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Panasonic®

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■ 202107

Panasonic

**A High Quality Breaker
for Every Home's Protection**



DIN MODULAR TYPE

MCB, RCBOs, RCCBs, MCB BOX

Miniature Circuit Breakers
Residual Current Circuit Breakers with Overcurrent Protection
Residual Current Circuit Breakers

2021.7



Safe and comfortable life delivered by Panasonic

Panasonic, with more than 100 years of expertise forged in the Electrical Construction Material field with its Wiring Devices series, has also been expanding Switchgear devices business throughout the world. Panasonic focuses on providing high durability and performance for many years of reliable use, and selects materials with full consideration of the global environment. Certification by third-party institutions and compliance with a wide range of international standards attest to these efforts. This approach is also used with Panasonic's MCBs, to allow our worldwide customers to experience a new level of safety and comfort in your life.



Adequate Line-Up

Rated breaking capacity (Icn): 4.5kA / 6kA / 10kA
Rated current (In): 6,8,10,13,16,20,25,32,40,50,63,80,100,125A
Thermo-magnetic release characteristic: B / C / D

Clear Indicator

Current markings indicated by 2 colors(Green / Red)
Easy to know the status(ON / OFF)



On : Red



Off ,Trip : Green



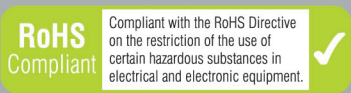
IEC60898-1
IEC61008-1
IEC61009-1

Compliant with IEC standards

Panasonic's products have been recognized and certified by worldwide famous organizations as the complied products with IEC(International Electrotechnical Commission) standards, the top reference for electrical and electronic safety standards.

Compliant with the RoHS Directive

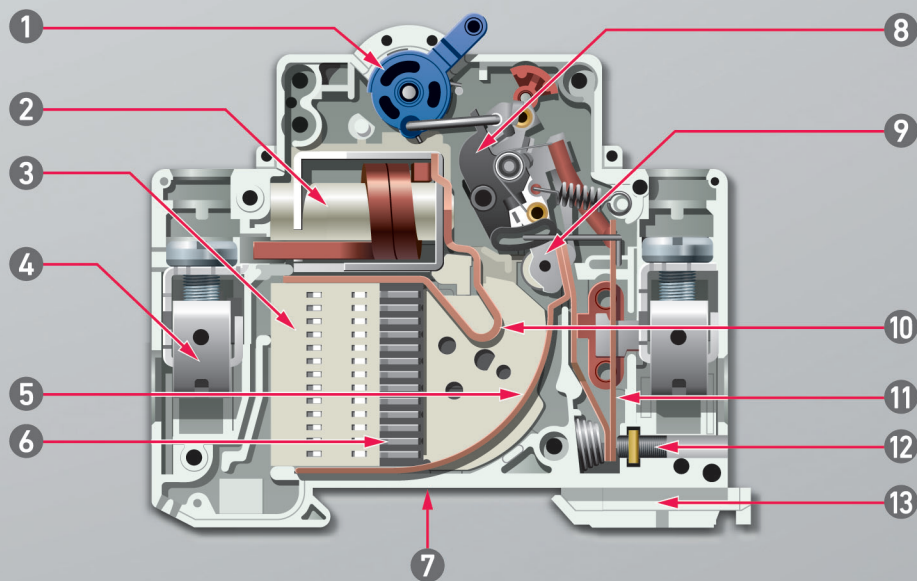
Panasonic's manufacturing processes are based on management standards for chemical substances by complying with the EU RoHS directive in order to provide all of our customers safer products with less impact on the environment.



THE TRIPPING MECHANISM OF MCBs IS THERMAL MAGNETIC TYPE

Thermal operation - The thermal operation provides protection from moderate overloads. Under overload condition, a thermo-metallic element (bimetallic strip) deflects until it operates a latching mechanism allowing the main contacts to open.

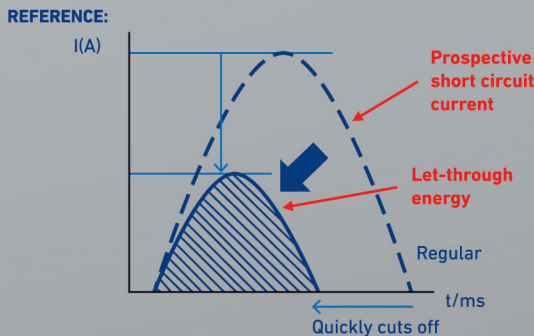
Magnetic operation - In magnetic operation, large overloads or short circuit current actuates a solenoid causing a plunger to strike the latching mechanism, rapidly opening the main contacts.



- | | | |
|----------------------|--------------------------|--------------------------------|
| 1 Operating Knob | 6 Arc Chute Plate | 11 Thermostatic Bi-metal Strip |
| 2 Magnetic Element | 7 Body or Housing of MCB | 12 Calibration Screw |
| 3 Arc Chute Assembly | 8 Operating Mechanism | 13 DIN Clip |
| 4 Terminal | 9 Moving Contact | |
| 5 Arc Runner | 10 Arc Horn | |

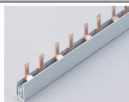
Comply with Class 3 (MCB 63AF)

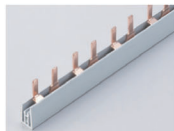
Shortens the cutoff time during a short circuit and suppresses ignitions and explosions



*Circuit breakers of B-type and C-type up to and including 63A shall be classified into energy limiting classes in 1 or 3.

Table of Specifications by series

Series	MCBs		
	BD-63AA		BD-125R
			
Reference Standards	IEC60898-1		IEC60947-2
Electrical properties			
Pole	1P,2P,3P,4P		1P,2P,3P,4P
Rated current (In)	6,8,10,13,16,20,25,32,40,50,63A		80,100,125A
Rated conditional residual short-circuit current (IΔc)	-		-
Rated voltage (Ue)	240V~(1P) / 415V~(2,3,4P)		AC230/240V(1P), AC400/415V(2,3,4P)
Insulation voltage (Ui)	500V		500V
Rated frequency	50 / 60Hz		50/60-Hz
Rated impulse withstand voltage(1.2 / 50) (Uimp)	4,000V		4,000V
Rated short-circuit capacity (Icn)	4.5kA	6kA,10kA	10kA
Energy limiting class	-	class3	-
Thermo-magnetic release characteristic	B,C,D		C,D
Mechanical properties			
Mechanical endurance	10,000 Cycles	20,000 Cycles	7,000 Cycles
Electrical endurance	4,000 Cycles		3,000 Cycles
Protection degree	IP20		IP20
Reference temperature for setting of thermal element	30 °C		30 °C
Storage temperature	-25 °C~+70 °C		-10~60 °C
Other properties			
Terminal connection type	Cable / Pin-type busbar		Cable / Pin-type busbar
Connections	1mm ² to 25mm ² for Cu conductors		25mm ² to 50 mm ² for Cu conductors
Tightening torque	2Nm 22In-lb		3.5 N · m
Status display	On : Red Off ,Trip : Green		On: Red Off, Trip: Green

Series	RCBOs	RCCBs
	BDE-63AA(AC Type) BDF-63AA(A Type)	BDR-63AA(AC Type) BDG-63AA(A Type)
		
Reference Standards	IEC61009-1	IEC61008-1
Electrical properties		
Pole	1P+N,3P+N	
Rated current (In)	6,10,16,20,25,32,40,50,63A	25,40,50,63A
Rated conditional residual short-circuit current (IΔc)	30mA	
Rated voltage (Ue)	240V~(1P+N) / 415V~(3P+N)	
Insulation voltage (Ui)	500V	
Rated frequency	50 / 60Hz	
Rated impulse withstand voltage(1.2 / 50) (Uimp)	4,000V	
Rated short-circuit capacity (Icn)	6kA	-
Thermo-magnetic release characteristic	B,C,D	-
Mechanical properties		
Mechanical endurance	10,000 Cycles	4,000 Cycles
Electrical endurance	4,000 Cycles	2,000 Cycles
Protection degree	IP20	
Reference temperature for setting of thermal element	30°C	-
Storage temperature	-25°C~+70°C	
Other properties		
Terminal connection type	Cable / Pin-type busbar 	
Connections	1mm2 to 25mm2 for Cu conductors	
Tightening torque	2Nm 22In-lb	
Status display	On : Red Off ,Trip : Green	

MCBs (IEC60898-1)

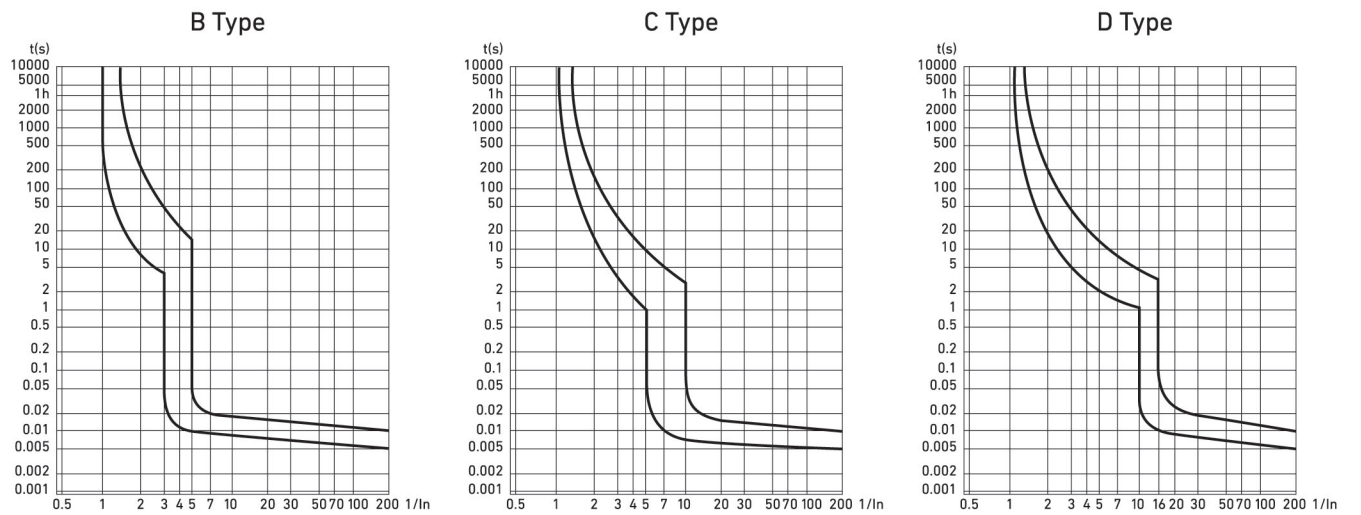
Miniature Circuit Breakers

BD-63AA 4.5kA	Rated short-circuit capacity (Icn)	4.5kA
	Rated voltage (Ue)	240V~(1P) / 415V~(2,3,4P)
	Mechanical endurance	10,000 Cycles
	Electrical endurance	4,000 Cycles
	Storage temperature	-25°C~+70°C
	Terminal connection type	Cable / Pin-type busbar
	Connections	25mm²
	Thermo-magnetic release characteristic	B,C,D

				
Rated current (In)	MCBs 4.5kA			
	1P1E	2P2E	3P3E	4P4E
6A	BBD1061□STB	BBD2062□STB	BBD3063□STB	BBD4064□STB
8A	BBD1081□STB	BBD2082□STB	BBD3083□STB	BBD4084□STB
10A	BBD1101□STB	BBD2102□STB	BBD3103□STB	BBD4104□STB
13A	BBD1131□STB	BBD2132□STB	BBD3133□STB	BBD4134□STB
16A	BBD1161□STB	BBD2162□STB	BBD3163□STB	BBD4164□STB
20A	BBD1201□STB	BBD2202□STB	BBD3203□STB	BBD4204□STB
25A	BBD1251□STB	BBD2252□STB	BBD3253□STB	BBD4254□STB
32A	BBD1321□STB	BBD2322□STB	BBD3323□STB	BBD4324□STB
40A	BBD1401□STB	BBD2402□STB	BBD3403□STB	BBD4404□STB
50A	BBD1501□STB	BBD2502□STB	BBD3503□STB	BBD4504□STB
63A	BBD1631□STB	BBD2632□STB	BBD3633□STB	BBD4634□STB

※ □ Depending on Thermo-magnetic release characteristic B : B Curve, C : C Curve, D : D Curve

Characteristics Curves



MCBs (IEC60898-1)

Miniature Circuit Breakers

BD-63AA 6/10kA

Rated short-circuit capacity (Icn)	6kA / 10kA
Rated voltage (Ue)	240V~(1P) / 415V~(2,3,4P)
Mechanical endurance	20,000 Cycles
Electrical endurance	4,000 Cycles
Storage temperature	-25°C~+70°C
Terminal connection type	Cable / Pin-type busbar
Connections	25mm²
Thermo-magnetic release characteristic	B,C,D
Energy limiting class	Class3



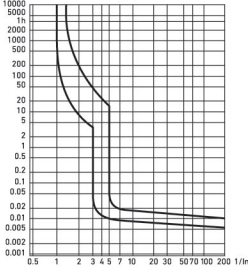
Rated current (In)	MCBs 6kA				MCBs 10kA			
	1P1E	2P2E	3P3E	4P4E	1P1E	2P2E	3P3E	4P4E
6A	BBD1061□NTB	BBD2062□NTB	BBD3063□NTB	BBD4064□NTB	BBD1061□HTB	BBD2062□HTB	BBD3063□HTB	BBD4064□HTB
8A	BBD1081□NTB	BBD2082□NTB	BBD3083□NTB	BBD4084□NTB	BBD1081□HTB	BBD2082□HTB	BBD3083□HTB	BBD4084□HTB
10A	BBD1101□NTB	BBD2102□NTB	BBD3103□NTB	BBD4104□NTB	BBD1101□HTB	BBD2102□HTB	BBD3103□HTB	BBD4104□HTB
13A	BBD1131□NTB	BBD2132□NTB	BBD3133□NTB	BBD4134□NTB	BBD1131□HTB	BBD2132□HTB	BBD3133□HTB	BBD4134□HTB
16A	BBD1161□NTB	BBD2162□NTB	BBD3163□NTB	BBD4164□NTB	BBD1161□HTB	BBD2162□HTB	BBD3163□HTB	BBD4164□HTB
20A	BBD1201□NTB	BBD2202□NTB	BBD3203□NTB	BBD4204□NTB	BBD1201□HTB	BBD2202□HTB	BBD3203□HTB	BBD4204□HTB
25A	BBD1251□NTB	BBD2252□NTB	BBD3253□NTB	BBD4254□NTB	BBD1251□HTB	BBD2252□HTB	BBD3253□HTB	BBD4254□HTB
32A	BBD1321□NTB	BBD2322□NTB	BBD3323□NTB	BBD4324□NTB	BBD1321□HTB	BBD2322□HTB	BBD3323□HTB	BBD4324□HTB
40A	BBD1401□NTB	BBD2402□NTB	BBD3403□NTB	BBD4404□NTB	BBD1401□HTB	BBD2402□HTB	BBD3403□HTB	BBD4404□HTB
50A	BBD1501□NTB	BBD2502□NTB	BBD3503□NTB	BBD4504□NTB	BBD1501□HTB	BBD2502□HTB	BBD3503□HTB	BBD4504□HTB
63A	BBD1631□NTB	BBD2632□NTB	BBD3633□NTB	BBD4634□NTB	BBD1631□HTB	BBD2632□HTB	BBD3633□HTB	BBD4634□HTB

※ □ Depending on Thermo-magnetic release characteristic B : B Curve, C : C Curve, D : D Curve

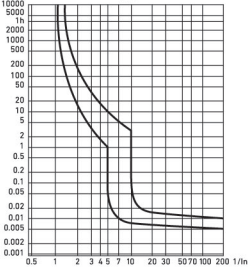
Characteristics Curves

6kA

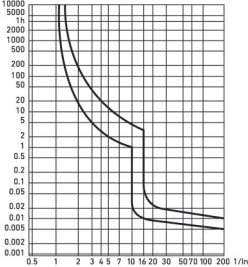
B Type



C Type

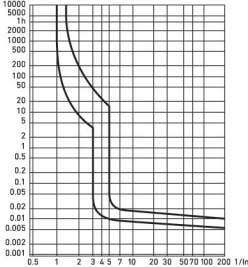


D Type

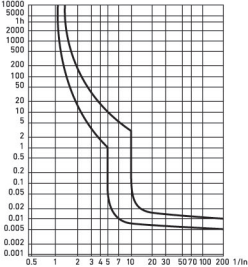


10kA

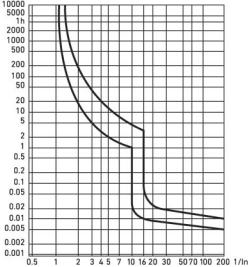
B Type



C Type



D Type

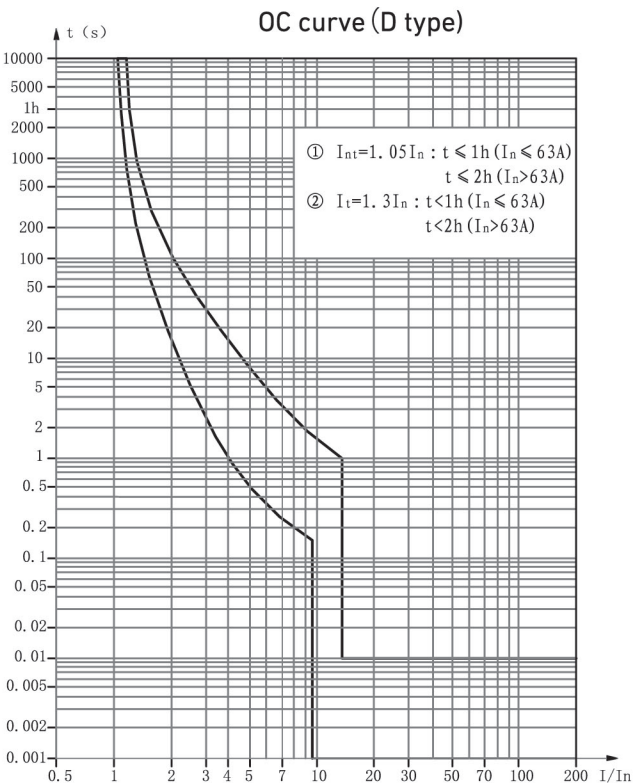
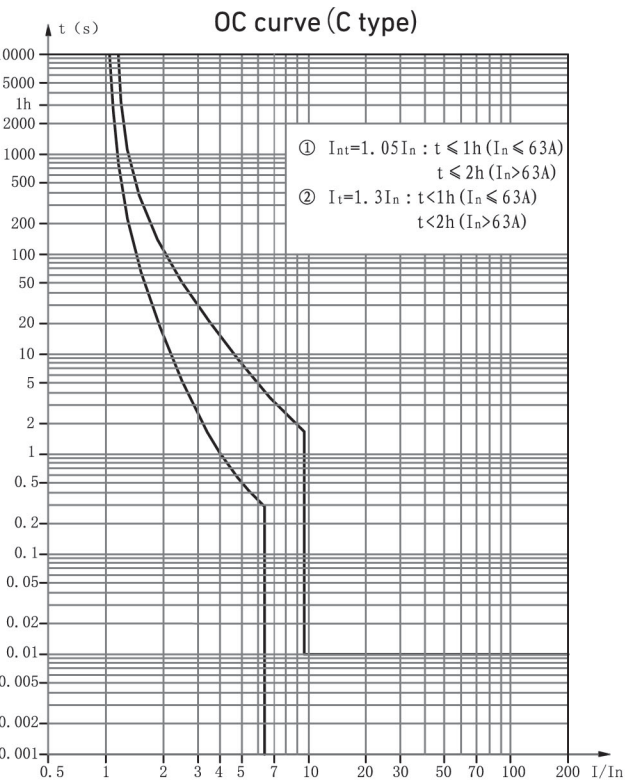


MCBs

Miniature Circuit Breakers

BD-125R 10kA	Rated short-circuit capacity	10kA
	Rated Voltage	AC230/240(1P), AC400/415V(2,3,4P)
	Mechanical endurance	7,000 Cycles
	Electrical endurance	3,000 Cycles
	Storage temperature	-10~60 °C
	Terminal connection type	Cable / Pin-type busbar
	Connections	25mm ² to 50 mm ² for Cu conductors
	Thermo-magnetic release characteristic	C,D

				
Rated current (In)	MCBs 10kA			
	1P1E	2P2E	3P3E	3P3E
80A	BBD10801□HB	BBD20802□HB	BBD30803□HB	BBD40804□HB
100A	BBD11001□HB	BBD21002□HB	BBD31003□HB	BBD41004□HB
125A	BBD11251□HB	BBD21252□HB	BBD31253□HB	BBD41254□HB



RCBOs (IEC61009-1)

Residual Current Circuit Breakers with Overcurrent Protection

BDE-63AA (AC Type)
BDF-63AA (A Type)

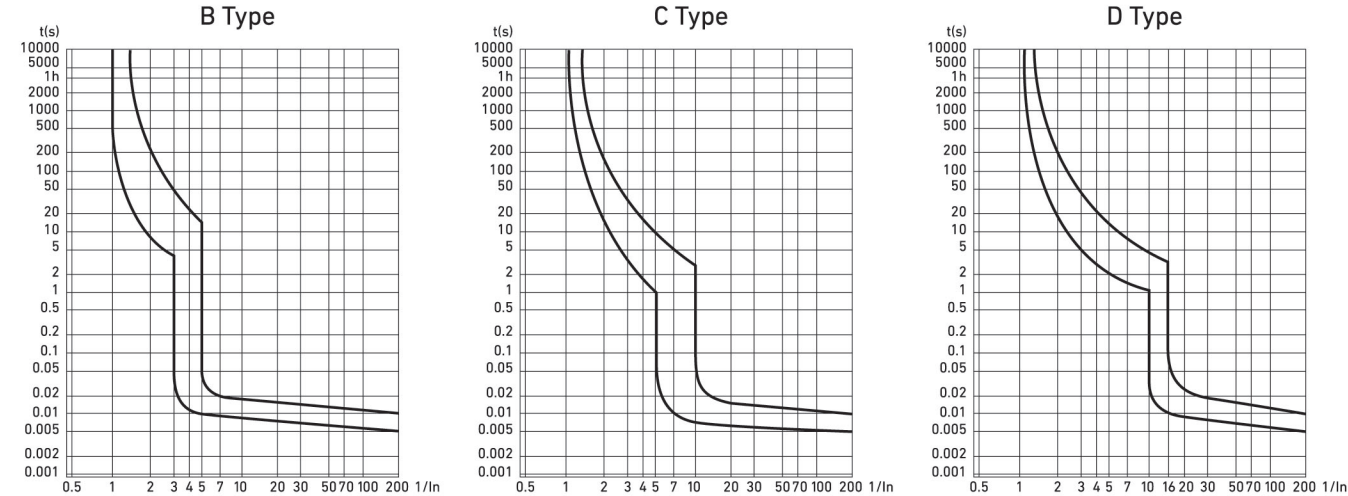
Rated short-circuit capacity (Icn)	6kA
Rated voltage (Ue)	240V~(1P+N) / 415V~(3P+N)
Rated conditional residual short-circuit current (IΔc)	30mA
Rated residual non-operating current (IΔno)	15mA
Break time under IΔn	≤0.1s
Mechanical endurance	10,000 Cycles
Electrical endurance	4,000 Cycles
Storage temperature	-25°C~+70°C
Terminal connection type	Cable / Pin-type busbar
Connections	25mm²
Type	AC,A
Thermo-magnetic release characteristic	C



RCBOs 6kA					
Tripping Characteristics	Rated Current	1P+N	3P+N	1P+N	3P+N
		AC Type		A Type	
B Type	6A	BBDE20631BNTB	BBDE40633BNTB	BBDF20631BNTB	BBDF40633BNTB
	10A	BBDE21031BNTB	BBDE41033BNTB	BBDF21031BNTB	BBDF41033BNTB
	16A	BBDE21631BNTB	BBDE41633BNTB	BBDF21631BNTB	BBDF41633BNTB
	20A	BBDE22031BNTB	BBDE42033BNTB	BBDF22031BNTB	BBDF42033BNTB
	25A	BBDE22531BNTB	BBDE42533BNTB	BBDF22531BNTB	BBDF42533BNTB
	32A	BBDE23231BNTB	BBDE43233BNTB	BBDF23231BNTB	BBDF43233BNTB
	40A	BBDE24031BNTB	BBDE44033BNTB	BBDF24031BNTB	BBDF44033BNTB
	50A	BBDE25031BNTB	BBDE45033BNTB	BBDF25031BNTB	BBDF45033BNTB
	63A	BBDE26331BNTB	BBDE46333BNTB	BBDF26331BNTB	BBDF46333BNTB
C Type	6A	BBDE20631CNTB	BBDE40633CNTB	BBDF20631CNTB	BBDF40633CNTB
	10A	BBDE21031CNTB	BBDE41033CNTB	BBDF21031CNTB	BBDF41033CNTB
	16A	BBDE21631CNTB	BBDE41633CNTB	BBDF21631CNTB	BBDF41633CNTB
	20A	BBDE22031CNTB	BBDE42033CNTB	BBDF22031CNTB	BBDF42033CNTB
	25A	BBDE22531CNTB	BBDE42533CNTB	BBDF22531CNTB	BBDF42533CNTB
	32A	BBDE23231CNTB	BBDE43233CNTB	BBDF23231CNTB	BBDF43233CNTB
	40A	BBDE24031CNTB	BBDE44033CNTB	BBDF24031CNTB	BBDF44033CNTB
	50A	BBDE25031CNTB	BBDE45033CNTB	BBDF25031CNTB	BBDF45033CNTB
	63A	BBDE26331CNTB	BBDE46333CNTB	BBDF26331CNTB	BBDF46333CNTB

RCBOs 6kA					
Tripping Characteristics	Rated Current	1P+N	3P+N	1P+N	3P+N
		AC Type		A Type	
D Type	6A	BBDE20631DNTB	BBDE40633DNTB	BBDF20631DNTB	BBDF40633DNTB
	10A	BBDE21031DNTB	BBDE41033DNTB	BBDF21031DNTB	BBDF41033DNTB
	16A	BBDE21631DNTB	BBDE41633DNTB	BBDF21631DNTB	BBDF41633DNTB
	20A	BBDE22031DNTB	BBDE42033DNTB	BBDF22031DNTB	BBDF42033DNTB
	25A	BBDE22531DNTB	BBDE42533DNTB	BBDF22531DNTB	BBDF42533DNTB
	32A	BBDE23231DNTB	BBDE43233DNTB	BBDF23231DNTB	BBDF43233DNTB
	40A	BBDE24031DNTB	BBDE44033DNTB	BBDF24031DNTB	BBDF44033DNTB
	50A	BBDE25031DNTB	BBDE45033DNTB	BBDF25031DNTB	BBDF45033DNTB
	63A	BBDE26331DNTB	BBDE46333DNTB	BBDF26331DNTB	BBDF46333DNTB

Characteristics Curves



ITEM CODIFICATION

			No. of Poles	Rated Current	$I_{\Delta c}$	No. of Elements	Characteristics Curve	I_{cn}		
MCBs	6~63A	BBD	1: 1P 2: 2P 3: 3P 4: 4P	06: 6A 08: 8A 10: 10A 13: 13A 16: 16A 20: 20A 25: 25A 32: 32A 40: 40A 50: 50A 63: 63A	—	1: 1E 2: 2E 3: 3E 4: 4E	B: B Curve C: C Curve D: D Curve	S: 4.5kA N: 6kA H: 10kA	T	B
RCBOs	AC type	BBDE	2: 1P+N 4: 3P+N	25: 25A 40: 40A 50: 50A 63: 63A	3: 30mA	1: 1E 3: 3E	B: B Curve C: C Curve D: D Curve	6kA		
	A type	BBDF								
RCCBs	AC type	BBDR				0: 0E	—	—		
	A type	BBDG								
MCBs	80-125A	BBD	1: 1P 2: 2P 3: 3P 4: 4P	80: 80A 100: 100A 125: 125A	—	1: 1E 2: 2E 3: 3E 4: 4E	C: C Curve D: D Curve	H: 10kA	—	B

RCCBs (IEC61008-1)

Residual Current Circuit Breakers

BDR-63AA (AC Type)

BDG-63AA (A Type)

Rated conditional short-circuit current (Inc)	10kA
Rated voltage (Ue)	240V~(1P+N) / 415V~(3P+N)
Rated conditional residual short-circuit current (IΔc)	30mA
Rated residual non-operating current (IΔno)	15mA
Break time under IΔn	≤0.1s
Mechanical endurance	4,000 Cycles
Electrical endurance	2,000 Cycles
Storage temperature	-25°C~+70°C
Terminal connection type	Cable / Pin-type busbar
Connections	25mm²
Type	AC,A




RCCBs 10kA				
Rated current (In)	1P+N	3P+N	1P+N	3P+N
	AC Type		A Type	
25A	BBDR22530TB	BBDR42530TB	BBDG22530TB	BBDG42530TB
40A	BBDR24030TB	BBDR44030TB	BBDG24030TB	BBDG44030TB
50A	BBDR25030TB	BBDR45030TB	BBDG25030TB	BBDG45030TB
63A	BBDR26330TB	BBDR46330TB	BBDG26330TB	BBDG46330TB

MCB BOXes

■ Features

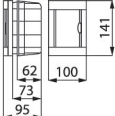
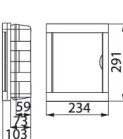
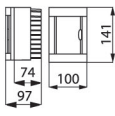
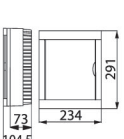
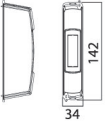
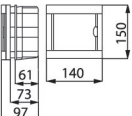
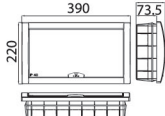
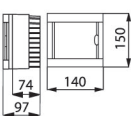
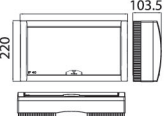
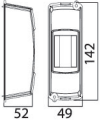
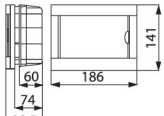
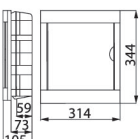
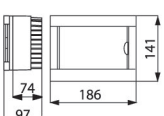
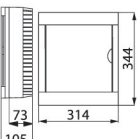
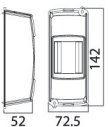
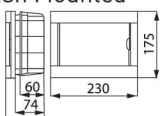
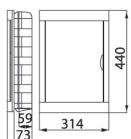
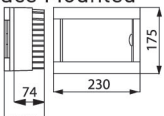
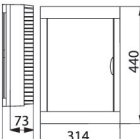
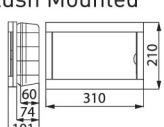
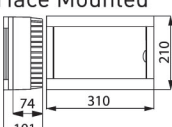
- Clear cover that lets you check the MCB status easily
- Compliant with IP performance below
IP40:2-36 Modules (Flush/Surface Mounted)
IP20:1,1-2,3-4 Modules (Surface Mounted)
- Heat resistance up to 650°C
- Includes ground terminal with insulating cover
- Water level gauge that supports horizontal construction (16-36 Modules)
- Locked cover system



				
No. of Row	No. of Modules per Row	Capacity in 18mm Modules in Row	Flush Mounted	Surface Mounted
1	1	1	–	BQDT20101-PH
1	1-2	1-2	–	BQDT20201-PH
1	2	2	BQDT10211-PH	BQDT20211-PH
1	3-4	3-4	–	BQDT20401-PH
1	4	4	BQDT10411-PH	BQDT20411-PH
1	6	6	BQDT10611-PH	BQDT20611-PH
1	8	8	BQDT10811-PH	BQDT20811-PH
1	12	12	BQDT11211-PH	BQDT21211-PH
2	8	16	BQDT11611-PH	BQDT21611-PH
1	18	18	BQDT11811-PH	BQDT21811-PH
2	12	24	BQDT12411-PH	BQDT22411-PH
3	12	36	BQDT13611-PH	BQDT23611-PH

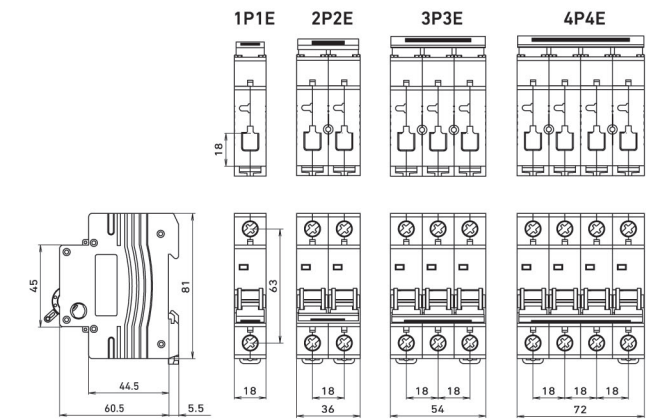
MCB BOXes

Flush Mounted		Surface Mounted		
2-Flush Mounted 	16-Flush Mounted 	2-Surface Mounted 	16-Surface Mounted 	1-Surface Mounted 
4-Flush Mounted 	18-Flush Mounted 	4-Surface Mounted 	18-Surface Mounted 	1-2-Surface Mounted 
6-Flush Mounted 	24-Flush Mounted 	6-Surface Mounted 	24-Surface Mounted 	3-4-Surface Mounted 
8-Flush Mounted 	36-Flush Mounted 	8-Surface Mounted 	36-Surface Mounted 	
12-Flush Mounted 		12-Surface Mounted 		

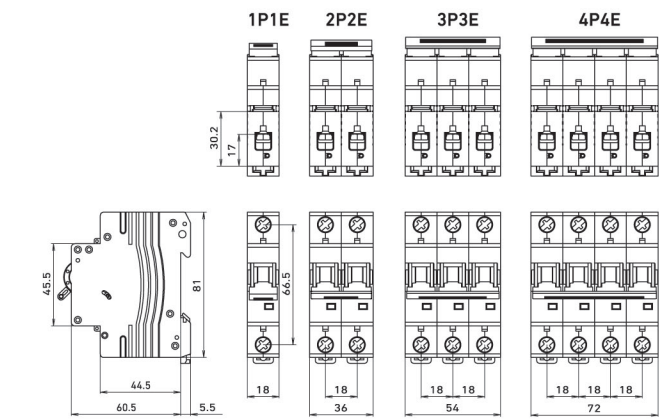
Flush Mounted		Surface Mounted		
2-Flush Mounted 	16-Flush Mounted 	2-Surface Mounted 	16-Surface Mounted 	1-Surface Mounted 
4-Flush Mounted 	18-Flush Mounted 	4-Surface Mounted 	18-Surface Mounted 	1-2-Surface Mounted 
6-Flush Mounted 	24-Flush Mounted 	6-Surface Mounted 	24-Surface Mounted 	3-4-Surface Mounted 
8-Flush Mounted 	36-Flush Mounted 	8-Surface Mounted 	36-Surface Mounted 	
12-Flush Mounted 		12-Surface Mounted 		

Overall and Installation Dimension (mm)

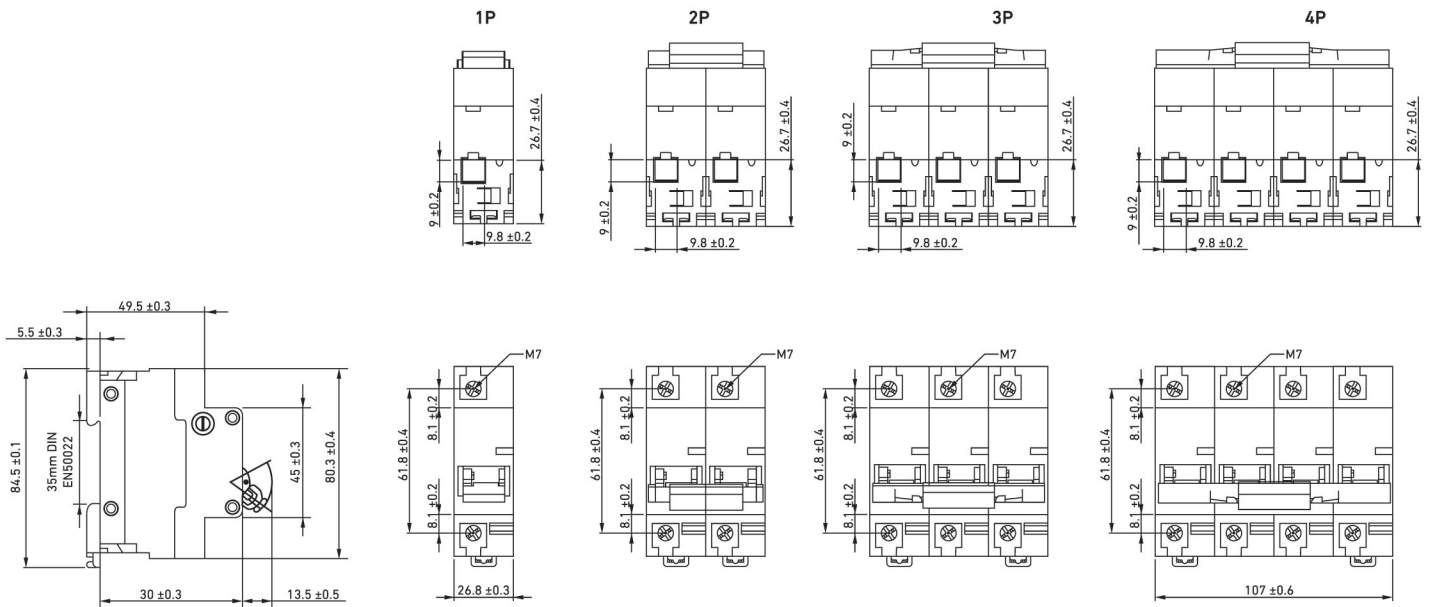
MCB 63AF 4.5kA



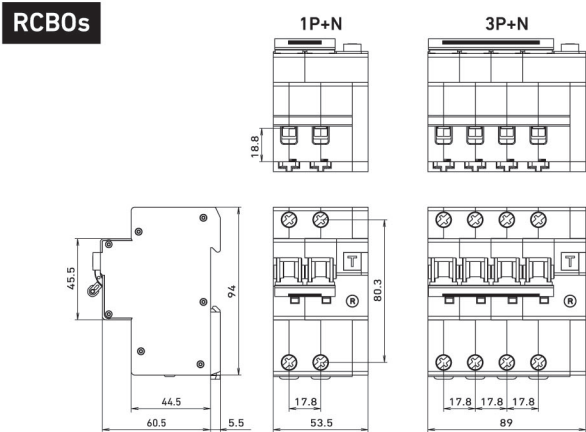
MCB 63AF 6/10kA



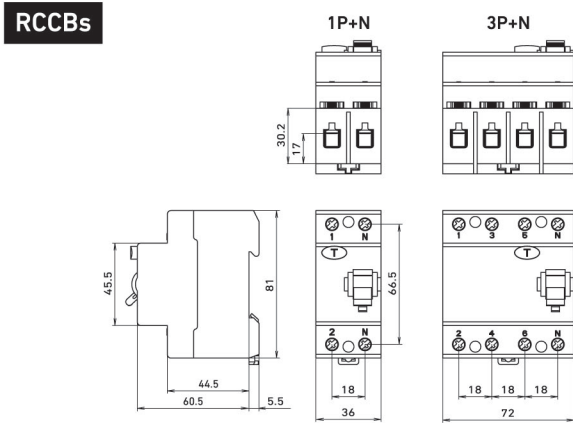
MCB 125AF 10kA



RCBOs



RCCBs



Precautions for installation and use

- Breakers conform to the IEC60898-1(or IEC61008-1 or IEC61009-1), which is intended for use in homes and similar facilities. Do not install for other use.
- The personnel for installing and maintaining breakers shall be qualified electric worker.
- Use breakers under environment and conditions defined in IEC standard.

[Category of warranty]

If the products become defective which are responsible to manufacturer, replacements of the defective products will be done. However, in case of the following cases, the warranty is invalid.

- (1) Applied to the safety equipment or control system used for the area listed below:

☐ Railway, aviation or medical

☐ There is the possibility to harm human/animal life, to damage human body or to influence personal property.

As these products are designed to be used only for electrical equipment, the customer is requested to consider safer design, like redundant design, fire-spread or anti-malfunction design when the customer intend to use the products under the area listed above.

- (2) Improper use or incorrect installation/operation by the customer which are not complied to the specification of the products.

- (3) Defects caused by any reasons originating from other products or matters.

- (4) Defects caused by unauthorized modifications or repairs by the customer.

- (5) Other defects caused by natural disaster.

This warranty compensates only replacement of the products and excludes the induced damage by defect of the products.

NOTES

[illegible]

NOTES

[illegible]