

DISTRIBUTION

Miniature Circuit Breakers BE1 Series



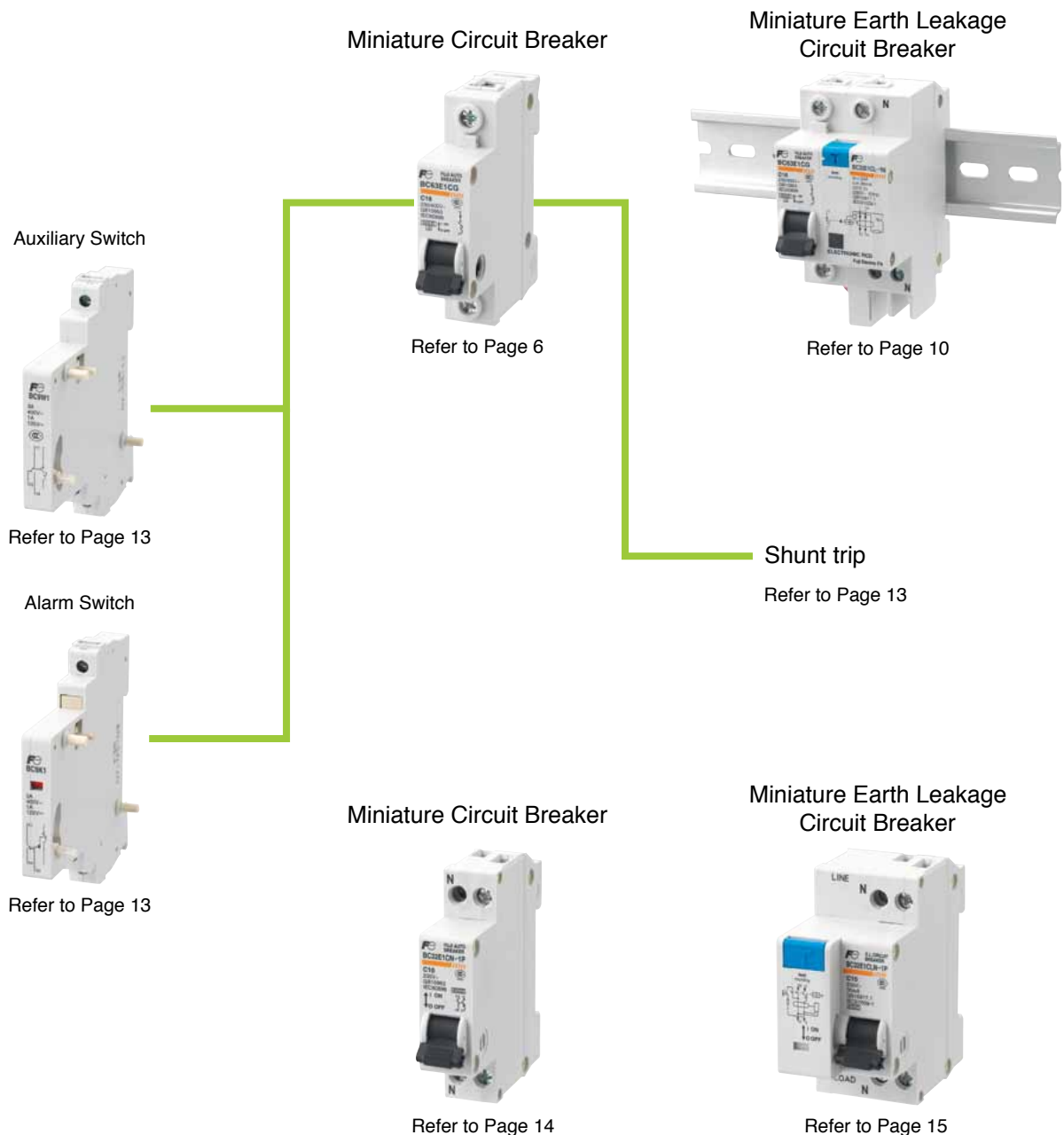
BE1 Series Miniature Circuit Breaker

Features

This series of miniature circuit breaker is for the purpose of the protection of distribution equipment in the residential or similar facility, to protect against short circuit and overload damage.

- Among the characteristics of overload protection, there are the Curve C characteristic for the protection of lighting electrical systems having $5 \sim 10I_n$ instantaneous tripping characteristic, and the Curve D characteristic for the protection of ordinary electrical system wires having $10 \sim 14I_n$ instantaneous tripping characteristic.
- ELCB is completed by combining a miniature circuit breaker with an earth leakage shunt trip device.
- As functional components can be installed such as auxiliary switch, alarm switch among others, it can monitor and control the electrical system.

Product Composition



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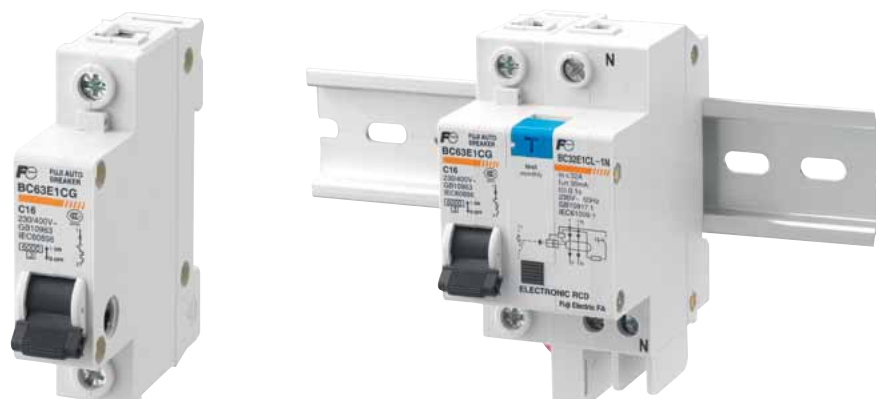
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BE1 Series Miniature Circuit Breakers

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BE1 Series Miniature Circuit Breakers

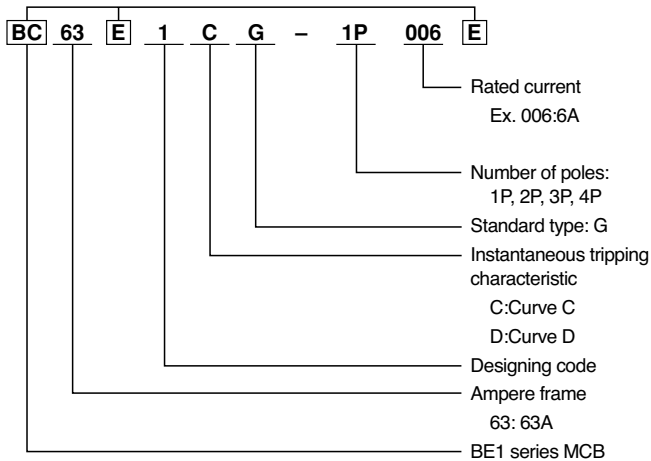
BC63 Series

BC63 Series Miniature Circuit Breaker Standards

Application

- Curve C: Illumination distribution system
- Curve D: Industrial distribution system
- Overload and short circuit protection

Type number nomenclature



Standards and Certificates

- IEC 60898-1, GB 10963.1
- CE, CCC

Working Condition

- Ambient temperature: -35°C to +70°C
- Altitude: ≤2000m
- Air humidity: ≤95%
- Pollution degree: II
- A place where there should not be significant shock or vibration

Product Features

- With short circuit current limiting structure-high breaking capacity of lated short circuit.
- Short-circuit and overload protection
- Screw clamp, shock-proof wiring terminals
- Numerous accessories available
- Modularization-random combination, series mating
- Standard TH35 mm IEC rail mounting

Specifications

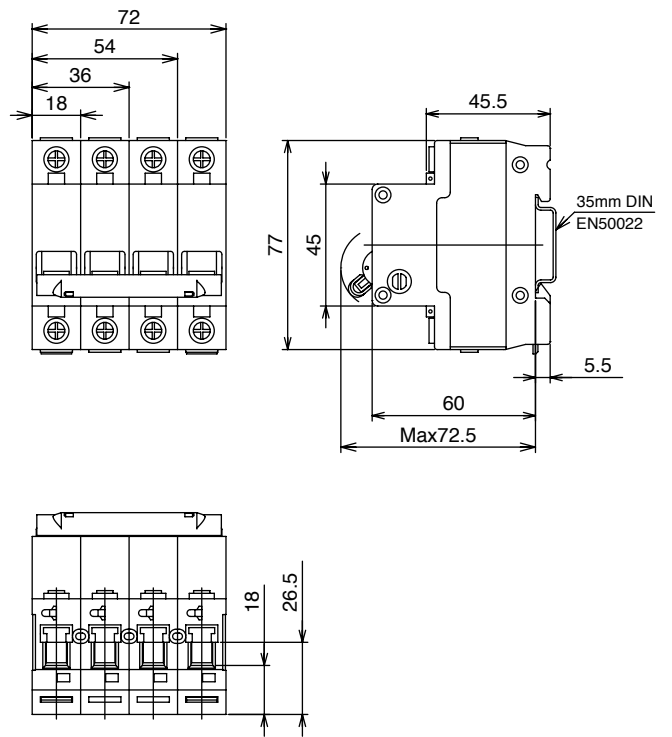
- Rated voltage: AC230/400V, 50/60Hz
- Rated current: page 5-6
- Mechanical life: 10000 times
- Tripping characteristic: C: 5~10In
D: 10-14In
- Breaking capacity

Tripping characteristic	Rated current (A)	Rated operational voltage (V)	Rated breaking capacity (kA)
Curve C	1~40	230/400	6
	50, 63	230/400	4.5
Curve D	1~40	230/400	4.5

Wiring Capacity

Rated current (A)	Wire size (mm²)
In≤63	25

Dimensions, mm



BE1 Series Miniature Circuit Breakers

BC63 Series

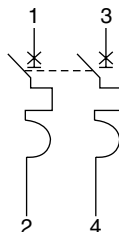
● Type and Rated Current



1P



2P

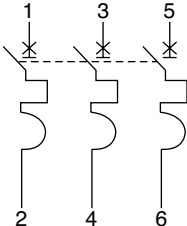
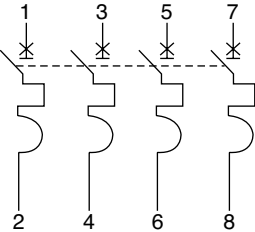


Number of poles	Tripping characteristics	Width (mm)	Rated current (A)	Type
1P	Curve C	18	1	BC63E1CG-1P001E
			2	BC63E1CG-1P002E
			3	BC63E1CG-1P003E
			4	BC63E1CG-1P004E
			5	BC63E1CG-1P005E
			6	BC63E1CG-1P006E
			10	BC63E1CG-1P010E
			16	BC63E1CG-1P016E
			20	BC63E1CG-1P020E
			25	BC63E1CG-1P025E
			32	BC63E1CG-1P032E
			40	BC63E1CG-1P040E
			50	BC63E1CG-1P050E
			63	BC63E1CG-1P063E
	Curve D		1	BC63E1DG-1P001E
			2	BC63E1DG-1P002E
			3	BC63E1DG-1P003E
			4	BC63E1DG-1P004E
			5	BC63E1DG-1P005E
			6	BC63E1DG-1P006E
			10	BC63E1DG-1P010E
			16	BC63E1DG-1P016E
			20	BC63E1DG-1P020E
			25	BC63E1DG-1P025E
			32	BC63E1DG-1P032E
			40	BC63E1DG-1P040E
2P	Curve C	36	1	BC63E1CG-2P001E
			2	BC63E1CG-2P002E
			3	BC63E1CG-2P003E
			4	BC63E1CG-2P004E
			5	BC63E1CG-2P005E
			6	BC63E1CG-2P006E
			10	BC63E1CG-2P010E
			16	BC63E1CG-2P016E
			20	BC63E1CG-2P020E
			25	BC63E1CG-2P025E
			32	BC63E1CG-2P032E
			40	BC63E1CG-2P040E
			50	BC63E1CG-2P050E
			63	BC63E1CG-2P063E
	Curve D		1	BC63E1DG-2P001E
			2	BC63E1DG-2P002E
			3	BC63E1DG-2P003E
			4	BC63E1DG-2P004E
			5	BC63E1DG-2P005E
			6	BC63E1DG-2P006E
			10	BC63E1DG-2P010E
			16	BC63E1DG-2P016E
			20	BC63E1DG-2P020E
			25	BC63E1DG-2P025E
			32	BC63E1DG-2P032E
			40	BC63E1DG-2P040E

BE1 Series Miniature Circuit Breakers

BC63 Series

● Type and Rated Current

Number of poles	Tripping characteristics	Width (mm)	Rated current (A)	Type
3P 	Curve C	54	1	BC63E1CG-3P001E
			2	BC63E1CG-3P002E
			3	BC63E1CG-3P003E
			4	BC63E1CG-3P004E
			5	BC63E1CG-3P005E
			6	BC63E1CG-3P006E
			10	BC63E1CG-3P010E
			16	BC63E1CG-3P016E
			20	BC63E1CG-3P020E
			25	BC63E1CG-3P025E
			32	BC63E1CG-3P032E
			40	BC63E1CG-3P040E
			50	BC63E1CG-3P050E
			63	BC63E1CG-3P063E
	Curve D		1	BC63E1DG-3P001E
			2	BC63E1DG-3P002E
			3	BC63E1DG-3P003E
			4	BC63E1DG-3P004E
			5	BC63E1DG-3P005E
			6	BC63E1DG-3P006E
			10	BC63E1DG-3P010E
			16	BC63E1DG-3P016E
			20	BC63E1DG-3P020E
			25	BC63E1DG-3P025E
			32	BC63E1DG-3P032E
			40	BC63E1DG-3P040E
4P 	Curve C	72	1	BC63E1CG-4P001E
			2	BC63E1CG-4P002E
			3	BC63E1CG-4P003E
			4	BC63E1CG-4P004E
			5	BC63E1CG-4P005E
			6	BC63E1CG-4P006E
			10	BC63E1CG-4P010E
			16	BC63E1CG-4P016E
			20	BC63E1CG-4P020E
			25	BC63E1CG-4P025E
			32	BC63E1CG-4P032E
			40	BC63E1CG-4P040E
			50	BC63E1CG-4P050E
			63	BC63E1CG-4P063E
	Curve D		1	BC63E1DG-4P001E
			2	BC63E1DG-4P002E
			3	BC63E1DG-4P003E
			4	BC63E1DG-4P004E
			5	BC63E1DG-4P005E
			6	BC63E1DG-4P006E
			10	BC63E1DG-4P010E
			16	BC63E1DG-4P016E
			20	BC63E1DG-4P020E
			25	BC63E1DG-4P025E
			32	BC63E1DG-4P032E
			40	BC63E1DG-4P040E

● Precautions for the DC use of BC63 Series

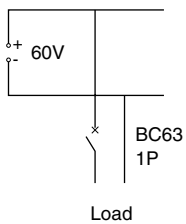
Miniature Circuit Breaker

- Choose the rated current of the circuit breaker according to the power of direct current circuit.
- DC rated voltage determines the number of cascades of circuit breaker to use.
 - DC60V One pole
 - DC125V Two poles
 - DC250V Four poles
- Such use does not have to be divided into positive and negative and can be up and down into the line.
- In the above use condition, the estimated short circuit current cannot exceed its rated service short circuit breaking capacity.

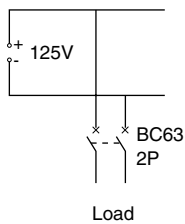
Circuit breaker model	Rated current (A)	DC rated service short circuit breaking capacity (kA)		
		60V	125V	250V
BC63	1A~63A	10(1P)	20(2P)	50(4P)

● Wiring Schematics

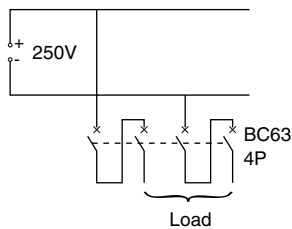
Ex. 1



Ex. 2



Ex. 3



BE1 Series Miniature Circuit Breakers

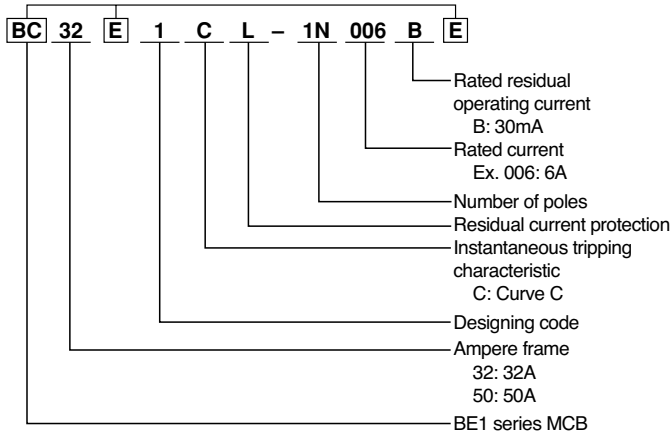
BC32 and BC50 Series

■ Miniature Earth Leakage Circuit Breaker Standards

● Application

- Clip onto the right side of BC32E1, BC50E1 series MCB protection against earth leakage faults.

● Type number nomenclature



● Appearance



● Wiring Capacity

Rated current (A)	Wire size (mm²)	
	Power	Load
In≤32	25	10
In≤50		25

● Standards and Certificates

- IEC 61009-1, GB 16917.1
- CCC

● Working Condition

- Ambient temperature: -5°C to +40°C
- Altitude: ≤2000m
- Air humidity: ≤95%
- Pollution degree: II
- A place where there should not be significant shock or vibration

● Specifications

- Rated voltage: AC230/400V(1PN, 2P) 50Hz
AC400V(3P, 3PN, 4P) 50Hz
- Rated current: page 10
- Rated residual operating current: 30mA
- Mechanical life: 20000 times
- Instantaneous tripping characteristic: curve C: 5-10In
- Breaking capacity

Tripping characteristic	Rated current (A)	Rated operational voltage (V)	Rated breaking capacity (kA)
Curve C	1~40	230/400	6
	50	230/400	4.5

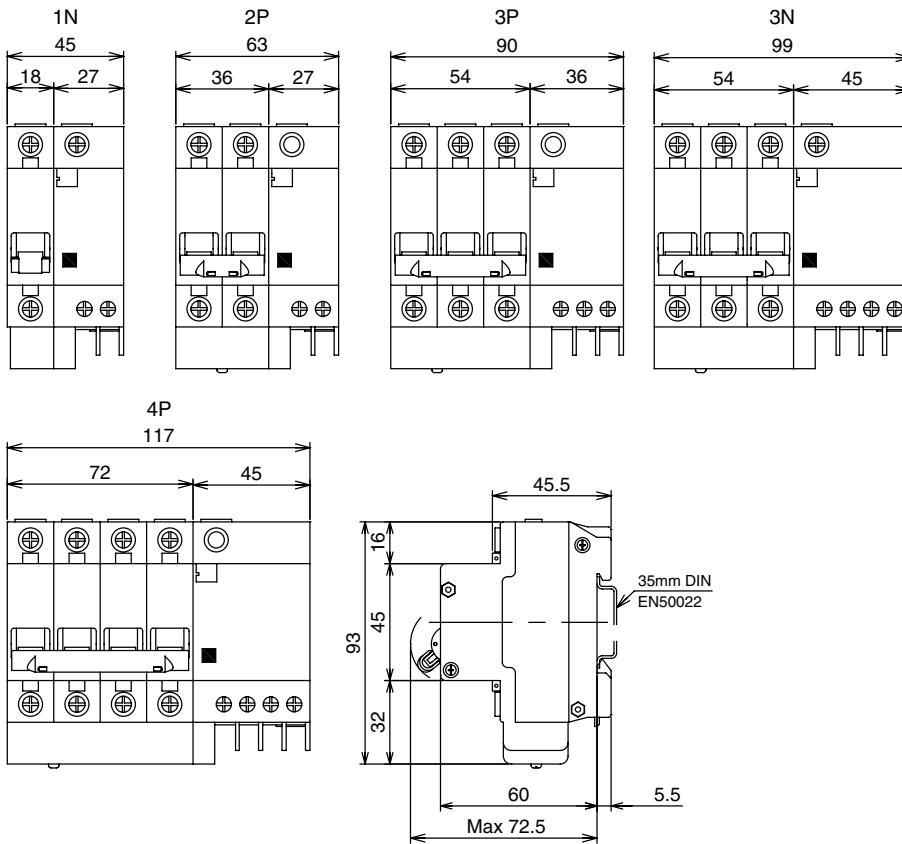
BE1 Series Miniature Circuit Breakers

BC32 and BC50 Series

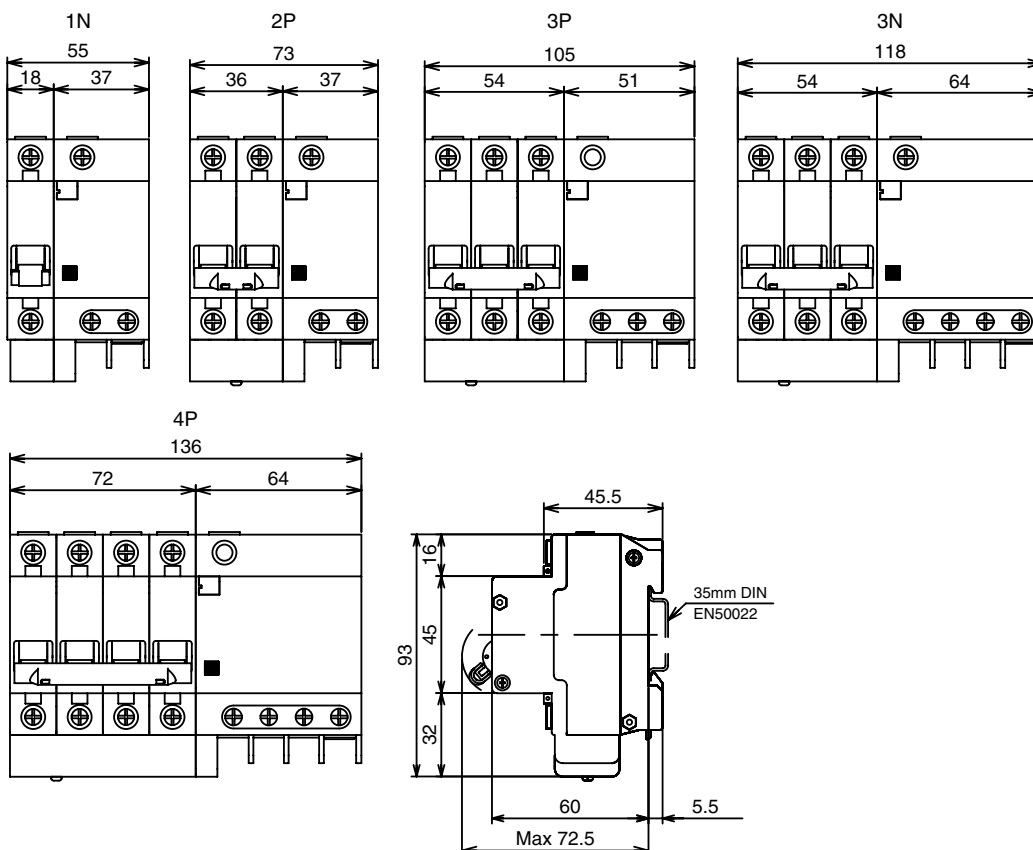
● Dimensions, Miniature Earth Leakage Circuit Breaker, mm

Miniature earth leakage circuit breaker consists of miniature circuit breaker and earth leakage shunt trip.

BC32E1CL



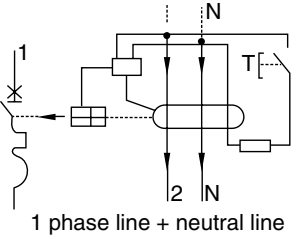
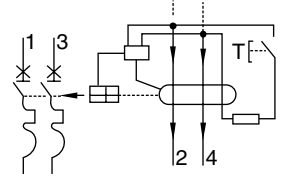
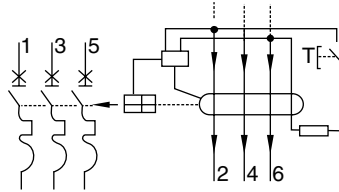
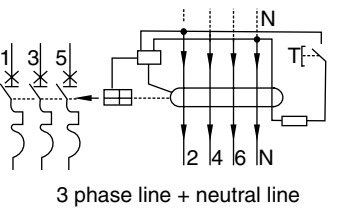
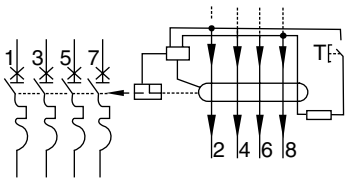
BC50E1CL



BE1 Series Miniature Circuit Breakers

BC32 and BC50 Series

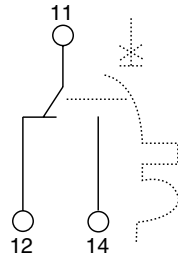
● Type and Rated Current

Number of poles	Wiring diagram	Tripping characteristics	Width (mm)		Rated current (A)	Type
			Miniature circuit breaker	Earth leakage shunt trip		
1N	 1 phase line + neutral line	Curve C	18	27	1	BC32E1CL-1N001BE
					2	BC32E1CL-1N002BE
					3	BC32E1CL-1N003BE
					4	BC32E1CL-1N004BE
					5	BC32E1CL-1N005BE
					6	BC32E1CL-1N006BE
					10	BC32E1CL-1N010BE
					16	BC32E1CL-1N016BE
					20	BC32E1CL-1N020BE
					25	BC32E1CL-1N025BE
				37	32	BC32E1CL-1N032BE
					40	BC50E1CL-1N040BE
					50	BC50E1CL-1N050BE
2P			36	27	1	BC32E1CL-2P001BE
					2	BC32E1CL-2P002BE
					3	BC32E1CL-2P003BE
					4	BC32E1CL-2P004BE
					5	BC32E1CL-2P005BE
					6	BC32E1CL-2P006BE
					10	BC32E1CL-2P010BE
					16	BC32E1CL-2P016BE
					20	BC32E1CL-2P020BE
					25	BC32E1CL-2P025BE
				37	32	BC32E1CL-2P032BE
					40	BC50E1CL-2P040BE
					50	BC50E1CL-2P050BE
3P			54	36	1	BC32E1CL-3P001BE
					2	BC32E1CL-3P002BE
					3	BC32E1CL-3P003BE
					4	BC32E1CL-3P004BE
					5	BC32E1CL-3P005BE
					6	BC32E1CL-3P006BE
					10	BC32E1CL-3P010BE
					16	BC32E1CL-3P016BE
					20	BC32E1CL-3P020BE
					25	BC32E1CL-3P025BE
				51	32	BC32E1CL-3P032BE
					40	BC50E1CL-3P040BE
					50	BC50E1CL-3P050BE
3N	 3 phase line + neutral line		54	45	1	BC32E1CL-3N001BE
					2	BC32E1CL-3N002BE
					3	BC32E1CL-3N003BE
					4	BC32E1CL-3N004BE
					5	BC32E1CL-3N005BE
					6	BC32E1CL-3N006BE
					10	BC32E1CL-3N010BE
					16	BC32E1CL-3N016BE
					20	BC32E1CL-3N020BE
					25	BC32E1CL-3N025BE
				64	32	BC32E1CL-3N032BE
					40	BC50E1CL-3N040BE
					50	BC50E1CL-3N050BE
4P			72	45	1	BC32E1CL-4P001BE
					2	BC32E1CL-4P002BE
					3	BC32E1CL-4P003BE
					4	BC32E1CL-4P004BE
					5	BC32E1CL-4P005BE
					6	BC32E1CL-4P006BE
					10	BC32E1CL-4P010BE
					16	BC32E1CL-4P016BE
					20	BC32E1CL-4P020BE
					25	BC32E1CL-4P025BE
				64	32	BC32E1CL-4P032BE
					40	BC50E1CL-4P040BE
					50	BC50E1CL-4P050BE

• The earth leakage shunt trip of our company is only supplied in conjunction with the miniature circuit breaker of our company and will not be supplied alone.

■ Accessories Standards

● Auxiliary switch (W) Type: BC9W1SA1-E



Application

- Linked to the left side of BC63 series MCB to indicate the OPEN or CLOSED status of the associated breaker

Specifications

- Rated operating parameters

Voltage	Current	Voltage	Current
AC 230V	6A	AC 400V	3A
DC 24V	6A	DC 48V	2A
DC 125V	1A	DC 250V	0.4A

- Width (mm): 9

Notes:

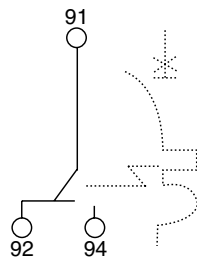
After clipping on to BC63

Point 11 and 14 are connected when circuit is closed;

Point 11 and 12 are connected when circuit is open.

May be used in conjunction with two alarm switches or another auxiliary switch.

● Alarm Switch (K) Type: BC9K1SA1-E



Application

- Linked to the left side of BC63 series MCB, to indicate the OPEN or CLOSED status of the associated breaker

Specifications

- Rated operating parameters

Voltage	Current	Voltage	Current
AC 230V	6A	AC 400V	3A
DC 24V	6A	DC 48V	2A
DC 125V	1A	DC 250V	0.4A

- Width (mm): 9

Notes:

After clipping on to BC63 MCB,

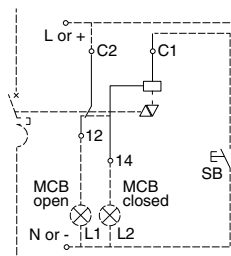
Point 91 and 92 are connected when circuit is closed;

Point 91 and 94 are connected when the breaker trips due to fault;

Point 91 and 92 are connected when the breaker trips by manual operation. Meanwhile, point 91 and 94 are disconnected.

May be used in conjunction with two alarm switches.

● Shunt trip (F+W) Type: BC9FRA1-E, BC9FKA1-E



Application

- Linked to the right side of BC63 series MCB
- Remote control

Specifications

- Control voltage

Type	Control voltage
BC9FRA1-E	AC230/400V
BC9FKA1-E	DC24/48V

- Width (mm): 18

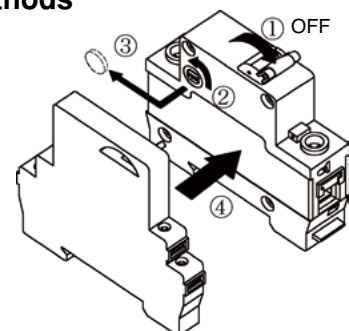
■ Standards and Certificates

- IEC 60947-5, GB 14048.5
- CCC

■ Wiring Capacity

- Single line: 2.5 mm² Double line: 1.5 mm²

■ Assembly methods



BE1 Series Miniature Circuit Breakers

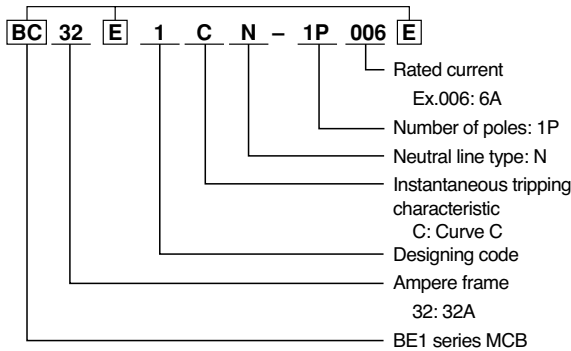
BC32 Series Miniature Circuit Breaker (1P+N)

■ Miniature Circuit Breaker (1P+N)

● Application

- TT/TN-S grounding system
- Phase and neutral protection against short circuit and overload

● Type number nomenclature



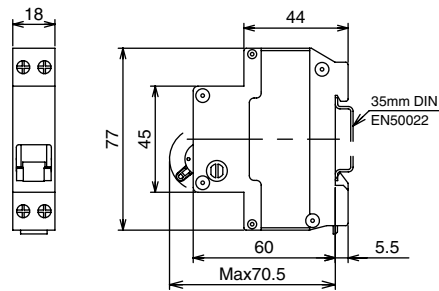
● Specifications

- Rated voltage: AC230V, 50/60Hz
- Mechanical life: 10000 times
- Tripping characteristic: C: 5~10In
- Breaking capacity: 4.5kA

● Wiring Capacity

- ≤ 10 mm²

● Dimensions, mm



● Standards and Certificates

- IEC 60898-1, GB 10963.1
- CCC

● Working Condition

- Ambient temperature: -35°C to +70°C
- Altitude: ≤2000m
- Air humidity: ≤95%

● Product Features

- Phase and neutral are both switched when circuit opens or trips because of failure
- Neutral line connected early and disconnected late
- Screw clamp, shock-proof wiring terminals
- Standard TH35 mm IEC rail mounting

● Type and Rated Current



Number of poles	Width (mm)	Rated current (A)	Type
	18	6	BC32E1CN-1P006E
		10	BC32E1CN-1P010E
		16	BC32E1CN-1P016E
		20	BC32E1CN-1P020E
		25	BC32E1CN-1P025E
		32	BC32E1CN-1P032E

BE1 Series Miniature Circuit Breakers

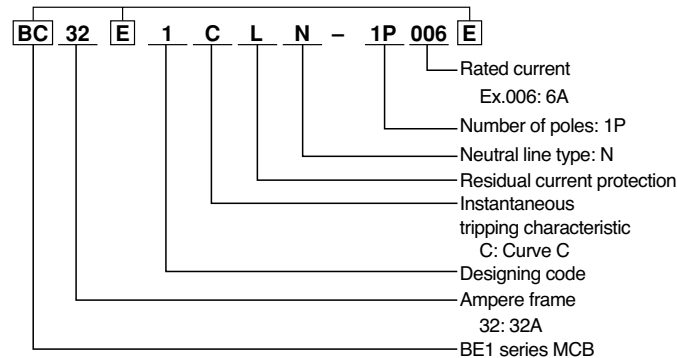
BC32 Series Miniature Earth Leakage Circuit Breaker (1P+N)

■ Earth Leakage Circuit Breaker (1P+N)

● Application

- TT/TN-S grounding system
- Phase and neutral protection against short circuit and overload

● Type number nomenclature



● Standards and Certificates

- IEC 61009-1, GB 16917.1
- CCC

● Working Condition

- Ambient temperature: -5°C to +40°C
- Altitude: ≤2000m
- Air humidity: ≤95%

● Product Features

- Phase and neutral are both switched when circuit opens or trips because of failure
- Neutral line connected early and disconnected late
- Convenient wiring
- Standard TH35 mm IEC rail mounting

● Type and Rated Current



Number of poles	Width (mm)	Rated current (A)	Rated residual operating current (mA)	Type
	36	6	30	BC32E1CLN-1P006E
		10		BC32E1CLN-1P010E
		16		BC32E1CLN-1P016E
		20		BC32E1CLN-1P020E
		25		BC32E1CLN-1P025E
		32		BC32E1CLN-1P032E

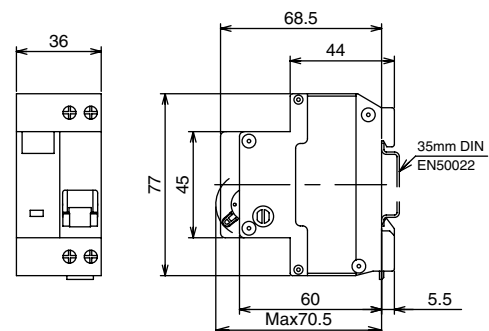
● Specifications

- Rated voltage: AC230V, 50Hz
- Mechanical life: 10000 times
- Tripping characteristic: C: 5~10I_n
- Rated residual operating current: 30mA
- Breaking capacity: 4.5kA

● Wiring Capacity

- ≤ 10 mm²

● Dimensions, mm



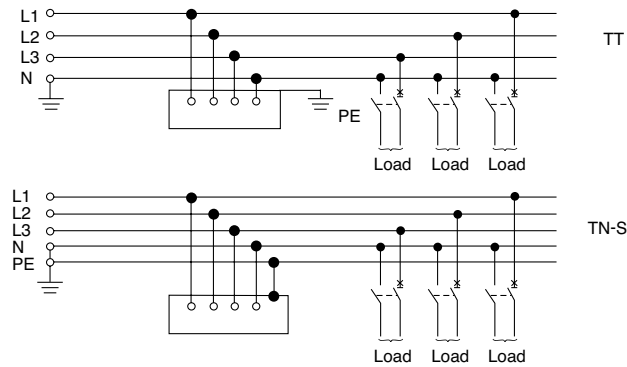
BE1 Series Miniature Circuit Breakers

Wiring Method/Characteristic Curves

■ Wiring Method

● Use of phase line and neutral line series products in the TT / TN-S systems

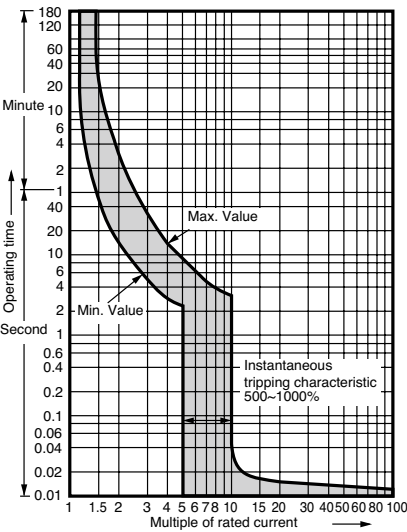
Phase line and neutral line are required to be switched in the TT (three-phase four-wire system)/TN-S (three-phase five-wire system) systems.



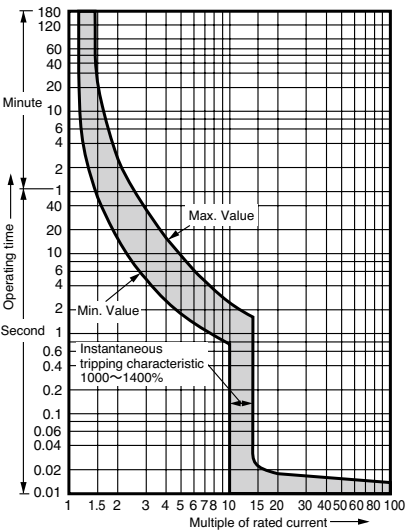
■ Characteristic Curves

● BC32, BC50, BC63

• Curve C (5~10I_n)



• Curve D (10~14I_n)



BE1 Series Miniature Circuit Breakers

Temperature Compensation Table

■ Temperature Compensation Table

Compensated current(A)		Rated current(A)										
		1	3	6	10	16	20	25	32	40	50	63
Ambient temperature (C°)	-35	1.27	3.89	7.70	13.89	20.78	25.67	32.21	41.04	51.63	64.92	83.48
	-30	1.25	3.83	7.58	13.62	20.43	25.28	31.72	40.46	50.86	63.97	82.06
	-25	1.23	3.76	7.46	13.35	20.08	24.88	31.22	39.82	50.04	62.92	80.64
	-20	1.21	3.70	7.34	13.07	19.75	24.47	30.70	39.17	49.21	61.86	79.19
	-15	1.19	3.64	7.21	12.81	19.40	24.06	30.18	38.51	48.37	60.77	77.72
	-10	1.17	3.57	7.09	12.53	19.05	23.64	29.65	37.84	47.51	59.67	76.22
	-5	1.15	3.50	6.96	12.23	18.70	23.22	29.10	37.15	46.63	58.54	74.70
	0	1.13	3.44	6.83	11.93	18.33	22.78	28.55	36.47	45.74	57.40	73.14
	5	1.10	3.37	6.70	11.63	17.96	22.34	27.98	35.75	44.83	56.23	71.54
	10	1.08	3.30	6.56	11.33	17.58	21.89	27.41	35.03	43.90	55.05	69.91
	15	1.06	3.22	6.42	11.01	17.20	21.43	26.82	34.30	42.95	53.81	68.24
	20	1.05	3.14	6.27	10.67	16.80	20.96	26.22	33.54	41.98	52.56	66.53
	25	1.02	3.06	6.14	10.34	16.40	20.47	25.61	32.77	40.99	51.28	64.78
	30	1.00	3.00	6.00	10.00	16.00	20.00	25.00	32.00	40.00	50.00	63.00
	35	0.97	2.92	5.84	9.63	15.35	19.47	24.33	31.17	38.93	47.82	60.11
	40	0.94	2.84	5.68	9.24	15.11	18.95	23.67	30.34	37.85	46.24	58.19
	45	0.91	2.76	5.52	8.85	14.66	18.42	23.00	29.48	36.75	44.81	56.21
	50	0.89	2.67	5.36	8.45	14.20	17.87	22.28	28.60	35.61	43.33	54.16
	55	0.86	2.58	5.19	8.01	13.71	17.30	21.56	27.69	34.43	41.81	52.03
	60	0.83	2.49	5.01	7.55	13.21	16.71	20.80	26.75	33.21	40.23	49.81
	65	0.80	2.38	4.83	7.06	12.70	16.10	20.02	25.78	31.95	38.58	47.50
	70	0.77	2.27	4.64	6.55	12.15	15.47	19.21	24.77	30.63	35.77	43.05

Note: Ambient temperature means the set temperature within the circuit breaker distribution box or distribution panel.
The standard ambient temperature of 1A-63A circuit breaker is 30°C.

Memo

Safety Considerations

- 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.
- Products introduced in this catalog have not been designed or manufactured for such applications in a system or equipment that will affect human bodies or lives.
- 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.
- For safe operation, wiring should be conducted only by qualified engineers who have sufficient technical knowledge about electrical work or wiring.
- Follow the regulations of industrial wastes when the product is to be discarded.
- For further questions, please contact your Fuji sales representative or Fuji Electric FA.

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