Fuji Electric

Innovating Energy Technology

DISTRIBUTION

Molded Case Circuit Breakers

BW0 Series

62D1-E-0112d

Economy series MCCB from 32AF to 400AF

BW0 series

Focusing on assembly of easy wiring, maintenance check, reasonable price, and standardized distribution board design, BW0 series MCCBs are designed mainly for building construction market and secondary distribution market.

BW253E0

BW33A0

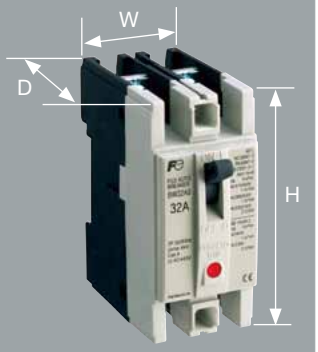
BW403S0

32AF

Compact design

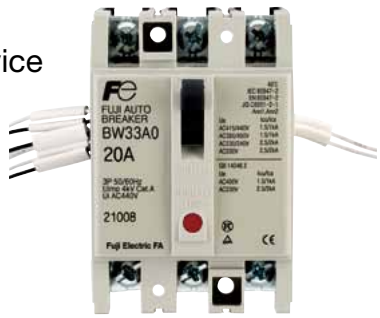
Cost and space saving for building a control panel.

- Compact size
  2P W36×H80×D76(mm)
  3P W54×H80×D76(mm)
- AC 440V application
  Icu: 1.5kA at 440V AC,
  2.5kA at 240V AC



Available accessories

- Auxiliary switch
- Alarm switch
- Shunt trip device



Compliance to RoHS Directive

All materials used are compliant to RoHS Directive and the main components are easy to recycle.

100AF to 400AF

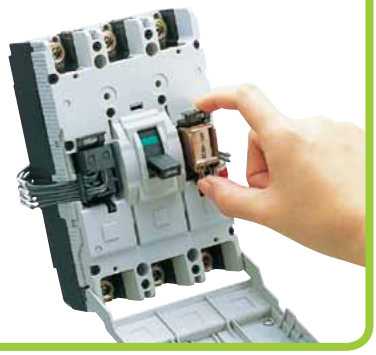
Compact design

We've applied high-performance technology to achieve 100AF to 250AF models with a uniform depth of 60mm.

Cassette type accessories

All accessories can be installed by by the user.

Quickly adaptable to the many onsite changes in specifications.



Compliance to RoHS Directive

All materials used are compliant to RoHS Directive and the main components are easy to recycle.

Interchangeability

The design of the same external dimensions (400AF) and mounting size (160AF to 400AF) with G-TWIN circuit breaker.

Just simply change the model when a customer suddenly changes the design (e.g. when changed to earth leakage circuit breaker).

BW253E0

Interchangeability

EW250EAG-3P

BW403S0

Interchangeability

EW400EAG-3P

Catalog Disclaimer
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Molded Case Circuit Breakers
BW0 Series

Line up / Type number nomenclature

■ Line up

Series	Breaker ampere frame	Type	Pole	Rated current (A)	Insulation voltage Ui (V)	Breaking capacity (kA) [Icu/Ics] IEC60947-2 AC		
						230V	380V	415V
BW0	32	**BW32A0**	2	5, 10, 15, 20, 32	440	2.5/2	1.5/1	1.5/1
		BW33A0	3	5, 10, 15, 20, 32	440	2.5/2	1.5/1	1.5/1
	100	**BW103E0**	3	15, 20, 25, 30, 40, 50, 60, 75, 80, 100	690	25/13	18/9	15/8
		BW102S0	2	15, 20, 25, 30, 40, 50, 60, 75, 80, 100	690	50/25	30/15	30/8
		BW103S0	3	15, 20, 25, 30, 40, 50, 60, 75, 80, 100	690	100/50	30/15	30/8
	160	**BW162E0**	2	100, 125, 150, 160	690	25/13	18/9	18/9
		BW163E0	3	100, 125, 150, 160	690	25/13	18/9	18/9
		BW162J0	2	100, 125, 150, 160	690	50/25	25/13	25/13
		BW163J0	3	100, 125, 150, 160	690	50/25	25/13	25/13
		BW162S0	2	100, 125, 150, 160	690	85/43	36/18	36/18
		BW163S0	3	100, 125, 150, 160	690	85/43	36/18	36/18
	250	**BW252E0**	2	175, 200, 225, 250	690	25/13	18/9	18/9
		BW253E0	3	175, 200, 225, 250	690	25/13	18/9	18/9
		BW252J0	2	175, 200, 225, 250	690	50/25	25/13	25/13
		BW253J0	3	175, 200, 225, 250	690	50/25	25/13	25/13
		BW252S0	2	175, 200, 225, 250	690	85/43	36/18	36/18
		BW253S0	3	175, 200, 225, 250	690	85/43	36/18	36/18
	400	**BW402S0**	2	250, 300, 350, 400	690	85/43	36/18	36/18
		BW403S0	3	250, 300, 350, 400	690	85/43	36/18	36/18

■ Type number nomenclature

• 32AF

BW 3 2 A0 - 032 W K FA A

Product category
BW : MCCB

Frame size
3 : 32AF

Number of poles
2 : 2 poles
3 : 3 poles

Rated current
005 : 5A
010 : 10A
015 : 15A
020 : 20A
032 : 32A

Terminal block
A : with terminal block

Shunt trip device *1
FA : 100VAC to 120VAC
FK : 200VAC to 240VAC
FD : 100VDC

Alarm switch *2
K : 1c / alarm switch

Auxiliary switch *2
W : 1c / auxiliary switch

Accessories

Notes
*1 A shunt trip device can be added only to 3-pole models.
*2 Only one of the following can be added to a 2-pole model: alarm switch or auxiliary switch.

• 100 - 400AF

BW 25 3 E0 - 250

Series

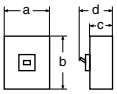
Frame size
10 : 100AF
16 : 160AF
25 : 250AF
40 : 400AF

Number of poles
2 : 2-pole
3 : 3-pole

Rated current

15 : 15A	125 : 125A
20 : 20A	150 : 150A
25 : 25A	160 : 160A
30 : 30A	175 : 175A
40 : 40A	200 : 200A
50 : 50A	225 : 225A
60 : 60A	250 : 250A
75 : 75A	300 : 300A
80 : 80A	350 : 350A
100 : 100A	400 : 400A

BW0 series 2, 3-pole IEC and CE marking conformed types
• 32AF

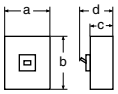
Frame		32A	
Pole		2	3
Type		**BW32A0**	**BW33A0**
Rated current (A)		5, 10, 15, 20, 32	
Rated insulation voltage	(VAC)	440	
[IEC 60947-2]	(VDC)	–	
Rated breaking capacity (kA)	500VAC	–	–
[IEC 60947-2]	440VAC	1.5/1	1.5/1
(Icu/Ics) *1	415VAC	1.5/1	1.5/1
	400VAC	1.5/1	1.5/1
	380VAC	1.5/1	1.5/1
	240VAC	2.5/1	2.5/1
	230VAC	2.5/1	2.5/1
	250VDC	–	–
Rated operating voltage [UL508] (VAC)		–	–
Dimensions (mm)	a	36	54
	b	80	80
Page 25	c	60	60
	d	76	76
Mass (kg)		0.18	0.25
Tripping device		Thermal-magnetic	
Front mounting, front connection		●	●
Internal accessories	*Page 12*		
Auxiliary switch	(W)	▲	▲
Alarm switch	(K)	▲	▲
Auxiliary switch + alarm switch	(W+K)	–	▲
Shunt trip	(F)	–	▲
Undervoltage trip	(R)	–	–
External accessories	*Page 21*		
Terminal cover Short		–	–
Terminal cover Long		BW9BTA0-L2	BW9BTA0-L3
Insulation barrier Interphase		–	–
Flat terminal		–	–
Block terminal		–	–
Handle locking device		–	–
IEC 35mm rail mounting		●	●

Notes: *1 Icu: Rated ultimate short-circuit breaking capacity
Ics: Rated service short-circuit breaking capacity

● Available ▲ Factory mounted accessory – Not available

BW0 series 2, 3-pole IEC and CE marking conformed types

• 100AF

Frame		100A		
Pole		3	2	3
Type		**BW103E0**	**BW102S0**	**BW103S0**
Rated current (A)		15, 20, 25, 30, 40, 50, 60, 75, 80, 100	15, 20, 25, 30, 40, 50, 60, 75, 80, 100	
Rated insulation voltage	(VAC)	690	690	
[IEC 60947-2]	(VDC)	250	250	
Rated breaking capacity (kA)	500VAC	5/3	10/3	10/3
[IEC 60947-2]	440VAC	10/5	20/5	20/5
(Icu/Ics) *1	415VAC	15/8	30/8	30/8
	400VAC	15/8	30/15	30/15
	380VAC	18/9	30/15	30/15
	240VAC	25/13	50/25	100/50
	230VAC	25/13	50/25	100/50
	250VDC	5/3	5	10
Rated operating voltage [UL508] (VAC)		–	–	–
Dimensions (mm) 	a	75	50	75
	b	130	130	130
Page 26	c	60	60	60
	d	81	81	81
Mass (kg) Front mounting type		0.78	0.6	0.78
Tripping device		Thermal-magnetic		
Front mounting, front connection		●	●	●
Internal accessories	*Page 13*			
Auxiliary switch	(W)	BW9W1SB0	BW9W1SB0	BW9W1SB0
Alarm switch	(K)	BW9K1SB0	BW9K1SB0	BW9K1SB0
Auxiliary switch + alarm switch	(W+K)	BW9WKSB0	BW9WKSB0	BW9WKSB0
Shunt trip	(F)	BW9F□B0	BW9F□B0	BW9F□B0
Undervoltage trip	(R)	BW9R□B0	BW9R□B0	BW9R□B0
External accessories	*Page 21*			
Terminal cover Short		–	–	–
Terminal cover Long		BW9BTB0-L3	–	BW9BTB0-L3
Insulation barrier Interphase		BW9BPB0	BW9BPB0	BW9BPB0
Flat terminal		–	–	–
Block terminal		BW9SSL0B0-□	BW9SSL0B0-□	BW9SSL0B0-□
Handle locking device		BW9Q1B0	BW9Q1B0	BW9Q1B0
IEC 35mm rail mounting		BW9PDB0	BW9PDB0	BW9PDB0

Notes: *1 Icu: Rated ultimate short-circuit breaking capacity
Ics: Rated service short-circuit breaking capacity

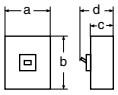
BW0 series 2, 3-pole IEC and CE marking conformed types

• 160AF

Frame		160A					
Pole		2	3	2	3	2	3
Type		**BW162E0**	**BW163E0**	**BW162J0**	**BW163J0**	**BW162S0**	**BW163S0**
Rated current (A)		100, 125, 150, 160		100, 125, 150, 160		100, 125, 150, 160	
Rated insulation voltage	(VAC)	690		690		690	
[IEC 60947-2]	(VDC)	250		250		250	
Rated breaking capacity (kA)	500VAC	5/3	5/3	8/4	8/4	10/5	10/5
[IEC 60947-2]	440VAC	10/5	10/5	20/10	20/10	25/13	25/13
(Icu/Ics) *1	415VAC	15/8	15/8	25/13	25/13	36/18	36/18
	400VAC	15/8	15/8	25/13	25/13	36/18	36/18
	380VAC	18/9	18/9	25/13	25/13	36/18	36/18
	240VAC	25/13	25/13	50/25	50/25	85/43	85/43
	230VAC	25/13	25/13	50/25	50/25	85/43	85/43
	250VDC	5/3	5/3	20/10	20/10	30/15	30/15
Rated operating voltage [UL508] (VAC)		480	480	480	480	480	480
Dimensions (mm)	a	105	105	105	105	105	105
	b	165	165	165	165	165	165
Page 27	c	60	60	60	60	60	60
	d	86	86	86	86	86	86
Mass (kg) Front mounting type		1.36	1.36	1.36	1.56	1.36	1.56
Tripping device		Thermal-magnetic					
Front mounting, front connection		●	●	●	●	●	●
Internal accessories	*Page 13*						
Auxiliary switch	(W)	BW9W1SG0	BW9W1SG0	BW9W1SG0	BW9W1SG0	BW9W1SG0	BW9W1SG0
Alarm switch	(K)	BW9K1SG0	BW9K1SG0	BW9K1SG0	BW9K1SG0	BW9K1SG0	BW9K1SG0
Auxiliary switch + alarm switch	(W+K)	BW9WKSG0	BW9WKSG0	BW9WKSG0	BW9WKSG0	BW9WKSG0	BW9WKSG0
Shunt trip	(F)	BW9F□G0	BW9F□G0	BW9F□G0	BW9F□G0	BW9F□G0	BW9F□G0
Undervoltage trip	(R)	BW9R□G0	BW9R□G0	BW9R□G0	BW9R□G0	BW9R□G0	BW9R□G0
External accessories	*Page 21*						
Terminal cover Short		BZ-TS40B	BZ-TS40B	BZ-TS40B	BZ-TS40B	BZ-TS40B	BZ-TS40B
Terminal cover Long		BZ-TB40B	BZ-TB40B	BZ-TB40B	BZ-TB40B	BZ-TB40B	BZ-TB40B
Insulation barrier Interphase		BZ-B40B	BZ-B40B	BZ-B40B	BZ-B40B	BZ-B40B	BZ-B40B
Flat terminal		BZ-S50B-2252	BZ-S50B-2253	BZ-S50B-2252	BZ-S50B-2253	BZ-S50B-2252	BZ-S50B-2253
Block terminal		BW9SSL0G0	BW9SSL0G0	BW9SSL0G0	BW9SSL0G0	BW9SSL0G0	BW9SSL0G0
Handle locking device		BW9Q1G0	BW9Q1G0	BW9Q1G0	BW9Q1G0	BW9Q1G0	BW9Q1G0
IEC 35mm rail mounting		–	–	–	–	–	–

Notes: *1 Icu: Rated ultimate short-circuit breaking capacity
Ics: Rated service short-circuit breaking capacity

BW0 series 2, 3-pole IEC and CE marking conformed types
• 250AF

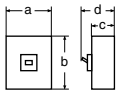
Frame		250A					
Pole		2	3	2	3	2	3
Type		**BW252E0**	**BW253E0**	**BW252J0**	**BW253J0**	**BW252S0**	**BW253S0**
Rated current (A)		175, 200, 225, 250		175, 200, 225, 250		175, 200, 225, 250	
Rated insulation voltage	(VAC)	690		690		690	
[IEC 60947-2]	(VDC)	250		250		250	
Rated breaking capacity (kA)	500VAC	5/3	5/3	8/4	8/4	10/5	10/5
[IEC 60947-2]	440VAC	15/8	15/8	20/10	20/10	25/13	25/13
(Icu/Ics) *1	415VAC	18/9	18/9	25/13	25/13	36/18	36/18
	400VAC	18/9	18/9	25/13	25/13	36/18	36/18
	380VAC	18/9	18/9	25/13	25/13	36/18	36/18
	240VAC	25/13	25/13	50/15	50/15	85/43	85/43
	230VAC	25/13	25/13	50/15	50/15	85/43	85/43
	250VDC	5/3	5/3	20/10	20/10	30/15	30/15
Rated operating voltage [UL508] (VAC)		480	480	480	480	480	480
Dimensions (mm)	a	105	105	105	105	105	105
	b	165	165	165	165	165	165
Page 27	c	60	60	60	60	60	60
	d	86	86	86	86	86	86
Mass (kg) Front mounting type		1.36	1.56	1.36	1.56	1.36	1.56
Tripping device		Thermal-magnetic					
Front mounting, front connection		●	●	●	●	●	●
Internal accessories	*Page 13*						
Alarm switch	(W)	BW9W1SG0	BW9W1SG0	BW9W1SG0	BW9W1SG0	BW9W1SG0	BW9W1SG0
Auxiliary switch	(K)	BW9K1SG0	BW9K1SG0	BW9K1SG0	BW9K1SG0	BW9K1SG0	BW9K1SG0
Auxiliary switch + alarm switch	(W+K)	BW9WKSG0	BW9WKSG0	BW9WKSG0	BW9WKSG0	BW9WKSG0	BW9WKSG0
Shunt trip	(F)	BW9F□G0	BW9F□G0	BW9F□G0	BW9F□G0	BW9F□G0	BW9F□G0
Undervoltage trip	(R)	BW9R□G0	BW9R□G0	BW9R□G0	BW9R□G0	BW9R□G0	BW9R□G0
External accessories	*Page 21*						
Terminal cover	Short	BZ-TS40B	BZ-TS40B	BZ-TS40B	BZ-TS40B	BZ-TS40B	BZ-TS40B
Terminal cover	Long	BZ-TB40B	BZ-TB40B	BZ-TB40B	BZ-TB40B	BZ-TB40B	BZ-TB40B
Insulation barrier	Interphase	BZ-B40B	BZ-B40B	BZ-B40B	BZ-B40B	BZ-B40B	BZ-B40B
Flat terminal		BZ-S50B-2252	BZ-S50B-2253	BZ-S50B-2252	BZ-S50B-2253	BZ-S50B-2252	BZ-S50B-2253
Block terminal		BW9SSL0G0	BW9SSL0G0	BW9SSL0G0	BW9SSL0G0	BW9SSL0G0	BW9SSL0G0
Handle locking device		BW9Q1G0	BW9Q1G0	BW9Q1G0	BW9Q1G0	BW9Q1G0	BW9Q1G0
IEC 35mm rail mounting		–	–	–	–	–	–

Notes: *1 Icu: Rated ultimate short-circuit breaking capacity
Ics: Rated service short-circuit breaking capacity

● Available – Not available

BW0 series 2, 3-pole IEC and CE marking conformed types

• 400AF

Frame		400A	
Pole		2	3
Type		**BW402S0**	**BW403S0**
Rated current (A)		250, 300, 350, 400	
Rated insulation voltage	(VAC)	690	
[IEC 60947-2]	(VDC)	250	
Rated breaking capacity (kA)	500VAC	20/10	20/10
[IEC 60947-2]	440VAC	36/18	36/18
(Icu/Ics) *1	415VAC	36/18	36/18
	400VAC	36/18	36/18
	380VAC	36/18	36/18
	240VAC	85/43	85/43
	230VAC	85/43	85/43
	250VDC	20/10	20/10
Rated operating voltage [UL508] (VAC)		–	–
Dimensions (mm)	a	140	140
	b	257	257
Page 28	c	103	103
	d	146	146
Mass (kg) Front mounting type		4.6	5.6
Tripping device		Thermal-magnetic	
Front mounting, front connection		●	●
Internal accessories	*Page 16*		
Alarm switch	(W)	BW9W1SHA	BW9W1SHA
Auxiliary switch	(K)	BW9K1SHA	BW9K1SHA
Auxiliary switch + alarm switch	(W+K)	–	–
Shunt trip	(F)	BW9FHA–□	BW9FHA–□
Undervoltage trip	(R)	BW9RHA–□	BW9RHA–□
External accessories	*Page 21*		
Terminal cover Short		BW9BTHA-S3	BW9BTHA-S3
Terminal cover Long		BW9BTHA-L3	BW9BTHA-L3
Insulation barrier Interphase		B-43A	B-43A
Flat terminal		BW9SS0H0-2	BW9SS0H0-3
Block terminal		–	–
Handle locking device		–	–
IEC 35mm rail mounting		–	–

Notes: *1 Icu: Rated ultimate short-circuit breaking capacity
Ics: Rated service short-circuit breaking capacity

● Available – Not available

Internal accessories

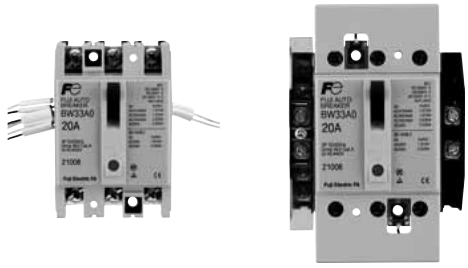
■ Internal accessories 32AF

Auxiliary switch and alarm switch

These devices indicate the MCCBs operation status electrically. Auxiliary switch (W) indicates the ON/OFF status of MCCB.Alarm switch (K) indicates the trip status of MCCB. An MCCB trips when an overload occurs or a short-circuit current flows through the MCCB. Both the auxiliary switch and alarm switch can be installed on the left side of MCCB body.

Shunt trip device

Shunt trip (F) is a device that issues an electrical signal to trip the MCCB. The MCCB when the main circuit voltage drops lower than the specified value. Shunt trip trip device can be installed on the right side of MCCB body.



Lead wire type **Terminal block type**

■ Type number nomenclature

BW32A0-030 W K FA A

MCCB type
See page 6

Terminal block
A : with terminal block

Shunt trip device *1
FA : 100VAC to 120VAC
FK : 200VAC to 240VAC
FD : 100VDC

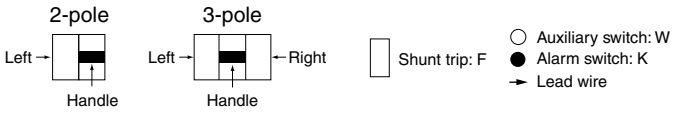
Alarm switch *2
K : 1c / alarm switch

Auxiliary switch *2
W : 1c / auxiliary switch

Accessories

Notes
*1 A shunt trip device can be added only to 3-pole models.
*2 Only one of the following can be added to a 2-pole model: alarm switch or auxiliary switch.

■ Available configurations



Type	BW32A0	BW33A0
Pole	2	3
Auxiliary switch : W		
Alarm switch : K		
Shunt trip device : F		
W + K		
W + F		
K + F		
W + K + F		

Note: Terminal block is installed on the same side of the accessory.

■ Specifications

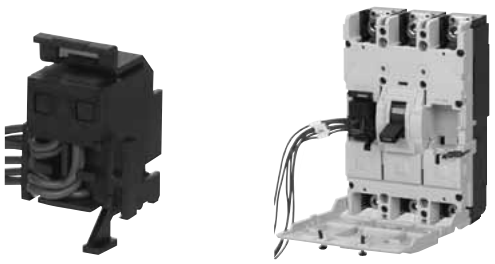
Type	Contact capacity	Wire size	Input
W, K	125VAC 3A 30VDC 2A	AWG24	–
F	–	AWG24	150VA

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

Accessory	Handle position		
	ON	OFF	Trip
Auxiliary switch (W)	11 14 12	11 14 12	
Alarm switch (K)	91 94 92		91 94 92

■ Internal accessories 100 to 250AF

The number of tasks can be greatly reduced as all the internal accessories are cassette-type user-installed.



Auxiliary + Alarm switch (W+K)

■ Auxiliary switch and alarm switch

These devices indicate the MCCB's operation status electrically.
Auxiliary switch (W) indicates the ON/OFF status of MCCB.
Alarm switch (K) indicates the trip status of MCCB. An MCCB trips when an overload occurs or a short-circuit current flows through the MCCB. Both the auxiliary switch and alarm switch can be installed either on the right or left side of MCCB body.
All auxiliary switches (W) and alarm switches (K) are electrically pre-wired with wires of 1 mm^2, 500 mm long.
The auxiliary switch, alarm switch and auxiliary plus alarm switch have almost the same appearance.

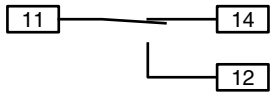
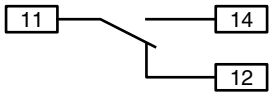
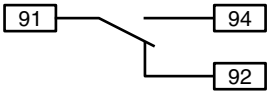
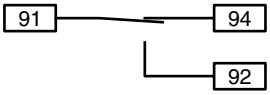
■ Combination of MCCB

Frame	MCCB Type		Type		
			Auxiliary switch (W)	Alarm switch (K)	Auxiliary switch + alarm switch (W+K)
100A	BW103E0	BW102S0, BW103S0	**BW9W1SB0**	**BW9K1SB0**	**BW9WKSB0**
160A	BW162E0, BW163E0	BW162J0, BW163J0 BW162S0, BW163S0	**BW9W1SG0**	**BW9K1SG0**	**BW9WKSG0**
250A	BW252E0, BW253E0	BW252J0, BW253J0 BW252S0, BW253S0			

■ Rating of auxiliary switches (W) and alarm switches (K)

Type number	AC			DC			Minimum load current
	Voltage (V)	Make/Break current (A)		Voltage (V)	Make/Break current (A)		
		AC12	AC15		DC12	DC14	
BW9W1SB0	24	5	5	24	4	3	5VDC 160mA
BW9K1SB0	48	5	5	48	2.5	1	30VDC 30mA
BW9WKSB0	125	5	3	125	0.4	0.4	
	250	3	2	250	0.2	0.2	
BW9W1SG0	24	5	5	24	4	3	
BW9K1SG0	48	5	5	48	2.5	1	
BW9WKSG0	125	5	3	125	0.4	0.4	
	250	3	2	250	0.2	0.2	

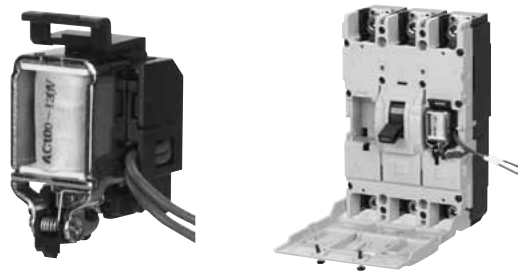
■ Operation of auxiliary switches(W) and alarm switches(K)

Accessory	Handle position		
	ON	OFF	Trip
Auxiliary switch (W)			
Alarm switch (K)			

Internal accessories

■ Shunt trip and undervoltage trip device

Shunt trip (F) is a device that issues an electrical signal to trip the MCCB.
Undervoltage trip device (R) is a device that is used to trip the MCCB when the main circuit voltage drops lower than the specified value. Both the shunt trip and undervoltage trip device can be installed on the right side of MCCB body.



Shunt trip device (F)

■ Combination of MCCB and shunt trip device (F)

Frame		Type	Operating voltage code	
100A	BW103E0	**BW9FAB0**	A	100-130VAC
	BW102S0, BW103S0	**BW9FKB0**	K	200-277VAC
		BW9FPB0	P	380-480VAC
		BW9FRB0	R	24VDC
		BW9FSB0	S	48VDC
160A	BW162E0, BW163E0	**BW9FAG0**	A	100-120VAC
250A	BW162J0, BW163J0	**BW9F1G0**	1	120-130VAC
	BW162S0, BW163S0	**BW9FKG0**	K	200-240VAC
	BW252E0, BW253E0	**BW9FBG0**	B	277VAC
	BW252J0, BW253J0	**BW9FPG0**	P	380-440VAC
	BW252S0, BW253S0	**BW9FHG0**	H	440-480VAC
		BW9FRG0	R	24VDC
		BW9FSG0	S	48VDC

■ Combination of MCCB and undervoltage trip device (R)

Frame		Type	Operating voltage code	
100A	BW103E0	**BW9RAB0**	A	100-130VAC
	BW102S0, BW103S0	**BW9RKB0**	K	200-240VAC
		BW9RBB0	B	277VAC
		BW9RPB0	P	380-415VAC
		BW9RHB0	H	440-480VAC
		BW9RRB0	R	24VDC
		BW9RSB0	S	48VDC
		BW9RLB0	L	125VDC
160A	BW162E0, BW163E0	**BW9RAG0**	A	100-130VAC
250A	BW162J0, BW163J0	**BW9RKG0**	K	200-240VAC
	BW162S0, BW163S0	**BW9RBG0**	B	277VAC
	BW252E0, BW253E0	**BW9RPG0**	P	380-415VAC
	BW252J0, BW253J0	**BW9RHG0**	H	440-480VAC
	BW252S0, BW253S0	**BW9RRG0**	R	24VDC
		BW9RSG0	S	48VDC
		BW9RLG0	L	125VDC

Shunt trip devices (F) are capable of internal mounting only.
Undervoltage trip device (R) for 100AF is capable of internal mounting only.
Undervoltage trip device (R) for 160AF and 250AF is capable of external mounting only.

External mounting undervoltage trip device (R)

■ Ratings of shunt trip (F)

Type	Power consumption		Time rating of coil	Operating time (ms)	Allowable voltage fluctuation
	AC VA	DC W			
BW9F□B0	30	30	Continuous	13 to 21	AC voltage: 85% to 110% of coil rated voltage DC voltage: 75% to 125% of coil rated voltage
BW9F□G0	30	35			

■ Ratings of undervoltage trip device (R)

Type	Coil rated voltage	Power consumption		Allowable voltage fluctuation
		AC VA	DC W	
BW9R□B0	110-130VAC	5	–	Tripping voltage: 70 to 35% of coil rated voltage Closing voltage: 85% to 110% of coil rated voltage
	200-240VAC	5	–	
	277VAC	5	–	
	380-415VAC	5	–	
	440-480VAC	5	–	
	24VDC	–	5	
	48VDC	–	5	
	125VDC	–	5	
BW9R□G0	110-130VAC	200	–	
	200-240VAC	150	–	
	277VAC	150	–	
	380-415VAC	200	–	
	440-480VAC	200	–	
	24VDC	–	150	
	48VDC	–	150	
	125VDC	–	300	

Internal accessories

■ Variation of internal accessory

• 400AF

Alarm switch (Type K)

This switch can be connected to a warning lamp or buzzer to indicate when the breaker has been tripped.
See page 18.

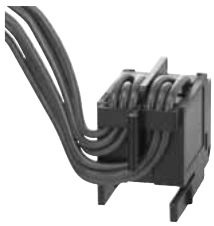
Shunt trip device (Type F)

The purpose of this accessory is to trip the breaker from a distance.
See page 19.

Undervoltage trip device (Type R)

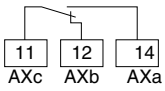
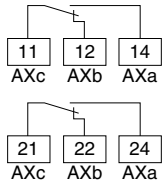
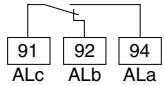
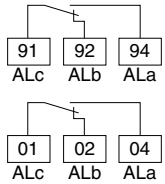
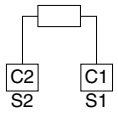
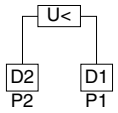
The device is designed to protect circuits from harmful voltage drops.
It can also be used for remote control purposes. The trip operates when the voltage drops to less than 70% of nominal coil rating, and the breaker cannot be reset until the voltage recovers 85% of its normal rating.
See page 19.

Auxiliary switch (Type W)

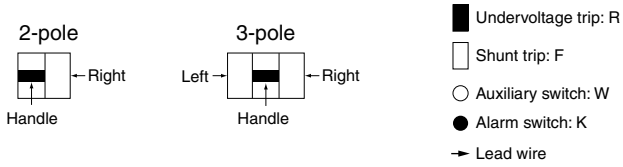


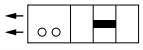
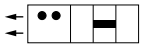
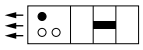
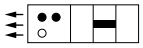
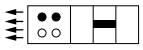
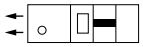
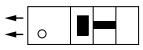
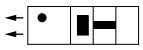
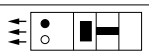
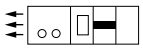
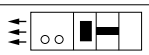
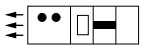
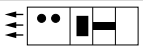
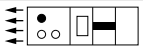
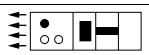
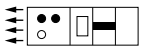
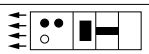
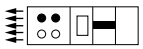
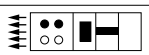
This switch is used for indicator lamp or control circuit.
See page 18.

■ Terminal number of internal accessory

Accessory		400AF
Auxiliary switch	SPDT: W	
	2PDT: V	
Alarm switch	SPDT: K	
	2PDT: J	
Shunt trip device : F	Continuous rating	
Undervoltage trip device : R		

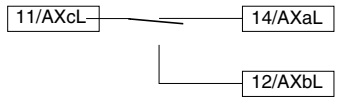
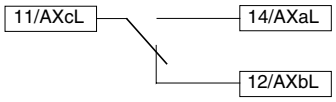
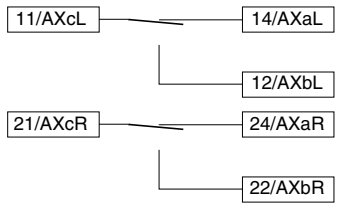
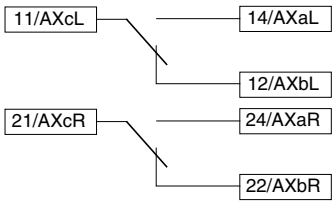
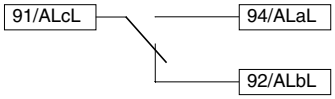
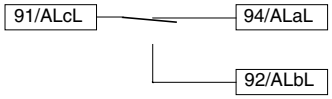
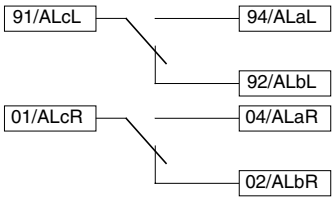
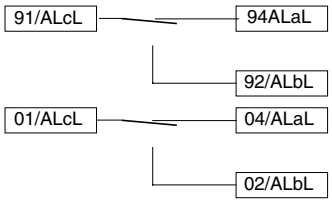
■ Available configurations



MCCB	**BW402S0, BW403S0**
Pole	2, 3
Auxliary switch SPDT: W	
Alarm switch SPDT: K	
Shunt trip: F	
Undervoltage trip: R	
W+K	
Auxliary switch 2PDT: V	
Alarm switch 2PDT: J	
V+K	
W+J	
V+J	
W+F	
W+R	
K+F	
K+R	
W+K+F	
W+K+R	
V+F	
V+R	
J+F	
J+R	
V+K+F	
V+K+R	
W+J+F	
W+J+R	
V+J+F	
V+J+R	

Internal accessories

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

Accessory	Handle position		
	ON	OFF	Trip
Auxiliary switch SPDT: **W**			
2PDT: **V**			
Alarm switch SPDT: **K**			
2PDT: **J**			

Note: ▭ Ring mark indication

■ Ratings of auxiliary switches(W) and alarm switches(K)

Rated thermal current (A)	Rated operational current (A)						Minimum load current
	AC			DC			
	Rated operational Voltage (V)	Res. load	Ind. load	Rated operational Voltage (V)	Res. load	Ind. load	
5	24	5	5	24	4	3	5VDC 160mA 30VDC 30mA
	48	5	5	48	2.5	1	
	125	5	3	125	0.4	0.4	
	250	3	2	250	0.2	0.2	

■ Rating of shunt trip (F)

MCCB type	AC		DC		Type	Time rating of coil	Opearting time (ms)
	V	VA	V	W			
BW402S0 BW403S0	24-48	2	24-48	2	BW9FHA-R	Continuous	8-20
	100-240	3	100-220	3	BW9FHA-A		
	277	3	–	–	BW9FHA-B		
	380-550	4	–	–	BW9FHA-P		

Note: The operating tripping voltage range for shunt trip devices is 70% to 110% of the rated operating voltage.

■ Rating of undervoltage trip (R)

MCCB type	AC		DC		Type
	V	VA	V	W	
BW402S0 BW403S0	24	2	24	2	BW9RHA-R
	48	2	48	2	BW9RHA-S
	100-110	3	100-110	3	BW9RHA-A
	120-130	3	125	3	BW9RHA-1
	200-240	3	200-220	3	BW9RHA-K
	277	3	–	–	BW9RHA-B
	380-480	4	–	–	BW9RHA-P

Notes: • The operating voltages of undervoltage tripping devices are as follows:
Tripping voltage: 35% to 70% of rated voltage, closing voltage: 85% to 110% of rated voltage.

Internal accessories

• Type number

Accessory	Type	Operating voltage
	Lead wire system	
	Left side	
Auxiliary switch x 1	**BW9W1SHA**	–
Auxiliary switch x 2	**BW9W2SHA**	
Auxiliary switch (low level circuit) x 1	**BW9W1DHA**	
Auxiliary switch (low level circuit) x 2	**BW9W2DHA**	
Alarm switch x 1	**BW9K1SHA**	
Alarm switch x 2	**BW9K2SHA**	
Alarm switch (low level circuit) x 1	**BW9K1DHA**	
Alarm switch (low level circuit) x 2	**BW9K2DHA**	
Shunt trip device	**BW9FHA-R**	24-48VAC/DC
	BW9FHA-A	100-240VAC/100-220VDC
	BW9FHA-B	277VAC
	BW9FHA-P	380-550VAC
Undervoltage trip devics	**BW9RHA-R**	24VAC/DC
	BW9RHA-S	48VAC/DC
	BW9RHA-A	100-110VAC/DC
	BW9RHA-1	120-130VAC/125VDC
	BW9RHA-K	200-240VAC/200-220VDC
	BW9RHA-B	277VAC
	BW9RHA-P	380-480VAC

■ External accessories

• Terminal cover

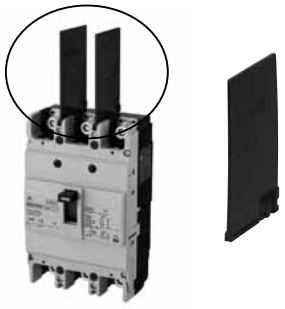
Finger protection guards against shock from accidentally touching live terminals.

Long type Short type

Frame	MCCB type	Short type	Long type	Color	Packing quantity
32A	BW32A0	–	**BW9BTA0-L2**	Gray	2 pcs.
	BW33A0	–	**BW9BTA0-L3**		
100A	BW103E0 BW103S0	–	**BW9BTB0-L3**	Transparent	
160A	BW162E0 BW163E0 BW162J0 BW163J0 BW162S0 BW163S0	**BZ-TS40B**	**BZ-TB40B**		
250A	BW252E0 BW253E0 BW252J0 BW253J0 BW252S0 BW253S0				
400A	BW402S0 BW403S0	**BW9BTHA-S3**	**BW9BTHA-L3**	Transparent	
		BW9BTHA-S3W	**BW9BTHA-L3W**	Gray	

• Insulation barrier Interphase

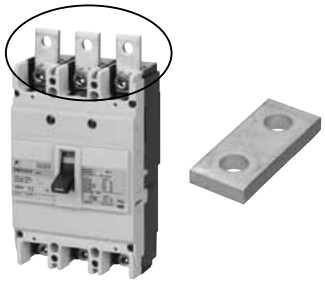
The interphase barrier reinforces the insulation between terminals. Two insulation barriers are supplied with the MCCB body. If additional insulation barriers are needed, please place an order with the following type number.



Frame	MCCB type	Type	Packing quantity
100A	BW103E0 BW102S0 BW103S0	**BW9BPB0**	2 pcs.
160A	BW162E0 BW163E0 BW162J0 BW163J0 BW162S0 BW163S0	**BZ-B40B**	4 pcs.
250A	BW252E0 BW253E0 BW252J0 BW253J0 BW252S0 BW253S0		
400A	BW402S0 BW403S0	**B-43A**	

• Flat terminal

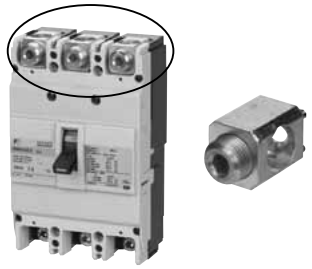
This terminal facilitates connecting work. Additional flat terminals can be attached to 160 to 400A frames. Attach flat terminals according to the screw size and tightening torque as shown in the table below.



Frame	Pole	MCCB type	Type	MCCB side		Flat terminal side		Packing quantity
				Screw size	Torque	Screw size	Torque	
160A 250A	2	BW162E0 BW162J0 BW252E0 BW162S0 BW252J0 BW252S0	**BZ-S50B-2252**	M8 x 20	8-13N•m	M8 x 25	8-10N•m	4 pcs.
	3	BW163E0 BW163J0 BW253E0 BW163S0 BW253J0 BW253S0	**BZ-S50B-2253**	M8 x 20	8-13N•m	M8 x 25	8-10N•m	6 pcs.
400A	2	BW402S0	**BW9SS0H0-2**	M10 x 35	20-30N•m	M12 x 35	40-50N•m	4 pcs.
	3	BW403S0	**BW9SS0H0-3**	M10 x 35	20-30N•m	M12 x 35	40-50N•m	6 pcs.

• Block terminal

This connector screws directly to the standard connectors.



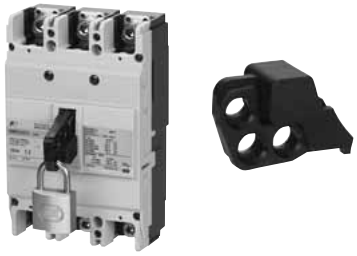
Frame	MCCB type	Rated current (A)	Wire size (mm^2)	Type	Packing quantity
100A	BW102S0	15 to 50	1.5 to 16	**BW9SSL0B0-052**	2 pcs.
		60 to 100	5.5 to 50	**BW9SSL0B0-102**	
	BW103E0 BW103S0	15 to 50	1.5 to 16	**BW9SSL0B0-053**	3 pcs.
		60 to 100	5.5 to 50	**BW9SSL0B0-103**	
160A	BW162E0 BW163E0 BW162J0 BW163J0 BW162S0 BW163S0	100 to 160	42.4 to 152	**BW9SSL0G0(*)**	
250A	BW252E0 BW253E0 BW252J0 BW253J0 BW252S0 BW253S0	175 to 250			

Note:(*) The Icu decreases to 50% when Block terminals are installed to the power supply side.

■ External accessories

• Handle locking device

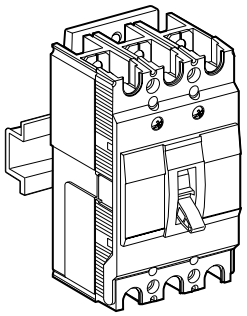
This key lock device snaps on to the enable the handle to be locked in either the OFF position. It can be used either as a handle locking cover or, with the addition of a padlock, as an OFF lock.
Use a commercially-available padlock. The shackle of the padlock should 4 to 8mm diameter.



Frame	MCCB type		Type
100A	BW103E0	BW102S0, BW103S0	**BW9Q1B0**
160A	BW162E0, BW163E0	BW162J0, BW163J0	**BW9Q1G0**
		BW162S0, BW163S0	
250A	BW252E0, BW253E0	BW252J0, BW253J0	
		BW252S0, BW253S0	

• IEC 35mm rail mounting adapter

Unification of the external and basic dimensions has expanded the range of models mountable on IEC 35mm rails.

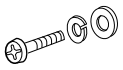


MCCB type		Type
BW103E0	BW102S0, BW103S0	**BW9PDB0**

Terminal connection

■ **Terminal Connection/Front mounting, Front Connection**

- MCCBs and cables according to the screw size and tightening torque as shown in the table below.
- To facilitate the connecting work, the following parts are prepared.
  Flat terminal and block terminal: *See page 22*

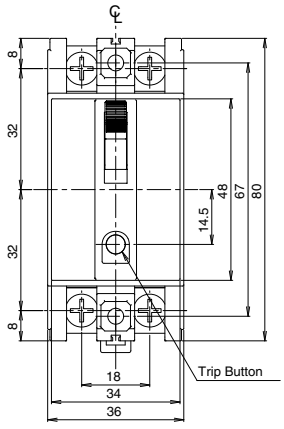
Frame	MCCB type	Screw and Bolt	Size (mm)	Tightening torque [N·m]
32A	BW32A0, BW33A0	Pan-head screw 	M5 x 14	2.0 - 3.0
100A	BW103E0 BW102S0, BW103S0	Pan-head screw 	Rated current: 15 to 50A M5 x 13.5	2.0
			Rated current: 60 to 100A M8 x 13.5	5.5
160A	BW162E0, BW163E0 BW162J0, BW163J0 BW162S0, BW163S0	Hexagonal socket head bolt 	M8 x 16	8 - 13
250A	BW252E0, BW253E0 BW252J0, BW253J0 BW252S0, BW253S0			
400A	BW402S0, BW403S0	Hexagonal head bolt 	M10 x 35	20 - 30

Dimensions

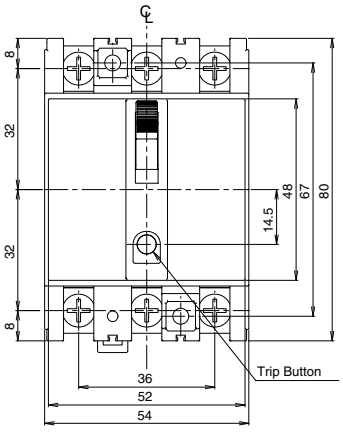
■ **Dimensions, mm**
■ **Front mounting, front connection**

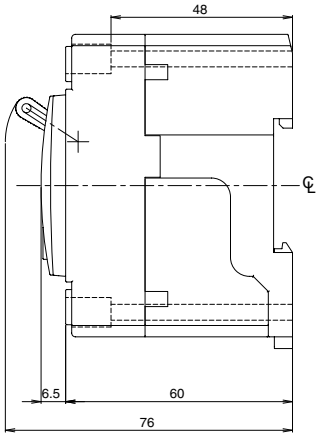
BW32A0, BW33A0

2P

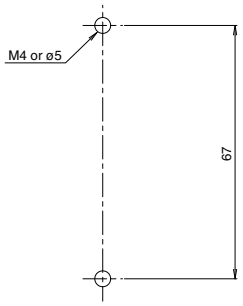


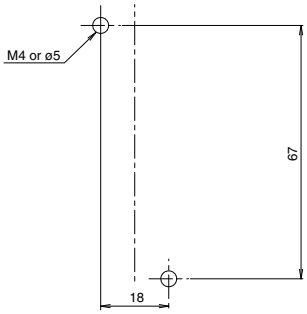
3P



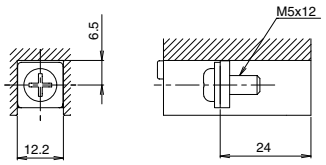


Panel drilling



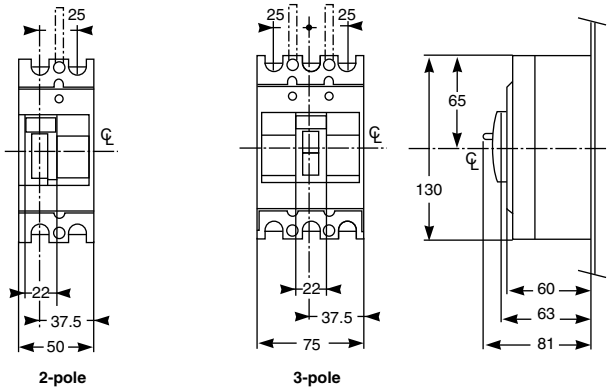


Terminal section

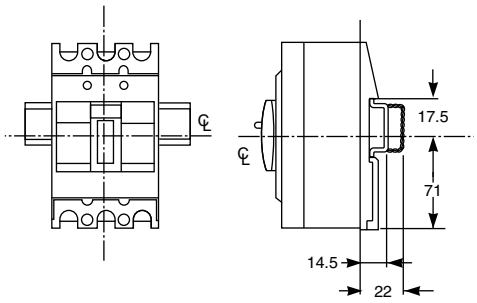


■ **Dimensions, mm**
■ **Front mounting, front connection**

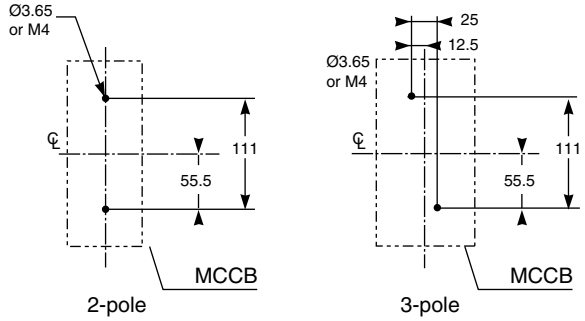
BW103E0
BW102S0, BW103S0



• **Mounting on IEC 35mm rail**
(with optional rail mounting adapter)



Panel drilling

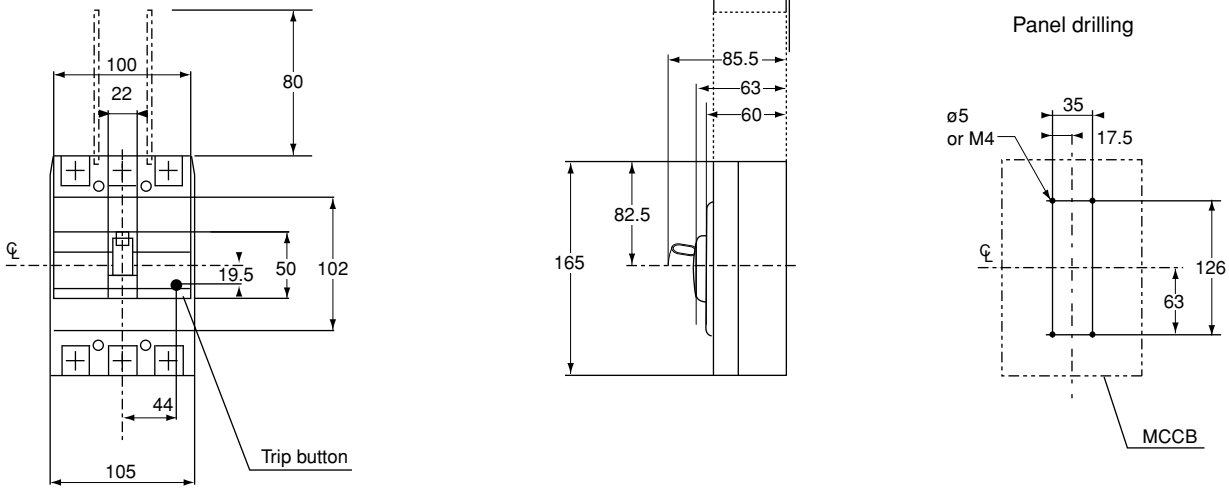


Dimensions

■ Dimensions, mm

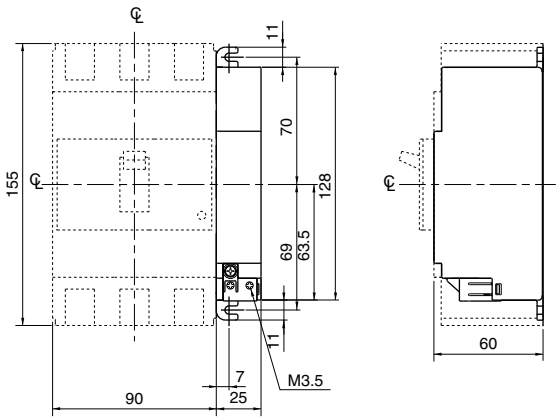
■ Front mounting, front connection

BW163E0, BW252E0, BW253E0,
BW162J0, BW163J0, BW162S0, BW163S0, BW252J0, BW253J0, BW252S0, BW253S0



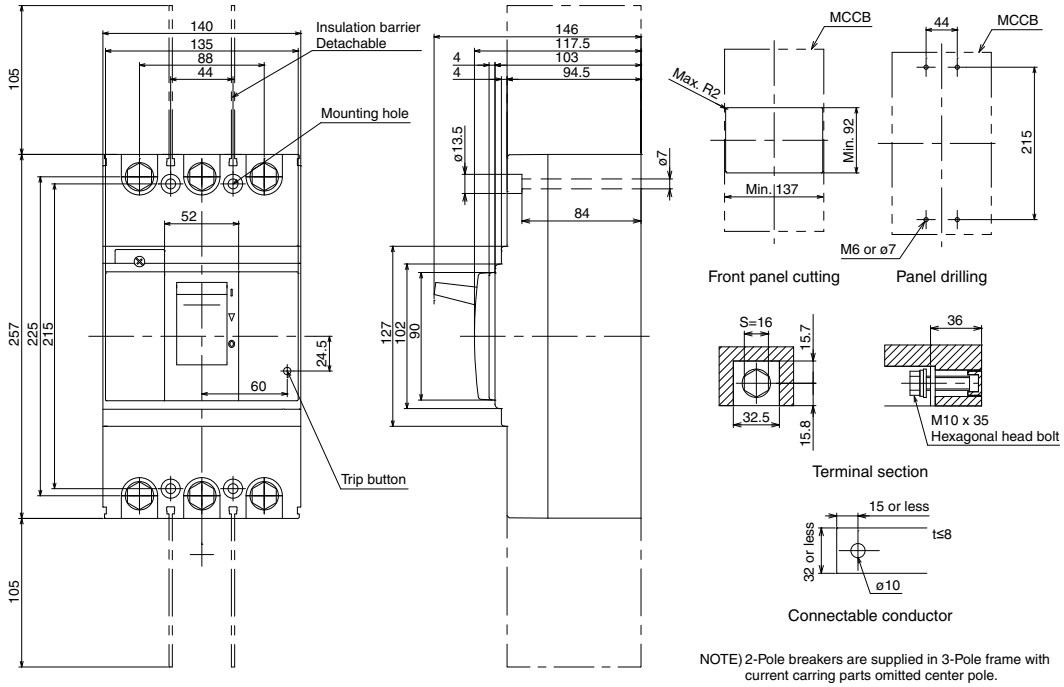
■ Undervoltage trip device

For 160 and 250AF



■ **Dimensions, mm**
■ **Front mounting, front connection**

BW402S0, BW403S0

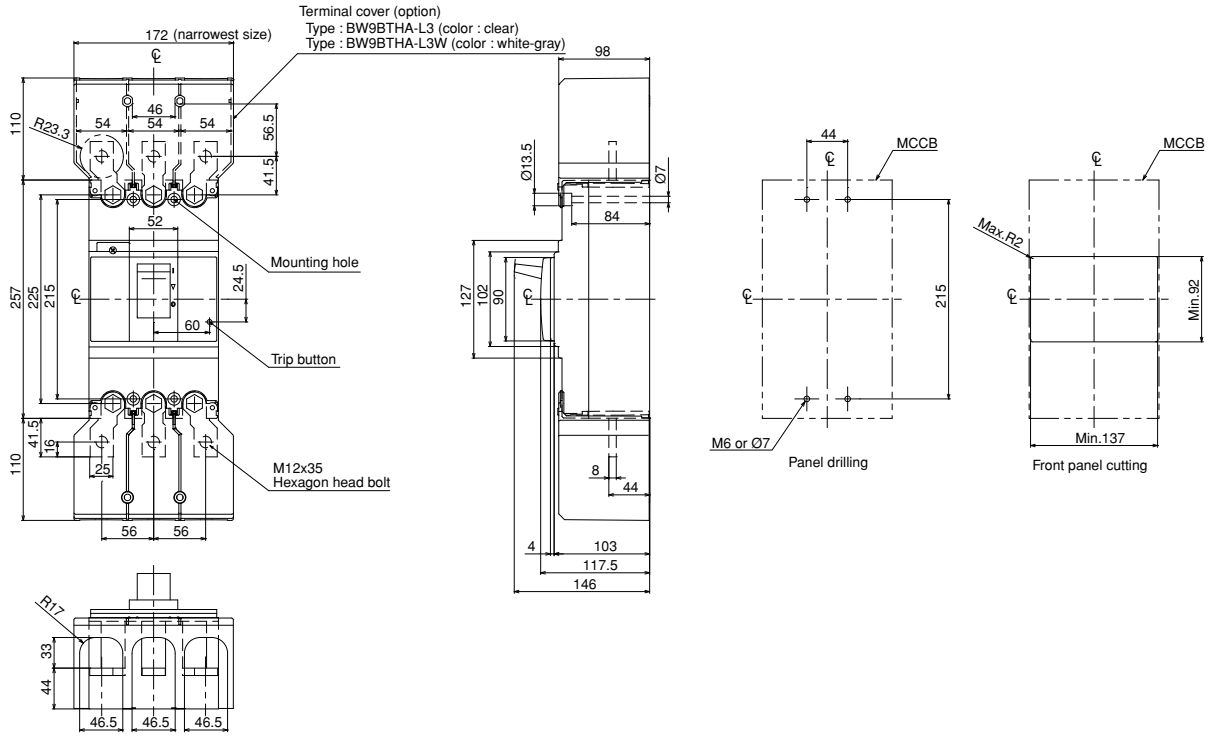


NOTE) 2-Pole breakers are supplied in 3-Pole frame with current carring parts omitted center pole.

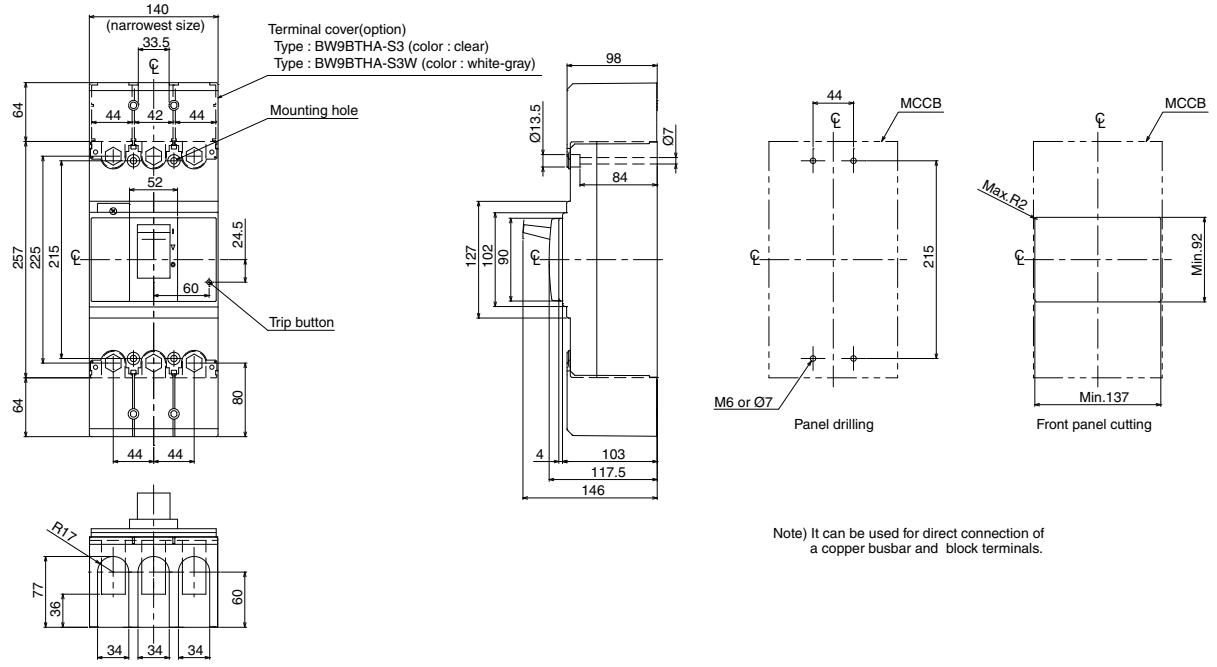
Dimensions

■ Dimensions, mm
■ Terminal cover

BW9BTHA-L3, BW9BTHA-L3W



BW9BTHA-S3, BW9BTHA-S3W



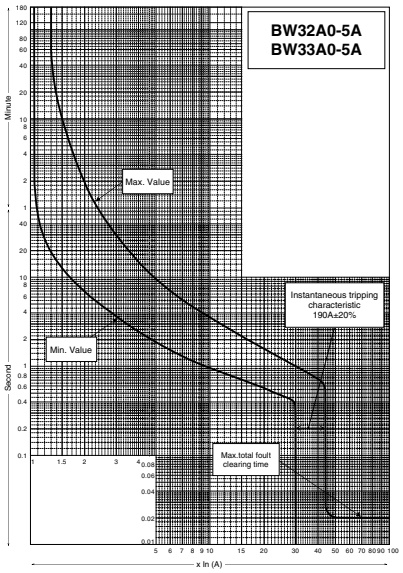
Note) It can be used for direct connection of a copper busbar and block terminals.

Characteristic curves

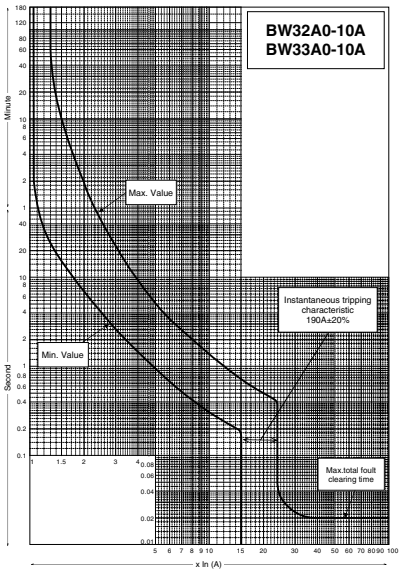
■ Characteristic curves

BW32A0, BW33A0

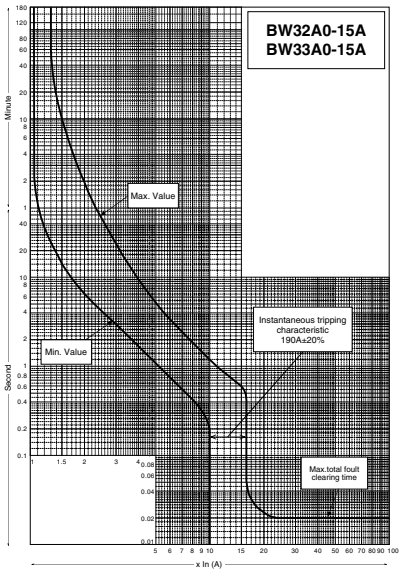
• 5A



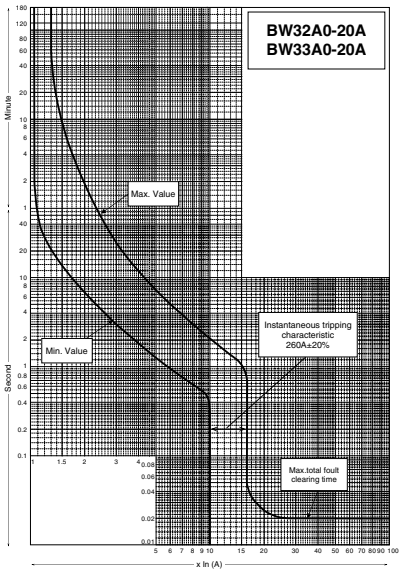
• 10A



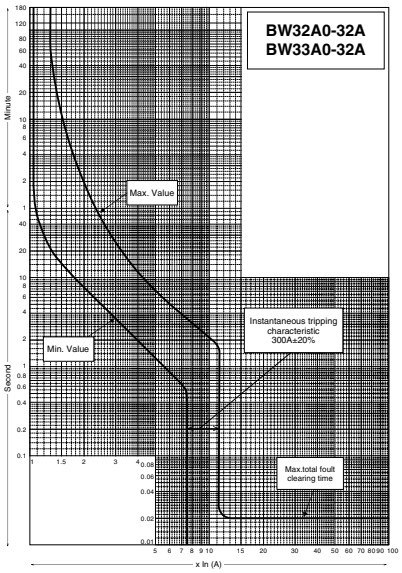
• 15A



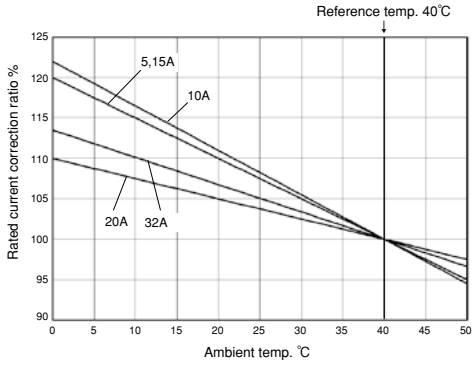
• 20A



• 32A



■ Ambient temperature correction curve

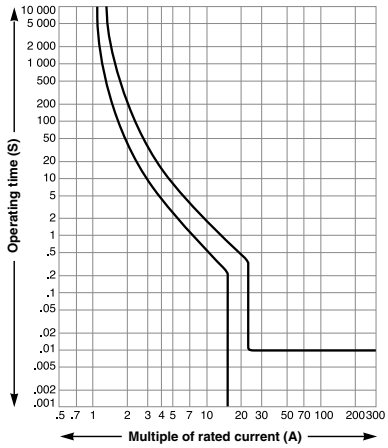


Characteristic curves

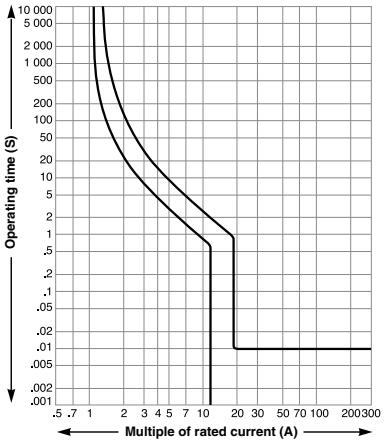
■ Characteristic curves

BW103E0,
BW102S0, BW103S0

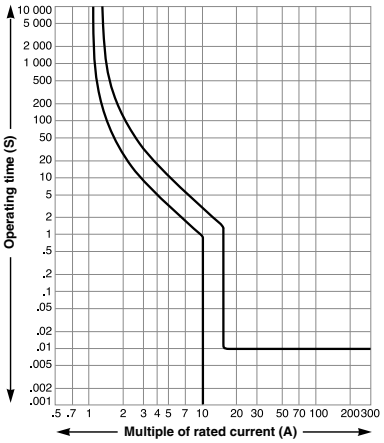
15A



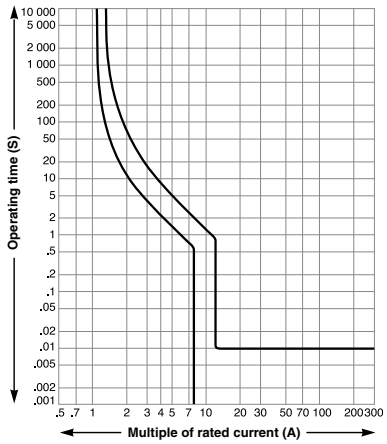
20A



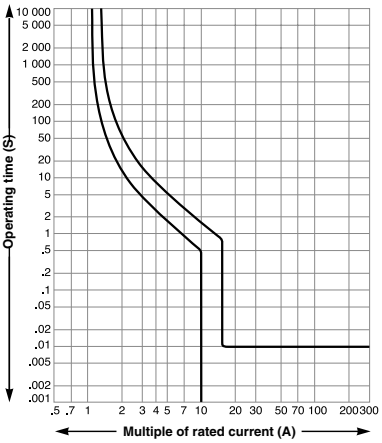
25A



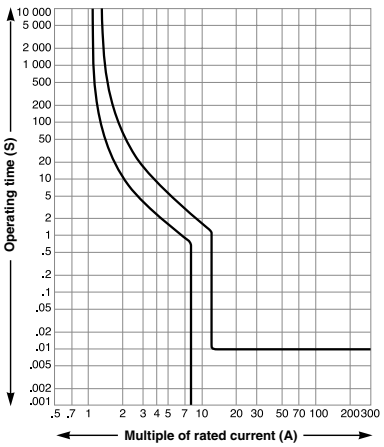
30A



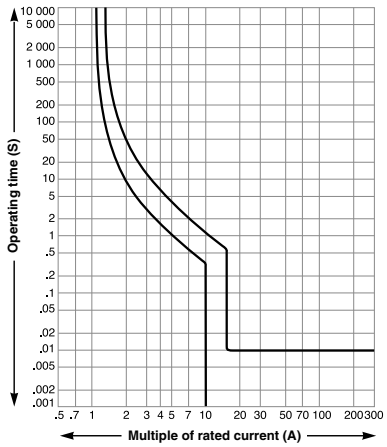
40A



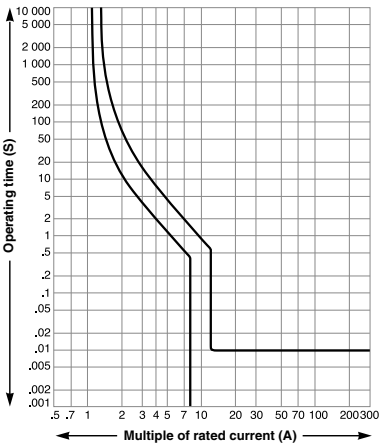
50A



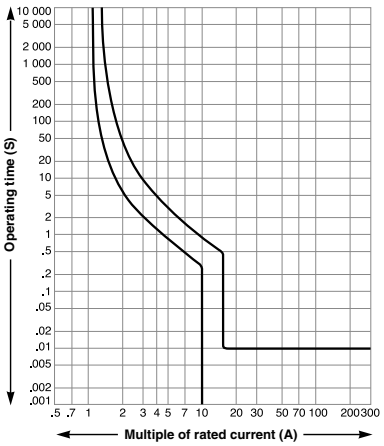
60A



75A



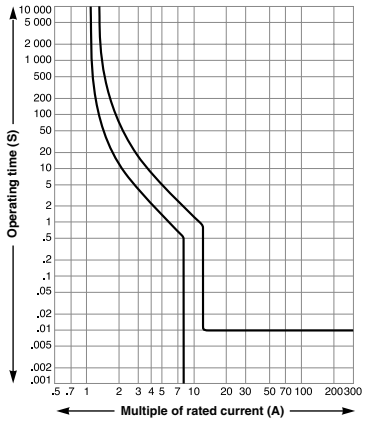
80A



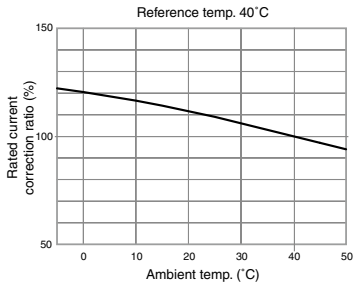
BW103E0, BW102S0, BW103S0

■ Characteristic curves

100A

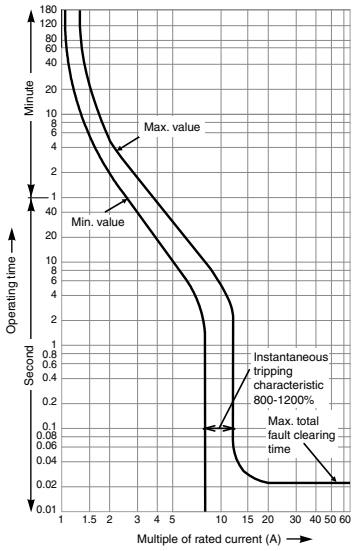


■ Ambient temperature correction curve

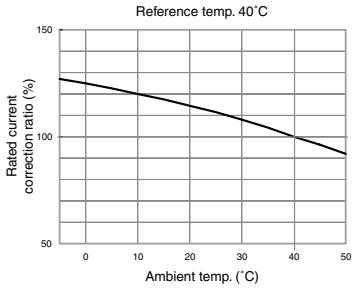


BW162E0, BW163E0, BW252E0, BW253E0, BW252J0, BW253J0, BW162J0, BW163J0, BW162S0, BW163S0, BW252S0, BW253S0

■ Characteristic curves

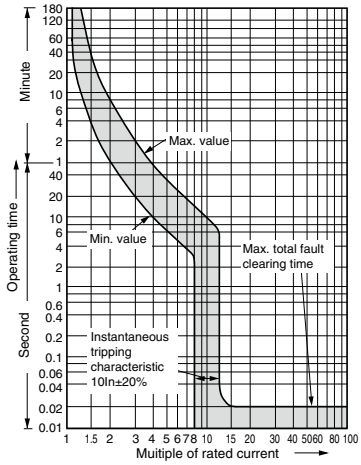


■ Ambient temperature correction curve

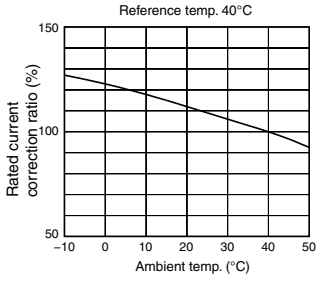


BW402S0, BW403S0

■ Characteristic curves



■ Ambient temperature correction curve



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- Operate (keep) in the environment specified in the operating instructions and manual. High temperature, high humidity, condensation, dust, corrosive gases, oil, organic solvents, excessive vibration or shock might cause electric shock, fire, erratic operation or failure.
- For safe operation, before using the product read the instruction manual or user manual that comes with the product carefully or consult the Fuji sales representative from which you purchased the product.
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- Customers, who want to use the products introduced in this catalog for special systems or devices such as for atomic-energy control, aerospace use, medical use, passenger vehicle, and traffic control, are requested to consult with Fuji Electric FA.
- Customers are requested to prepare safety measures when they apply the products introduced in this catalog to such systems or facilities that will affect human lives or cause severe damage to property if the products become faulty.
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