

# ø16 H6 Series Miniature Control Units

**Designed to ensure ease of operation and safety**  
**Ideal for heavy duty applications such as machine tools**

- Separate contact block makes installation and removal easy.
- Large operators; bezel size (ø24 mm, 24×24 mm)
- High operating force and long stroke prevent inadvertent operation.
- Contact blocks can be removed when units are mounted collectively.
- Shock- and vibration-resistant rugged design
- IP65
- UL recognized, CSA certified
- EN compliant (EN 60947-1, EN 60947-5-1, TÜV approved)



## Contact Ratings

Except for emergency stop switches (see page 27).

### • Gold Contact

|  |                  |        |
|--|------------------|--------|
| Rated Insulation Voltage                 | 250V             |        |
| Rated Thermal Current                    | 3A               |        |
| Rated Operating Voltage                  | 125V AC          | 30V DC |
| Rated Operating Current (resistive load) | 0.1A             | 0.1A   |
| Contact Material                         | Gold-clad silver |        |

Minimum applicable load (reference value): 5V AC/DC, 1 mA  
 (Applicable range is subject to the operating condition and load.)

### • Silver Contact

|                          |             |                |      |      |      |
|--------------------------|-------------|----------------|------|------|------|
| Rated Insulation Voltage | 250V        |                |      |      |      |
| Rated Thermal Current    | 5A          |                |      |      |      |
| Rated Operating Voltage  | 30V         | 125V           | 250V |      |      |
| Rated Operating Current  | AC 50/60 Hz | Resistive Load | —    | 3A   | 2A   |
|                          |             | Inductive Load | —    | 2A   | 1.5A |
|                          | DC          | Resistive Load | 2A   | 0.4A | —    |
|                          |             | Inductive Load | 1A   | 0.2A | —    |
| Contact Material         | Silver      |                |      |      |      |

AC inductive load: PF = 0.6 to 0.7, DC inductive load: L/R = 7 ms maximum




## Built-in LED Lamp Ratings

|                        |   |                |                |
|------------------------|---|----------------|----------------|
| Type No.               | LFTD-5②   | LFTD-1②        | LFTD-2②        |
| Lamp Base              | SX6S/8×5.4  |                |                |
| Operating Voltage      | 5V DC±5%  | 12V AC/DC ±10% | 24V AC/DC ±10% |
| Rated Voltage          | 5V DC   | 12V AC/DC      | 24V AC/DC      |
| Current Draw           | AC  | —              | 9 mA           |
|                        | DC  | 8 mA           | 8 mA           |
| Color Code ②           | Specify a color code in place of ② in the Type No. A (amber), G (green), R (red), S (blue), W (white), Y (yellow) |                |                |
| Lamp Base Color        | Same as illumination color  |                |                |
| Voltage Marking        | Die stamped on the lamp base.   |                |                |
| Life (reference value) | Approx. 50,000 hours (When used on complete DC, luminance reduces to 50% of the initial intensity.)               |                |                |
| Internal Circuit       | A, R, W, Y  | A, R, W, Y     |                |
|                        |   |                |                |
|                        | G, S  | G, S           |                |
|                        |   |                |                |


## Specifications

|  |  |                                    |
|--|--|------------------------------------|
| Operating Temperature                      | -25 to +55°C (no freezing)   |                                    |
| Storage Temperature                        | -30 to +80°C   |                                    |
| Operating Humidity                         | 45 to 85% RH (no condensation)   |                                    |
| Contact Resistance                         | 50 mΩ maximum (initial value)  |                                    |
| Insulation Resistance                      | 100 MΩ minimum (500V DC megger)  |                                    |
| Dielectric Strength                        | Switch Unit  |                                    |
|  | Illumination Unit  |                                    |
| Dielectric Strength                        | Between live part and ground:<br>2,500V, 1 minute  |                                    |
|  | Between terminals of different poles:<br>2,500V, 1 minute                                      |                                    |
| Dielectric Strength                        | Between terminals of the same pole:<br>1,000V, 1 minute  |                                    |
|  | Between live part and ground:<br>2,500V, 1 minute  |                                    |
| Vibration Resistance                       | Operating extremes:<br>5 to 55 Hz, amplitude 0.5 mm  |                                    |
| Shock Resistance                           | Operating extremes: 100 m/s <sup>2</sup> (10G)<br>Damage limits: 1,000 m/s <sup>2</sup> (100G) |                                    |
| Mechanical Durability (minimum operations) | Momentary:   | 1,000,000                          |
|  | Maintained:  | 200,000                            |
|  | Selector switch:   | 250,000                            |
|  | Key selector switch:   | 250,000                            |
|  | Illuminated selector switch:   | 250,000                            |
| Electrical Durability (minimum operations) | Selector pushbutton:   | 250,000                            |
|  | Momentary:   | 100,000 (at 1,800 operations/hour) |
|  | Maintained:  | 100,000 (at 1,200 operations/hour) |
|  | Selector switch:   | 100,000                            |
| Degree of Protection                       | IP65 (IEC 60529)   |                                    |
| Terminal Style                             | Solder/tab terminal #110<br>PC board terminal  |                                    |
| Weight (approx.)                           | HA1L-M1C24:  | 18g                                |
|  | HA1P-1C04:   | 17g                                |
|  | HA1P-14:   | 13g                                |
|  | HA1B-M1C2:   | 16g                                |
|  | HA1S-2C2:  | 18g                                |
|  | HA1K-2C2A:   | 33g                                |
|  | HA1F-2C24:   | 20g                                |

## LED Lamps

| Operating Voltage   | Current Draw |      | Type No. | Ordering Type No. | ② Illumination Color Code  | Package Quantity | Base       |
|---|--------------|------|----------|-------------------|--|------------------|------------|
|   | AC           | DC   |          |                   |  |                  |            |
| 5V DC ±5%<br>      | —            | 8 mA | LFTD-5②  | LFTD-5②           | Specify a color code in place of ② in the Ordering Type No.        | 1                | SX6S/8×5.4 |
|   |              |      |          | LFTD-5②PN10       |  | 10               |            |
| 12V AC/DC ±10%<br> | 9 mA         | 8 mA | LFTD-1②  | LFTD-1②           | A: amber<br>G: green<br>R: red<br>S: blue<br>W: white<br>Y: yellow | 1                |            |
|   |              |      |          | LFTD-1②PN10       |  | 10               |            |
| 24V AC/DC ±10%<br> | 9 mA         | 8 mA | LFTD-2②  | LFTD-2②           |  | 1                |            |
|   |              |      |          | LFTD-2②PN10       |  | 10               |            |

## Transformer

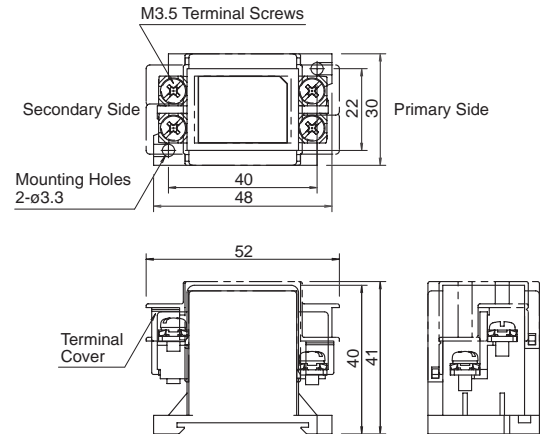
| Shape   | Primary Voltage | Secondary Voltage | Type No. | Applicable LED Lamp |
|---|-----------------|-------------------|----------|---------------------|
| Separate Mounting Type for 24V<br> | 100/110V AC     | 24V AC, 0.5W      | TWR512   | LFTD-2②             |
|   | 200/220V AC     |                   | TWR522   |                     |
|   | 400/440V AC     |                   | TWR542   |                     |

- Terminal covers are supplied with separate mounting type transformers.
- Connect only one LFTD LED to separate mounting type transformers.
- Use plastic mounting clip BC9Z-E/NS35N when using 400/440V primary voltage.

## Specifications


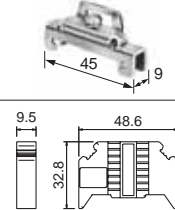
|                              |  |                               |
|------------------------------|--|-------------------------------|
| Operating Voltage            | 100/110V AC, 200/220V AC, 400/440V AC (50/60 Hz) |                               |
| Power Consumption            | 2.4VA  |                               |
| Rated Insulation Voltage     | 600V   |                               |
| Insulation Resistance        | 100 MΩ minimum (500V DC megger)                  |                               |
| Dielectric Strength          | 2500V AC, 1 minute                               |                               |
| Standard Operating Condition | Operating Temperature                            | -30 to +60°C (no freezing)    |
|                              | Relative Humidity                                | 35 to 85% (no condensation)   |
| Vibration Resistance         | Operating Extremes                               | 5 to 55 Hz, amplitude 0.5 mm  |
| Shock Resistance             | Damage Limits                                    | 1,000 m/s <sup>2</sup> (100G) |
| Terminal Screw               | M3.5   |                               |
| Applicable Wire              | 2 mm <sup>2</sup> maximum, 2 wires maximum       |                               |

## Dimensions



All dimensions in mm.

## Accessories

| Description   | Appearance  | Description                      | Type No.     | Ordering Type No. | Package Quantity |
|---------------|---|----------------------------------|--------------|-------------------|------------------|
| DIN Rail      |  | Aluminum<br>Weight: Approx. 200g | BAA1000      | BAA1000PN10       | 10               |
|               |   | Steel<br>Weight: Approx. 320g    | BAP1000      | BAP1000PN10       |                  |
| Mounting Clip |  | Steel<br>Weight: Approx. 15g     | BNL6         | BNL6PN10          |                  |
|               |   | Plastic<br>Weight: Approx. 15g   | BC9Z-E/NS35N | BC9Z-E/NS35NPN10  |                  |

- Use plastic mounting clip BC9Z-E/NS35N when using 400/440V primary voltage.

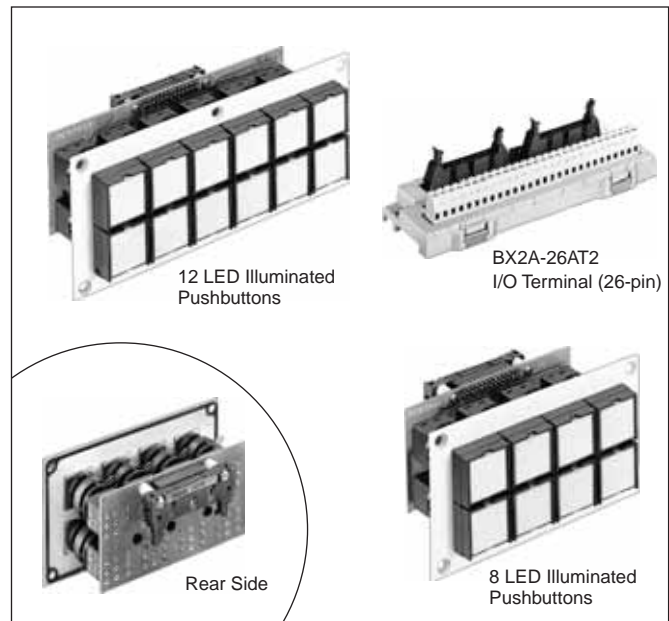
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# HA5W Series Oneboard Control Units

## Reduces wiring and installation space. Achieves standard panel design.

Reduce time and space by using a PC board and flat cable solution. Standard panels can be designed with flexibility.

- The separate structure of operator and contact/board makes maintenance easy.
- IDEC's unique lock lever structure requires no studs on the board.
- H6 series control units can be used without modification.
- Available with I/O terminals for parallel wiring.



### Types

| No. of Control Units | Illumination Type | Operating Voltage | Type No. | Notes                      |
|----------------------|-------------------|-------------------|----------|----------------------------|
| 8                    | LED               | 24V AC/DC ±10%    | HA5W-84  | Panel color: Munsell 5Y7/1 |
| 12                   |                   | 24V AC/DC ±10%    | HA5W-24  |                            |

### Contact Ratings

|                         |                        |
|-------------------------|------------------------|
| Rated Operating Voltage | 24V DC                 |
| Rated Operating Current | 30 mA (resistive load) |
| Contact Material        | Gold-clad silver       |

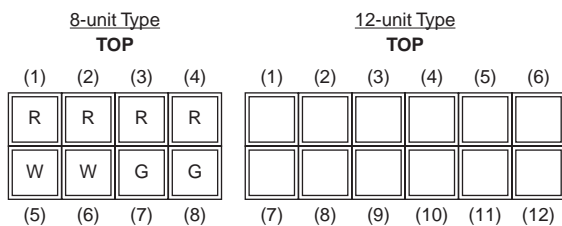
### Ordering Information

1. Specify a button or lens color code in the Type No. [Example]

#### HA5W-84 RRRR WW GG

Type No. Specify color codes for the control units in order of (1) to (8) (see below).

2. All units are supplied with an LED lamp.
3. Illuminated pushbuttons HA2L-M1C14V② (momentary, SPDT) are provided.



### Built-in LED Lamp Ratings

|                        |  |
|------------------------|--|
| Type No.               | LFTD-2②  |
| Base                   | SX6S/8×5.4   |
| Operating Voltage      | 24V AC/DC ±10%   |
| Rated Voltage          | 24V AC/DC  |
| Current Draw           | AC 9 mA  |
|                        | DC 8 mA  |
| Color Code ②           | Specify a color code in place of ②. A (amber), G (green), R (red), S (blue), W (white), Y (yellow)           |
| Lamp Base Color        | Same as illumination color   |
| Voltage Marking        | Die stamped on the lamp base   |
| Life (reference value) | Approx. 50,000 hours (When used on complete DC, luminance reduces to 50% of the initial intensity.)          |
| Internal Circuit       | A, R, W, Y   |
|                        | G, S   |
|                        | <ul style="list-style-type: none"> <li> LED Chip</li> <li> Protection Diode</li> <li> Zener Diode</li> </ul> |