

... LOCKOUT RELAY SWITCH

B-MR type



▶ B-MR type (Solenoid type)



Description

- ✓ Lockout relay is used to control and protection such as power generation and distribution equipment.
- ✓ It's possible to judge the state of the Lockout Relay from the target color.
- ✓ The operation time realized shorter by adopting a solenoid coil. Quick response protects other instruments from malfunction.

Features

1. High Speed Operation

Operation time becomes less than 16ms including bounce.

~Operation time~

NC Contact : Less than 8ms, NO Contact : Less than 8ms

2. Compact size

The mechanical portion of solenoid type is smaller than BA-6 Coil type.

3. Wide variation of coil

There are 10 types of coils, each type differs operation time and also preparing various operation voltage.

A-G: High speed operation type (NC contact operation time will be less than 8ms.)

H-J: Normal operation type (NC contact operation time will be less than 30ms.)



BA-6 Coil type

~Remarks~

*Operation time is varied depending on the handle type.

*NC contact operation time will be 30ms.

*Operation time differs from handle type and circuit voltage.

Product coding

B - **MR** - **2001** - **B** - **LP** **B**
 ① ② ③ ④ ⑤ ⑥

No.	Item	Detail	Remark																																
①	Basic type	B : B type cam switch (Normal contact) BH : BH type cam switch (Normal contact)	—																																
②	Operation type	MR : Manual reset	—																																
③	Contact arrangement	Please contact us separately	—																																
④	Coil	<table><tr><th>Coil code</th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th><th>G</th></tr><tr><td>Operation voltage (V)</td><td>DC24</td><td>DC100/110</td><td>DC125</td><td>DC200/220</td><td>AC100/110</td><td>AC200/220</td><td>DC48</td></tr><tr><th>Coil code</th><th>H</th><th colspan="2">I</th><th colspan="2">J</th><th colspan="2"></th></tr><tr><td>Operation voltage (V)</td><td>DC125</td><td colspan="2">AC・DC100/110</td><td colspan="2">AC・DC200/220</td><td colspan="2"></td></tr></table>	Coil code	A	B	C	D	E	F	G	Operation voltage (V)	DC24	DC100/110	DC125	DC200/220	AC100/110	AC200/220	DC48	Coil code	H	I		J				Operation voltage (V)	DC125	AC・DC100/110		AC・DC200/220				A-G : High speed operation type H-J : Normal operation type
Coil code	A	B	C	D	E	F	G																												
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⑤	Handle shape	Refer to page 6 for the handle shape. Operation time varies depending on handle shape.	—																																
⑥	Handle color	Black : B Blue green : BG	—																																

Ratings and Specifications

No.	Item	Rating / Specification
①	Operation time	Refer to page 3 for the operation time chart.
②	Rated insulation voltage (Ui)	600V
③	Conventional free air thermal current (Ith)	20A
④	Contact resistance	50mΩ or less <initial value>
⑤	Insulation resistance	1,000MΩ or more
⑥	Power frequency withstand voltage	AC2,500V, 1 min.
⑦	Rated impulse withstand voltage (Uimp)	±6kV, 5 times for each pole (1.2/50μs)
⑧	Conditional short-circuit current	1,000A (cosθ =1)
⑨	Shock	6 directions, 3times for each direction, durability : 500m/s ² , malfunction : 100m/s ²
⑩	Vibration	Resonance : 10Hz~55Hz, 0.05mm (half-amplitude) 55Hz~150Hz, 0.01mm (half-amplitude) Durability : 16.7Hz, 1.5mm (half-amplitude)
⑪	Mechanical durability	10,000 operations
⑫	Electrical durability	10,000 operations
⑬	Rated connecting wire	2mm ²
⑭	Maximum connecting wire	5.5mm ²
⑮	Number of wires simultaneously connectable	2

*No. ⑤~⑦ : Adapted to "all live parts - grounded metal" and "between the live parts mutual"

● LOCKOUT RELAY SWITCH

Coil rating

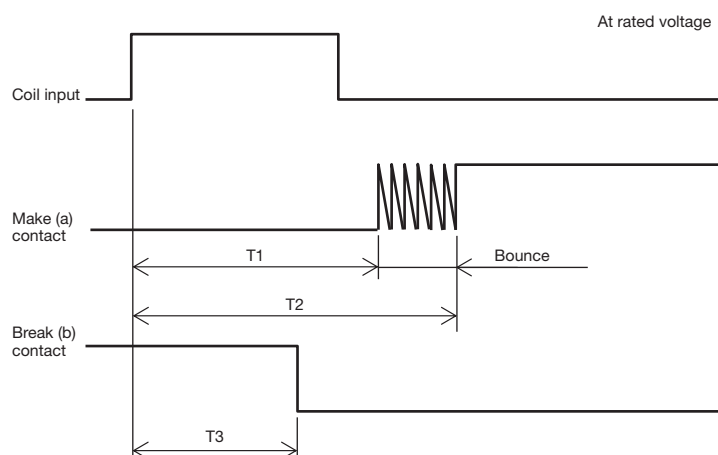
No.	Item			Detail									
①	Coil code			A	B	C	D	E	F	G	H	I	J
②	Operation voltage (V)			DC24	DC100/110	DC125	DC200/220	AC100/110	AC200/220	DC48	DC125	AC-DC100/110	AC-DC200/220
③	Coil resistance (Ω)			3.3	16.5	27	60	16.5	60	13	75	60	240
④	Current on operation (A)			7.3	6/6.6	4.6	3.3/3.6	6/6.6	3.3/3.6	3.7	1.7	1.7/1.8	0.8/0.9
⑤	Operation voltage range (V)	MAX		DC28	DC143	DC140	DC286	AC143	AC286	DC56	DC140	AC-DC143	AC-DC286
		MIN		DC20	DC80	DC100	DC160	AC80	AC160	DC40	DC100	AC-DC80	AC-DC160
⑥	Minimum operation voltage (V)			DC20	DC40	DC50	DC80	AC50	AC90	DC40	DC100	AC-DC80	AC-DC160
⑦	Make contact operation time (ms or less)	Handle ①	T1	10	8	8	8	14	14	10	30		
		Handle ②		12	10	10	10	16	16	12			
		Handle ①②	T2	16	16	16	16	18	18	16			
⑧	Break contact operation time (ms or less)		T3	8							28		
⑨	Continuous application limit to coil (s or less)			10	Impossible of continuous application					10	10		

~Remarks~

*Please refer to the below time chart.

*Operation time differs from handle type and circuit voltage.

Time Chart



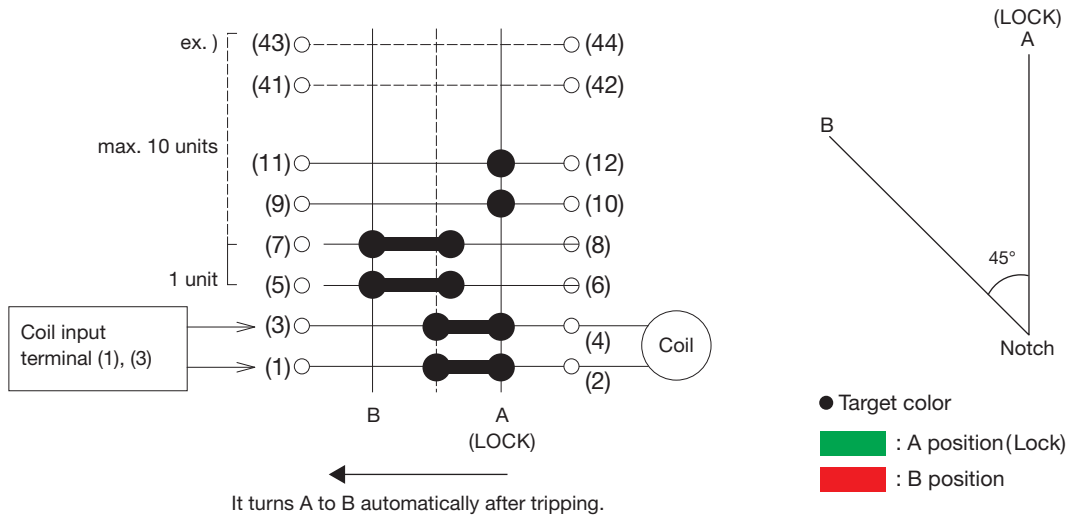
Handle

Handle ①	LDP	LD	HDP	HD	LFP	LF
	HFP	HF	LS	LE	HE	
Handle ②	LP	HP	MP	HR	HSP	USP

※ T1: Make contact operation time without bounce T2: Make contact operation time including bounce
T3: Break contact operation time

Circuit and Notch code

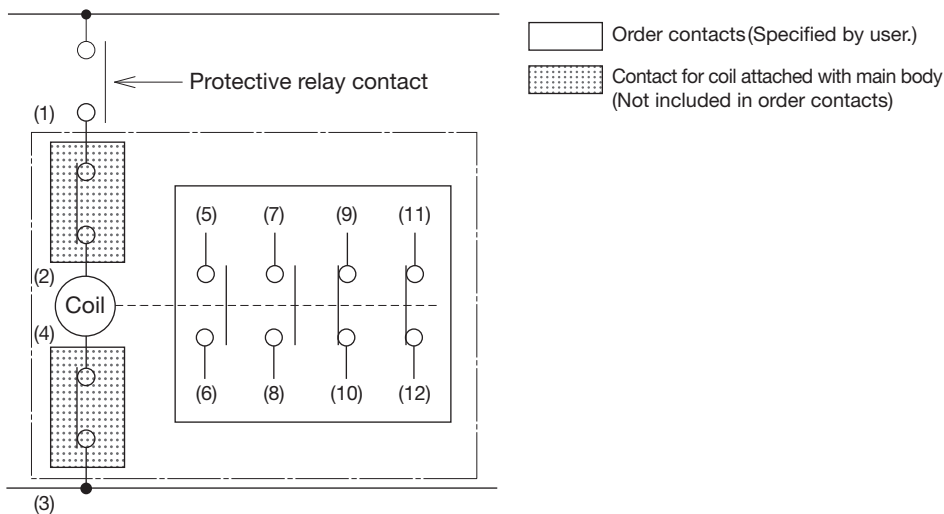
■ Ex.) Diagram (Max.20 contacts/10 units)



■ Operation method

- ✓ Coil input (Tripping) makes lockout from A to B position automatically.
- ✓ By manual rotation from B to A position makes lock at A position.

■ Ex.) Application example



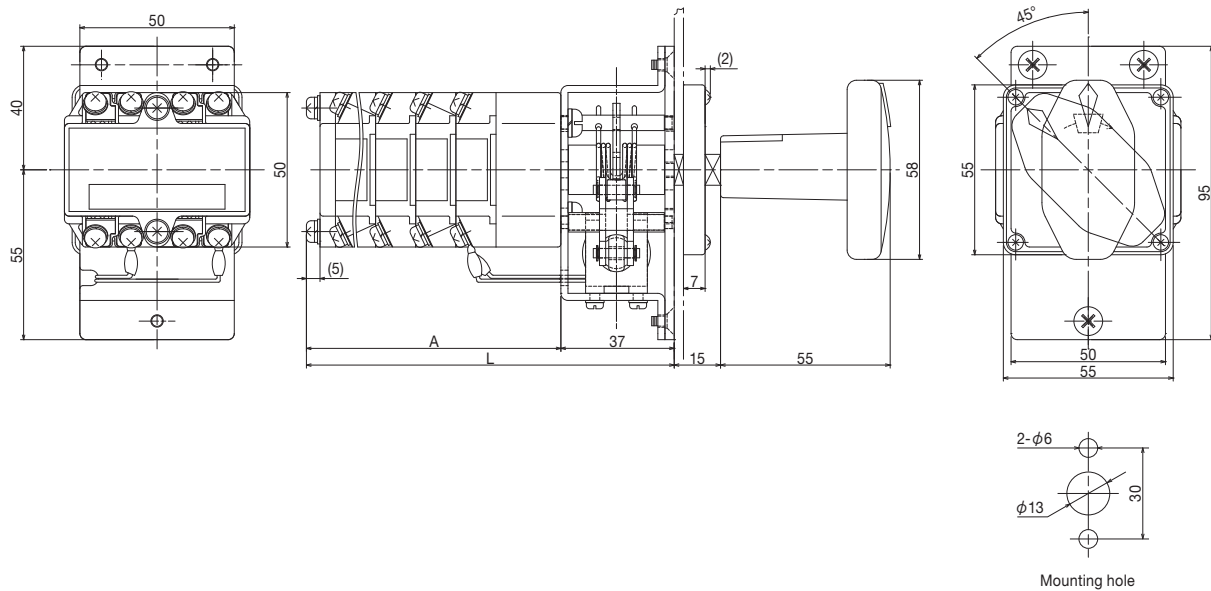
Caution

Reset operation on existence of external signal to coil is prohibited.
This may cause severe malfunction. (Ex. Coil burnout)

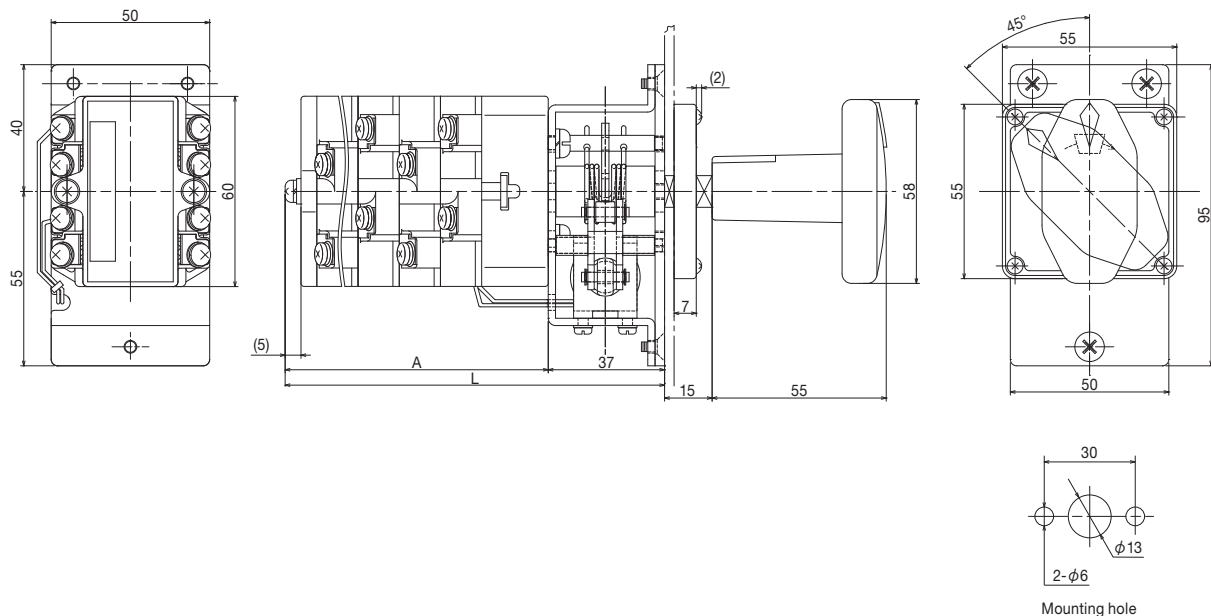
● LOCKOUT RELAY SWITCH

Shape and Size

■ B-MR type



■ BH-MR type



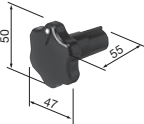
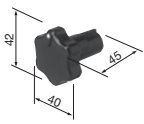
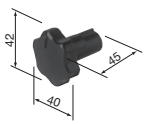
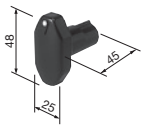
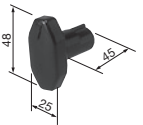
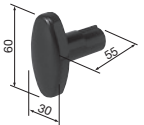
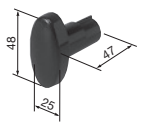
■ Size (No. of units)

Unit No.	2	3	4	5	6	7	8	9	10
A (mm)	57	70	83	96	109	122	135	148	161
L (mm)	94	107	120	133	146	159	172	185	198

*Coil circuit is not included in unit number.

Handle shape

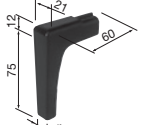
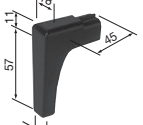
■ Handle ① (Small)

Code	LDP	LD	HDP	HD	LFP	LF
Shape (size)	Rose shape (large) with one point 	Rose shape (large) 	Rose shape (small) with one point 	Rose shape (small) 	Octagonal shape (large) with one point 	Octagonal shape (large) 
Code	HFP	HF	LS *	LE	HE	
Shape (size)	Octagonal shape (small) with one point 	Octagonal shape (small) 	Knob shape 	Egg shape (large) 	Egg shape (small) 	

*The shaft for the LS handle is 13mm shorter than the standard shaft.

Therefore, other types of handles cannot be replaced with the LS handle (knob shape).

■ Handle ② (Large)

Code	LP	HP	MP	HR	HSP	USP
Shape (size)	Stick shape (large) 	Stick shape (small) 	Pistol shape (large) 	Pistol shape (small) 	Beak shape (large) 	Beak shape (small) 

*Handle shapes are divided into handle ① and handle ② because operation time varies depending on handle shape.

Standard

- IEC 60947-5-1 : 2003 (eqv.EN 60947-5-1 : 2004) Low voltage switchgear and controlgear-Part5-1 : Control circuit devices and switching elements-Electromechanical control circuit devices.
- IEC 60947-1 : 2007 (eqv.EN 60947-1 : 2007) Low voltage switchgear and controlgear-Part1 : General rules.
- JIS C 8201-5-1 (2007) Low voltage switchgear and controlgear-Part5-1 : Control circuit devices and switching elements-Electromechanical control circuit devices.
- JIS C 8201-1 (2007) Low voltage switchgear and controlgear-Part1 : General rules
- NECA C 4522 (2002) Cam operated control switches.
- NECA C 4520 (2002) General rules for control switches (Quasi-applied standard).
- B402 Digital type protective relay and protective relay device.

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.

