



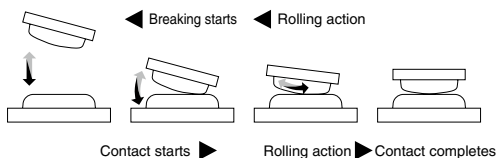
DISCREPANCY SWITCH

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.



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, also resulting in a panel design improvement.



Square (Y) type



Round (Z) type

4 Wide variations of 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, please refer to "LXF" in the table ⑦ on F59.

6 The key lock mechanism can prevents erroneous operation.

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

7 In case of back terminal type (BHL-B type), it's possible to quick wiring.

8 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 · BHL5 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 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	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*		
	* Electrical durability	P600	DC-13	250	0.55	
				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

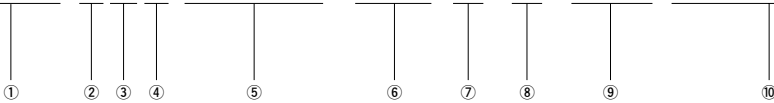


DISCREPANCY SWITCH

BHL TYPE

HOW TO ORDER

BHL-3B3 **-110 H-W-Y-B L54-Y00**



① Basic type

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

② Operation method

Code	Detail
1	2-position changeover
2	Push after 2-position changeover
3	Push and turn to right / left after 2-position changeover

③ Operating position

Code	Detail
A	
B	
C	
D	
E	

④ Number of units

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

* Lamp unit is not included.

⑤ Circuit number

Code	Detail
3-digit indication	Check the model identification table (on A69 to A70). For details, contact Fuji Electric Industry.

⑥ Lamp voltage

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

⑦ Indication method (with built-in resistor)

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

* There is no 24V DC and 48V DC specification of "L2".

⑧ Knob color

Code	Detail	BHLS	BHL and others
W	Milky white (Silver mask black point) Standard color for indication other than "L2" type	○	○
C	Clear Standard color for indication of "L2" type	—	○
WB	Milky white (Black mask black point) Special color	○	○
WFX	BHLFX only	—	○

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

Please select name No. from page A67.

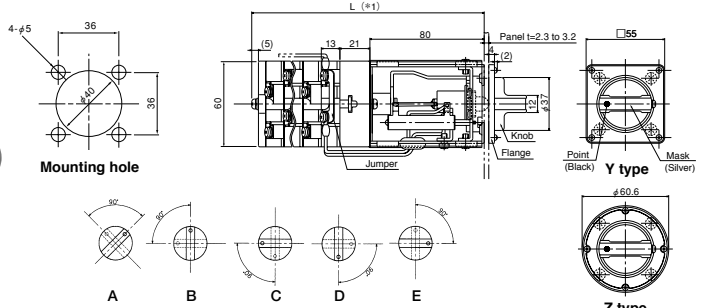
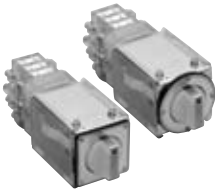
STANDARD SPECIFICATION PRODUCTS

Standard type (2-position changeover)

BHL-1

Operation method: Manual switching type

* The following figure shows the LED type.



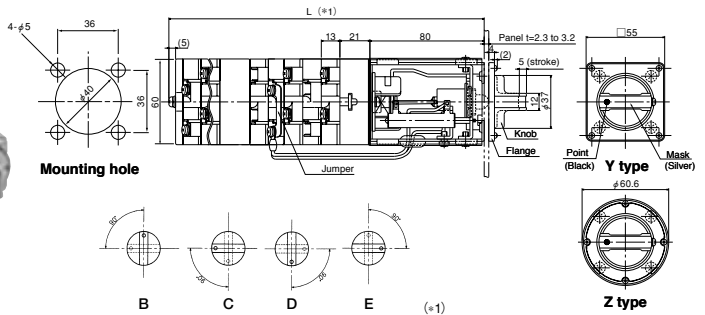
No. of units	1	2	3	4	5	6
L (mm)	137	150	163	176	189	202

Standard type (Push after 2-position changeover)

BHL-2

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

* The following figure shows the LED type.



No. of units	1	2	3	4	5	6
L (mm)	197	210	223	236	249	262

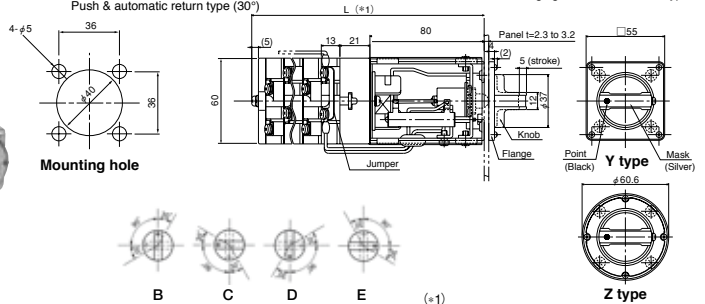
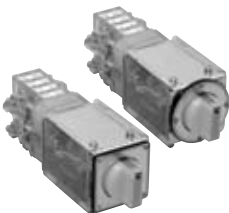
Standard type (Push and turn right / left after 2-position changeover)

BHL-3

Operation method: Manual switching type (90°)

Push & automatic return type (30°)

* The following figure shows the LED type.



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



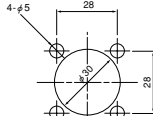
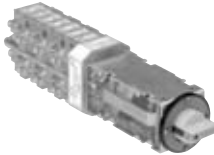
DISCREPANCY SWITCH

BHL TYPE

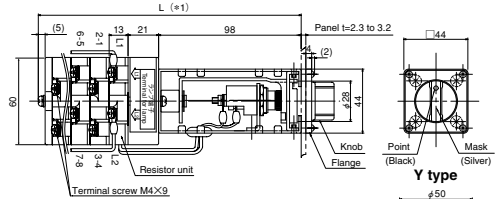
STANDARD SPECIFICATION PRODUCTS

Small-size type (2-position changeover)

BHLS-1



Mounting hole



Y type



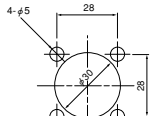
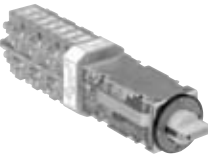
Z type

(=1)

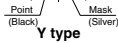
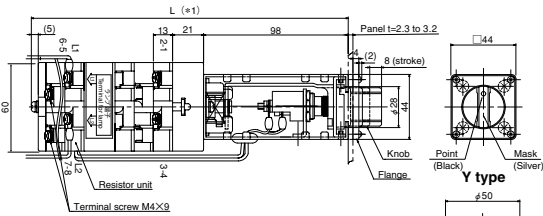
No. of units	1	2	3	4	5	6
L (mm)	155	168	181	194	207	220

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

BHLS-2



Mounting hole



Y type



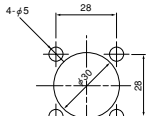
Z type

(=1)

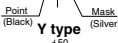
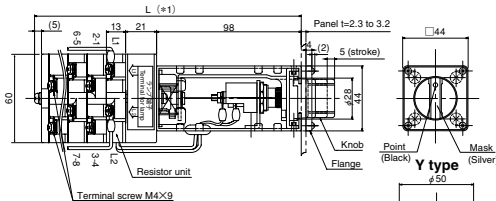
	No. of units				
2-position switching contact	1	2	3	4	
Push-operation contact	1	2	1	1	1
L (mm)	215	241	228	254	241

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

BHLS-3



Mounting hole



Y type



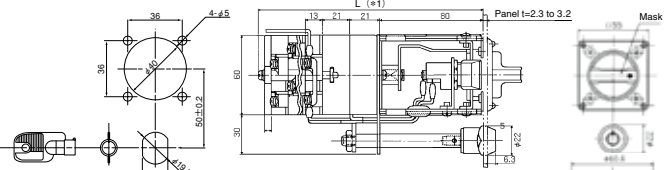
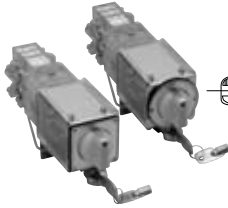
Z type

(=1)

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



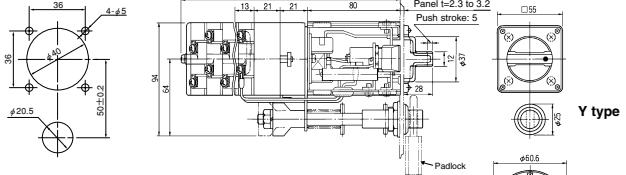
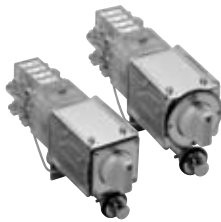
Mounting hole

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



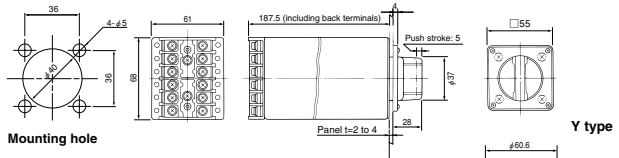
Mounting hole

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.)

With Rear terminal type

BHL-B

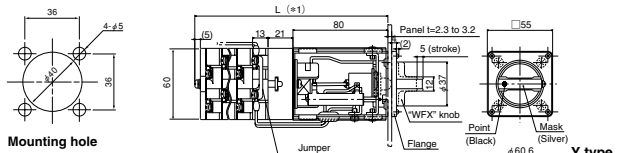


Mounting hole

* 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



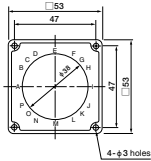
DISCREPANCY SWITCH

BHL TYPE

ACCESSORIES

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

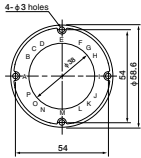
● Square type
(Y type)



● 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	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)

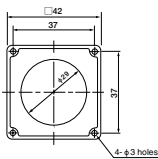


● BHL-NP-L54-Z000
Nameplate No.

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									OPEN	--
L54-Z12E	PUSH		--CLOSE								OPEN	--				

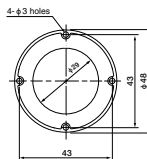
Nameplate (For BHLS)

● Square type (Y type)



● BHLS-NP D54-Y000
Plain (Outline only)

● Round type (Z type)

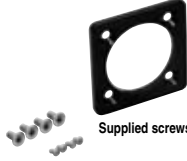


● BHLS-NP D54-Z000
Plain (Outline only)

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

- BHL flange set Y
- BHLS flange set Y

- BHL flange set Z
- BHLS flange set Z



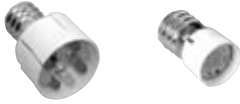
Supplied screws ① Countersunk screw, M4×10, 4 screws
② Tapping screw, M2.6×4, 4 screws



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

LED lamp (Rating: 24V)

- E-12 LED lamp LD-24-YO
- E-12 LED lamp LTH-024-12E-AY (For BHLS-L1)



Connector LED lamp

- LED lamp BHL LED L2



Flicker LED lamp

- E-12 LED lamp LXF-DC110-AY



Indication color: Amber

Power supply voltage

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

Candescant lamp

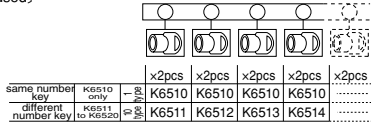
- E-10 panel lamp 110V2W



KEY SYSTEM

C-88 type

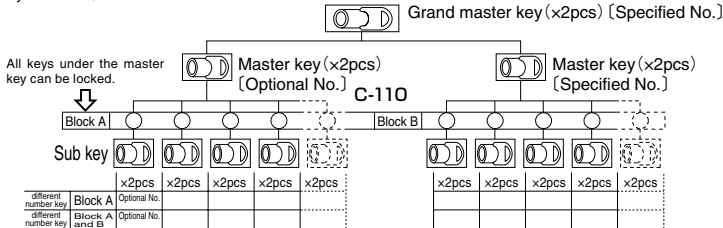
(Master key is disused)



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

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)



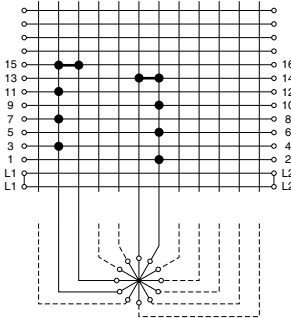
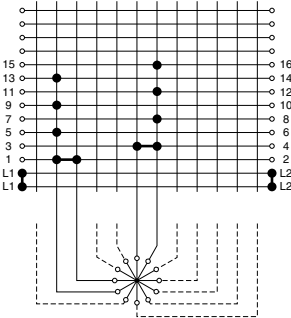
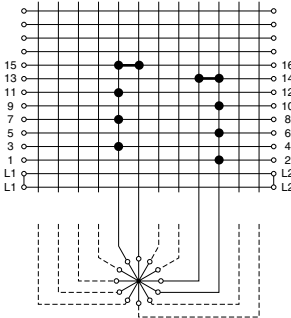
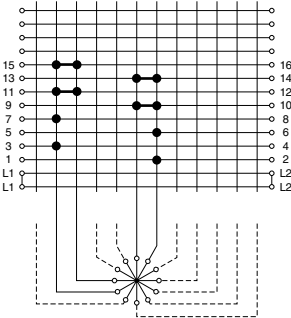
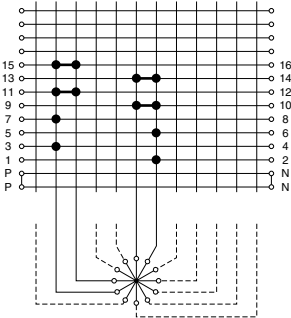
DISCREPANCY SWITCH

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		

<p>Type</p>	<p>BHL□-3B4111</p> 	<p>BHL□-3B4121</p> 
<p>Type</p>	<p>BHL□-3E4111</p> 	<p>BHL□-3B4211</p> 
<p>Type</p>	<p>BHL□-3B4212</p> 	<p>BHL□-3B6111</p> 