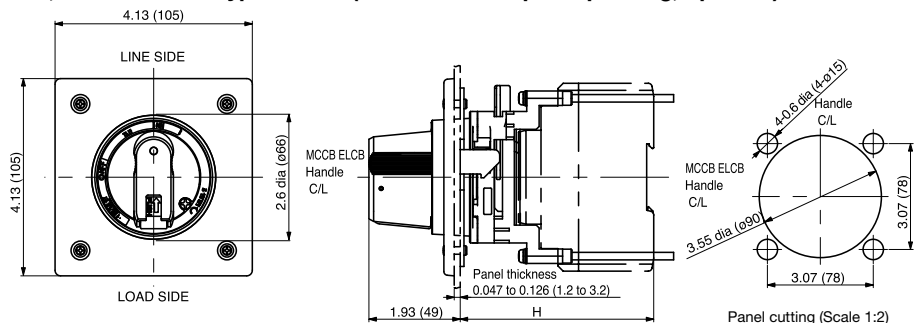


# Operating Handles for G-TWIN Series

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

Dimensions: inch (mm)

50A, 100A Frame N type handle (BZ6NP1D:dust proof packing, optional)

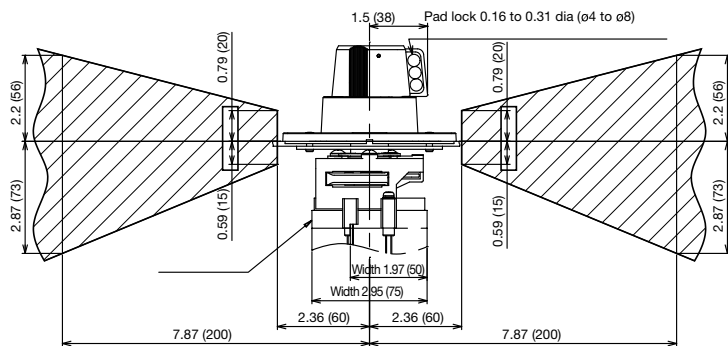
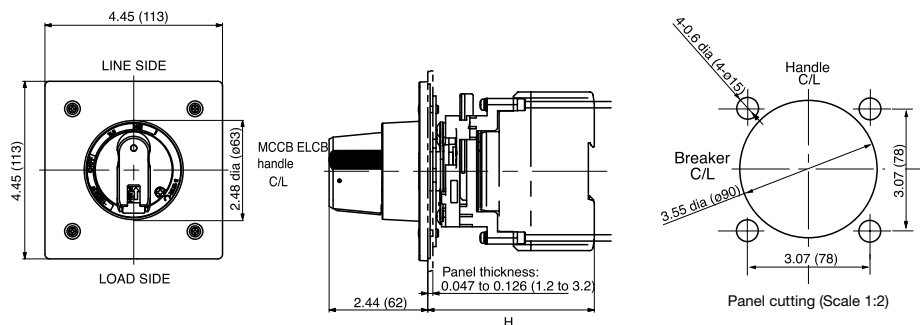


Install the door hinge in the shaded area

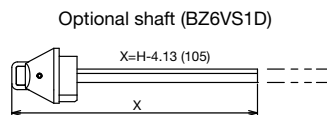
Breaker type	Handle type	H: inch(mm)	Mounting screw	Mass lb. (kg)
BW50RAGU	BZ6N10D	4.055±0.078	#8-32×3.149	1.04
EW50RAGU		(103±2)	(M4×80)	(0.47)
BW100EAGU				
EW100EAGU				

Note: • The handle cannot hold the enclosure door.  
 • Not available for side mounting.  
 • When using a Dust-proof packing, handle protection degree is IP 50 (IEC60529).

## 50A,100A Frame V type handle (BZ6VS1D: optional shaft)



Install the door hinge in the shaded area.



Optional shaft (BZ6VS1D)  
 When using the BZ6VS1D optional shaft to adjust dimension H(5.590 to 9.842), cut it according to the equation below.  
 $X = H - 4.134(105)$

Breaker type	Handle type	Standard type H: inch(mm)	With the optional shaft BZ6VS1D		Mounting screw	Mass lb. (kg)
			X=6.102(155) H:inch(mm)	Area in which the hinge with H can be installed		
BW50RAGU	BZ6V10D	4.134±0.078	9.842±0.078	5.590 to 9.842	#8-32×3.149	1.41
EW50RAGU		(105±2)	(250±2)	(142 to 250)	(M4×80)	(0.64)
BW100EAGU						
EW100EAGU						

Note: • The handle cannot hold the enclosure door.  
 • Not available for side mounting.  
 • Handle protection degree is IP 54 (IEC60529, JIS C0920).

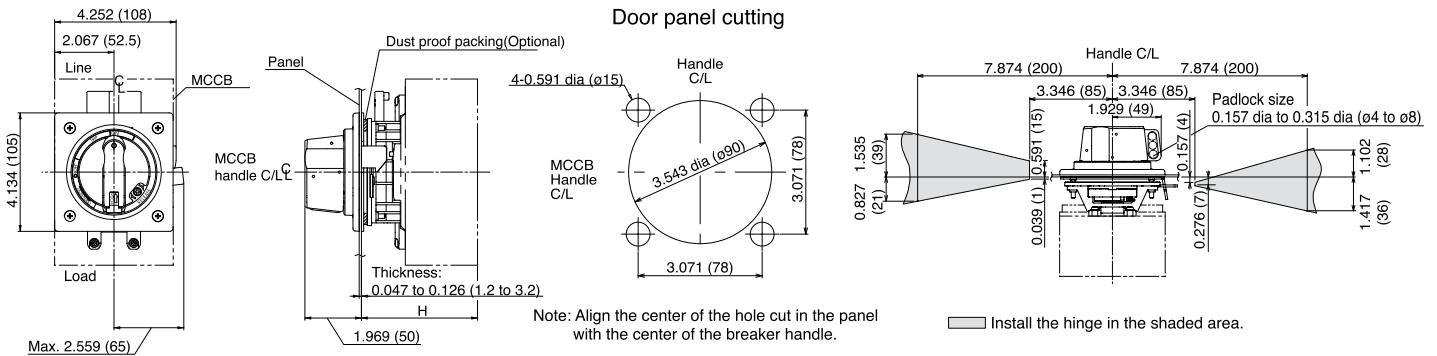


# Operating Handles for G-TWIN Series

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

Dimensions: inch (mm)  
125A, 250A Frame N type handle

- BW9N0CA, BW9N0GA (BZ-NP-1C: dust proof packing, optional)

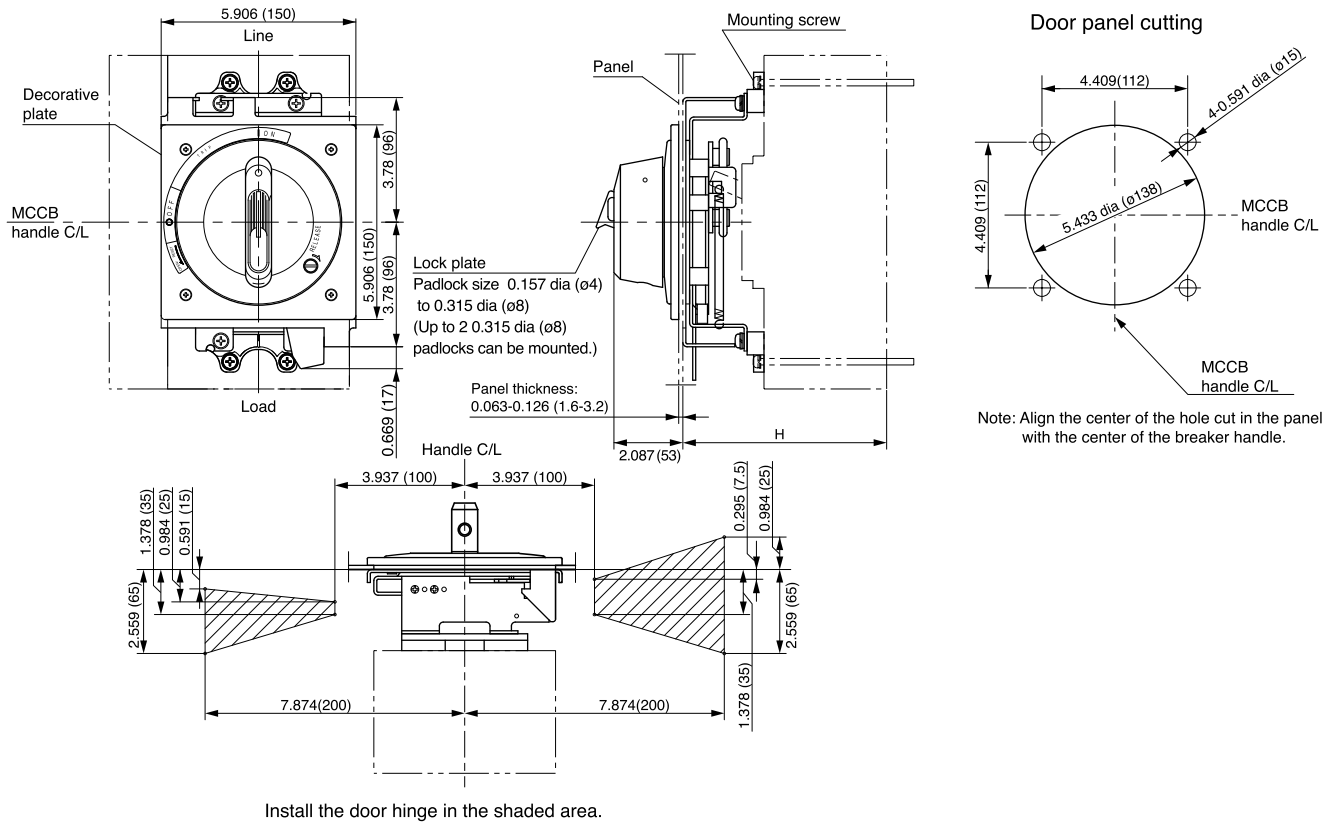


Breaker type	Handle type	H: inch(mm)	Mounting screw	Mass lb. (kg)
BW125	BW9N0CA	4.055±0.078	#8-32×3.346	1.23
EW125	BW9N0GA	103±2	(M4×85)	(0.56)
BW250				
EW250				

- Note:
- The handle cannot hold the enclosure door.
  - Not available for side mounting.
  - When using a Dust-proof packing, Handle protection degree is IP 50 (IEC60529).

# 400A, 630A, 800A Frame N type handle

- BW9N0HA, BW9N0JA (BZ-NP-2: dust proof packing, optional)



Breaker type	Handle type	H: inch(mm)	Mounting screw	Mass lb. (kg)
BW400	BW9N0HA	6.181±0.078	1/4-20×4.331	4.19
EW400	BW9N0JA	157±2	(M6×110)	(1.90)
BW630, BW800				
EW630				

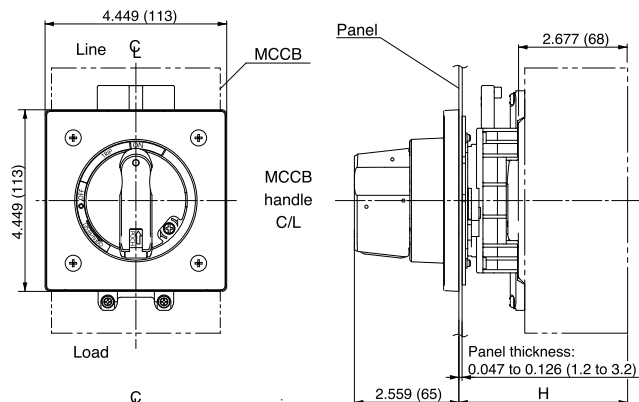
- Note:
- The handle cannot hold the enclosure door.
  - Not available for side mounting.
  - When using a Dust-proof packing, Handle protection degree is IP 50 (IEC60529).

# Operating Handles for G-TWIN Series

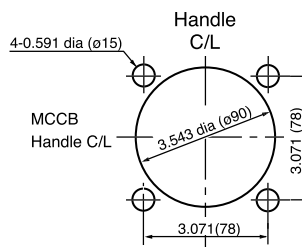
Dimensions: inch (mm) MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

125A, 250A Frame V type handle

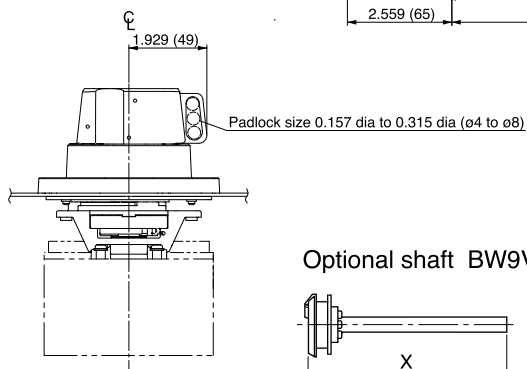
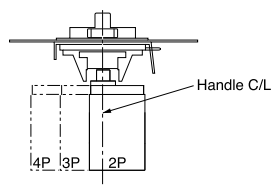
- BW9V0CA, BW9V0GA (BW9VSG0: optional shaft)



## Door panel cutting

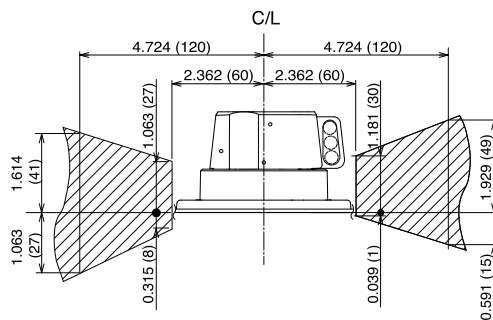


Note: Align the center of the hole cut in the panel with the center of the breaker handle.



When using the BW9VSG0 optional shaft to adjust dimension H (5.590 to 9.842), cut it according to the equation below.  
 $X = H - 3.740(95)$

## Door hinge installation area

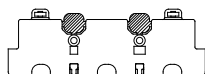


Install the door hinge in the shaded area.

Breaker type	Handle type	Standard type H: inch(mm)	With the optional shaft BW9VSG0 X=6.102(155)		Mounting screw	Mass lb. (kg)
			H: inch(mm)	Area in which the hinge with H can be installed		
BW125 EW125	BW9V0CA*1	4.134±0.078 (105±2)	9.842±0.078 (250±2)	5.590 to 9.842 (142 to 250)	#8-32x3.346 M4 x 85	1.48 (0.67)
BW250 EW250	BW9V0GA*2					

### Notes:

- The handle cannot hold the enclosure door.
- Not available for side mounting.
- Handle protection degree is IP 54 (IEC60529,JIS C0920).
- \*1 Note that the external operating handle cannot be mounted to the BW125JAGU-2P. Use the BW125FRAGU-2P.
- \*2 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 below.

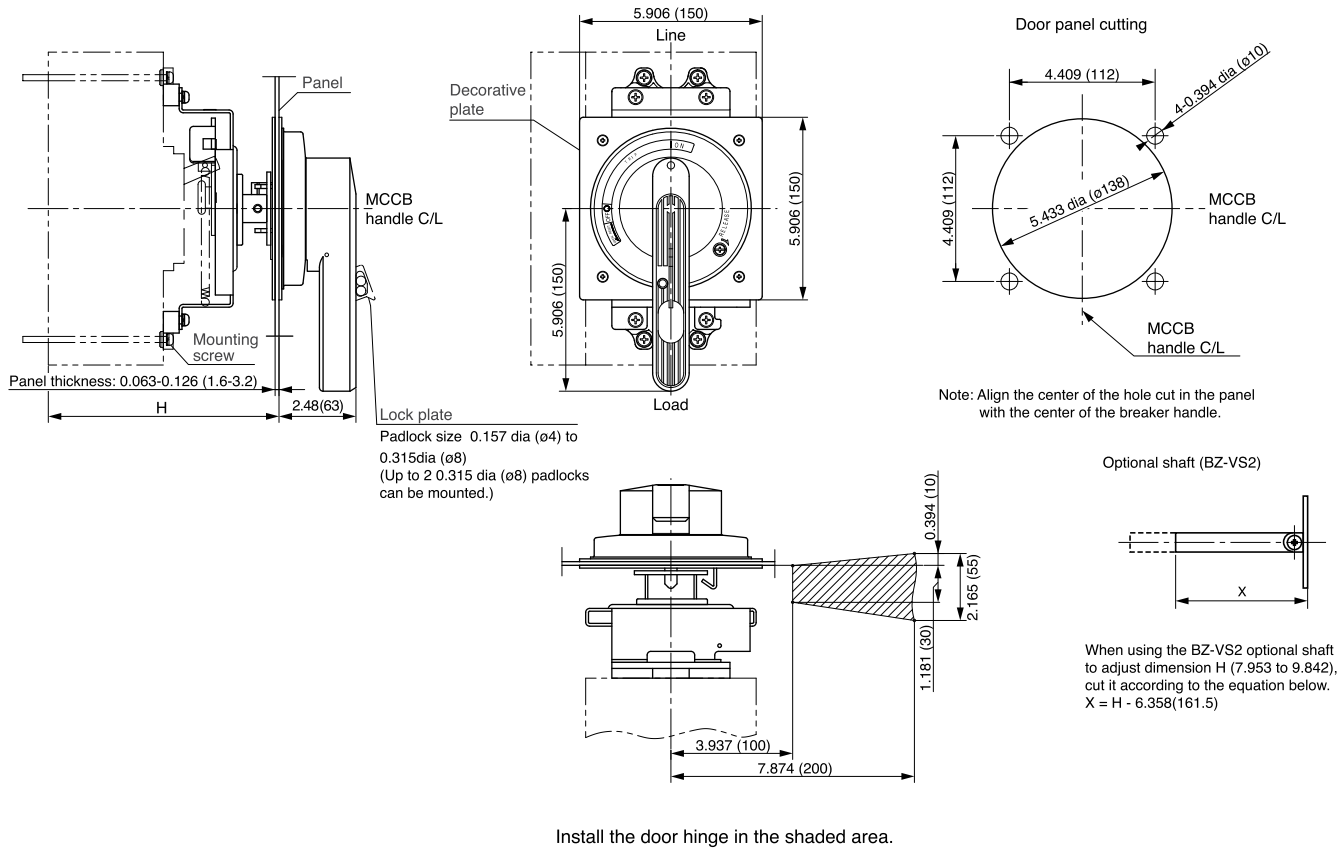


# Operating Handles for G-TWIN Series

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

Dimensions: inch (mm)  
400A, 630A, 800A Frame V type handle

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



Breaker type	Handle type	Standard type H: inch(mm)	With the optional shaft BZ-VS2 X=3.504(89)		Mounting screw	Mass lb. (kg)
			H: inch(mm)	Area in which the hinge with H can be installed		
<b>BW400</b> <b>EW400</b>	<b>BW9V0HA</b>	7.48±0.078 (190±2)	9.842±0.078 (250±2)	7.953 to 9.842 (202 to 250)	1/4-20X4.331 (M6X110)	4.85 (2.2)
<b>BW630, BW800</b> <b>EW630</b>	<b>BW9V0JA</b>					

- Note:
- The handle cannot hold the enclosure door.
  - Not available for side mounting.
  - Handle protection degree is IP 54 (IEC60529, JIS C0920).

# Padlocking Devices for G-TWIN Series

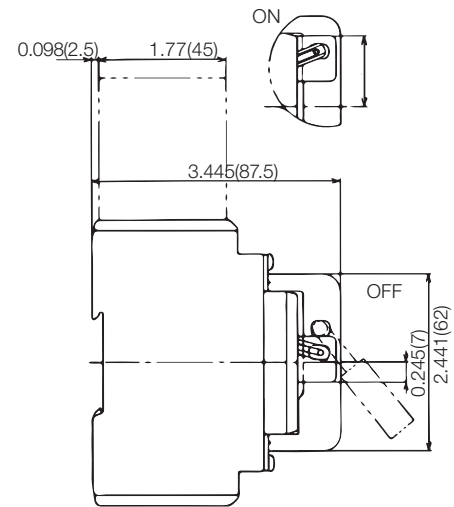
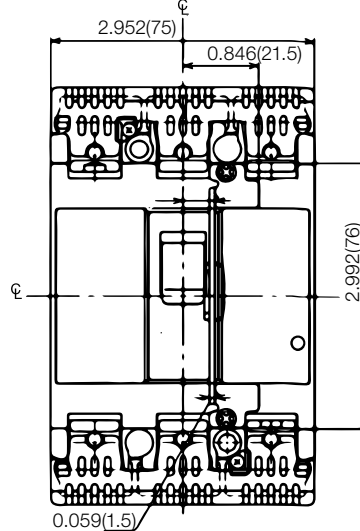
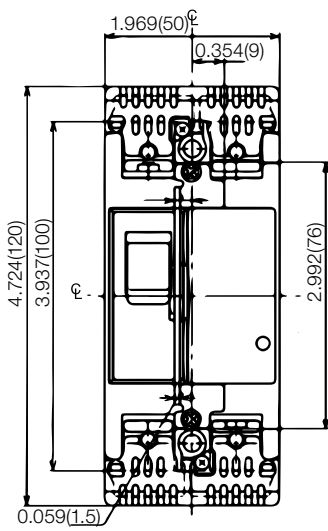
Dimensions: inch (mm) MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

50A, 100A Frame

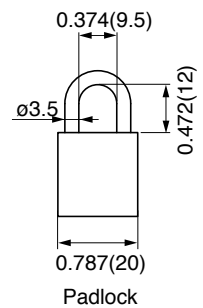
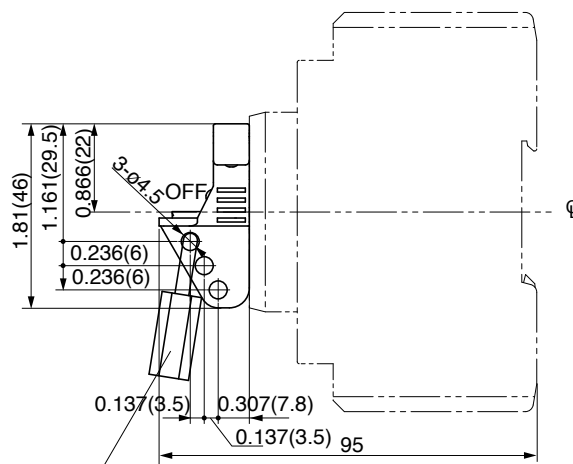
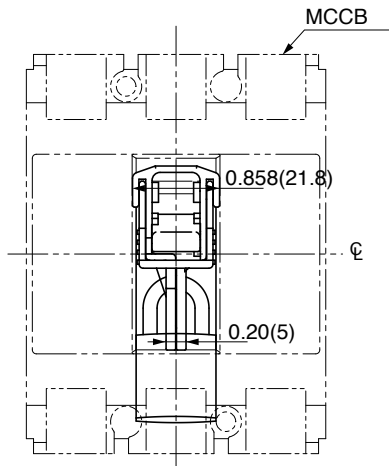
\*Q2-0A355 (Factory-installed Plate Type Padlocking device)

• 2-pole

• 3-pole



## Q1: BZ6L10CA (OFF-locking Padlocking device)



Padlock  
(Obtain a commercially available lock conforming to the diagram at the right.)

# Flange Disconnect Handle for G-TWIN Series

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

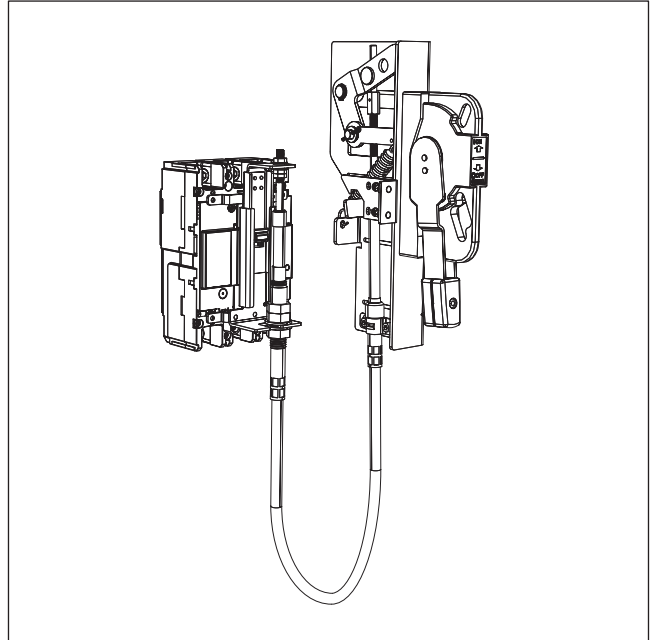
## F type Handle

### Features

- Flexible cable operation.
- Covering up to 400-amp frame size.
- Easy installation on circuit breakers.
- Complies with NEMA type 12, IP 54 protection degree.
- Accepts ANSI standard American padlock devices.
- Off lockable: 0.394 dia (φ 10) padlock device, Max 3 pieces.
- UL listed product. [UL489, File No. E93289]

### Ordering information

- Main unit and cable are minimum required for assembling.
- Select cable with main unit using below table.
- Ex: BW9F0CA, BW9FWCA-15A



### Specifications

Applicable breaker frame size		125 amp frame	250 amp frame	400 amp frame
Part numbers	Main unit	BW9F0CA (Not include cable)	BW9F0GA (Not include cable)	BW9F0HA (Not include cable)
	Terminal cover*2	BW9FBTCA-L3	BW9FBTGA-L3	BW9FBTHA-L3
	Cable 59.06 inch (1.5m)	BW9FWCA-15A	BW9FWGA-15A	BW9FWHA-15A
	Cable 78.74 inch (2.0m)	BW9FWCA-20A	BW9FWGA-20A	BW9FWHA-20A
	Cable 118.11 inch (3.0m)	BW9FWCA-30A	BW9FWGA-30A	BW9FWHA-30A
Applicable breakers	MCCB	BW125JAGU*1 BW125RAGU	BW250EAGU BW250JAGU BW250RAGU	BW400EAGU BW400SAGU BW400RAGU BW400HAGU
	ELCB	EW125JAGU EW125RAGU	EW250JAGU EW250RAGU	EW400SAGU EW400RAGU
Operating instructions		<ul style="list-style-type: none"> <li>- Operating handle facing up, Breaker is in ON position.</li> <li>- Operating handle facing down, Breaker is in OFF position or is reset.</li> <li>- 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.</li> <li>- Release screw is standard. If you want to open a panel door in ON position, please turn on the release screw using flat head screwdriver.</li> </ul>		
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)		
Atmosphere		No excessive dust, smoke, corrosive gases, flammable gases, steam or salt.		

Note: \*1 Not available for BW125JAGU-2P

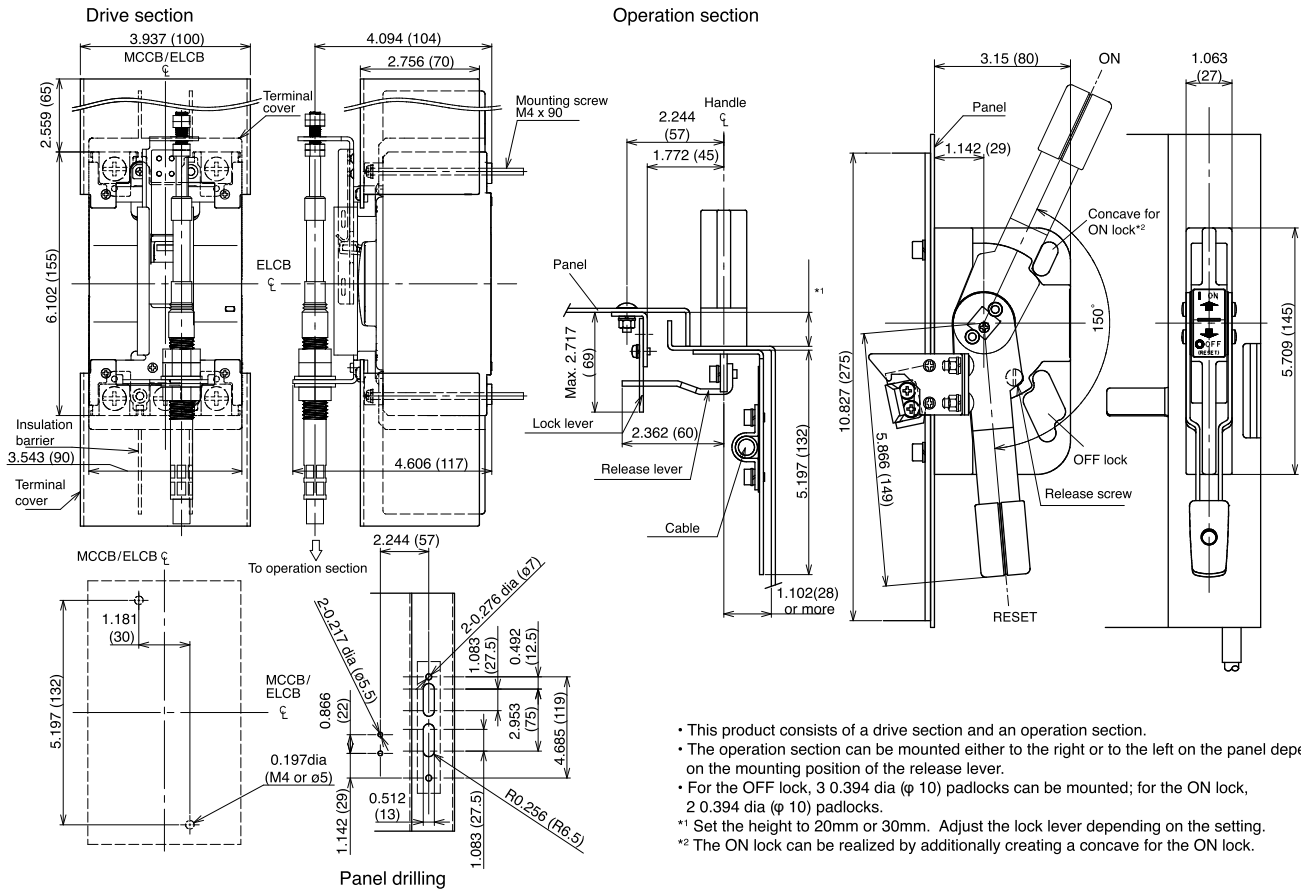
\*2 Standards terminal cover in page 27 can not use with Flange Disconnect Handle

# Flange Disconnect Handle for G-TWIN Series

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

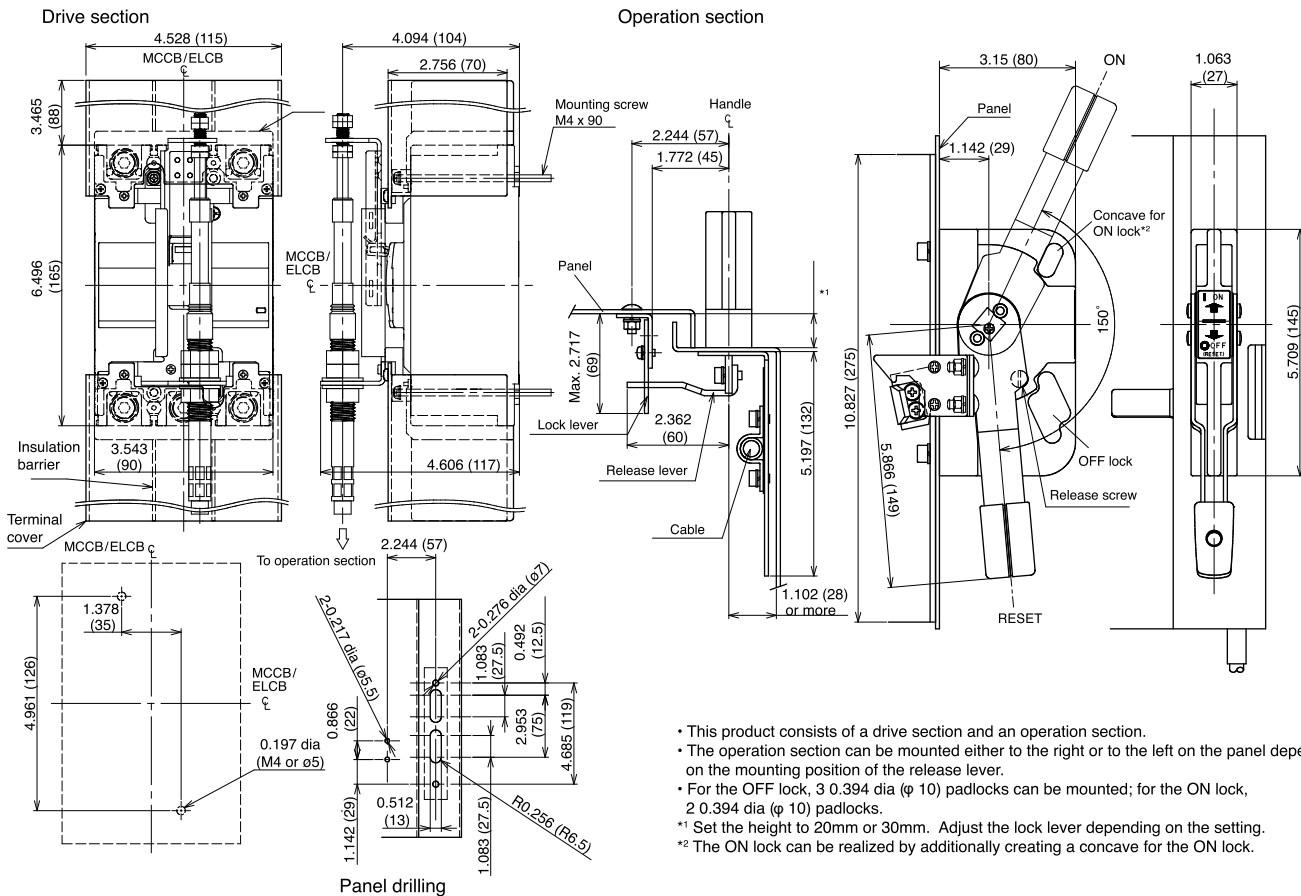
Dimensions: inch (mm)  
F type Handle

## • BW9F0CA



- 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, 3 0.394 dia (φ 10) padlocks can be mounted; for the ON lock, 2 0.394 dia (φ 10) padlocks.
- \*1 Set the height to 20mm or 30mm. Adjust the lock lever depending on the setting.
- \*2 The ON lock can be realized by additionally creating a concave for the ON lock.

## • BW9F0GA



- 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, 3 0.394 dia (φ 10) padlocks can be mounted; for the ON lock, 2 0.394 dia (φ 10) padlocks.
- \*1 Set the height to 20mm or 30mm. Adjust the lock lever depending on the setting.
- \*2 The ON lock can be realized by additionally creating a concave for the ON lock.

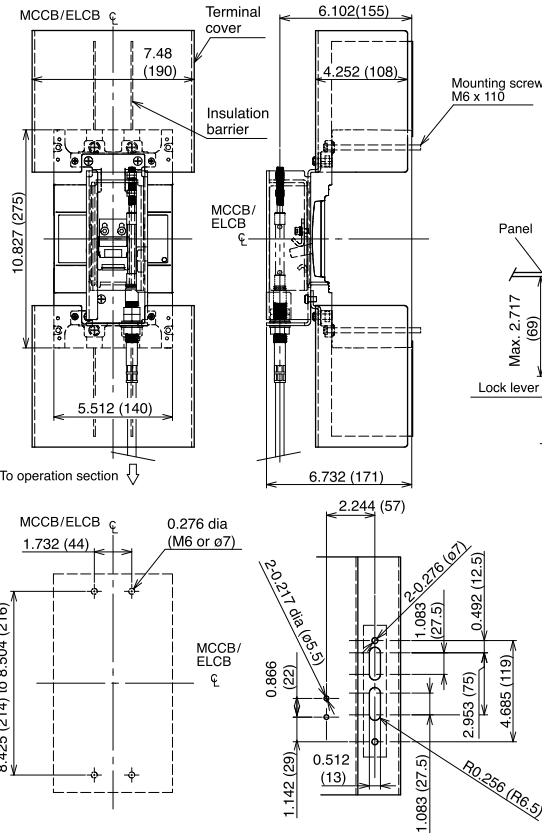
# Flange Disconnect Handle for G-TWIN Series

Dimensions: inch (mm) MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

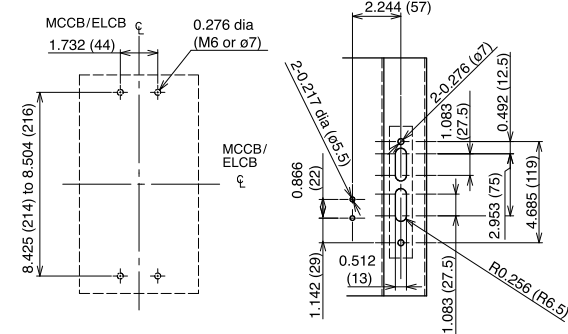
## F type Handle

### • BW9F0HA

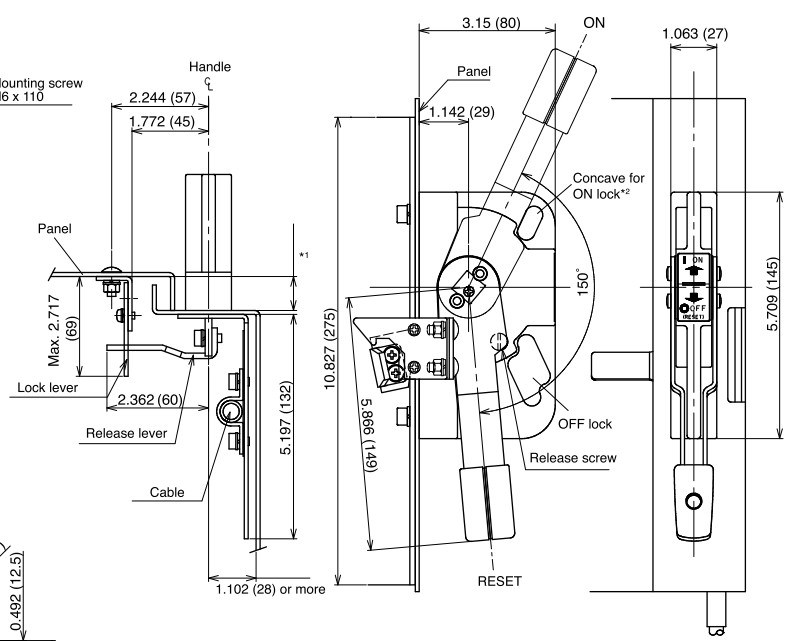
Drive section



Panel drilling



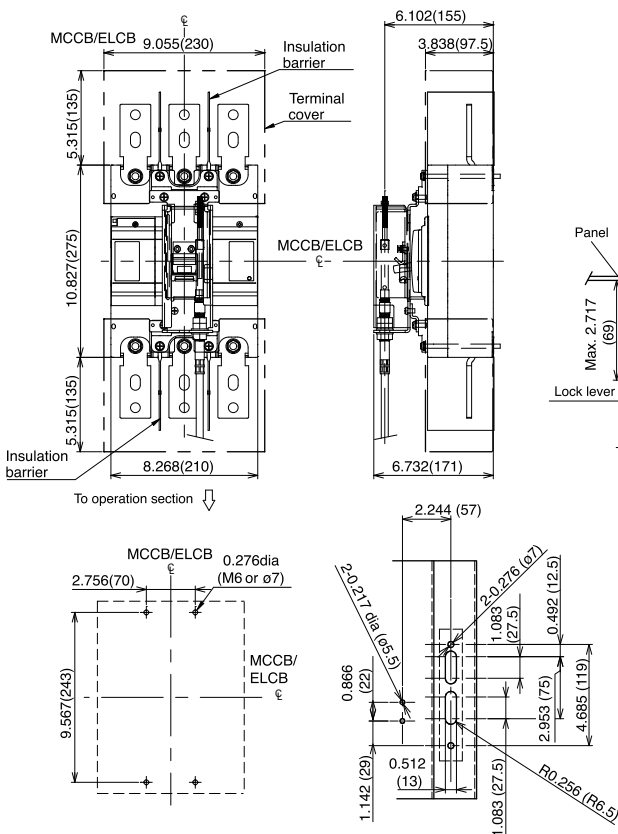
Operation section



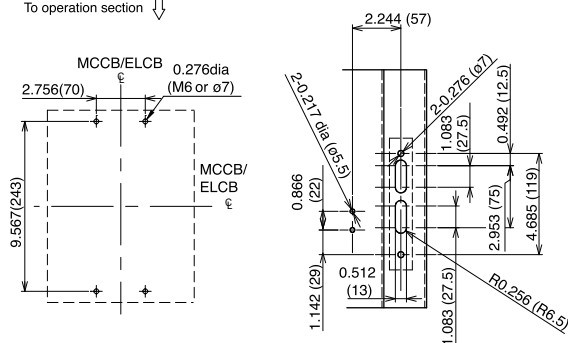
- This product consists of a drive section and an operation section.
- The operation section can be mounted either to the right or to the left on the panel depending on the mounting position of the release lever.
- For the OFF lock, 3 0.394 dia (φ 10) padlocks can be mounted; for the ON lock, 2 0.394 dia (φ 10) padlocks.
- \*1 Set the height to 20mm or 30mm. Adjust the lock lever depending on the setting.
- \*2 The ON lock can be realized by additionally creating a concave for the ON lock.

### • BW9F0JA

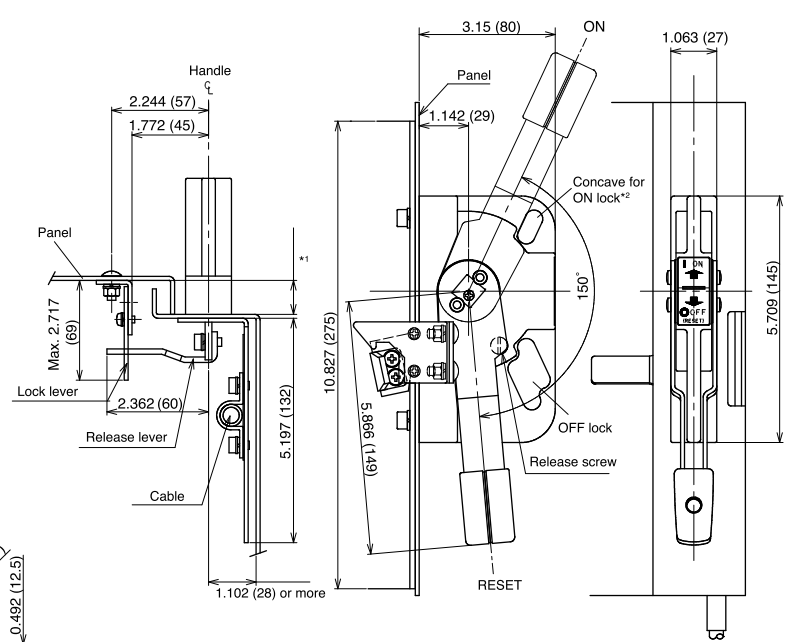
Drive section



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, 3 0.394 dia (φ 10) padlocks can be mounted; for the ON lock, 2 0.394 dia (φ 10) padlocks.
- \*1 Set the height to 20mm or 30mm. Adjust the lock lever depending on the setting.
- \*2 The ON lock can be realized by additionally creating a concave for the ON lock.

# Wiring for G-TWIN Series

## 1. Connecting Precautions **MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br**

- When connecting the wires, follow the instruction of NEC (National Electric Code, USA) or CEC (Canadian Electrical code Part 1, Canada).
- For connecting, use copper wire rated for 75°C. It is recommended to use UL or CSA approved wires.
- Keep the connection of the wire sufficiently tight, because a very large electromagnetic force will be generated, when the short circuit current is applied.
- Perform additional tightening of the terminal screws periodically.

## 2. Terminal Construction

	Screw Terminals	Flat Terminals	Lug Terminals
50A, 100A Frame	•	•	—
125A, 250A Frame	•	•	•
400A, 630A, 800A Frame	—	•	•

• : Available — : Not available

## 3. Allowable wire spec for Lug Terminals

Number of strands connecting wires

Wire size AWG or MCM (mm <sup>2</sup> )	Number of wires strands
14 – 2 (2.1 – 33.6)	7
1 – 4/0 (42.4 – 107.2)	19
250 – 500 (127 – 250)	37

(mm<sup>2</sup>) Values are those converted from AWG or MCM size

### ⚠ Caution

- 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 15A to 350A



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

## Max Wire Sizes and Tightening Torque

Type	Rated current (A)	Wire size*2 AWG or MCM (mm <sup>2</sup> )	Tightening torque			Applicable ring (crimp) terminal for screw type and flat type terminal breaker*1					
			Screw terminal	Flat terminal	Lug terminal	JST (UL file No.E42024)	NICHIFU (UL file No.E44245)	DST (UL file No.E74917)			
BW50RAGU EW50RAGU	3	14 AWG (2.1mm <sup>2</sup> )	20-25 lb.-In (2.3-2.8 N-m)	31-40 lb.-in. (3.5-4.5 N-m)	-	R2-5	R2-5M R2-5	2-S5, 2-5			
	5	14 AWG (2.1mm <sup>2</sup> )				R5.5-5	R3.5-5S, R3.5-5L 5.5-6N, R5.5-5S, R5.5-5	3.5-5, 5.5-S5, 5.5-5, 5.5-L5			
	10	14 AWG (2.1mm <sup>2</sup> )				R8-5	R8-5S, R8-5	8-S5, 8-5			
	15	14 AWG (2.1mm <sup>2</sup> )									
	20	12 AWG (3.3mm <sup>2</sup> )									
	30	10 AWG (5.3mm <sup>2</sup> )									
	40	8 AWG (8.4mm <sup>2</sup> )									
BW100EAGU EW100EAGU	60	6 AWG (13.3mm <sup>2</sup> )	49-66 lb.-In (5.5-7.5 N-m)	71-89 lb.-In (8-10 N-m)	51 lb.-In. (5.8 N-m)	R14-8	R14-8S, R14-8	R14-S8, R14-8			
	75	4 AWG (21.1mm <sup>2</sup> )				22-S8	R22-8S, R22-8	R22-S8, 22-8			
	100	3 AWG (26.7mm <sup>2</sup> )				38-S8	R38-8S	38-S8			
	15	14 AWG (2.1mm <sup>2</sup> )				51 lb.-In. (5.8 N-m)	51 lb.-In. (5.8 N-m)	51 lb.-In. (5.8 N-m)	R2-8	R2-8	2-8, 2-B8
	20	12 AWG (3.3mm <sup>2</sup> )							5.5-S8, R5.5-8	R3.5-8, R5.5-8	3.5-8, 5.5-8
	30	10 AWG (5.3mm <sup>2</sup> )							8-8NS, R8-8	R8-8	5.5-8
	40	8 AWG (8.4mm <sup>2</sup> )									8-8
50											
60	6 AWG (13.3mm <sup>2</sup> )	14-8NS, 14-S8, R14-8	R14-8S, R14-8	14-S8, 14-8							
70	4 AWG (21.1mm <sup>2</sup> )	22-S8, R22-8, CB22-S8	R22-8S, R22-8, CB22-8S	22-S8, 22-8, CB22-8							
BW250 EW250	125	1 AWG (42.4mm <sup>2</sup> )	93 lb.-In. (10.5 N-m)	93 lb.-In. (10.5 N-m)	204 lb.-In. (23 N-m)	38-S8, R38-8	R38-S, R38-8	38-S8, 38-8			
	150	1/0 AWG (53.5mm <sup>2</sup> )				60-S8, R60-8	R60-8, CB60-8, CB60-8S	60-8, CB60-8			
	175	2/0 AWG (67.4mm <sup>2</sup> )				70-8	R70-8	70-8			
	200	3/0 AWG (85.0mm <sup>2</sup> )				CB80-S8	-	CB80-8			
	225	4/0 AWG (107.2mm <sup>2</sup> )				CB100-S8	-	CB100-8			
	250	250 MCM (127mm <sup>2</sup> )				CB150-S8	CB150-S8	CB150-8			
	BW400 EW400	250				250 MCM (127mm <sup>2</sup> )	-	385 lb.-In. (43.5 N-m)	385 lb.-In. (43.5 N-m)	150-12	R150-12
300		350 MCM (177mm <sup>2</sup> )	180-12	R180-12	-						
350		500 MCM (253mm <sup>2</sup> )	325-12	R325-12N	-						
400		3/0 AWG x 2 (85.0mm <sup>2</sup> x 2) 500 MCM (253mm <sup>2</sup> )	262 lb.-In. (31.9 N-m)	R80-12	R80-12	-					
			-	325-12	R325-12N	-					
BW630 EW630	500	250 MCM x 2	-	416 lb.-In. (47.1 N-m)	275 lb.-In. (31.1 N-m)	150-12	R150-12	-			
	600	350 MCM x 2				180-12	R180-12	-			
	630	500 MCM x 2				325-12	R325-12N	-			
BW800	700	500 MCM x 2	-	416 lb.-In. (47.1 N-m)	275 lb.-In. (31.1 N-m)	325-12	R325-12N	-			
	800	300 MCM x 3				-	-	-			

Notes: \*1 Ring (Crimp) Terminal Manufacturer : JST=Japan Solderless Terminal MFG Co., Ltd. ( <http://www.jst.com> )  
NICHIFU=Nichifu Terminal Co., Ltd. ( [america@nichifu.com](mailto:america@nichifu.com) )  
DST=Daido Solderless Terminal MFG Co., Ltd. ( [info@daido-tanshi.jp](mailto:info@daido-tanshi.jp) )

\*2 167°F (75°C) Copper wire



# Discontinued Products Cross Charts

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

Discontinue date : March 1989~December 2010

Series	Frame size		Molded Case Circuit Breakers		Earth Leakage Circuit Breakers	
			Discontinued Models	Replacement - UL489 (Non-UL)	Discontinued Models*1	Replacement - UL489 (Non-UL)
E series Non-UL	30AF	2 poles	EA32	BW50RAGU-2P	EG32F / EG32A	(EW32AAG-2P)
		3 poles	EA33	BW50RAGU-3P	EG33F / EG33A / EG33B	EW50RAGU-3P
	50AF	2 poles	EA52A	BW50RAGU-2P	EG52F	(EW50AAG-2P)
			EA52B	BW50RAGU-2P	EGa52A	(EW50AAG-2P)
		3 poles	EA53A	BW50RAGU-3P	EG53F / EG53A / EG53AH	EW50RAGU-3P
			EA53B	BW50RAGU-3P	EG53B	EW50RAGU-3P
	60AF	2 poles	EA62B	BW100EAGU-2P		
		3 poles	EA63B	BW100EAGU-3P	EG63A / EG63AH / EG63B	EW100EAGU-3P
	100AF	2 poles	EA102A / EA102B	BW100EAGU-2P	EG102A / EG102B	EW100EAGU-2P
			EA102H	BW125JAGU-2P	-	-
		3 poles	EA103F	BW100EAGU-3P	EG103F / EG103A / EG103B	EW100EAGU-3P
			EA103A / EA103B	BW100EAGU-3P	EG103AD / EG103BD	EW125JAGU-3P
			EA103H / EA103K	BW125JAGU-3P	EG103K	EW100EAGU-3P
		4 poles	EA104B	(BW125JAG-4P)	SGa104A(D)	(EW125JAG-4P)
	225AF	2 poles	EA202A / EA202B / EA202C	BW250EAGU-2P	-	-
			EA202H	BW250JAGU-2P	-	-
		3 poles	EA203A / EA203B / EA203C	BW250EAGU-3P	EGa203A(D)/EG203B(D)/EG203C(D)	EW250JAGU-3P
			EA203H	BW250JAGU-3P	-	-
	400AF	2 poles	EA402A / EA402B / EA402C	BW400EAGU-2P	-	-
		3 poles	EA403A / EA403B / EA403C	BW400EAGU-3P	EGa403A(D)/EG403B(D)/EG403C(D)	EW400SAGU-3P
600AF	3 poles	EA603A / EA603B / EA603C	BW630RAGU-3P	EGa603A(D)/EG603B(D)/EG603C(D)	EW630RAGU-3P	
800AF	3 poles	EA803A / EA803B / EA803C	BW800RAGU-3P	EGa803A(D)/EG803B(D)/EG803C(D)	(EW800EAG-3P)	
UL508	30AF	2 poles	EA32AC	BW50RAGU-2P	EG32AC	(EW32AAG-2P)
		3 poles	EA33AC	BW50RAGU-3P	EG33AC / EG33C	EW50RAGU-3P
	50AF	2 poles	EA52BUL / EA52AC / EA52C	BW50RAGU-2P	EG52AC	(EW50AAG-2P)
		3 poles	EA53BUL / EA53AC / EA53C	BW50RAGU-3P	EG53AC / EG53C	EW50RAGU-3P
	60AF	2 poles	EA62C	BW100EAGU-2P	-	-
		3 poles	EA63C	BW100EAGU-3P	EG63C	EW100EAGU-3P
	100AF	2 poles	EA102C	BW100EAGU-2P	EG102C	EW100EAGU-2P
		3 poles	EA103BUL/EA103AC/EA103C	BW100EAGU-3P	EG103AC / EG103C	EW100EAGU-3P
			-	-	EG103CD	EW125JAGU-3P
	UL489	2 poles	EA102CUL	BW100EAGU-2P	EG102CUL	EW100EAGU-2P
3 poles		EA103CUL	BW100EAGU-3P	EG103CUL	EW100EAGU-3P	
S series Non-UL	30AF	2 poles	SA32B	BW50RAGU-2P	-	-
		3 poles	SA33B	BW50RAGU-3P	SG33 / SG33A / SG33B	EW50RAGU-3P
	50AF	2 poles	SA52B / SA52R	BW50RAGU-2P	-	-
			SA52H	(BW50HAG-2P)	-	-
		3 poles	SA53B / SA53R	BW50RAGU-3P	SG53 / SG53A / SG53B / SG53R	EW50RAGU-3P
			SA53H	(BW50HAG-3P)	-	-
	4 poles	SA54B	(BW125JAG-4P)			
	60AF	2 poles	A62B / SA62B / SA62R	BW100EAGU-2P	-	-
		3 poles	SA63 / SA63B / SA63R	BW100EAGU-3P	SG63 / SG63A / SG63B / SG63R	EW100EAGU-3P
	100AF	2 poles	SA102A / SA102B / SA102C	BW125JAGU-2P	-	-
			SA102H / SA102R / SA102RC	BW125RAGU-2P	-	-
			SA102BA	BW125JAGU-2P	-	-
			SA102RA	BW125RAGU-2P	-	-
			SA102K	BW125JAGU-2P	-	-
		3 poles	SA103A / SA103B / SA103BA	BW125JAGU-3P	SGa103A(D) / SG103B(D)	EW125JAGU-3P
			SA103C		SG103C(D)	
			SA103H / SA103R / SA103RA	BW125RAGU-3P	SG103H(D) / SG103R(D)	EW125RAGU-3P
			SA103RC		SG103RC(D)	
			SA103BN/SA103BAN/SA103CN	-	SG103BA(D)	EW125JAGU-3P
	SA103RN/SA103RAN/SA103RCN	-	SG103RA(D)	EW125RAGU-3P		
SA103K	BW125JAGU-3P	-	-			
4 poles	SA104A	(BW125JAG-4P)	-	-		
	SA104H / SA104R	(BW125RAG-4P)	SGa104H(D)	(EW125RAG-4P)		
225AF	2 poles	SA202A / SA202B / SA202C	BW250JAGU-2P	-	-	
		SA202H / SA202R / SA202RC	BW250RAGU-2P	-	-	
		SA202BA	BW250JAGU-2P	-	-	
		SA202RA	BW250RAGU-2P	-	-	
		SA202K	BW250EAGU-2P	-	-	

Note: All accessories discontinued as well.

-: No replacement

\*1: Discontinued Non-UL ELCB has a Trip Lead type, specify "TL" for P/N (Two lead wire comes from inside of the ELCB and labeled as TL1 & TL2). Replacement model P/N specify "T".

Ex: EG33AC/20-30MA-TL → EW32AAG-3P020B T

# Discontinued Products Cross Charts

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

Discontinued date : March 1989~December 2010

Series	Frame size		Molded Case Circuit Breakers		Earth Leakage Circuit Breakers	
			Discontinued Models	Replacement - UL489 (Non-UL)	Discontinued Models*1	Replacement - UL489 (Non-UL)
H series Non-UL	50AF	2 poles	H52BA / H52C	(BW50HAG-2P)	-	-
		3 poles	H53BA / H53C	(BW50HAG-3P)	HG53B(D)	(EW50HAG-3P)
			H53BAN / H53CN	-	-	-
			H53CM	-	-	-
	100AF	2 poles	H102BA / H102C	(BW125HAG-2P)	-	-
		3 poles	H103BA / H103C	(BW125HAG-3P)	HG103B(D)	(EW125HAG-3P)
			H103BAN / H103CN	-	HG103BN(D)	-
	225AF	2 poles	H202BA / H202C	(BW250HAG-2P)	-	-
		3 poles	H203BA / H203C	(BW250HAG-3P)	HG203B(D)	(EW250HAG-3P)
			H203BAN / H203CN	(BX250HAE-3P)	HG203BN(D)	(EW250HAE-3P)
	400AF	2 poles	H402B / H402C	BW400HAGU-2P	-	-
			H402BN / H402CN	(BW400HAA-2P)	-	-
		3 poles	H403B / H403C	BW400HAGU-3P	HG403B(D) / HG403C(D)	EW400HAGU-3P
			H403BN/H403CN	(BW400HAA-3P)	HG403BN(D) / HG403CN(D)	-
	600AF	3 poles	H603B / H603C	BW630HAGU-3P	HG603B(D) / HG603C(D)	(EW630HAG-3P)
			H603BN / H603CN	(BW630HAA-3P)	HG603BN(D) / HG603CN(D)	-
800AF	3 poles	H803B / H803C	BW800HAGU-3P	HG803B(D) / HG803C(D)	(EW800HAG-3P)	
		H803BN / H803CN	(BW800HAA-3P)	HG803BN(D) / HG803CN(D)	-	

Note: All accessories discontinued as well.

- : No replacement

\*1: Discontinued Non-UL ELCB has a Trip Lead type, specify "TL" for P/N (Two lead wire comes from inside of the ELCB and labeled as TL1 & TL2). Replacement model P/N specify "T".

Ex: EG33AC/20-30MA-TL → EW32AAG-3P020B T

## Discontinued Accessories for above circuit breakers.

	Discontinued models	Replacement	
Operating Handles (V type)	G-3A / G-5A / G-12A / G-22A / G-42	- (Need to replace with new breaker)	
	G-21A / G-22A / G-41A / G-81A		
	BZ-G10B		
	BZ-V20C / BZ-V20C-E		
	BZ6V10C		
	BZ6V10CP		BZ6V10D
	BZ-V20B-3-Z		OEM item - Contact original machine maker
	BZ-V30C / BZ-V30C-E		- (Need to replace with new breaker)
	BZ-V30C-S / BZ-V30C-ES / BZ-V30C-EUL		- (Need to replace with new breaker)
	BZ-V40B-Z		OEM item - Contact original machine maker
	BZ-V40C / BZ-V40C-E		- (Need to replace with new breaker)
	BZ-V40C-S / BZ-V40C-ES / BZ-V40C-EUL		- (Need to replace with new breaker)
	BZ-V60B-Z		OEM item - Contact original machine maker
	BZ-V70C-E		- (Need to replace with new breaker)
Operating Handles (N type)	N-3A / N-6A / N-13A / N-21A / N-23A	- (Need to replace with new breaker)	
	N-41A / N-120A		
	BZ-N20C		
	BZ6N10C		
	BZ6N10CP		BZ6V10D
	BZ-N30C		- (Need to replace with new breaker)
	BZ-N30C-*****		OEM item - Contact original machine maker
	BZ-N40B		- (Need to replace with new breaker)
	BZ-N40B-*****		OEM item - Contact original machine maker
	BZ-N40C		- (Need to replace with new breaker)
	BZ-N60B / BZ-N60C		
	BZ-N70C		
Handle Lock Covers	BZ-L30C		
	BZ-L40C		
Mechanical Interlock	BZ-M130C-2		
	BZ-S60B-225*		
	BZ-E30C-100*		

- : No replacement

# Discontinued Products Cross Charts

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

Discontinued date : March 1989 ~ December 2010

Series		Frame size		Molded Case Circuit Breakers		Earth Leakage Circuit Breakers	
				Discontinued Models	Replacement - UL489 (Non-UL)	Discontinued Models*1	Replacement - UL489 (Non-UL)
S series	Non-UL	225AF	3 poles	SA203A / SA203B / SA203BA	BW250JAGU-3P	SGa203A(D) / SG203B(D)	EW250JAGU-3P
				SA203C		SG203C(D)	
				SA203H / SA203R / SA203RA	BW250RAGU-3P	SG203H(D) / SG203R(D)	EW250RAGU-3P
				SA203RC		SG203RC(D)	
			SA203BN / SA203BAN / SA203CN	-	SG203BA(D)	EW250JAGU-3P	
			SA203RN / SA203RAN / SA203RCN	-	SG203RA(D)	EW250RAGU-3P	
			SA203K	BW250EAGU-3P	-	-	
			-	-	SGa204A(D)	(EW250JAG-4P)	
		4 poles	-	-	SG204H(D)	(EW250RAG-4P)	
			SA204H / SA204R	(BW250RAG-4P)			
		400AF	2 poles	SA402K / SA402B / SA402C	BW400SAGU-2P	-	-
				SA402H / SA402R / SA402RC	BW400RAGU-2P	-	-
				SA402BN / SA402CN	(BW400SAA-2P)		
				SA402RN / SA402RCN	(BW400RAA-2P)		
			3 poles	SA403K / SA403B / SA403C	BW400SAGU-3P	SGa403A(D) / SG403B(D)	EW400SAGU-3P
				SA403H / SA403R / SA403RC	BW400RAGU-3P	SG403H(D) / SG403R(D)	EW400RAGU-3P
				SA403BN / SA403CN	(BW400SAA-3P)		
				SA403RN / SA403RCN	(BW400RAA-3P)		
			4 poles	SA403L	BW400HAGU-3P		
				SA404H / SA404HA	(BW400RAG-4P)	SGa404A(D)	(EW400RAG-4P)
600AF	3 poles	SA603 / SA603H / SA603R	BW630RAGU-3P	SG603H(D) / SG603R(D)	EW630RAGU-3P		
		SA603RC		SG603RC(D)			
		SA603RN / SA603RCN	(BW630RAA-3P)	-	-		
	SA603L	BW630HAGU-3P	-	-			
4 poles	SA604H	(BW630RAG-4P)	-	-			
800AF	3 poles	SA803H / SA803R / SA803RC	BW800RAGU-3P	SG803H(D) / SG803R(D)	(EW800RAG-3P)		
		SA803RC		SG803RC(D)			
		SA803RN	(BW800RAA-3P)	-	-		
	SA803L	BW800HAGU-3P	-	-			
4 poles	SA804H	(BW800RAG-4P)	-	-			
UL508	30AF	2 poles	SA32BUL / SA32C	BW50RAGU-2P	-	-	
		3 poles	SA33BUL / SA33C	BW50RAGU-3P	SG33C	EW50RAGU-3P	
	50AF	2 poles	SA52BUL / SA52RUL	BW50RAGU-2P	-	-	
			SA52C / SA52RC		-	-	
	3 poles	SA53BUL / SA53RUL	BW50RAGU-3P	-	-		
		SA53C / SA53RC		SG53C / SG53RC	EW50RAGU-3P		
	60AF	2 poles	SA62BUL / SA62RUL	BW100EAGU-2P	-	-	
			SA62C / SA62RC		-	-	
	3 poles	SA63BUL / SA63RUL	BW100EAGU-3P	-	-		
		SA63C / SA63RC		SG63C / SG63RC	EW100EAGU-3P		
	UL489	50AF	2 poles	SA52RCUL	BW50RAGU-2P	-	-
			3 poles	SA53RCUL	BW50RAGU-3P	SG53RCUL	EW50RAGU-3P
100AF		2 poles	SA102BAUL / SA102CUL	BW125JAGU-2P	-	-	
			SA102RAUL / SA102RCUL	BW125RAGU-2P	-	-	
3 poles		SA103BAUL / SA103CUL	BW125JAGU-3P	SG103BAUL / SG103CUL	EW125JAGU-3P		
		SA103RAUL / SA103RCUL	BW125RAGU-3P	-	-		
225AF		2 poles	SA202BAUL / SA202CUL	BW250JAGU-2P	-	-	
			SA202RAUL / SA202RCUL	BW250RAGU-2P	-	-	
		3 poles	SA203BAUL / SA203CUL	BW250JAGU-3P	SG203BAUL / SG203CUL	EW250JAGU-3P	
			SA203RAUL / SA203RCUL	BW250RAGU-3P	-	-	
400AF		2 poles	SA402BUL / SA402CUL	BW400SAGU-2P	-	-	
		3 poles	SA403BUL / SA403CUL	BW400SAGU-3P	SG403CUL	EW400SAGU-3P	
		2 poles	SA402RUL / SA402RCUL	BW400RAGU-2P	-	-	
		3 poles	SA403RUL / SA403RCUL	BW400RAGU-3P	-	-	
600AF		3 poles	SA603RUL / SA603RCUL	BW630RAGU-3P	-	-	
800AF		3 poles	SA803RUL / SA803RCUL	BW800RAGU-3P	-	-	

Note: All accessories discontinued as well.

--: No replacement

\*1: Discontinued Non-UL ELCB has a Trip Lead type, specify "TL" for P/N (Two lead wire comes from inside of the ELCB and labeled as TL1 & TL2). Replacement model P/N specify "T".

Ex: EG33AC/20-30MA-TL → EW32AAG-3P020B T

# Discontinued Products Cross Charts

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

Discontinued date: March 1989 ~ October 2011

Series	Frame size		Molded Case Circuit Breakers		Reference	
			Discontinued Models	Replacement - UL489 (Non-UL)		
BU series UL489 240VAC	100AF	2 poles	BU-ECA2 / BU2ECC (5-50A)	BW50RAGU-2P		
			(60-100A)	BW100EAGU-2P		
		3 poles	BU-ECA2	-		
			BU-ECA3 / BU3ECC (5-50A)	BW50RAGU-3P		
	225AF	2 poles	BU-GCA2□□□L	BW250EAGU-2P□□□SB		
			BU-GDA2□□□L			
		3 poles	BU-GCA3□□□L	BW250EAGU-3P□□□SB		
			BU-GDA3□□□L			
	400AF	2 poles	BU-KDA2□□□L	BW400EAGU-2P□□□SB		
		3 poles	BU-KDA3□□□L	BW400EAGU-3P□□□SB		
	UL489 480VAC	100AF	2 poles	BU-ESA2	BW125RAGU-2P	
			3 poles	BU-ESA3	BW125JAGU-3P	
150AF		2 poles	BU-FSA2	BW125JAGU-2P		
			BU-FSA2150	BW250JAGU-2P150		
			BU-FHA2	BW125RAGU-2P		
			BU-FHA2150	BW250RAGU-2P150		
3 poles		BU-FSA3	BW125RAGU-3P			
		BU-FSA3150	BW250JAGU-3P150			
		BU-FHA3	BW125RAGU-3P			
		BU-FHA3150	BW250RAGU-3P150			
250AF		2 poles	BU-JSA2 / BU-JHA2	-		
		3 poles	BU-JSA3 / BU-JHA3	-		
400AF		2 poles	BU-KSA2 / BU-KHA2	-		
		3 poles	BU-KSA3 / BU-KHA3	-		
600AF		2 poles	BU-LSA2 / BU-LHA2 / BU-LHA2T	-		
		3 poles	BU-LSA3 / BU-LHA3 / BU-LHA3T	-		
800AF		2 poles	BU-MSA2 / BU-MHA2 / BU-MHA2T	-		
		3 poles	BU-MSA3 / BU-MHA3 / BU-MHA3T	-		
1200AF		2 poles	BU-NSA2 / BU-NHA2 / BU-NHA2T	-		
		3 poles	BU-NSA3 / BU-NHA3 / BU-NHA3T	-		
UL489 600VAC		100AF	2 poles	BU-ESB2 / BU2EHC	-	(up to 480VAC BW125RAGU-2P)
			3 poles	BU-ESB3 / BU3EHC	-	(up to 480VAC BW125RAGU-3P)
		150AF	2 poles	BU-FSB2	-	(up to 480VAC BW125RAGU-2P)
				BU-FSB2150	-	(up to 480VAC BW250JAGU-2P150)
	BU-FHB2 / BU2FHC			-	(up to 480VAC BW125RAGU-2P)	
	BU-FHB2150			-	(up to 480VAC BW250RAGU-2P150)	
	3 poles		BU-FSB3	-	(up to 480VAC BW125RAGU-3P)	
			BU-FSB3150	-	(up to 480VAC BW250JAGU-3P150)	
	250AF	2 poles	BU-FHB3 / BU3FHC	-	(up to 480VAC BW125RAGU-3P)	
		3 poles	BU-FHB3150	-	(up to 480VAC BW250RAGU-3P150)	
	400AF	2 poles	BU-JSB2 / BU-JHB2 / BU2GHC / BU2JHC	-		
		3 poles	BU-JSB3 / BU-JHB3 / BU3GHC / BU3JHC	-		
	600AF	2 poles	BU-KSB2 / BU-KHB2 / BU2KHC	-		
		3 poles	BU-KSB3 / BU-KHB3 / BU3KHC	-		
	800AF	2 poles	BU-LSB2 / BU-LHB2 / BU-LHB2T / BU2LHC	-		
		3 poles	BU-LSB3 / BU-LHB3 / BU-LHB3T / BU3LHC	-		
	1200AF	2 poles	BU-MSB2 / BU-MHB2 / BU-MHB2T / BU2MHC	-		
		3 poles	BU-MSB3 / BU-MHB3 / BU-MHB3T / BU3MHC	-		
	1200AF	2 poles	BU-NSB2 / BU-NHB2 / BU-NHB2T / BU2NHC	-		
		3 poles	BU-NSB3 / BU-NHB3 / BU-NHB3T / BU3NHC	-		

## Discontinued Accessories for above circuit breakers.

	Discontinued Models	Replacement
Operating Handles (G type / V type / N type)	BU-GEC / BU0VFH / BU0NFH	-
	BU-GGD / BU0VGH / BU0NGH	-
	BU-GKH / BU0VJH / BU0NJH	-
	BU-GLH / BU0VLH / BU0NLH	-
	BU-GNH / BU0VNH / BU0NNH	-

Note: All accessories discontinued as well.

--: No replacement

MEMO:

## Terms and Conditions of Sale

MSA CONTROL - (11) 3961-1171 - comercial@msacontrol.com.br

### Prices

All prices are subject to change without notice. In the event of a price change, the effective date of the change will be the date on the new price or discount schedule sheet.

All quotations made or orders accepted after the effective date will be based on the new prices.

### Quotations

Written quotations are valid for 30 days from its date unless otherwise stated in the quotation. Verbal quotations expire the same day they are made.

### Taxes

The price does not include any taxes. Buyer shall be responsible for the payment of all applicable taxes.

### Terms of payment

Terms of payment will be listed on the quotations.

### Minimum orders

Terms of minimum order will be shown on quotations, or if orders amounting to less than the latest minimum order amount, a handling fee will be applied.

### Delivery

Delivery of products shall be FOB point of origin in the U.S. Seller shall determine the point of origin of shipment. All shipping and other charges shall be paid by Buyer.

### Packing

Prices include standard domestic packing. Additional special packing costs required for export or by Buyer's request will be charged to Buyer.

### Weight and Dimensions

The weight and dimensions of products described in this catalog are the best information available at the time of going to press. As Seller follows a policy of continuous product improvement, design changes may make this information obsolete. Information in this catalog is subject to change without notice.

### Inspection and acceptance of products

Buyer is responsible for evaluating received products or damage for final acceptance. All claims of shortage must be made within thirty (30) days of receipt of products.

### Return / Cancellation

No product shall be returned or canceled unless return/order cancel authorization has been secured from Seller. All returns/cancellations must comply with Seller's then current Return / Cancellation policy.

### Risk of Loss

Risk of loss or damage to the product shall pass to Buyer at the FOB point.

### Catalog Disclaimer

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Since the Buyer's product information, specific use application, and conditions of use are all outside of Seller's control, it shall be the responsibility of the Buyer to determine the suitability of any of the products mentioned for the Buyer's application.

## ONE YEAR LIMITED WARRANTY

The products identified in this catalog shall be sold pursuant to the terms and conditions identified in the Conditions of Sale issued by Fuji Electric with each order confirmation. Except to the extent otherwise provided for in the Conditions of Sale issued by Fuji Electric, Fuji Electric warrants that the Fuji Electric products identified in this catalog shall be free from significant defects in materials and workmanship provided the products have not been: (1) repaired or altered by others than Fuji Electric; (2) subjected to negligence, accident, misuse, or damage by circumstances beyond Fuji Electric's control; (3) improperly operated, maintained or stored; or (4) used in other than normal use or service. This warranty shall apply only to defects appearing within one (1) year from the date of shipment by Fuji Electric, and in such case, only if such defects are reported to Fuji Electric within thirty (30) days of discovery by purchaser.

Such notice should be submitted in writing to Fuji Electric Corp. of America. The sole and exclusive remedy with respect to the above warranty whether such claim is based on warranty, contract, negligence, strict liability or any other theory, is limited to the repair or replacement of such

product or, at Fuji Electric's option, reimbursement by Fuji Electric of the purchase price paid to Fuji Electric for the particular product.

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In no event shall Fuji Electric be liable for special, indirect or consequential damages, including but not limited to, loss of use of the product, other equipment, plant, power system, loss of profits or revenues, cost of capital, or claims against the purchaser or user by its customers resulting from the use of information, recommendations and descriptions contained herein. Purchaser agrees to pass on to its customers and users, in writing at the time inquiries and orders are received by buyer, Fuji Electric's warranty as set forth above.

**MSA CONTROL Indústria Elétrica Ltda.**  
**MSA SYSTEM Elétrica Ltda.**

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