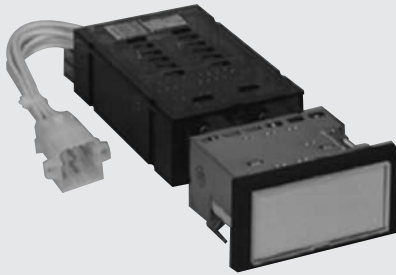


# Unit Type Annunciator

## KFA-88/KFA-98

KFA-88H/KFA-88N



KFA-98B/KFA-98N



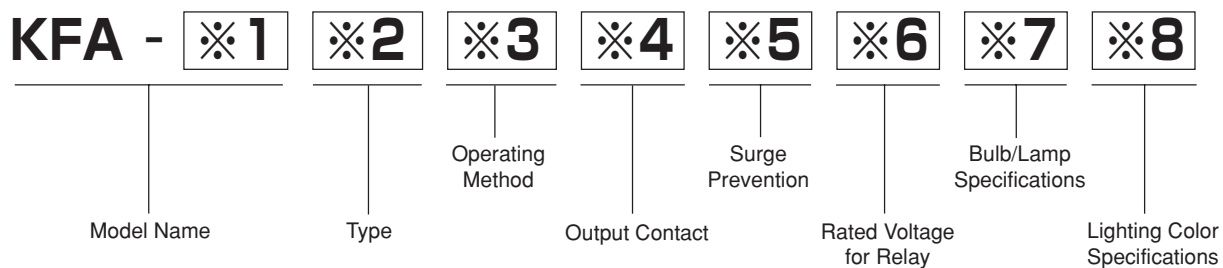
### ■ Features

- By using a wire harness with reliable connectors, wiring for these annunciators has been greatly simplified.
- Reliable connections achieved by using a fasten tab terminal #250 for alarm input/output.
- Improved energy saving by employing “unexcited type” circuits for N.O. contact alarm input without output contact.
- An annunciator relay with such functions as output contacts and/or surge voltage protection to satisfy various applications.
- A bulb can only be used with low voltage because the lamp and relay are in separate circuits.
- Polycarbonate resin used for the relay assures durability and heat resistance.
- LED (LE-88A) is available for KFA-88.
- KFA-88 is used for both the incandescent bulb and LED. KFE-98 is only for incandescent bulbs.



- 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.
- When assembling the units, be careful of the following points:
  - Maximum assembly number is 6 vertical windows × 10 horizontal windows.
  - When connecting a 140V 5W lamp to a 110V power source, avoid continuous use over a long period of time. This may cause the filter to melt. 2W lamps are recommended.

## Model Designation



Note: The lens frame color is black.

### ※1

| Model Name | Lens Shape | Panel Size  |
|------------|------------|-------------|
| <b>88H</b> | Flat       | 32.5 × 67mm |
| <b>88N</b> | Slanting   |             |
| <b>98B</b> | Flat       | 36 × 86mm   |
| <b>98N</b> | Slanting   |             |

### ※2

| Code     | Type             |
|----------|------------------|
| <b>D</b> | Full voltage     |
| <b>T</b> | Transformer type |

- Transformer types are not available for LED models.

### ※3

| Code     | Sequence Pattern                        |             |
|----------|---|-------------|
| <b>0</b> | N.O. contact, maintained fault          | <b>(A)</b>  |
| <b>1</b> | N.O. contact, momentary fault           | <b>(AM)</b> |
| <b>2</b> | N.O. contact, momentary fault with L.O. | <b>(AL)</b> |
| <b>3</b> | N.C. contact, maintained fault          | <b>(B)</b>  |
| <b>4</b> | N.C. contact, momentary fault           | <b>(BM)</b> |
| <b>5</b> | N.C. contact, momentary fault with L.O. | <b>(BL)</b> |

### ※4

| Code     | Output Contact        |
|----------|-----------------------|
| <b>N</b> | No Contact            |
| <b>C</b> | 1 change-over contact |

### ※5

| Code     | Surge Killer |
|----------|--------------|
| <b>0</b> | Without      |
| <b>2</b> | With         |

### ※6

| Code     | Rated Voltage for Relay |
|----------|-------------------------|
| <b>0</b> | 24V AC                  |
| <b>1</b> | 48V AC                  |
| <b>2</b> | 100V AC                 |
| <b>3</b> | 110V AC                 |
| <b>4</b> | 200V AC                 |
| <b>5</b> | 220V AC                 |
| <b>6</b> | 24V DC                  |
| <b>7</b> | 48V DC                  |
| <b>8</b> | 100V DC                 |
| <b>9</b> | 110V DC                 |
| <b>X</b> | Special Voltage         |

- Use the annunciator within the range of  $\pm 10\%$  of the rated voltage.
- Relays specified for 125V DC are also available.

### ※7

|              | Code       | Lamp        | Apply Voltage  |
|--------------|------------|-------------|----------------|
| Incandescent | <b>0</b>   | 18V2W T-14  | 14.5V AC/DC    |
|              | <b>1</b>   | 24V2W T-14  | 19V AC/DC      |
|              | <b>2</b>   | 28V2W T-14  | 22.5V AC/DC    |
|              | <b>3</b>   | 48V2W T-14  | 38.5V AC/DC    |
|              | <b>4</b>   | 18V2W T-15  | 14.5V AC/DC    |
|              | <b>5</b>   | 24V2W T-15  | 19V AC/DC      |
|              | <b>6</b>   | 28V2W T-15  | 22.5V AC/DC    |
|              | <b>7</b>   | 48V2W T-15  | 38.5V AC/DC    |
|              | <b>8</b>   | 140V5W T-15 | 100/110V AC/DC |
|              | <b>E4</b>  | LE-88A      | 24V DC         |
| LED          | <b>E8</b>  |             | 100/110V DC    |
|              | <b>E8D</b> |             | 115V DC        |
|              | <b>EG</b>  |             | 117V DC        |
|              |            |             | 125V DC        |

- LED model LE-88A can be installed to KFA-88H and 88N.
- When using the LED model LE-88A at 115V or 117V a current controlling resistor must be built into the unit (code E8) so that the LED can be used at high voltages. Always mark E8D on the structure label to clarify the applied voltage.
- Use 140V 5W bulbs when using a full voltage type 100/110V.

### ※8

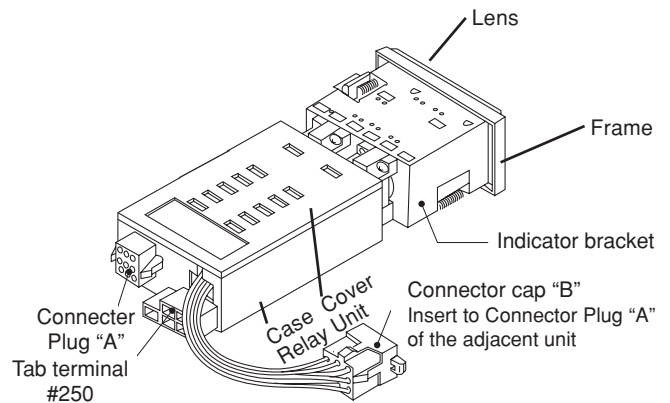
| Code      | Lighting Color |      |
|-----------|----------------|------|
| <b>W</b>  | Milky white    | Bulb |
| <b>R</b>  | Red            |      |
| <b>O</b>  | Orange         |      |
| <b>HR</b> | Red            | LED  |
| <b>HY</b> | Yellow         |      |
| <b>HO</b> | Orange         |      |

## ■ Specifications

|                         |              |           |  |                  |
|-------------------------|--------------|-----------|--|------------------|
| Power Consumption       | Full Voltage | AC rating | Max. 7.8VA (for 2W bulbs) max. 13.8VA (for 5W bulbs)                       | max. 5.1VA (LED) |
|                         |              | DC rating | Max. 6.4W (for 2W bulbs) max. 12.4W (for 5W bulbs)                         | max. 3.7W (LED)  |
|                         | Transformer  | AC rating | max. 7.8VA (for 18V 2W bulbs)  |                  |
| Relay Voltage/Frequency |              |           | Voltage: within 90~110% of the rated voltage                               |                  |
|                         |              |           | Frequency: within 95~110%  |                  |
| Insulation Resistance   |              |           | 50MΩ or more between live parts and ground measured by 500V DC megohmmeter |                  |
| Withstand Voltage       |              |           | 2000V AC for 1 minute between live parts and ground                        |                  |
| Operating Environment   |              |           | Temperature: -10~40°C, Humidity: 45~85%RH (No freezing or condensation)    |                  |
| Weight                  |              |           | KFA-88H-N: 350g  | KFA-98B-N: 400g  |

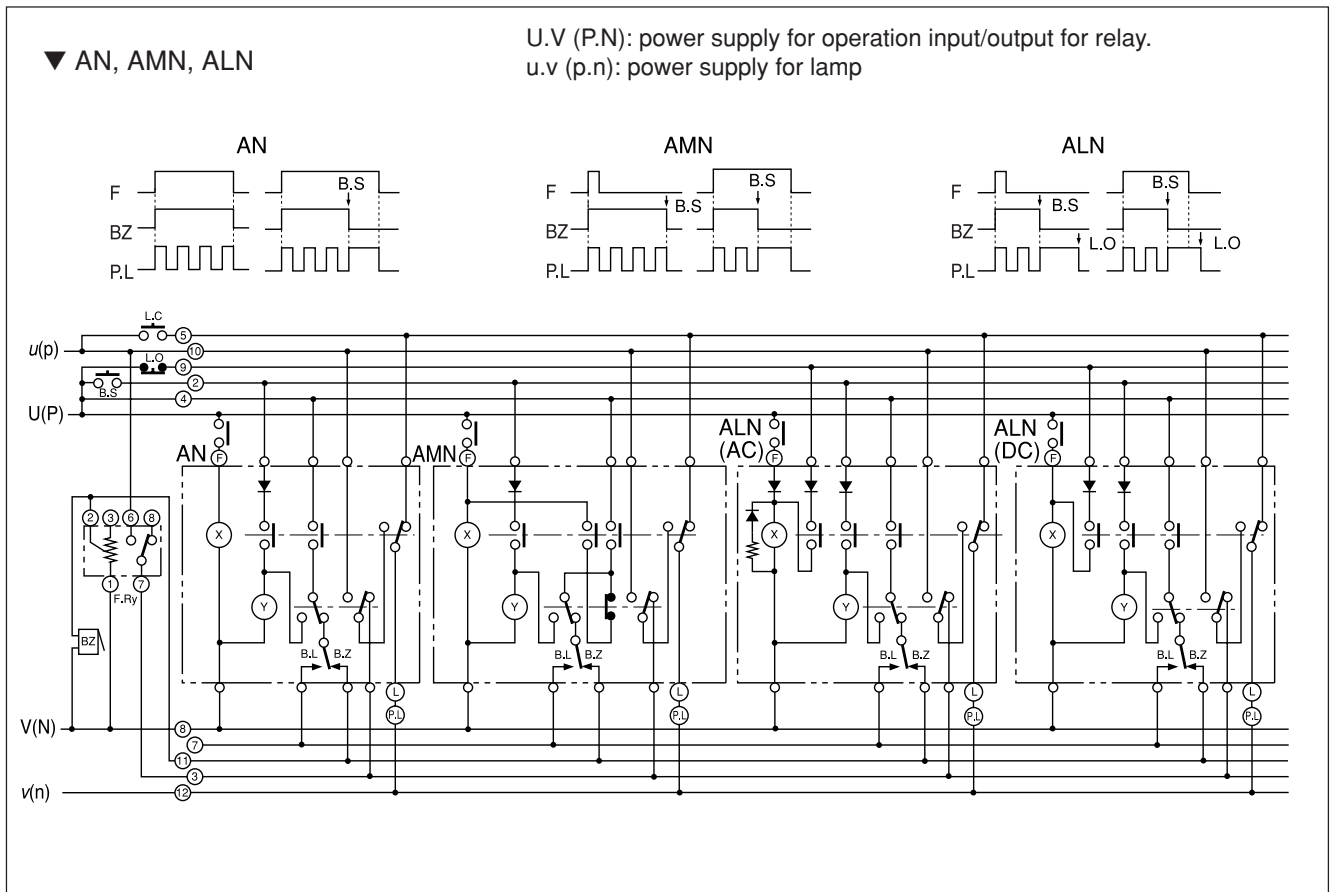
## ■ Materials

|                   |                      |
|-------------------|----------------------|
| Lens              | Acrylic resin        |
| Frame             | Polycarbonate resin  |
| Indicator Bracket | Polished steel plate |
| Case              | Polycarbonate resin  |
| Cover             | Polycarbonate resin  |



## ■ Sequence Pattern

Surge prevention mark is not shown in this diagram. Only some of the transformers are shown.

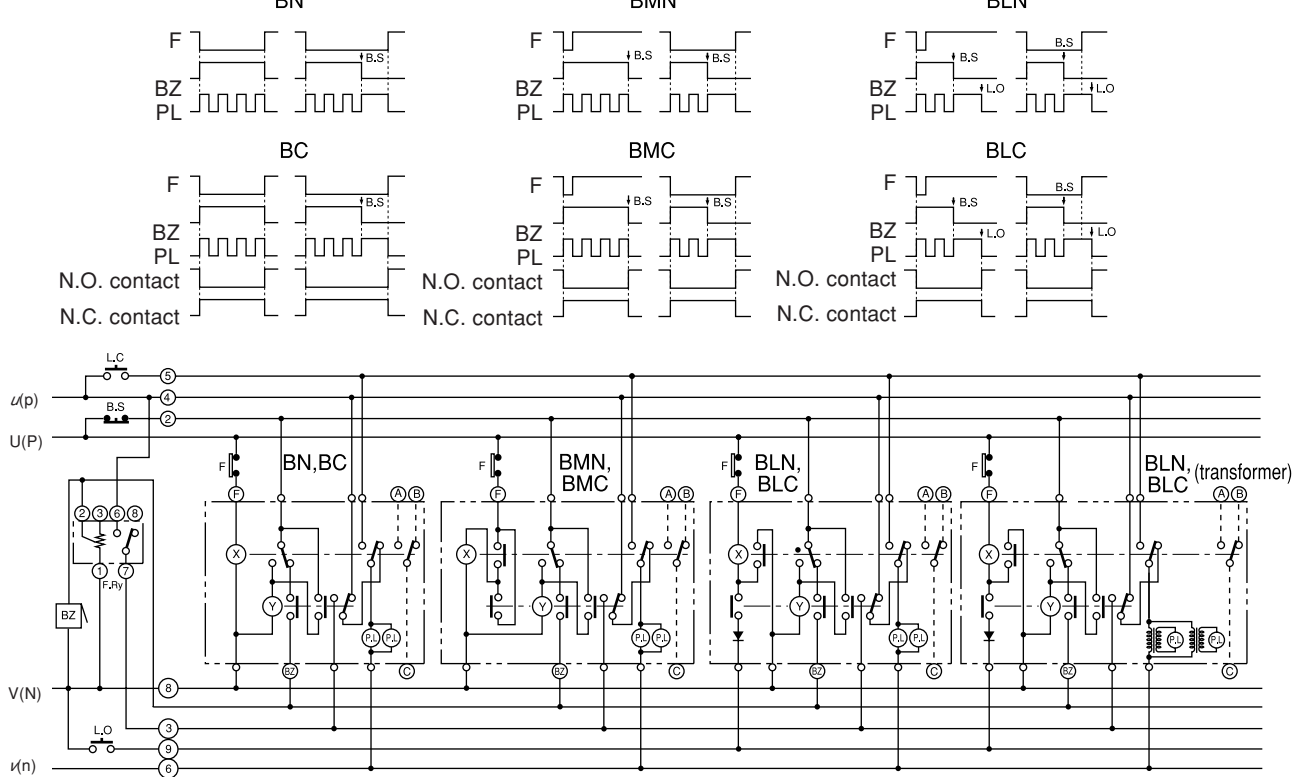


## Sequence Pattern

### ▼ BN, BMN, BLN, BC, BMC, BLC

U.V (P.N): power supply for operation input / output for relay.

u.v (p.n): power supply for lamp



In the following cases, BLN and BLC will require LO operations.

- Inserting relay unit
- Turning on the power
- Recovering from power outage

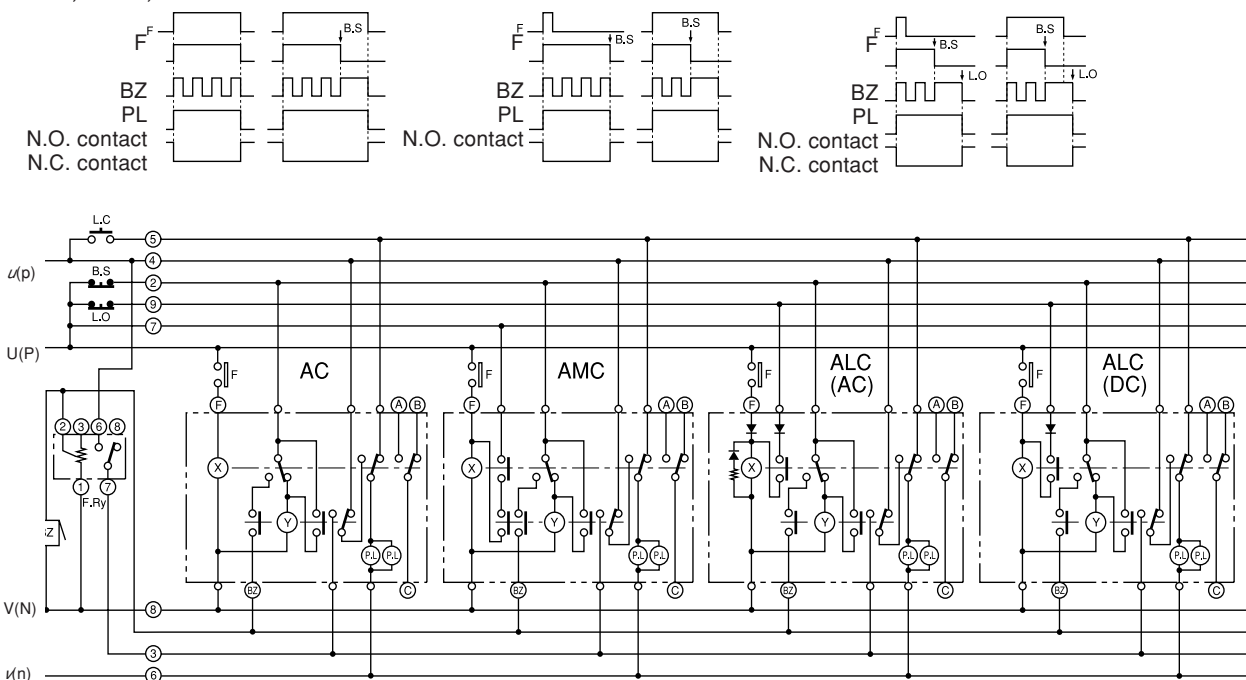
----- line indicates circuit with output contact (1 change-over contact)

### ▼ AC, AMC, ALC

AC

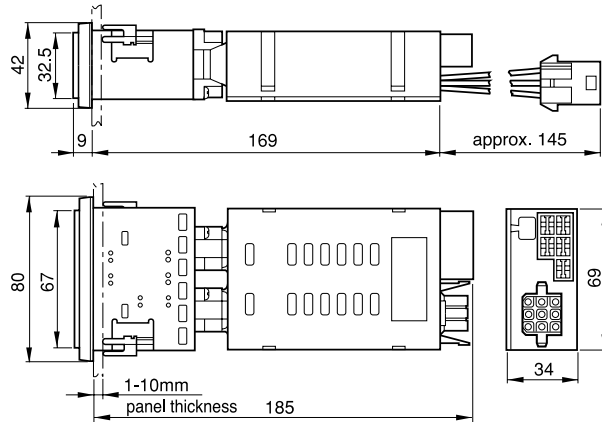
AMC

ALC

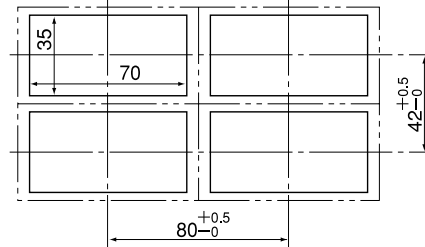


## ■ Dimensions

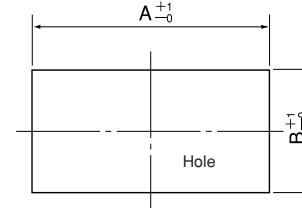
### ▼ KFA-88H (Flat)



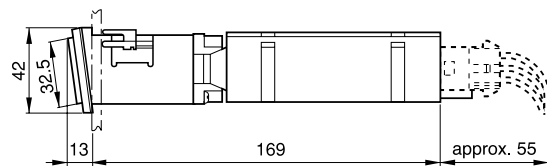
#### Minimum Pitch Dimensions



#### Panel Cut Dimensions



### ▼ KFA-88N (Inclined)



A = (Horizontal windows × 80) - 10 mm

B = (Vertical windows × 42) - 7 mm

Number of cross frames for integration is

(No. of Horizontal windows - 1) × (No. of Vertical windows - 1)

Example:

Fitting Holes for (8 Horizontal windows) × (4 Vertical windows)

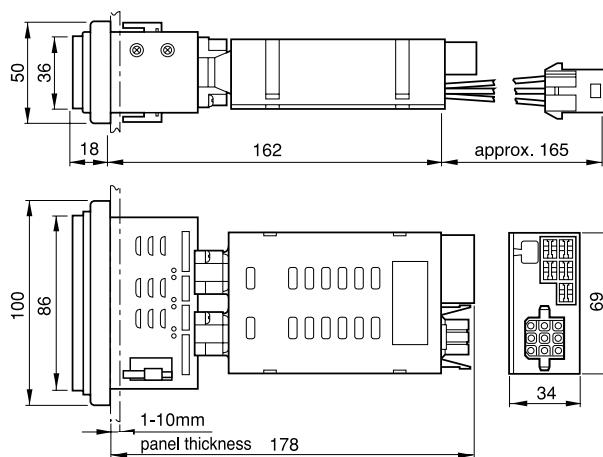
A = (8 × 80) - 10 = 630 mm

B = (4 × 42) - 7 = 161 mm

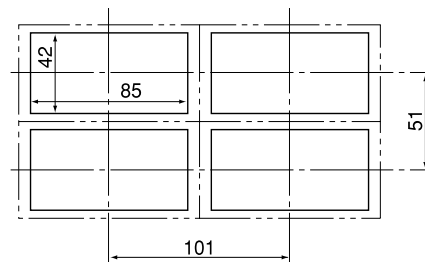
Number of cross frames is (8 - 1) × (4 - 1) = 21

Cross frames are not necessary when installing by unit, vertical window, or horizontal window.

### ▼ KFA-98B

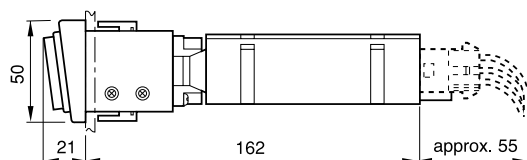


#### Minimum Pitch Dimensions



- Cross frames are not available for KFA-98B and KFA-98N.

### ▼ KFA-98N



## ■ Mounting

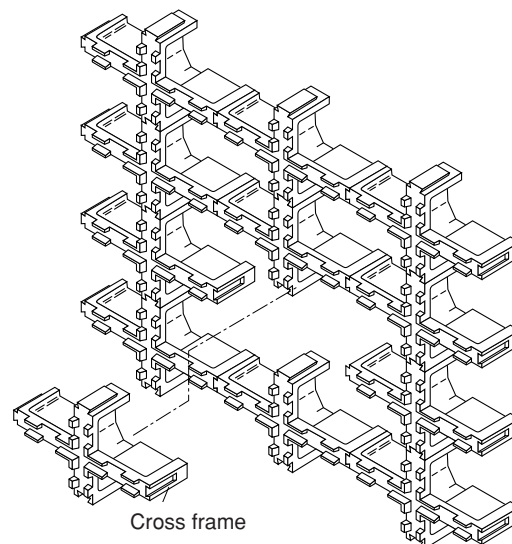
### Individual Mounting

The lens shall be removed by hand from the front surface of the control panel. Insert the annunciator relay into the square hole which was cut with the surface lens removed. Then turn two mounting screws clockwise with a screwdriver. Screws are located on both the inner left and right sides of the unit. This will assure firm mounting by pushing the L-shape metal fitting up front.

### Assembly Mounting (For Models KFA-88H)

Aluminum cross frames shown on the right are used.

- Assemble as many cross frames as the desired number of units by joining the wedges together. To make individual windows, and then assemble them into one. Assemble by first making one vertical or horizontal row. Then continue assembling in the same manner. In other words, if the first row is a vertical row, the following row should also be vertical.
- Only use a plastic hammer and always hammer to smooth the surface side. Hammering from the back side can cause damage to the wedges.
- When mounting the assembled units to the panel hole, the back of the bracket (surface for mounting sockets) at the edge unit may block the way. This is because the brackets at the end are left open. In this case, first remove the far right or far left vertical row. Then the integrate unit can be easily mounted. After mounting, replace the vertical row.



### Assembly Combinations

When the voltage is the same, the following combinations are possible.

|     |
|-----|
| AN  |
| AMN |
| ALN |

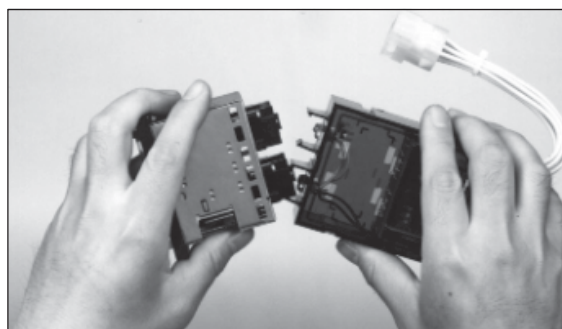
|     |     |     |
|-----|-----|-----|
| AC  | BN  | BC  |
| AMC | BMN | BMC |
| ALC |     |     |

|     |     |     |
|-----|-----|-----|
| AC  | BN  | BC  |
| AMC | BMN | BMC |
|     | BLN | BLC |

### Replacing Relay

When the relay is damaged, it should be replaced.

The lamp socket of the indicator is engaged to the hook of the annunciator unit, and at the same time the electrical connections is secured. To separate, hold the two components as shown in the picture and carefully bend in a horizontal direction. Do not bend the components vertically. This may damage the hooks.



## ■ Wiring

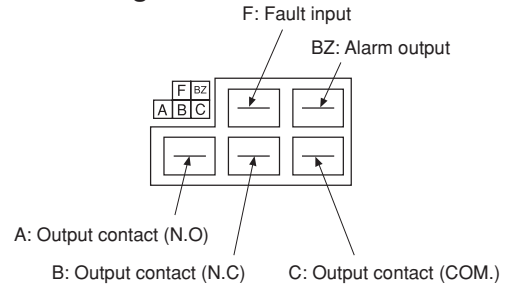
### Individual Wiring

The fasten tab terminal #250 is located at the back of each unit. Connect the fasten receptacle to each terminal: fault input, alarm output, and output contact.

Wires should be  $0.75\text{mm}^2$  when wiring alarm output for such items as buzzers and bells.

If only one wire is used, the maximum is limited to  $1.25\text{mm}^2$ .

### Individual Wiring



**Note:** The necessary number of fasten receptacles will be included.

### Wiring Units

Wire the units together by plugging Connector Cap "B", which is extended from the back, to Connector Plug "A" of the adjacent unit.

The number of units that can be wired together will depend upon the lamp current and size of wires used. Wire size for this unit is KIV $0.75\text{mm}^2$ . Refer to the chart on right for the number of units.

- The maximum pitch dimensions for wire connecting harnesses are as follows:

Model KFA-88 Width 100mm Height 50mm  
Model KFA-98 Width 120mm Height 60mm

If further extension is desired, the special dimension specification will be needed.

- End terminal treatments are to be done on Connector Cap "B". Order the necessary number of wire harnesses with plugs (KIV $0.75\text{mm}^2$ , length 2m) separately. Plug "A" can be used by connecting to the sub-panel when necessary.

### Wiring Limits for Incandescent Lamp

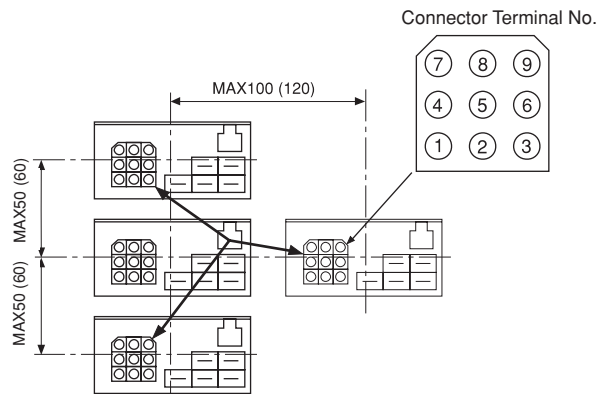
#### Full Voltage

| Lamp Spec. | No. of possible wires |
|------------|-----------------------|
| 18V 2W     | 15                    |
| 24V 2W     | 18                    |
| 28V 2W     | 20                    |
| 48V 2W     | 35                    |
| 140V 5W    | 40                    |

#### Transformer Type

| 100V-14.5V  | No. of possible wires |
|-------------|-----------------------|
| Lamp 18V 2W | 70                    |

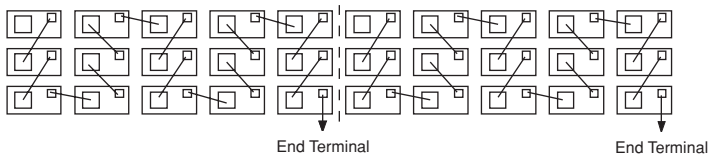
### Locations for Connecting Wire Harness



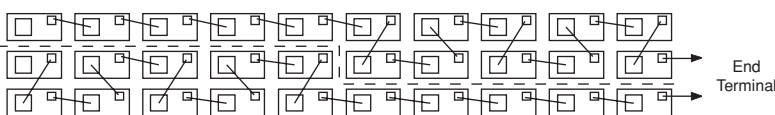
### Wiring Examples

#### 3 high × 10 wide, Lamp (18V, 2W)

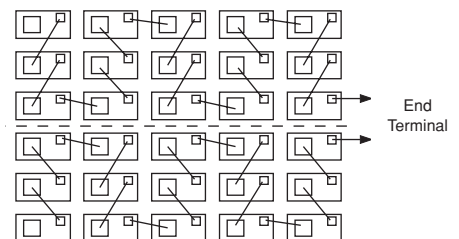
##### Example 1



##### Example 2

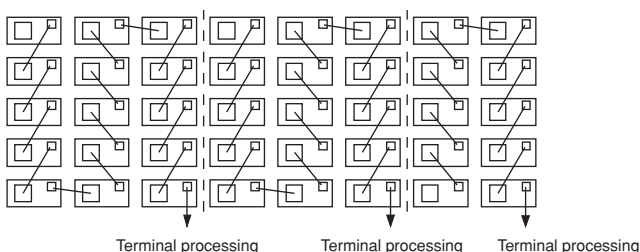


#### 6 high × 5 wide, Lamp (18V, 2W)

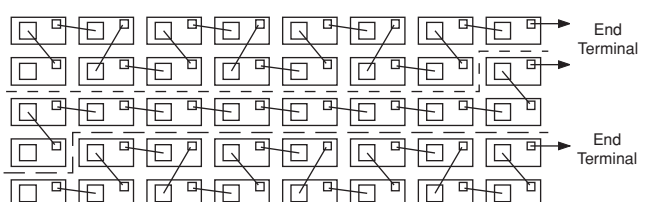


#### 5 high × 8 wide, Lamp (18V, 2W)

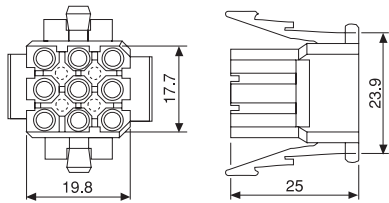

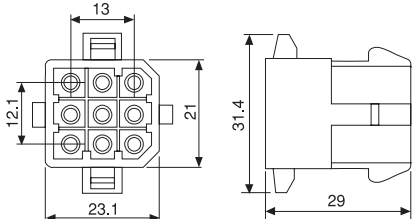
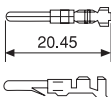
##### Example 1



##### Example 2



## Connectors

| Connector Plug "A"<br>171267-1  | Socket<br>170120-1<br>170121-1  | Connector Cap "B"<br>171268-1  | Pin<br>61118-1<br>60620-1   |
|---|---|--|---|
|  |  |  |  |
| Crimping Tool (manual tool for socket and pin): 91504-1 (optional)                |   |  |   |

## Receptacle Model

Fasten Receptacle: AMP170054-2

Application Tool: AMP90011 (optional)

## Accessories & Replacement Parts

### Wire Harness with Plug

**WH- P 2 Y**

#### Wire Color

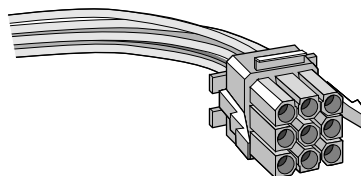
- Y : yellow (Production on orde)
- B : blue (Production on orde)

#### Wire Harness

- 1 : 1m (Production on orde)
- 2 : 2m
- 3 : 3m (Production on orde)
- 4 : 4m (Production on orde)

P : with plug

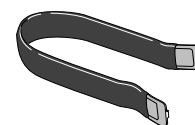
C : with cap(Production on orde)



P: with plug

### Removal Tool for LE-88A

▼ KX-8



Weight: 12g

### LED lamp for KFA-88

**LE - 88A -**

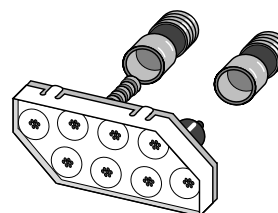
#### Lighting color

- HR : Red (high brightness)
- HG : Green (high brightness)
- HO : Orange (high brightness)
- HY : Yellow (high brightness)\*1
- HB : Blue (high brightness)\*2

#### Rated voltage

- 4 : 24V AC/DC
- 8 : 100/110V AC/DC
- G : 125V AC/DC

#### Model name



Weight: 25g

\*1 Use "Y" for indication with yellow or milky white lens

\*2 Production on orders.