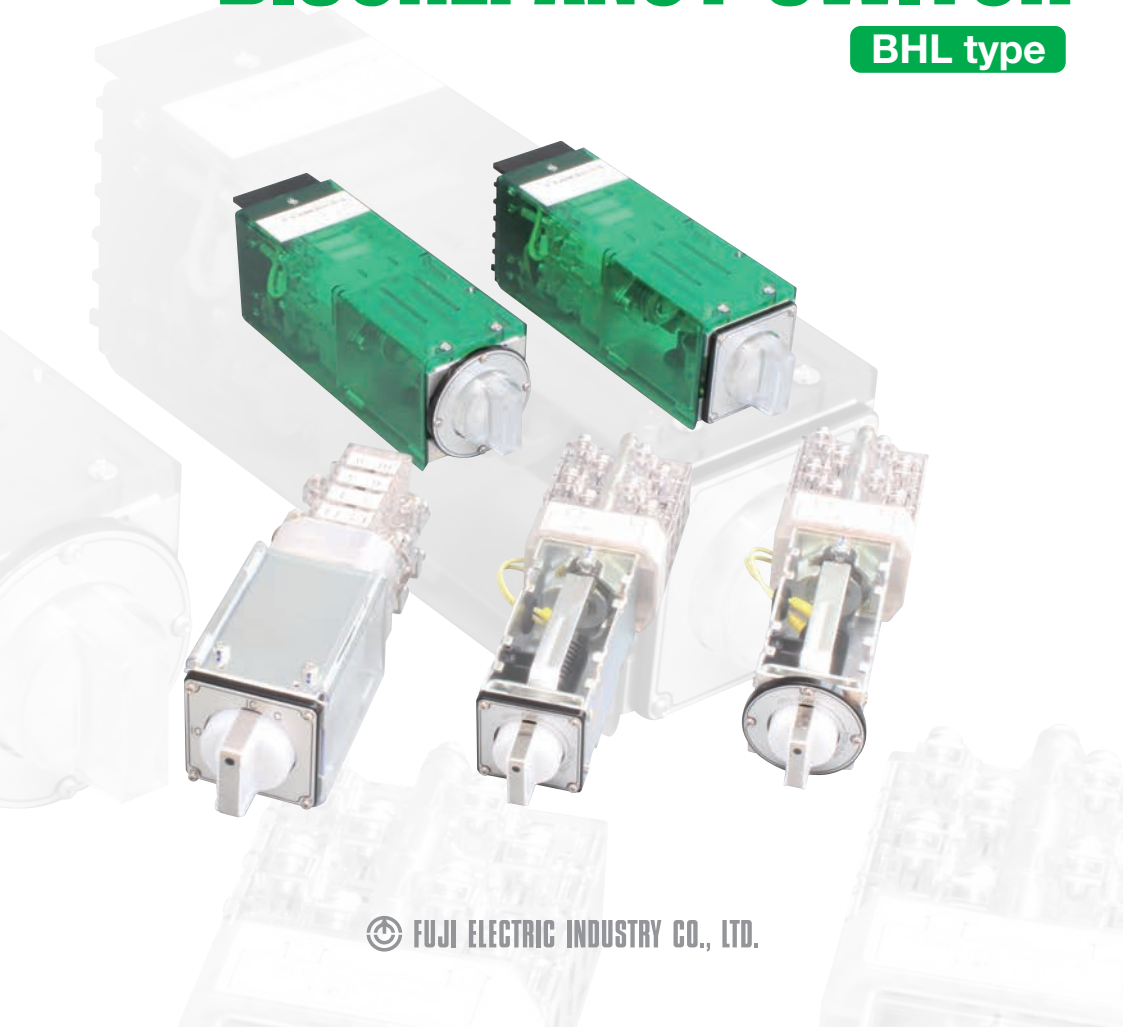


... DISCREPANCY SWITCH

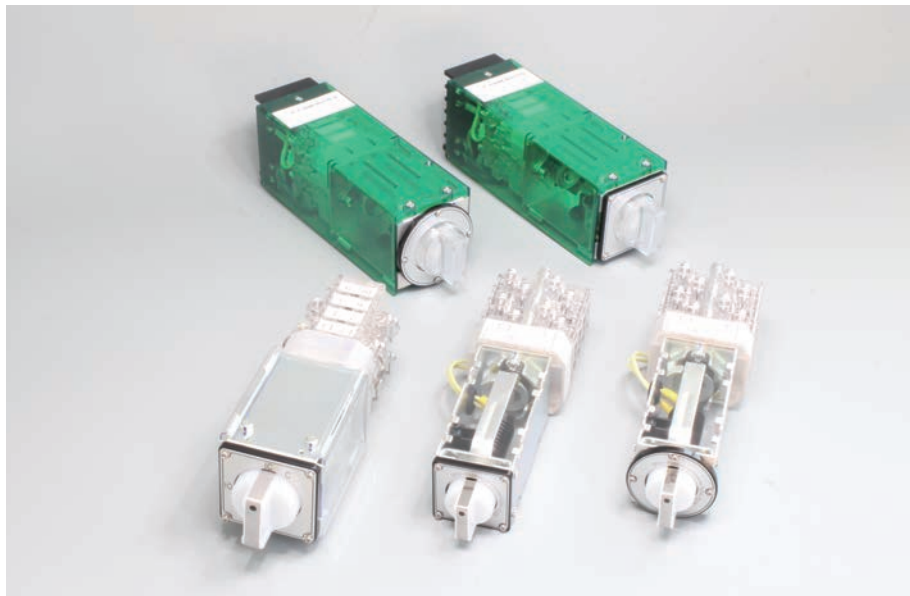
BHL type





DISCREPANCY SWITCH

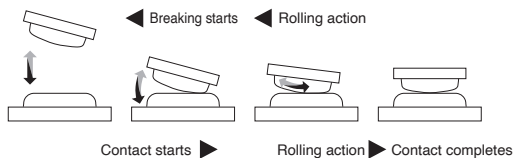
BHL TYPE



FEATURES

1

With the rolling action of the contact, it's minimize the area exposed to arc, there by high stability can be maintained for a long period.



NEW!

2

An L3 type adopted the front access method. So, LED unit can be changed easily, if you need to maintain or change power supply voltage.

(Please refer to the page 8 for method of removing and mounting for L3 type.)

3

Round and square types of nameplates can be selected according to your needs.



Square (Y) type



Round (Z) type

4

There are types of key that are Cylinder type (BHLC type) and padlock type (BHLP type) keys can be prepared.

The key lock mechanism can prevents erroneous operation.

5

In case of back terminal type (BHL-B type), terminal screws to wiring are aggregated on the back of the switch, it's possible to quick wiring.

6

A BHLFX type that conforms to the IP40 enclosure rating is available. Since the knob position is fastened with a screw, the BHLFX type can be prevent from getting into a foreign object from the outside, also unexpected contact with live parts. A protective ground terminal is also provided.

SPECIFICATIONS (RATINGS, PERFORMANCE)

Specification	Type	BHL TYPE
Rated insulation voltage (Ui)		690V
Rated current-carrying capacity (Ith)		20A
Max. wire size		5.5mm ²
Screw size		M4x9
Withstand voltage		2,500V AC / 1 min.
Rated impulse withstand voltage		4kV
Contact resistance		50mΩ or less
Mechanical life		500,000 operations or more
Electrical life		100,000 operations or more
Shock resistance		500m/s ² or more (in 6 directions) (Contact part: 300m/s ²)
Vibration resistance		Vibration range: 10 to 150Hz, Acceleration: 20m/s ² , Time: 1 hour (in 3 directions)
Min. power requirements		5V AC / 500mA, 5V DC / 100mA (in suitable operating conditions)
Operating temperature		-20 to 60°C
Storing temperature		-40 to 70°C
Altitude		2,000 m or less

■ Breaking capacity (Electrical life: 500,000 operations or more)

AC			DC				
Rated operating voltage (V)	Rated operating current Resistance load (A)	Rated operating current Inductive load (A)	Rated operating voltage (V)	Rated operating current Resistance load (A)	Rated operating current Inductive load (A)	2 contacts in series connection Rated operating current Resistance load (A)	2 contacts in series connection Rated operating current Inductive load (A)
110	20	15	24	15	10	20	20
220	15	10	48	10	6	18	15
440	4	3	110	3	1.5	4.5	4
—	—	—	220	1.2	0.8	2	1.5

*Inductive load AC: power factor 0.6 to 0.7
DC: Time constant 40±6ms

OVERSEAS STANDARD CONFORMABLE RATINGS (EN60947 / IEC60947)

(1) Standard operating conditions

No.	Item	Condition	Note
1	Ambient temperature	-5 to 40°C	IEC60947-1 6.1.1
2	Humidity	50% (at maximum temperature 40°C), Less than 90% (at other temperature 20°C)	IEC60947-1 6.1.3
3	Altitude	2000 m or less	IEC60947-1 6.1.2

(2) Rating

No.	Item	Rating				Note
1	Overvoltage class	III				IEC60664-1 2.2.2.1.1
2	Pollution degree	Level 3				IEC60947-5-1 6.1.3.2
3	Rated insulation voltage (Ui)	690V				IEC60947-1 4.3.1.2
4	Rated impulse withstand voltage (Uimp)	4kV				IEC60947-1 4.3.1.3
5	Operating load class Rated operating current (Ie) Rated operating voltage (Ue) * Electrical durability	Name	Operating load class	Ue (V)	Ie (A)	IEC60947-5-1 Annex A
				240	3	
		A600	AC-15	100,000 operations or more*		
				250	0.55	
P600	DC-13	20,000 operations or more*				
6	Rated frequency	50 / 60Hz				IEC60947-5-1 4.3.3
7	Customary free air heat current (Ith)	20A				IEC60947-1 4.3.2.1
8	Maximum rating of short-circuit protection device	20A				IEC60947-5-1 8.3.4.3
9	Short-circuit current under rated conditions	1,000A (cos φ = 1)				IEC60947-5-1 4.3.6.4
10	Mechanical durability	100,000 operations or more				60947-5-1 Annex C C.2



DISCREPANCY SWITCH

BHL TYPE

HOW TO ORDER

BHL-3B3 -110 L3-W-Y-B L54-Y000

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

No.	項目	Code	Detail	Remarks
①	Basic type	BHL	Standard type	—
		BHLS	Small knob type	—
		BHLC	Cylinder key type	—
		BHLP	Padlock type	—
		BHL-B	Back terminal type	*Only "L2 type"
		BHLFX	Fixed knob + housing protection ground terminal	—
②	Operation method	1	2-position chageover	—
		2	Push after 2-position chageover	*Only "BHL" and "BHLFX"
		3	Push and turn to right / left after 2-position chageover	—
		4	Pushing and turning to right or left	*Except "BHLS" and "BHL-B"
③	Operating position	A		*Only "Operation 1"
		B		—
		C		—
		D		—
		E		—
		S		*Only "Operation 4"
④	Number of units	1 to 6	Up to 6 units (12 contacts)	
⑤	Circuit number	3-digit indication	Check the model identification table (on 9 to 10). * For specifications of other types, please make inquiry to Fuji Electric Industry.	
⑥	Lamp voltage		L2 type	L3 type
		000	—	No LED
		024	—	24V AC/DC
		030	—	30V AC/DC
		048	—	48V AC/DC
		110	110V DC	110V AC/DC
		125	125V DC	125V AC/DC
		220	220V DC	220V AC/DC
240	—	230/240V AC/DC		
⑦	Indication method (with built-in resistor)	L2	Connector type LED lamp (built in resistance) Display color : Red / Green	BHLS BHL and others
		L3	LED indicator Display color : Milky white	○ ○
		W	Milky white (Silver mask black point) / Standard color for indication of "L3" type	○ ○
⑧	Knob color	C	Clear / Standard color for indication of "L2" type	— ○
		WB	Milky white (Black mask black point) / Special color	○ ○
		WFX	BHLFX only	— ○
		Y-B	Square	Black (N1.5)
⑨	Flange shape and color	Y-BG	Square	Blue green (7.5BG4/1.5)
		Z-B	Round	Black (N1.5)
		Z-BG	Round	Blue green (7.5BG4/1.5)
⑩	Nameplate	Please select name No. from page 7.		

Munsell approximate value is indicated in ().

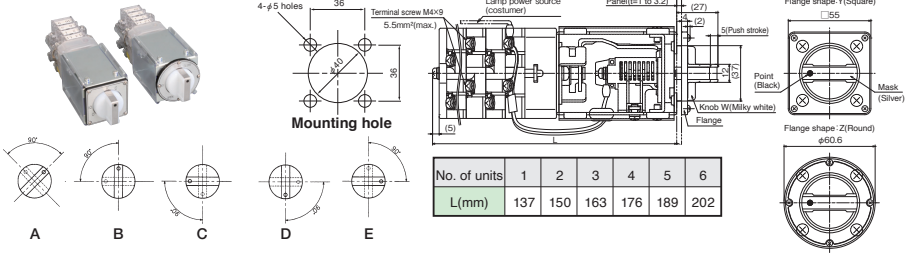
STANDARD SPECIFICATION PRODUCTS

Standard type (2-position changeover)

BHL-1

Operation method: Manual switching type

Drawing is L3 type

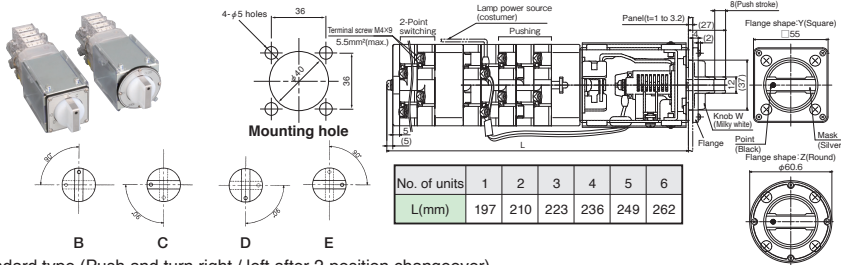


Standard type (Push after 2-position changeover)

BHL-2

Operation method: Manual switching type (Push operation is enabled at each position.)

Drawing is L3 type

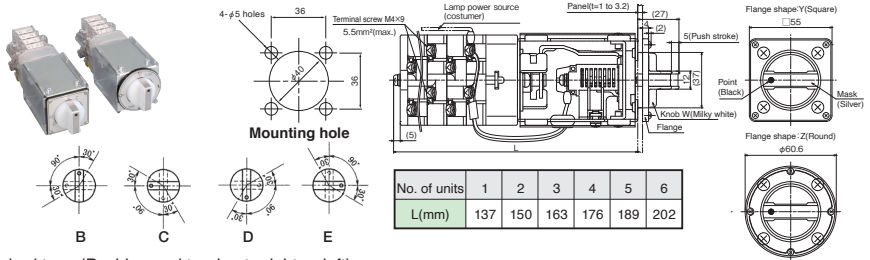


Standard type (Push and turn right / left after 2-position changeover)

BHL-3

Operation method: Manual switching type (90°) / Push & automatic return type (30°)

Drawing is L3 type

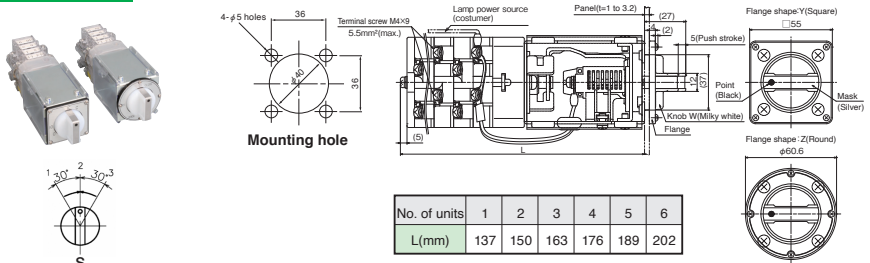


Standard type (Pushing and turning to right or left)

BHL-4

Operation method: Push & automatic return type (30°)

Drawing is L3 type





DISCREPANCY SWITCH

BHL TYPE

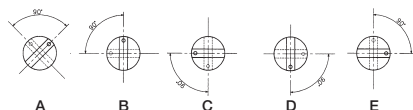
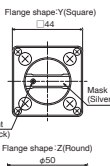
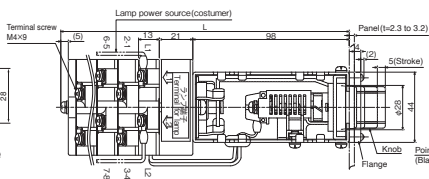
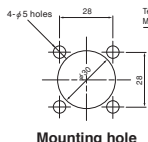
STANDARD SPECIFICATION PRODUCTS

Small-size type (2-position changeover)

BHLS-1

Operation method: Manual switching type

Drawing is L3 type



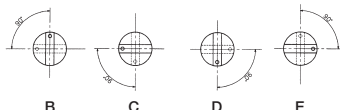
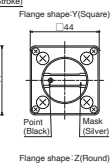
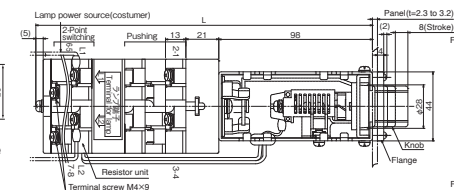
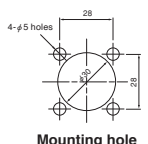
No. of units	1	2	3	4	5	6
L(mm)	155	168	181	194	207	220

Small-size type (Push after 2-position changeover)

BHLS-2

Operation method: Manual switching type (Push operation is enabled at each position.)

Drawing is L3 type



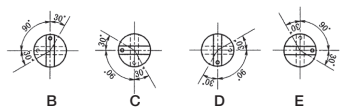
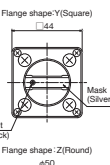
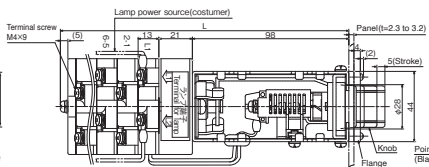
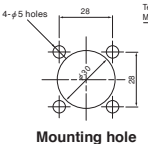
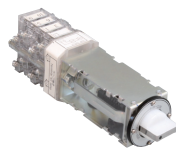
	No. of units			
2-position switching contact	1	2	3	4
Push-operation contact	1	1	2	1
L(mm)	215	241	228	254

Small-size type (Push and turn right / left after 2-position changeover)

BHLS-3

Operation method: Manual switching type (90°) / Push & automatic return type (30°)

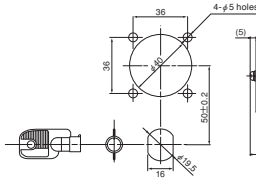
Drawing is L3 type



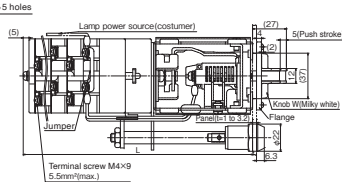
No. of units	1	2	3	4	5	6
L(mm)	155	168	181	194	207	220

With key lock mechanism type Please refer to the page 8 for KEY SYSTEM.

BHLC



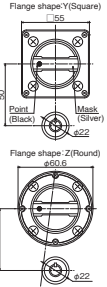
Mounting hole



No. of units	1	2	3	4	5	6
L(mm)	158	171	184	197	210	223

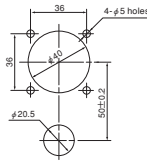
* The key is TAKIGEN C-88 and C-110.

Drawing is L3 type

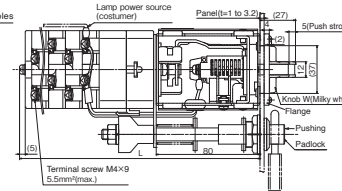


With padlock mechanism type

BHLP



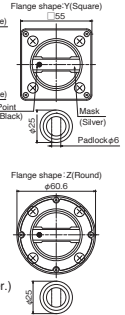
Mounting hole



No. of units	1	2	3	4	5	6
L(mm)	158	171	184	197	210	223

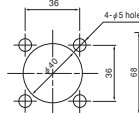
* Padlock is not included in the product. (Use a padlock with a 6 mm diameter.)

Drawing is L3 type

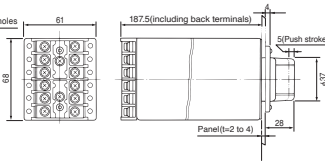


With Rear terminal type

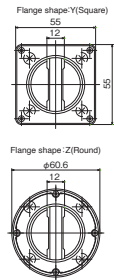
BHL-B



Mounting hole

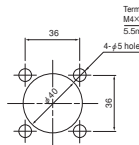


* The BHL-B type can accept up to 3 units (6 contacts).

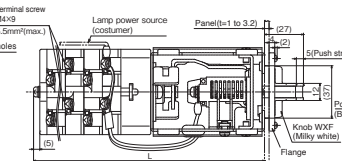


With fixed knob + housing protection ground terminal type (IP40)

BHLFX

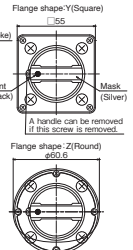


Mounting hole



No. of units	1	2	3	4	5	6
L(mm)	137	150	163	176	189	202

Drawing is L3 type





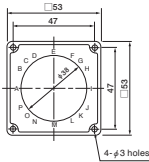
DISCREPANCY SWITCH

BHL TYPE

ACCESSORIES

Nameplate (For BHL, BHL C, BHL P, BHL-B and BHLFX)

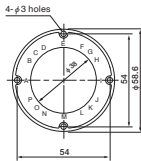
● Square type (Y type)



● BHL-NP-L54-Y000
Nameplate No.

Aluminum nameplate No.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
L54-Y000	Plain (Outline only)															
L54-Y00B	Plain (Black)															
L54-Y01E	OPEN				CLOSE	→ CC										OC-
L54-Y02E	IO				IC	C										O
L54-Y03E				O	IO				IC	C						
L54-Y05E	T				C	TC										TT
L54-Y06E					TT				C	TC						
L54-Y07E	PUSH					PUSH	→ CLOSE									TRIP-
L54-Y08E	OPEN						CLOSE									
L54-Y11E	→ PUSH					PUSH		→ CLOSE							OPEN	→
L54-Y12E	→ PUSH			→ CLOSE								OPEN	→	PUSH		
L54-Y15E	CLOSE					OPEN										
L54-Y16E	O					1		→ CLOSE							OPEN	→
L54-Y17E	CI				OI	O									C	
L54-Y18E	OI				CI	C									O	
L54-Y19E	C				T	TT									TC	
L54-Y20E	→ BAS				BAS		→ KAPA								AC	→
L54-Y23E	→ OPEN				CLOSE	→ PUSH									PUSH	→
L54-Y24E	→ RT				RC		→ C								T	→
L54-Y25E	→ OPEN				CLOSE	→ TC									OT	→
L54-Y26E			OT	→	OPEN				CLOSE	→	TC					
L54-Y27E	OPEN				CLOSE	PUSH										PUSH
L54-Y28E	→ NAT				NAC	→ CLOSE										OPEN
L54-Y29E	→ PUSH				PUSH	→ OPEN									CLOSE	→
L54-Y30E	OPEN				CLOSE	→ OPEN									→ OPEN	
L54-Y32E	TO				TC	C									O	

● Round type (Z type)

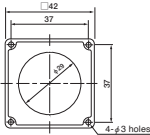


● BHL-NP-L54-Z000
Nameplate No.

Aluminum nameplate No.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
L54-Z000	Plain (Outline only)															
L54-Z00B	Plain (Black)															
L54-Z01E	OPEN				CLOSE	→ CC										OC-
L54-Z02E	OPEN				CLOSE											O
L54-Z03E	IO				IC	C										
L54-Z04E				O	IO				IC	C						
L54-Z05E	CLOSE				OPEN								CLOSE			
L54-Z06E	→ OPEN															OPEN
L54-Z07E	PUSH					PUSH	→ CLOSE									
L54-Z08E					T				C	TC						
L54-Z09E	T				C	TC										TT
L54-Z10E					T				C							
L54-Z11E	→ PUSH					PUSH		→ CLOSE							OPEN	→
L54-Z12E	→ PUSH			→ CLOSE								OPEN	→	PUSH		
L54-Z13E	EARTH				OPEN											
L54-Z14E	OPEN				EARTH											
L54-Z16E	O				1		→ CLOSE									
L54-Z17E	CI				OI	O									C	
L54-Z18E	OI				CI	C									O	
L54-Z19E	C				T	TT									TC	
L54-Z20E	→ BAS				BAS		→ KAPA								AC	→
L54-Z21E	ACIK				KAPALI											
L54-Z22E	→ CLOSE												OPEN			
L54-Z23E	→ OPEN				CLOSE	→ PUSH									PUSH	→
L54-Z25E	→ OPEN				CLOSE	→ TC									OT	→
L54-Z26E			OT	→	OPEN				CLOSE	→	TC					
L54-Z27E	OPEN				CLOSE	PUSH										PUSH
L54-Z28E									OPEN					CLOSE		
L54-Z29E	→ PUSH				PUSH	→ OPEN									CLOSE	→
L54-Z30E	→ NAT				NAC	→ CLOSE									→ OPEN	

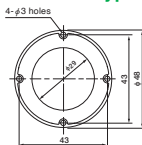
Name plate (For BHLS)

● Square type (Y type) ● BHLS-NP-D54-Y000
Nameplate No.



Aluminum nameplate No.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
D54-Y000	Plain (Outline only)															
D54-Y01E	→ PUSH					PUSH	→ CLOSE									OPEN

● Round type (Z type) ● BHLS-NP-D54-Z000
Nameplate No.



Aluminum nameplate No.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
D54-Z000	Plain (Outline only)															
D54-Z01E	→ PUSH					PUSH	→ CLOSE									OPEN
D54-Z02E	OPEN					CLOSE										

Flange (Nameplate mount) set

□: B (N1.5), BG (7.5BG 4/1.5)

- BHL flange set Y □
- BHL flange set Z □
- BHLS flange set Y □
- BHLS flange set Z □



Flange set supplied screws
 ① Countersunk screw, M4×10, 4 screws
 ② Tapping screw, M2.6×4, 4 screws

LED Unit

- L2 type
BHL LED L2
- L3 type
BHL LED L3



Removing tool (For L3 type)

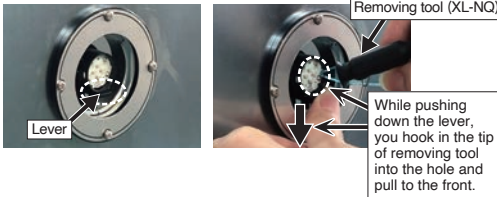
- XL-NQ
(Order unit:10)

*Using to remove and mount for LED unit

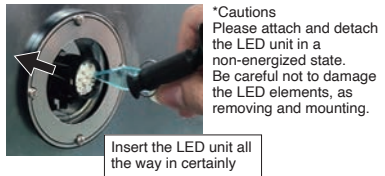


Method of removing and mounting for L3 type

How to remove LED unit



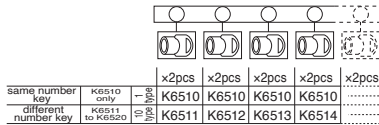
How to mount LED unit



KEY SYSTEM

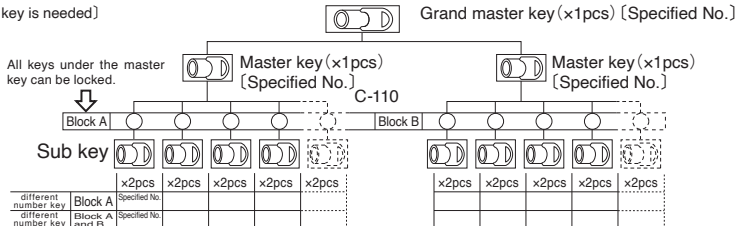
C-88 type

(Master key is disused)



C-110 type

(Master key is needed)



- Key will be decided depends on a decision that a common use with door lock or the master key is needed or not.
- In the case of C-110, if the master key specified No. and sub key specified No. are selected, the master key can be possible to lock the sub key.
- It's not available to make an additional subkey, because of the relationship between master key and sub key are already decided at the stage at manufacture.
- Life time of the key is 10,000 times. (Insertion - Extraction)

- Special character keys also available.

Available character for master key No. / key No. (change key)

Max. number of character	Master key No.	6 (7 for number only)
Available character	Key No.	7
	Number (0 - 9), Alphabet (A - Z)	
	*Blank is not available.	



DISCREPANCY SWITCH

BHL TYPE

CONTACT ARRANGEMENT DIAGRAM

Standard contact arrangements are listed below. (For specifications of other types, please make inquiry to Fuji Electric Industry.)

Type	BHL□-1B1131	BHL□-1B2221
Contact arrangement		
Type	BHL□-3B3101	BHL□-3B3111
Contact arrangement		
Type	BHL□-3B3112	BHL□-3B3221
Contact arrangement		

Type	BHL□-3B4111	BHL□-3B4121
Contact arrangement		
Type	BHL□-3E4111	BHL□-3B4211
Contact arrangement		
Type	BHL□-3B4212	BHL□-3B6111
Contact arrangement		

Ensuring Quality Assurance for Control Devices



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 **PRECAUTIONS FOR USE**

- Use products within the correct voltage and current.
- Check connections carefully, as a faulty connection may lead to accidents.
- Check for no abnormal conditions such as wire break, etc. before using the products.
- Fasten screws by the torque complying the standard.
- Use products under no stress condition to wires.
- Avoid the excessive shock and vibration.
- Use under the conditions of no organic solvent or oil.
- Avoid using products in abnormal environments such as high temperature, high humidity, dust or corrosive gases.
- Check carefully specification when used for special purpose.

