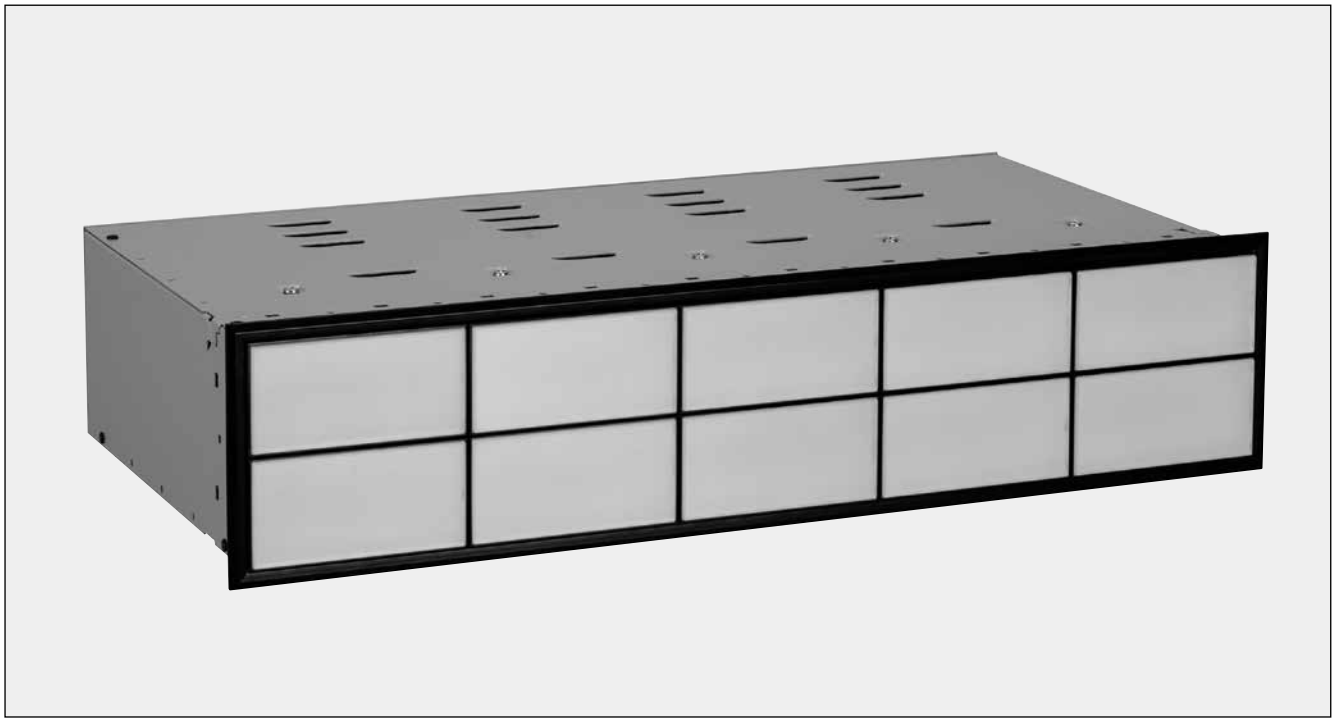
Relay-type Annunciators with LED Lights

KFA-37HD8



■ Features

- Improved wiring efficiency because wiring between relay units and the indicator are unnecessary.
- Equipped with the output for either bell or buzzer.
- Under normal conditions, the relay will have small excitation current.
- Some models include output contact which will operate when an alarm is activated.
- Operation patterns can be changed by replacing relay unit, KFA-22.
- Lamp circuits can be used with low voltage because these circuits are separate from the relay circuit.
- LED circuits only can be used with low voltage due to separate circuits for relay and LED.
- Available relay rating: VAC; 24VAC, 48VAC, 100VAC, 110VAC, 200VAC, VDC; 24VDC,100VDC, 110VDC, 125VDC.
- Surge killers are available.
- Employing LED as light source for indicator light realized power saving – 1/2 of former type.
- Realized brilliant light with higher luminance compare with former type. 7 colors available: milky white, red, green, orange, yellow, blue, white.
- Unit style LED enables to change the light color and perform maintenance easily from the front side.
- Available LED rating: 24VAC/DC, 48VAC/DC, 100/110VAC/DC, 125VAC/DC, 200/220VAC.
- RoHS directive compliant.

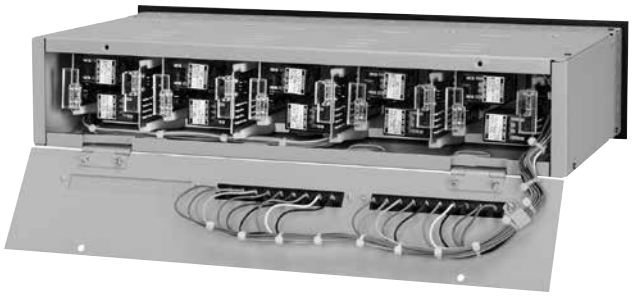
NOTICE

- When used in a circuit with induced or leakage current, the LED may unintentionally light. To prevent this malfunction, install a resistor parallel to the indicator terminal.
- Turn the power OFF when removing the relay unit and LED unit.
- Under normal conditions, internal X and Y relay heating temperature will vary depending on whether an unexcited or excited type is used. When not using external contact, use operation method N that releases only a minimum of heat (A, AM, AL).

■ Configuration

KFA-37HD8

The KFA-37HD8 is a compact annunciator consisting of a relay unit, the KFA-22, and a LED lamp assembly, all of which are housed in an iron steel cabinet. Input and output terminals are arranged at the back of the annunciator, KFA-37HD8.
Relay unit is connected to the motherboard through a connector so that it can be easily removed with one-touch operation for circuit change, maintenance and inspection.
The window size is 40 x 80mm. LED unit can be replaced from the front side of the panel. Wiring shall be made with operational input/output terminals and fault input terminals, or external output contacts arranged according to the customer's request.



KFA-22

KFA-22 relay unit consists of a relay, a PC board, and a semiconductor. There is a terminal block to place labels to identify unit numbers and this also serves as a latch for unit removal. The relay unit is inserted into the edgeboard connector of KFA-37HD8. Therefore, the PC board will become locked after inserting the connector. This prevents the relay unit from becoming loose or detached when there is a shock.

Temperature Rise of the Annunciator KFA-37HD8

- Refer to the chart below for unexcitation and excitation under normal conditions of the X and Y relay in consideration of the temperature rise.

External Contact / Sequence Pattern	Not Provided (N)		Normal Condition			
			Normal Open (A)		Normal Close (B)	
	X Relay	Y Relay	X Relay	Y Relay	X Relay	Y Relay
A	×	×	×	○	×	○
AM	×	×	×	○	×	○
AL	×	×	×	○	×	○
B	○	○	○	○	○	○
BM	○	○	○	○	○	○
BM	○	○	○	○	○	○

× : Unexcited
○ : Excited

■ Model Designation

KFA-37HD8 ※1 ※2 ※3 ※4 ※5 ※6 ※7

- KFA-37HD8: Model Name
- ※1: Number of the Windows
- ※2: Sequence Pattern
- ※3: Output Contact
- ※4: Surge Killer
- ※5: Relay Circuit Rated Voltage
- ※6: LED Circuit Rated Voltage
- ※7: Lighting Color

Note : The bezel color is black.

※1

Code	Window
J	2d × 5r
L	2d × 10r
P	3d × 5r
S	3d × 10r
V	4d × 5r
X	4d ×10r
Y	5d × 5r
Z	5d × 10r
U	6d × 5r
W	7d × 5r

d : Vertical Windows
r : Horizontal Windows

※2

Code	Sequence Pattern
A	N.O. contact, maintained fault
AM	N.O. contact, momentary fault
AL	N.O. contact, momentary fault with L.O.
B	N.C. contact, maintained fault
BM	N.C. contact, momentary fault
BL	N.C. contact, momentary fault with L.O.

L.O. : Lamp Out (Manual Reset)
N.O.: Normal Open (Make Contact)
N.C.: Normal Close (Break Contact)

※3

Code	Output Contact
N	Not Provided
A	1 N.O.
B	1 N.C.

※4

Code	Surge Killer
0	Not Provided
1	With Y relay
2	With X and Y relay

※5

Code	Relay Circuit Rated Voltage
0	24V AC
1	48V AC
2	100V AC
3	110V AC
4	200V AC
5	220V AC
6	24V DC
7	48V DC
8	100V DC
9	110V DC
G	125V DC
X	Special Voltage

※6

Code	LED Circuit Rated Voltage		Converter Type
E4	24V	AC/DC	No Converter
E6	48V	AC/DC	Resistor
E8	100/110V	AC/DC	
EG	125V	AC/DC	
EU	200/220V	AC	Transformer

※7

Code	Lighting Color
W	Milky white *
R	Red
G	Green
O	Orange
Y	Yellow
B	Blue
PW	White

* Milky white is the similar color to that of incandescent lamps.

- **Assembly Combinations**
  When the relays voltages are the same, sequence patterns can be mixed. Each box indicates sequence pattern combinations which may be used.

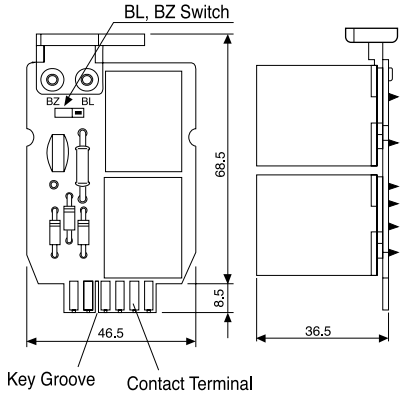
AN AMN ALN	BN BMN BLN	AA AMA ALA	AB AMB ALB	BA BMA BLA	BB BMB BLB

■ Relay Unit KFA-22

KFA-22 AL A 2 9

- KFA-22: Model Name
- AL: Sequence Pattern
- A: Output Contact
- 2: Surge Killer
- 9: Relay Circuit Rated Voltage

▼ KFA-22



■ Model Designation (LED Unit)

・Light emitting color change is not by color filter only. Please procure one LED unit.
・Options(See2-5.)

■ One Color / Full Window

UA - 37H D8 A - 4 ※1

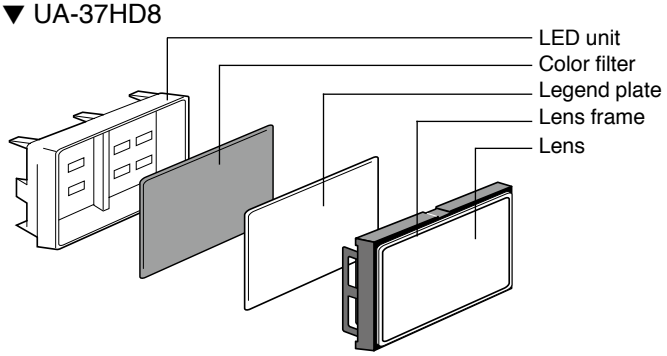
※1

Code	Lighting Color
W	Milky white *
R	Red
G	Green
O	Orange
Y	Yellow
B	Blue
PW	White

* Milky white is the similar color to that of incandescent lamps.

■ Unit Configuration

▼ UA-37HD8



■ Specifications

Operating Relay Voltage	**AC rating**	24V±10%	48V±10%	100V±10%	110V±10%	200V±10%	220V±10%
	DC rating	24V±10%	48V±10%	100V±10%	110V±10%	125V±10%	Special±10%
LED Lamp Voltage	**LED Circuit Rated Voltage**	24V AC/DC	48V AC/DC	100V/110V AC/DC		200V/220V AC	
	Converter Type	No Converter	Resistor			Transformer	
Maximum Power consumption at 1 Unit	**AC rating**	4.5VA	5.1VA	6.7VA		9.6VA	
	DC rating	3.1W	3.7W	5.3W		5.7W	
Power consumption at 1 Relay Unit	**Fault input contact is N.O. contact Output contact is not provided**	No energy consumption					
	Fault input contact is N.O. contact Output contact is provided	1.9VA (AC), 1.2W (DC)					
	Fault input contact is N.C. contact	3.8VA (AC), 2.4W (DC)					
Output Contact		One N.O. contact or one N.C. contact					
Surge Killer		Provided or not provided					
Insulation Resistance		100MΩ or more between live parts and ground measured by a 500V DC megohmmeter					
Voltage Dielectric strength		2000V AC for 1 minute between live parts and ground					
Operating Environment		Temperature: -10~40°C, Humidity: 45~85%RH (No freezing or condensation)					
Panel Thickness		1~6mm					

■ Sequence Pattern

A: N.O. contact maintained fault	AM: N.O. contact momentary fault	AL: N.O. contact momentary fault with lamp out
B: N.C. contact maintained fault	BM: N.C. contact momentary fault	BL: N.C. contact momentary fault with lamp out

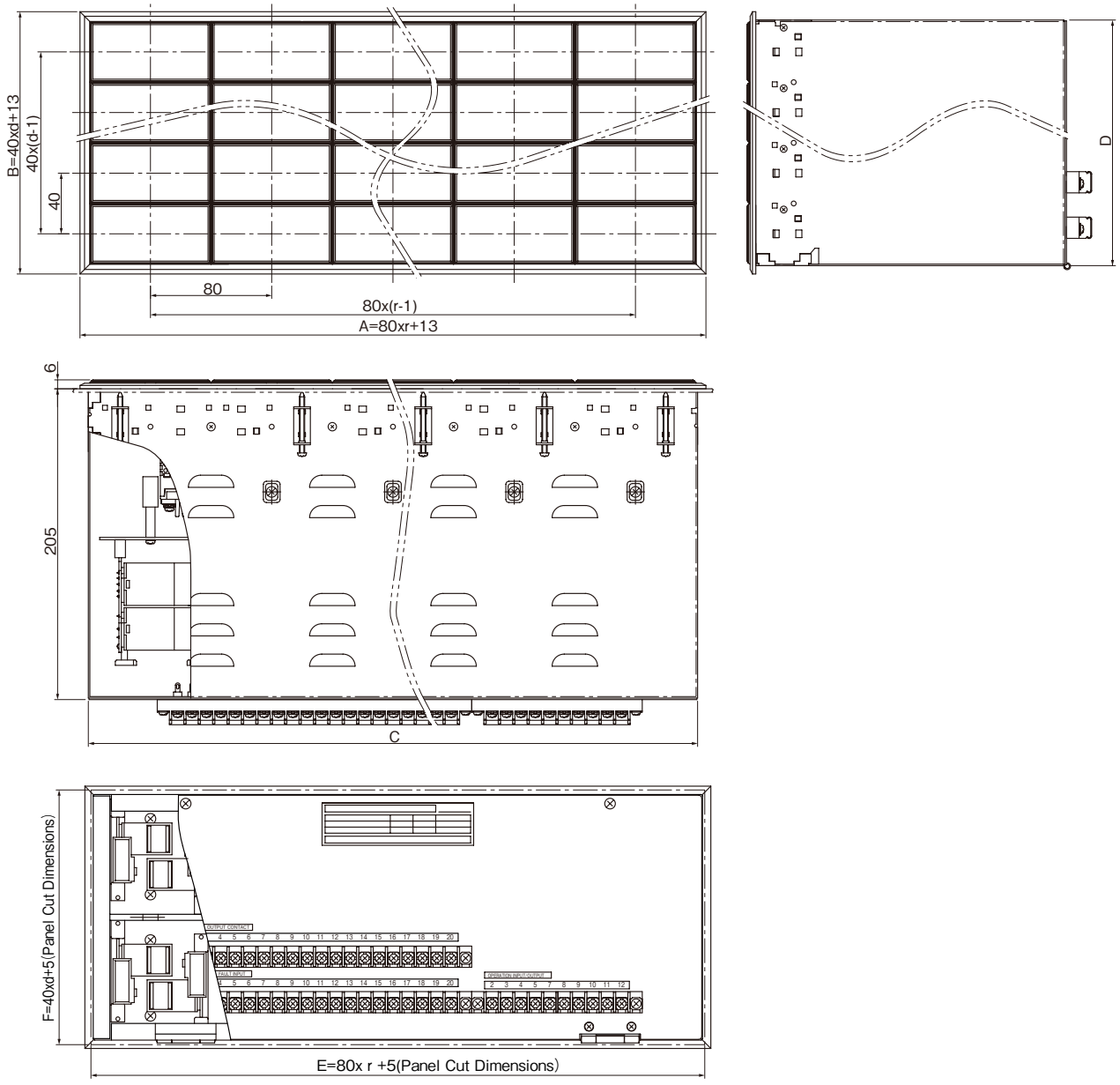
■ Materials

Terminal Block	PBT resin
Terminal Screw	Carbon steel M3×6
Terminal Block Cover	Polycarbonate resin
PC Board	Glass epoxy plate
Chassis, Cabinet	Polished iron steel plate Paint color : 5Y 7/1

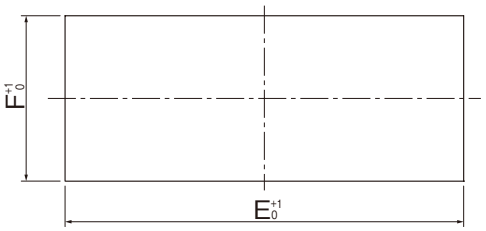
Bezel	Polyphenylene Ether Resin (Black)
Lens frame	Polycarbonate resin (Black)
Lens	Polycarbonate resin (Clear)
Legend plate	Acrylic resin (Milky white)

■ Dimensions

▼ KFA-37HD8



Panel Cut Dimensions



(unit : mm)

Code	Window	A	B	C	D	E	F	Weight
J	2d×5r	413	93	402	82	405	85	4.3kg
L	2d×10r	813	93	802	82	805	85	9.5kg
P	3d×5r	413	133	402	122	405	125	5.9kg
S	3d×10r	813	133	802	122	805	125	12.8kg
V	4d×5r	413	173	402	162	405	165	7.6kg
X	4d×10r	813	173	802	162	805	165	16.0kg
Y	5d×5r	413	213	402	202	405	205	9.3kg
Z	5d×10r	813	213	802	202	805	205	19.3kg
U	6d×5r	413	253	402	242	405	245	11.0kg
W	7d×5r	413	293	402	282	405	285	12.8kg

d : Vertical Windows
r : Horizontal Windows

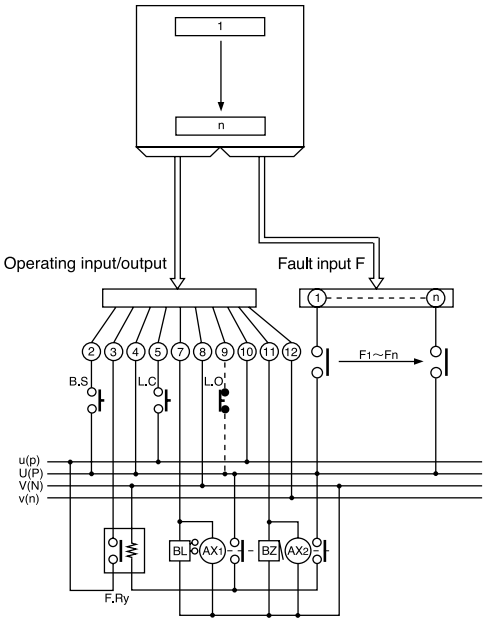
■ Connection Diagram

Operation input/output connects approx. 10 common line terminals. It also connects fault input and output connect point terminal individually. Please note that the connect point configurations for buzzer stop and lamp out switch differ by operation style.
Alarm output for KFA-22 at the time of delivery is set at buzzer (BZ) by default. Use short circuit connector to switch to bell (BL).

·The diagram below indicates using both buzzer (BZ) and bell (BL).

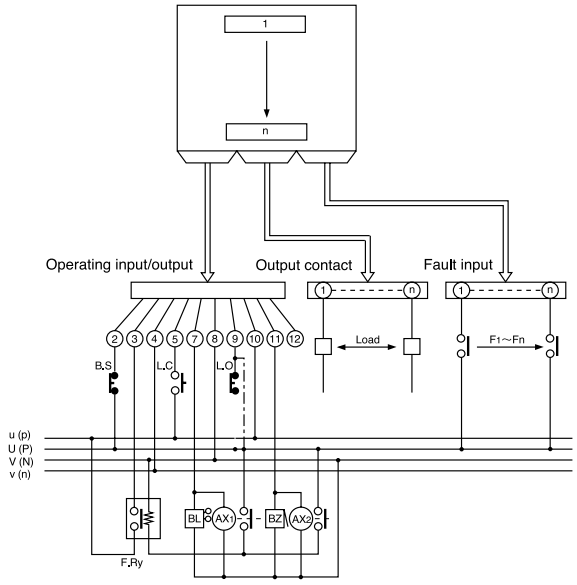
U.V(P.N) : Operation input/output power source u.v.(p.n) : Power supply for LED Lamp

▼ AN, AMN, ALN



Operation input/output No. 9
ALN : to be connected from ⑨ to L.O. to U(P)
AN·AMN : to be opened
When ALN, AN, AMN is mixtured, connect from ⑨ to U(P) specified in ALN.

▼ AA, AMA, ALA
AB, AMB, ALB



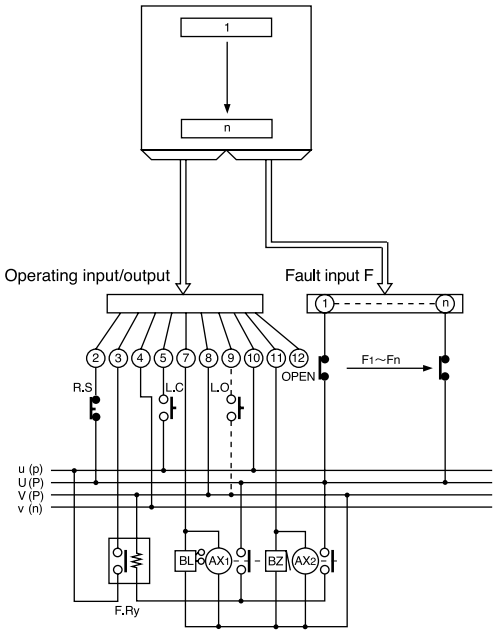
Operation input/output No. 9
ALA·ALB : to be connected from ⑨ to L.O to U(P)
AMA·AMB : to be connected from ⑨ to L.O to U(P)
AA·AB : to be opened
When ALA·ALB·AMA·AMB·AA·AB is mixtured, connect as specified in ALA·ALB.

Operation input/output connects approx. 10 common line terminals. It also connects fault input and output connect point terminal individually. Please note that the connect point configurations for buzzer stop and lamp out switch differ by operation style.
Alarm output for KFA-22 at the time of delivery is set at buzzer (BZ) by default. Use short circuit connector to switch to bell (BL).

·The diagram below indicates using both buzzer (BZ) and bell (BL).

U.V(P.N) : Operation input/output power source u.v.(p.n) : Power supply for LED Lamp

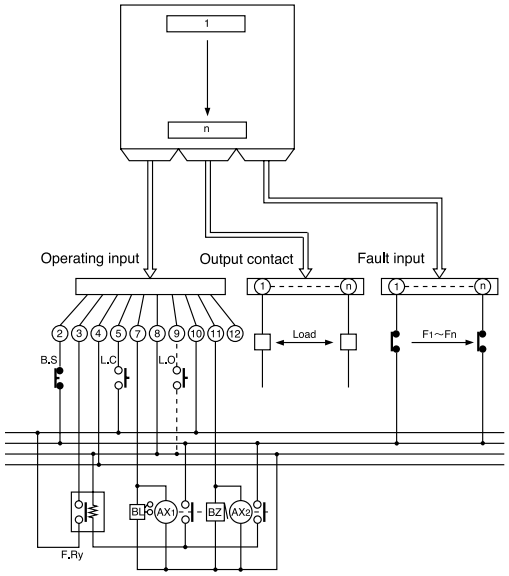
▼ BN, BMN, BLN



- Operation input/output No. 9
  BLN : to be connected from ⑨ to L.O. to U(P)
  BN·BMN : to be opened
  When BN, BMN, BLN is mixtured, connect as specified in BLN.

- For BLN, L.O. operation is necessary in the following cases.
  - When inserting a relay unit
  - When turning on the power source
  - Recovery from a power interruption

▼ BA, BMA, BLA
BB, BMB, BLB



Operation input/output No. 9
BLA·BLB : to be connected
from ⑨ to L.O. to U(P)
BA·BB·BMA·BMB : to be opened
When BLA·BLB·BMA·BMB·BA·BB is mixtured, connect as specified in BLA·BLB.

- For BLA·BLB, L.O. operation is necessary in the following cases.
  - When inserting a relay unit
  - When turning on the power source
  - Recovery from a power interruption

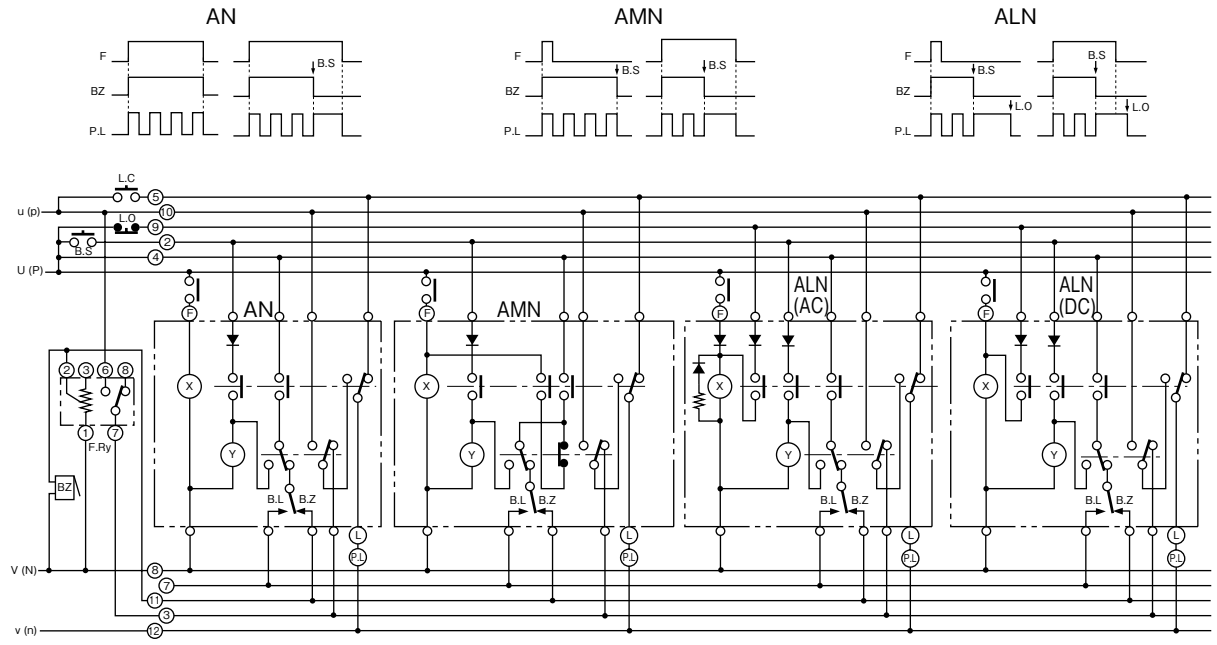
■ Sequence Pattern

Surge protection terminal element is not indicated in the circuit diagram. However, if surge protection is provided, surge suppresser for AC ratings or diode for DC ratings is installed parallel to relay coils.
Installing surge protection element can prevent substantial amount of counter electromotive force at relay OFF.

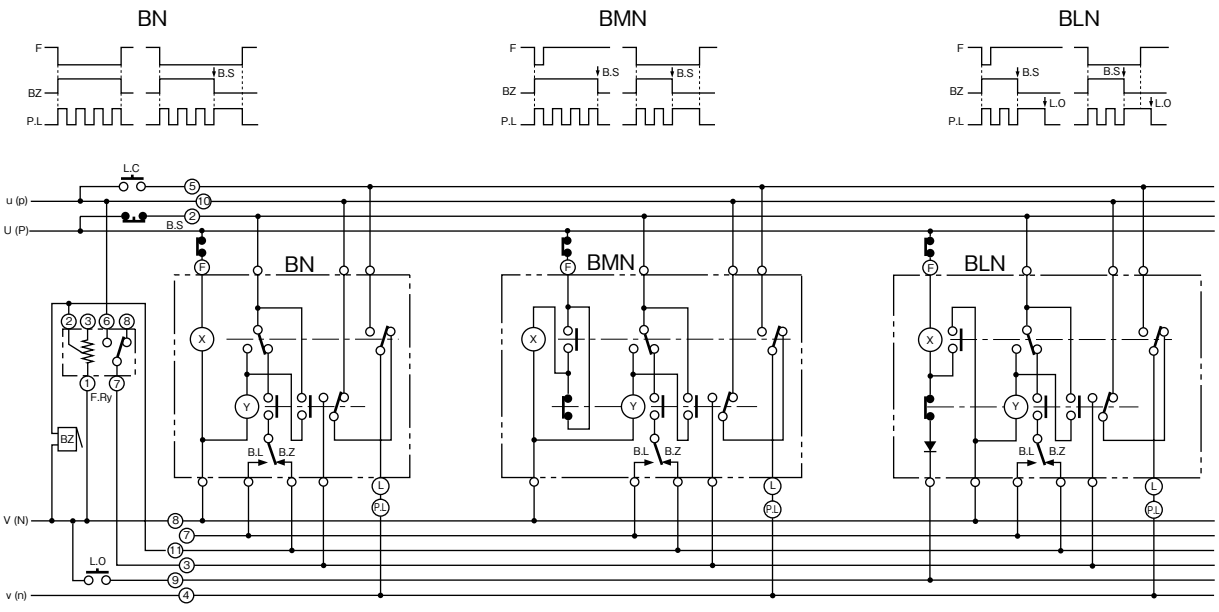
·The connection diagram below indicates using buzzer (BZ).

U.V(P.N) : Operation input/output power source u.v.(p.n) : Power supply for LED Lamp

▼ AN, AMN, ALN



▼ BN, BMN, BLN



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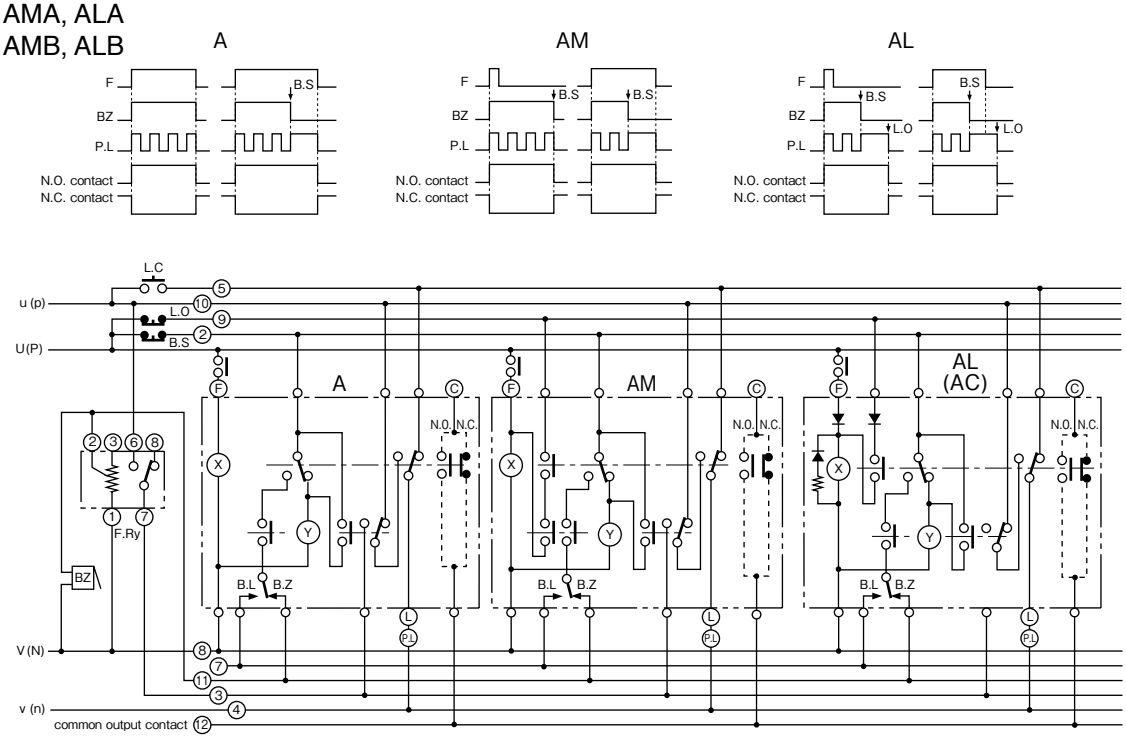
Installing surge protection element can prevent substantial amount of counter electromotive force at relay OFF.

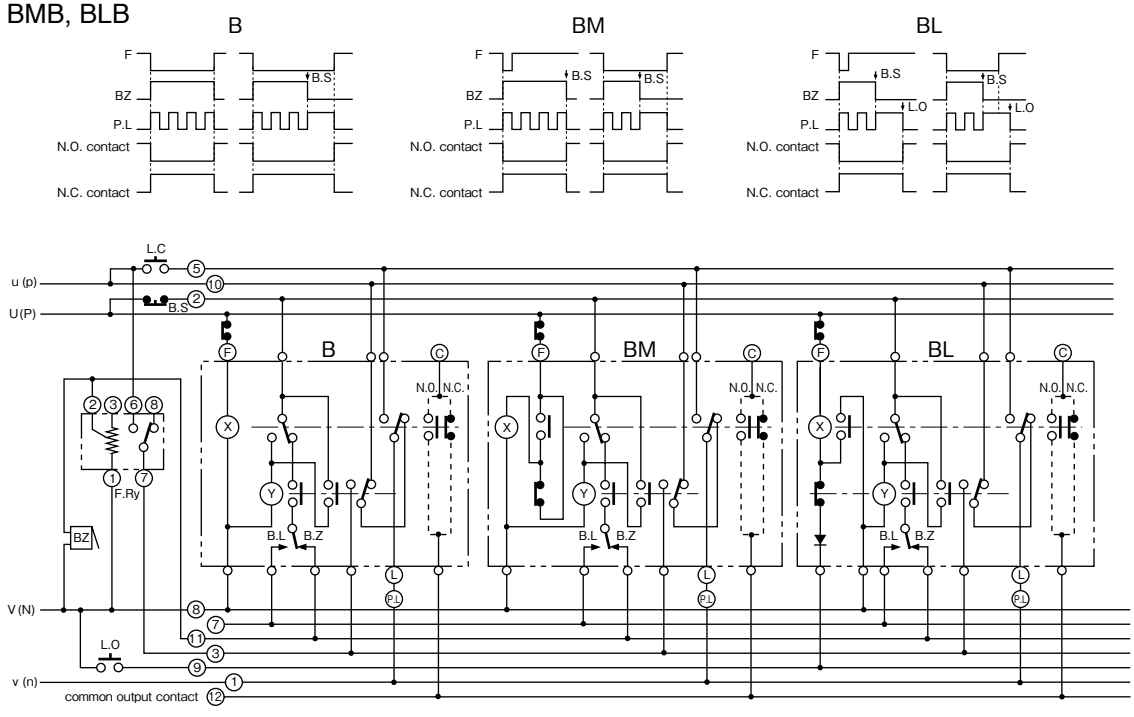
·The connection diagram below indicates using buzzer (BZ).

U.V(P.N) : Operation input/output power source u.v.(p.n) : Power supply for LED Lamp

▼ AA, AMA, ALA
AB, AMB, ALB



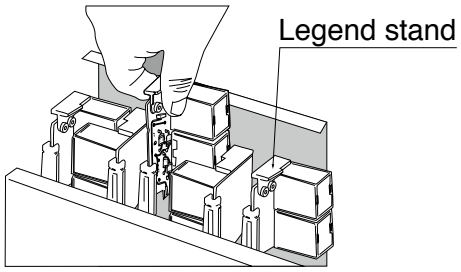
▼ BA, BMA, BLA
BB, BMB, BLB



■ Mounting

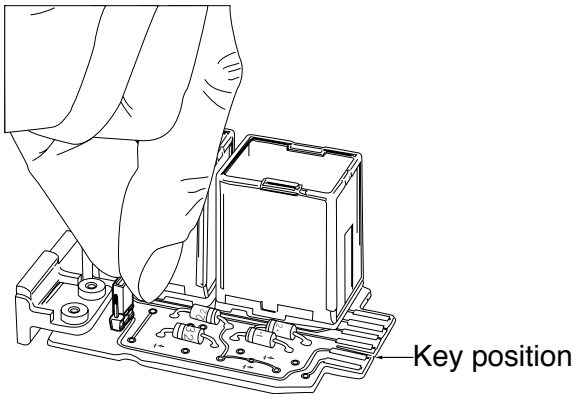
- **Replacing the KFA-22 Relay Unit**

  Disconnect the power prior to remove the relay unit to prevent electric shock. To replace the relay unit on the mother board, pinch a terminal block on printed boards and pull it out perpendicular to mother board. To insert relay unit, confirm the location of the key on connector.



- **Switching between Buzzer to Bell**

  Buzzer is the default setting, therefore, if switching to bell is required, use the following steps: 1) Remove the relay unit from the motherboard; 2) Remove the short circuit connector which is set to buzzer and connect it to the bell side.

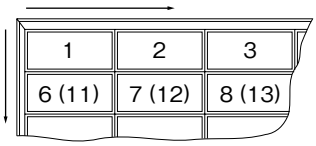


- **Wiring**

  Attach solder-less terminal for M3 screw according to terminal number. Recommended torque is 0.6~0.9N·m.

- **Fault Input Terminal Number**

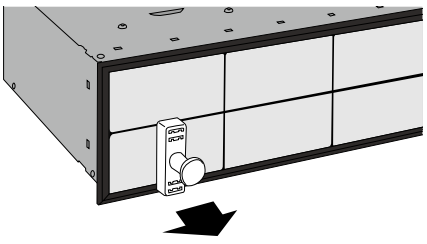
  The fault input terminal numbers are arranged in correspondence to each number of the alarm indicator from the upper left to right with numbers 1, 2, 3.



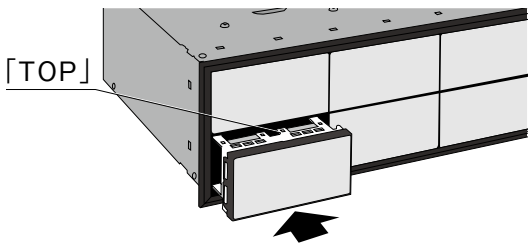
(For 10 rows)

- **Replacing the LED Unit**

  Disconnect the power prior to remove the relay unit to prevent electric shock. In order to remove LED unit, insert the tip of the special removing tool, KX-13 into the grooves located upper and lower side of lens frame and pull the unit toward front.
  Once one unit is removed, remaining units can be pulled out easily by hand.



  To install LED unit, face printed letter “TOP” on the side of reflecting mirror to the top and then insert.



- Please refer to page 2-10 for removal of lens frames, legend plates and color filters.