

Introduction

This instruction manual is related to installation, wiring using and maintenance of circuit breaker.

Notes of Safety

Before using this Circuit Breaker, you should first thoroughly read this manual, in order to understand appropriate usage and handling.

This instruction manual classifies rank of safe heading to Danger and Caution.



: In case of using by mistake, it's possible to be died or got badly injured.



: In case of using by mistake, it's possible to be got a alight wound, or to be damaged physically.

Written by CAUTION, according to circumstance, it's possible to result in serious damage.

Notes of Installation



- Construct electrical construction by qualified person.
- At the time of wiring, Check the wire is un-energized. There is in danger of electric shock.
- At the time of installation, secure insulation clearance on line end of Circuit Breaker.
- Don't install at abnormal environment. There is in danger of a fire.
- Be careful so that foreign article and rain may not get in when install.
- Separate the inter-phase of line end. There is in danger of a fire.
- At the time of wiring, Tighten appropriate Tightening torque. There is in danger of a fire.
- At the time of wiring, don't tighten more than appropriate tightening torque. There is in danger of Circuit Breaker is damaged.
- Use the bolts of the attachment. There is in danger of a fire when using excluding the bolts of the attachment.

Notes of Safety



- Construct electrical construction by qualified person.
- In case Circuit Breaker has tripped. Operate it after get rid of the cause.
- Don't touch electric connecting terminal. There is in danger of electric shock.

Notes of maintenance

⚠ CAUTION

- Maintenance should be done a professional.
- At the time of wiring, Check the wire is un-energized. There is in danger of electric shock.
- Loosening of conductor connection screws may cause local overheating.
Tighten as necessary periodically. There is in danger of a fire.

1. Before installation

Before installation, be sure whether Type, Rating current, Frequency marked on the name plate are agree with ordered specifications and whether there are no fallen off parts or any damaged portions.

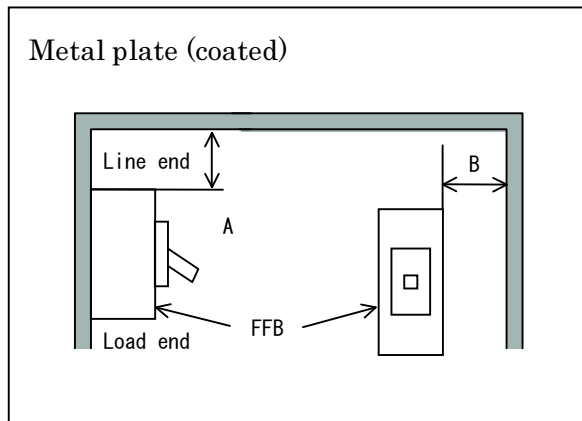
2. Installation

⚠ CAUTION

- Construct electrical construction by qualified person.
- Be careful so that foreign article and rain may not get in when install.

(1) Installation

Insulation clearance on line end of FFB is as follows :



Classification	F F B Frame	Minimum Dimensions (mm)	
		A	B
1	30A Frame, 50A Frame 60A Frame, FXK125-S(50A or less), FXK125-H(50A or less) (Excluding F-50KB,L-50E)	30	25
2	F-50KB,L-50E 100A Frame	40	40
3	225A Frame, 250A Frame, FXK125-S(excess 50A) FXK125-H(excess 50A)	50	40
4	400A Frame 600A Frame 800A Frame	80	50
5	1000A Frame, 1200A Frame 1600A Frame, 2000A Frame 2500A Frame, 3200A Frame 4000A Frame	150	100

⚠ CAUTION

- At the time of installation, secure insulation clearance on line end of Circuit Breaker.
- Don't install at abnormal environment. There is in danger of a fire.

(2) Connection

⚠ CAUTION

- At the time of wiring, Check the wire is un-energized. There is in danger of electric shock.

Tighten conductor connecting screw appropriate tightening torque, showed instruction manual.

Appropriate Tightening Torque of Terminal Screw

(unit N · m)

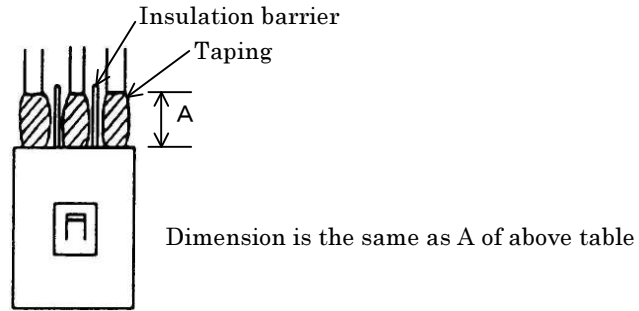
Appearance Type	Front connecting type					Rear connecting type										
	Clamping wire type		Compression terminal connector type			Rear connecting Studs type (less than 100A frame)					Rear connecting Bar Studs type (more than 225A frame)					
						A					B					
	M5	M6	M8	M10	M12	M4	M5	M6	M8	M10	M12	M6	M8	M10	M12	M16
S-30E,F-30FB,S-50EB,S-50SB, F-50FC,F-50FB,F-50H, F-50HB,B-50E,B-60E, S-60SB(50A or less), F-60FC(50A or less), F-60HB(50A or less), F-60RB(50A or less), S-60RB(50A or less), S-100EB(50A or less), S-100EBZ(50A or less), S-100SB(50A or less)	2.5 ~3.5	-	-	-	-	1.5 ~2.0	-	-	-	-	-	2.5 ~3.5	-	-	-	-
F-50KB,FXK50-H,L-50E, S-100S(50A or less), F-100FB(50A or less), F-100RB(50A or less), F-100S(50A or less), F-100KB(50A or less), L-100E(50A or less), FXK125-S(50A or less), FXK125-H(50A or less),	-	4.0 ~5.0	-	-	-	-	2.5 ~3.5	-	-	-	-	-	5.5 ~7.5	-	-	-
F-60FC,F-60HB,S-60SB, S-60RB,F-60RB(60A), S-100EB,S-100EBZ, S-100S,S-100SB,F-100FB, F-100RB,F-100S,F-100KB, L-100E(excess 50A),B-100E, FXK125-S(excess 50A), FXK125-H(excess 50A),	-	-	5.5 ~7.5	-	-	-	-	4.0 ~5.0	-	-	-	-	-	8.0 ~10	-	-
L-225E,S-400S,F-400FB,L-400E, F-250R,F-400R,SX400,FX400	-	-	-	20 ~27	-	-	-	-	10 ~13	-	-	-	10 ~13	-	-	-
S-225SB,SXK225,FX225C, FX225F,FXK250-S,FXK250-H	-	-	10 ~13	-	-	-	-	8.0 ~10	-	-	-	-	10 ~13	-	-	-
F-225FB,F-225KC	-	-	10 ~13	-	-	-	-	8.0 ~10	-	-	-	-	10 ~13	-	-	-
S-600S,S-800S, F-600F,F-800F,F-800KB, L-600E,L-800E, F-800R,F-800RH,SX600, FX600,SX800,FX800	-	-	-	-	40 ~50	-	-	-	-	-	40 ~50	-	-	-	40 ~50	-
F-1000C,F-1200C F-1000K,F-1200K,FX1000, FX1200,L-1000B,L-1200B	-	-	-	-	40 ~50	-	-	5.0 ~6.5	-	-	-	-	-	-	40 ~50	-
F-1600CB,F-1600B,F-2000E	-	-	-	20 ~27	-	-	-	-	10 ~13	-	-	-	-	23 ~38	-	-
F-1600E	-	-	-	-	40 ~50	-	-	-	-	-	-	-	-	23 ~38	-	-
F-2500E,F-3200CB,F-3200E	-	-	-	-	-	-	-	-	-	23 ~38	-	-	-	-	40 ~50	-
F-4000E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80~ 110

! CAUTION

- At the time of wiring, Tighten appropriate Tightening torque. There is in danger of a fire.
- At the time of wiring, Don't tighten more than appropriate tightening torque. There is in danger of Circuit Breaker is damaged.
- Line and Load connections must not be reversed.

(3) Insulation of line side's living parts

It is recommended that line side's live parts of front connected type Breakers are insulated by insulation tape or insulation barrier.



! CAUTION

- Separate the inter-phase of line end. There is in danger of a fire.

3. Using

Normal service condition

- (1) Ambient temperature : -10°C to 40°C
- (2) Relative humidity : 45% to 85%
- (3) Altitude : 2,000m or lower
- (4) Atmosphere : must be free corrosive gas, combustible gas, dust, vapor, salt, etc.

! CAUTION

- Don't touch electric connecting terminal. There is in danger of electric shock.
- In case Circuit Breaker has tripped. Operate it after get rid of the cause.
- Be careful so that foreign article and rain may not get in when install.

4. Maintenance

Inspection and Countermeasure

	Inspection Head	Countermeasure
1	Confirm that a terminal screw and a screw which tightens a electric wire don't loose.	If a loosed, please tighten more. (The most suitable torque to tighten is shown in page 3.)
2	Inspect that terminal and part of conductor joint don't become faded by raise in unusual temperature or there is no crack on molded case and cover.	When you inspect on your eyes, if terminal, part of conductor joint and mold become faded (by overheated), or crack, change new product.
3	Inspect that there is no dust, adherent oil or cutting waste and wiring waste as conductive foreign substance on the surface of Circuit Breaker, especially around terminal of upper power source.	After absorb the dust with cleaner, wipe the Circuit Breaker with dry and clean cloth.
4	Confirm that you can open and close smoothly using handle. And almost all of Circuit Breaker has a trip button, so confirm Shunt Trip by pushing button. (trip button) Push this button lightly using screwdriver	About Circuit Breaker which is "ON" position for a long time, handling switch is effective for prevention of increasing friction by hard of lubricant which is spread on switching mechanism and of unusual fever by movement action of contact.