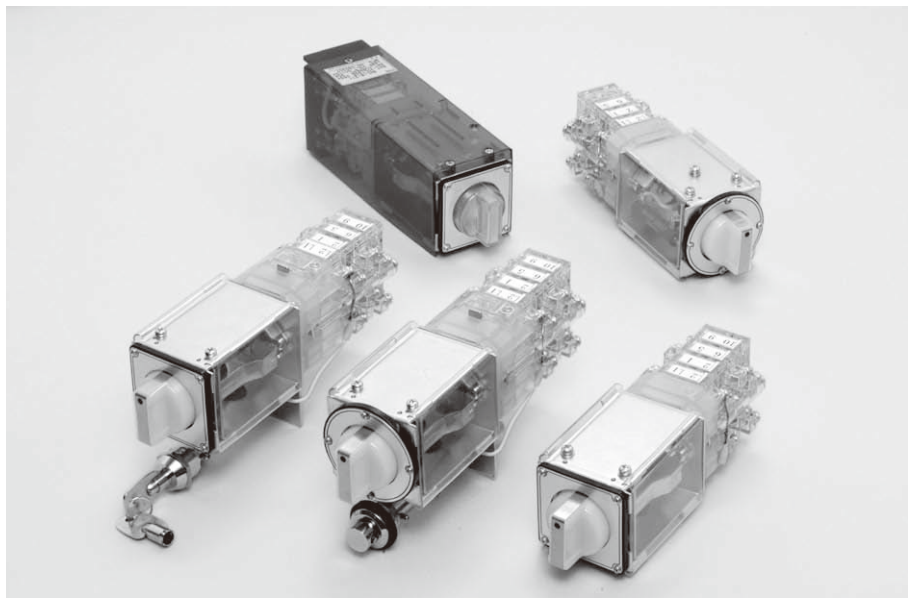




DISCREPANCY SWITCH

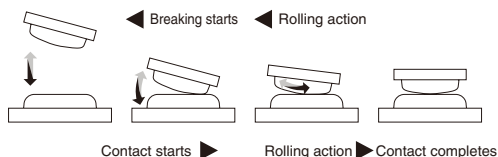
BHL TYPE



FEATURES

1

With the rolling action of the contact mechanism that minimizes the area exposed to arc, improved contact stability can be maintained for a long period.



2

The optimum design of cam shape and moving contact angle can improve the breaking capacity, enabling voltage and current value settings with a certain margin.

3

Round and square types of nameplates can be selected. Indication can be differentiated by the shape of nameplate, resulting in a panel design improvement.



Square (Y) type



Round (Z) type

4

Variations in lamp circuit voltage (24V, 48V, 110V, 125V and 220V)

5

A LED lamp type with built-in flicker circuit is available. With this type, the knob can be flickered.

* For the indication method, refer to "LXF" in the table ⑦ on F59.

6

The key lock mechanism can prevent erroneous operation.

A cylinder type (BHLC type) key and padlock type (BHLF type) key are available.

7

The back terminal type (BHL-B type) enables quick wiring.

8

A BHLFX type that conforms to the IP40 enclosure rating is available. Since the knob is fastened with a screw, the BHLF type can prevent entry of external foreign objects and accidental contact with live parts. A protective ground terminal is also provided.

SPECIFICATIONS (RATINGS, PERFORMANCE)

Specification	Type	BHL・BHLS TYPE
Rated insulation voltage (Ui)		690V
Rated current-carrying capacity (Ith)		20A
Max. wire size		5.5mm ²
Screw size		M4×9
Withstand voltage		2,500V AC / 1 min.
Rated impulse withstand voltage		4kV
Contact resistance		50mΩ max.
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. applicable load		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 max.

■ 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	Remarks
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 max.	IEC60947-1 6.1.2

(2) Rating

No.	Item	Rating				Remarks
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	Name	Operating load class	Ue (V)	Ie (A)	IEC60947-5-1 Annex A
	Rated operating current (Ie)	A600	AC-15	240	3	
	Rated operating voltage (Ue)			100,000 operations or more*		
	Rated operating voltage (Ue)	P600	DC-13	250	0.55	
	* Electrical durability			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 H-W-Y-B L54-Y00**

①

②

③

④

⑤

⑥

⑦

⑧

⑨

⑩

① Basic type

Code	Description
BHL	Standard type
BHLS	Small knob type
BHLC	Cylinder key type
BHLP	Padlock type
BHL-B	Rear terminal type
BHLFX	Fixed knob + housing protection ground terminal

② Operation method

Code	Description
1	2-position chageover
2	Push after 2-position chageover
3	Push and turn to right / left after 2-position chageover

③ Operating position

Code	Description
A	
B	
C	
D	
E	

④ Number of units

Code	Description
1 to 6	Up to 6 units (12 contacts)

* Lamp unit is not included.

⑤ Circuit number

Code	Description
3-digit indication	Check the model identification table (on F65 to F66). For details, contact Fuji Electric Industry.

⑥ Lamp voltage

Code	Description
024	24V DC
048	48V DC
110	110V DC
125	125V DC
220	220V DC

⑦ Indication method (with built-in resistor)

Code	Description	BHLS	BHL and others
H	Candescant lamp	—	○
L1	LED lamp	○	○
L2 (+)	Connector type LED lamp	—	○
LXF	Flicker type LED lamp	—	○

* L2 and LXF are special types.

⑧ Knob color

Code	Description	BHLS	BHL and others
W	Milky white (Silver line + Black point) Standard color for indication other than "L2" type	○	○
C	Clear Standard color for indication of "L2" type	—	○
WB	Milky white (Black line + Black point) Special color	○	○

⑨ Flange shape and color

Code	Shape	Color
Y-B	Square	Black (N1.5)
Y-BG	Square	Blue green (7.5BG4/1.5)
Z-B	Round	Black (N1.5)
Z-BG	Round	Blue green (7.5BG4/1.5)

Munsell approximate value is indicated in (.).

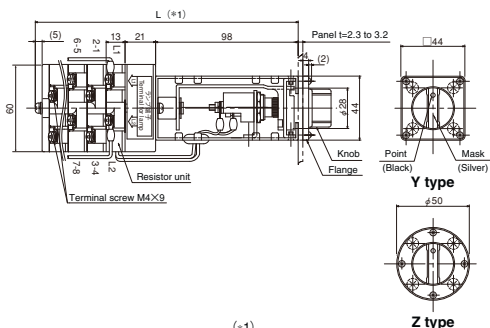
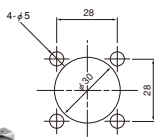
⑩ Nameplate

See page F63.



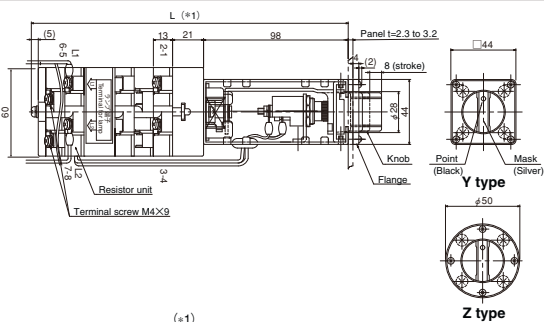
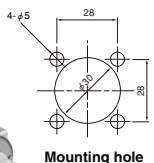
BHL TYPE

Small-size type (2-position changeover)



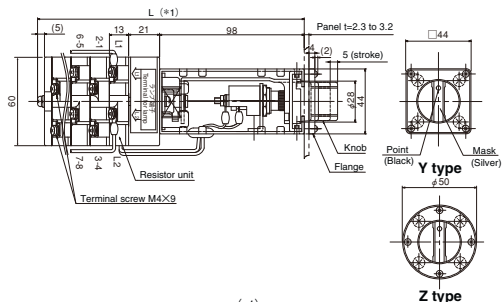
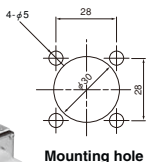
No. of units	1	2	3	4	5	6
L (mm)	155	168	181	194	207	220

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



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

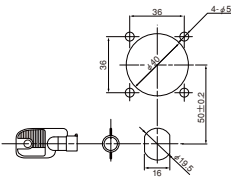
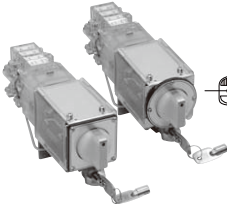
Small-size type (Push and turn right / left after 2-position changeover)



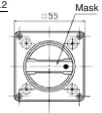
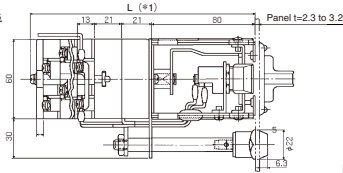
No. of units	1	2	3	4	5	6
L (mm)	155	168	181	194	207	220

With key lock mechanism type * See page F13 to 14 for key specifications.

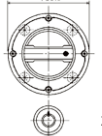
BHLC



Mounting hole



Y type



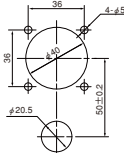
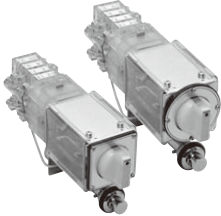
Z type

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

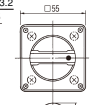
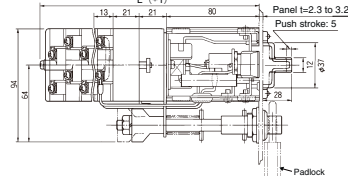
* The key is TAKIGEN C-88 and C-110.

With padlock mechanism type

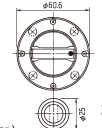
BHLP



Mounting hole



Y type



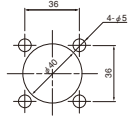
Z type

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

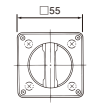
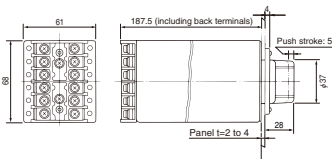
* Padlock not included in the product. (Use a padlock with a 6 mm diameter.)

With rear terminal type

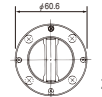
BHL-B



Mounting hole



Y type

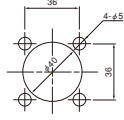
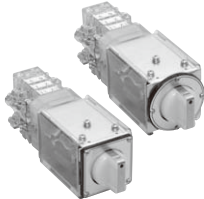


Z type

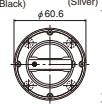
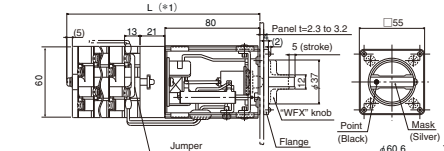
* The BHL-B type can accept up to 3 units (6 contacts).

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

BHLFX



Mounting hole



Y type



Z type

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



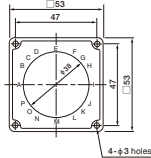
DISCREPANCY SWITCH

BHL TYPE

ACCESSORIES

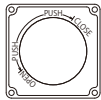
Nameplate (for BHL, BHLC, BHLP, BHL-B and BHLFX)

● Square type (Y type)



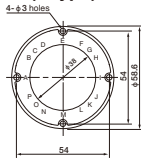
● BHL-NP-L54-Y000 Nameplate No.

Example: L54-Y11E



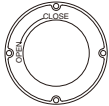
Aluminum nameplate No.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
L54-Y000	Plain (Outline only)															
L54-Y00B	Plain (Black)															
L54-Y01E	OPEN				CLOSE	→CC										OC→
L54-Y02E	IO				IC	C										O
L54-Y03E				O	IO				IC	C						
L54-Y05E	T				C	TC										TT
L54-Y06E				TT	T				C	TC						
L54-Y07E	PUSH				PUSH	→CLOSE										TRIP→
L54-Y08E	OPEN				CLOSE											
L54-Y11E	PUSH				PUSH	→CLOSE									OPEN	←
L54-Y12E	PUSH		→CLOSE								OPEN	←	PUSH			

● Round type (Z type)



● BHL-NP-L54-Z000 Nameplate No.

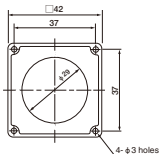
Example: L54-Z02E



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											
L54-Z03E	IO				IC	C										O
L54-Z04E				O	IO				IC	C						
L54-Z05E	CLOSE				OPEN											
L54-Z06E	→OPEN											CLOSE				
L54-Z07E	PUSH				PUSH	→CLOSE										OPEN→
L54-Z08E				TT	T				C	TC						
L54-Z09E	T				C	TC										TT
L54-Z10E					T				C							
L54-Z11E	PUSH				PUSH	→CLOSE						PUSH		OPEN	←	
L54-Z12E	PUSH		→CLOSE								OPEN	←				

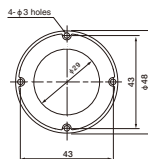
Nameplate (for BHLS)

● Square type (Y type)



● BHLS-NP D54-000 Plain (Outline only)

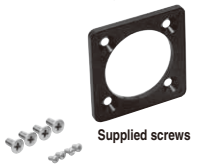
● Round type (Z type)



● BHLS-NP D54-Z000 Plain (Outline only)

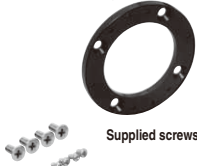
Flange (nameplate mount) set ☐ : **B (N1.5), BG (7.5BG 4/1.5)**

- BHL flange set Y ☐
- BHLS flange set Y ☐



Supplied screws ① Countersunk screw, M4×10, 4 screws
② Tapping screw, M2.6×4, 4 screws

- BHL flange set Z ☐
- BHLS flange set Z ☐



Supplied screws ① Countersunk screw, M4×10, 4 screws
② Tapping screw, M2.6×4, 4 screws

LED lamp (24 V rating)

- E-12 LED lamp LD-24-YO
- E-12 LED lamp LTH-024-12E-AY



Flicker LED lamp

- E-12 LED lamp LXF-DC110-AY



Indication color: Amber

Code	Voltage
DC024	24V DC
DC048	48V DC
DC110	100 / 110V DC
DC125	125V DC

Candescent lamp

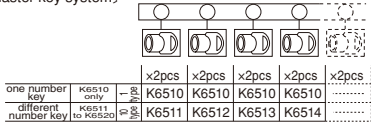
- E-10 panel lamp 110V2W



KEY SYSTEM

C-88 type

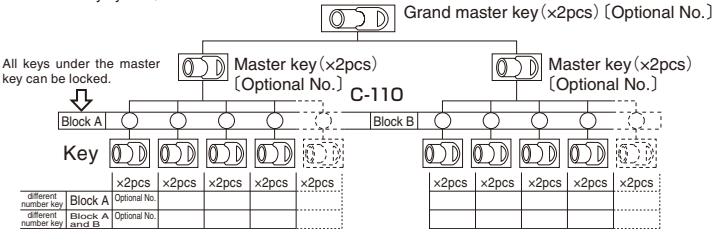
[not available for master key system]



● Special character keys are available. Please see "Available character for key No."

C-110 type

[available for master key system]



- Master key is applicable to the all keys under the master key.
- Mechanical life time of key operation is 10,000 times for cylinder key type.
- Ground key is upper key of master keys.
- Master key number and change key number applicable to the master key are necessary to make C-110 type key.
- Master key is optionally sold.



DISCREPANCY SWITCH

BHL TYPE

CONTACT ARRANGEMENT TABLE

Standard contact arrangements are listed below. (For specifications of other types, contact 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		