LH1D Series
Surface Mount Indicators
IDEC LED Spider
Application Examples

Robot Arm Status Indicator
Indicates the operating status of the motor.

AGV Status Indicator
Can be used as a directional indicator on automatic guided vehicles.

New Ø66 Jumbo Dome
Ideal for Mounting on

Excellent Visibility
From the front and the side.

IP67 Protection
Can be used in environments subject to washdown.

Cable Wiring
Integrated wiring ensures waterproof characteristics.

Connector Wiring
Connector types available for easy maintenance.
*Jumbo dome type only

Direct Surface Mounting
Requires only a small space behind the mounting surface, and can be installed without concern for other components behind.

Red/Green
Two-color alternate illumination available.

Three-color Alternate Illumination
Two combinations available: red, green and white; and red, green and pure white.
*Jumbo dome type only

Seven Colors
Amber, green, pure white, red, blue, white, and yellow

Legends
Marking film can be inserted into the flat type.
*Flat type only.

Slim Profile
Can be installed in small areas. Only 10.8 mm in height.
*Flat type only.

Direct Mounting on Aluminum Frames
Installation is improved by the increased number of mounting holes.
*Jumbo dome type only

New ø66 Jumbo Dome Type

Color Variation
Amber Green Pure White Red
Blue White Yellow

Two- and three-color alternate illumination also available.

Connector Wiring
Connector types available for easy maintenance.
*Jumbo dome type only

Three-color Alternate Illumination
Two combinations available: red, green and white; and red, green and pure white.
*Jumbo dome type only

Seven Colors
Amber, green, pure white, red, blue, white, and yellow

Legends
Marking film can be inserted into the flat type.
*Flat type only.

Slim Profile
Can be installed in small areas. Only 10.8 mm in height.
*Flat type only.

Direct Mounting on Aluminum Frames
Installation is improved by the increased number of mounting holes.
*Jumbo dome type only
Indicators with Excellent Visibility. Large Equipment.

With increasing awareness on safety at production sites, equipment must be designed to be clearly visible and capable of delivering correct information. With an innovative design, slim and stylish IDEC LED Spiders are ideal for various applications.

**Dome Type**

- Pure White
- WhiteBlue
- Amber
- Green
- Red
- Blue
- White
- Yellow

**Flat Type**

- Pure White
- WhiteBlue
- Amber
- Green
- Red
- Blue
- White
- Yellow

Two-color alternate illumination also available.

Dimensions in mm.

- Dome Type: 28.3 (Diameter) x 40 (Height) x 47 (Depth)
- Flat Type: 10.8 (Height) x 40 (Width) x 59.2 (Depth)

Picking System

Can be used to select picking locations.

Door Monitoring

Indicates whether a door can be opened or closed.

Roller Shutter Status Indicator

Indicates the operating status of a roller shutter.
Innovative indicators with IP67 protection and integrated cable wiring. Directly mountable on equipment and aluminum frames (jumbo dome types).

- Surface mount style does not affect the location of other components. Requires only a small space behind the mounting surface.
- Integrated cable wiring ensures waterproof characteristics. 1m, 3m, and 5m cables available. M12 connector cable (30 cm) available for jumbo dome type.
- IP67 (IEC60529) rated. Can be used in environments subject to washdown.
- Slim design well suited for installation in small spaces.
- Excellent visibility from the front and from the side.
- Legends and symbols can be printed on marking film to customize flat type.
- Two-color alternate illumination available for all types. Three-color alternate illumination available with jumbo dome type.

**Standards**

<table>
<thead>
<tr>
<th>Standards</th>
<th>Marks</th>
<th>File No. or Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>UL508</td>
<td>UL/c-UL File No. E68961</td>
<td></td>
</tr>
<tr>
<td>EN60598-2-1</td>
<td>TÜV SÜD</td>
<td></td>
</tr>
<tr>
<td>EN60947-5-1</td>
<td>EC Low Voltage Directive</td>
<td></td>
</tr>
</tbody>
</table>

* LH series surface mount indicators are approved by TÜV as class III lighting fixtures.

**Specifications**

<table>
<thead>
<tr>
<th>Type</th>
<th>Cable</th>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Insulation Voltage (Ui)</td>
<td>32V</td>
<td></td>
</tr>
<tr>
<td>Rated Voltage</td>
<td>24V AC/DC</td>
<td>24V DC</td>
</tr>
<tr>
<td>Operating Voltage Range</td>
<td>24V AC/DC ±10%</td>
<td>24V DC ±10%</td>
</tr>
<tr>
<td>Rated Current</td>
<td>17 mA</td>
<td></td>
</tr>
<tr>
<td>Maximum Current Draw</td>
<td>0.6W</td>
<td></td>
</tr>
</tbody>
</table>

- Use Class 2 power supply when using the LH1D as a UL compliant product.
- Use Class III circuit when using the LH1D as an EN compliant product.
- 24V AC, 50/60 Hz
- M12 connectors are available for jumbo dome types only.

**Illumination Colors**

- Single Color: A (amber), G (green), PW (pure white), R (red), S (blue), W (white), Y (yellow)
- Three-Color Alternate: R/G/W, R/G/PW

**Type**

<table>
<thead>
<tr>
<th>Type</th>
<th>Jumbo Dome</th>
<th>Dome/Flat</th>
</tr>
</thead>
</table>

**Cable**

- UL20276, 21 AWG, 3-core Cable outside diameter: ø4.9 mm Allowable cable bending radius: 30 mm
- UL20276, 24AWG, 3-core Cable outside diameter: ø4.1 mm Allowable cable bending radius: 24.6 mm

**Connector**

- 20AWG, 4-core Cable length: 0.3m Cable outside diameter: ø6.0 mm Allowable cable bending radius: 40 mm M12 one-touch connector

**Standards**

<table>
<thead>
<tr>
<th>Applicable Standards</th>
<th>IEC60947-5-1, IEC60947-1, EN60947-5-1, EN60947-1, EN60598-2-1, UL508, CSA C22.2 No.14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temperature</td>
<td>−20 to +55°C (no freezing)</td>
</tr>
<tr>
<td>Operating Humidity</td>
<td>45 to 85% RH (no condensation)</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>−30 to +80°C (no freezing)</td>
</tr>
<tr>
<td>Impulse Withstand Voltage</td>
<td>(illuminating part) 800V</td>
</tr>
<tr>
<td>Insulation Resistance</td>
<td>Between live and dead parts: 100 MΩ minimum</td>
</tr>
<tr>
<td>Dielectric Strength</td>
<td>Between live and dead parts: 2000V, 50/60 Hz, 1 minute</td>
</tr>
<tr>
<td>Pollution Degree</td>
<td>3</td>
</tr>
<tr>
<td>Vibration Resistance</td>
<td>5 to 55 Hz, amplitude 0.5 mm</td>
</tr>
<tr>
<td>Shock Resistance</td>
<td>1000 ms²</td>
</tr>
<tr>
<td>Degree of Protection</td>
<td>IP67 (IEC60529) NEMA Type 4X Indoor Use Only (Note)</td>
</tr>
<tr>
<td>Housing Color</td>
<td>Black</td>
</tr>
<tr>
<td>LED Lamp Life</td>
<td>Approx. 50,000 hours (When used on complete DC at 25°C, brightness reduces to 50% of the initial intensity.)</td>
</tr>
<tr>
<td>Weight</td>
<td>140g (jumbo dome type, 1m cable) 50g (dome type, 1m cable) 50g (flat type, 1m cable)</td>
</tr>
</tbody>
</table>

Note: Jumbo dome type is NEMA Type 1 under UL listing.
## Jumbo Dome Type

### Types

<table>
<thead>
<tr>
<th>Shape</th>
<th>Types</th>
<th>Ordering Type No.</th>
<th>Illumination Color</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3m</td>
<td>LH1D-D3HQ4C30♀</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5m</td>
<td>LH1D-D3HQ4C50♀</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Connector</td>
<td>LH1D-D3HQ4CN♀♀♀♀♀♀♀</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3m</td>
<td>LH1D-D3HQ4C30♀♀♀♀♀♀♀</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5m</td>
<td>LH1D-D3HQ4C50♀♀♀♀♀♀♀</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Connector</td>
<td>LH1D-D3HQ4CN♀♀♀♀♀♀♀</td>
<td></td>
</tr>
<tr>
<td>Jumbo Dome (ø66) 3-color alternate</td>
<td>Cable</td>
<td>LH1D-D3HQ4C10♀♀♀♀♀♀♀</td>
<td>Specify a color code in place of ♀♀♀♀♀♀♀ in the Type No. Color code: R/G/W, R/G/PW (Three-color alternate)</td>
</tr>
<tr>
<td></td>
<td>3m</td>
<td>LH1D-D3HQ4C30♀♀♀♀♀♀♀</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5m</td>
<td>LH1D-D3HQ4C50♀♀♀♀♀♀♀</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Connector</td>
<td>LH1D-D3HQ4CN♀♀♀♀♀♀♀</td>
<td></td>
</tr>
</tbody>
</table>

*Color code: A (amber), G (green), PW (pure white), R (red), S (blue), W (white), Y (yellow).
*For orange, specify "A" (for amber).

### Dimensions

![Dimensions Diagram]

**Internal Circuit**

- **One-color Illumination**
  - Cable color: White / Connector pin No. 4
  - LED module (color: ♂)
  - Cable color: Brown / Connector pin No. 3
  - Green / Connector pin No. 2
  - Connector pin No. 1 (N.C.)

- **Two-color Alternate Illumination**
  - Cable color: White / Connector pin No. 4
  - LED module (color: ♂)
  - Cable color: Green / Connector pin No. 2
  - LED module (color: ♂)
  - Cable color: Brown / Connector pin No. 3
  - Connector pin No. 1 (N.C.)

- **Three-color Alternate Illumination**
  - Cable color: White / Connector pin No. 4
  - LED module (color: ♂)
  - Cable color: Green / Connector pin No. 2
  - LED module (color: ♂)
  - Cable color: Yellow / Connector pin No. 1
  - LED module (color: ♂)
  - Cable color: Brown / Connector pin No. 3

### Lens Colors

<table>
<thead>
<tr>
<th>Illumination Color</th>
<th>Lens Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>One Color</td>
<td></td>
</tr>
<tr>
<td>Amber</td>
<td>Amber</td>
</tr>
<tr>
<td>Green</td>
<td>Green</td>
</tr>
<tr>
<td>Pure White (PW)</td>
<td>White</td>
</tr>
<tr>
<td>Red (R)</td>
<td>Red</td>
</tr>
<tr>
<td>Blue (S)</td>
<td>Blue</td>
</tr>
<tr>
<td>White (W)</td>
<td>White</td>
</tr>
<tr>
<td>Yellow (Y)</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Two-color Alternate</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Red (R) / Green (G)</td>
<td>White</td>
</tr>
<tr>
<td>Green (G) / White (W)</td>
<td>White</td>
</tr>
<tr>
<td>Red (R) / White (W)</td>
<td>White</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Three-color Alternate</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Red (R) / Green (G) / White (W)</td>
<td>White</td>
</tr>
<tr>
<td>Amber (A) / Pure White (PW)</td>
<td>White</td>
</tr>
</tbody>
</table>

### LED Module Internal Circuit

The schematic of the LED module internal circuit differ depending on the illumination color.

- **Illumination color: A, R, W**
- **Illumination color: G, PW, S**

Note: For the schematic of the LED module, see "LED Module Internal Circuit" on the right.
LH Series Surface Mount Indicators

Dome Type

<table>
<thead>
<tr>
<th>Shape</th>
<th>Cable</th>
<th>Ordering Type No.</th>
<th>Illumination Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dome ø37 One Color</td>
<td>1m</td>
<td>LH1D-D2HQ4C10</td>
<td>Specify a color code in place of □ in the Type No.</td>
</tr>
<tr>
<td></td>
<td>3m</td>
<td>LH1D-D2HQ4C30</td>
<td>A: amber</td>
</tr>
<tr>
<td></td>
<td>5m</td>
<td>LH1D-D2HQ4C50</td>
<td>G: green</td>
</tr>
<tr>
<td>Dome ø37 Red/Green 2-color alternate</td>
<td>1m</td>
<td>LH1D-D2HQ4C10RG</td>
<td>PW: pure white</td>
</tr>
<tr>
<td></td>
<td>3m</td>
<td>LH1D-D2HQ4C30RG</td>
<td>R: red</td>
</tr>
<tr>
<td></td>
<td>5m</td>
<td>LH1D-D2HQ4C50RG</td>
<td>S: blue</td>
</tr>
</tbody>
</table>

For orange, specify “A” (for amber).

Dimensions

Mounting Hole Layout

Internal Circuit

- One-color Illumination

LED module (color: ⬜)

LED module (color: green)

- Two-color Alternate Illumination

Note: For the schematic of the LED module, see "LED Module Internal Circuit" on the right.

Lens Colors

<table>
<thead>
<tr>
<th>Illumination Type</th>
<th>Illumination Color</th>
<th>Lens Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>One Color</td>
<td>Amber (A)</td>
<td>Amber</td>
</tr>
<tr>
<td></td>
<td>Green (G)</td>
<td>Green</td>
</tr>
<tr>
<td></td>
<td>Pure White (PW)</td>
<td>Clear (Note)</td>
</tr>
<tr>
<td></td>
<td>Red (R)</td>
<td>Red</td>
</tr>
<tr>
<td></td>
<td>Blue (S)</td>
<td>Blue</td>
</tr>
<tr>
<td></td>
<td>White (W)</td>
<td>Clear (Note)</td>
</tr>
<tr>
<td></td>
<td>Yellow (Y)</td>
<td>Yellow</td>
</tr>
<tr>
<td>Two-color Alternate</td>
<td>Red (R) / Green (G)</td>
<td>Clear (Note)</td>
</tr>
</tbody>
</table>

Note: Because lenses have a white diffusion cover inside, pure white, white, and red/green types appear white when the light is off.

LED Module Internal Circuit

Resistor

LED Chip

Rectifying Diode

Zener Diode
LH Series Surface Mount Indicators

Flat Type

Types

<table>
<thead>
<tr>
<th>Shape</th>
<th>Cable</th>
<th>Ordering Type No.</th>
<th>Illumination Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flat</td>
<td>1m</td>
<td>LH1D-H2HQ4C10・</td>
<td>Specify a color code in place of  in the Type No.</td>
</tr>
<tr>
<td></td>
<td>3m</td>
<td>LH1D-H2HQ4C30・</td>
<td>A: amber</td>
</tr>
<tr>
<td></td>
<td>5m</td>
<td>LH1D-H2HQ4C50・</td>
<td>G: green</td>
</tr>
<tr>
<td>Flat/Red/Green 2-color Alternate</td>
<td>1m</td>
<td>LH1D-H2HQ4C10RG</td>
<td>PW: pure white</td>
</tr>
<tr>
<td></td>
<td>3m</td>
<td>LH1D-H2HQ4C30RG</td>
<td>R: red</td>
</tr>
<tr>
<td></td>
<td>5m</td>
<td>LH1D-H2HQ4C50RG</td>
<td>S: blue</td>
</tr>
</tbody>
</table>

Dimensions

Internal Circuit

- One-color Illumination

Cable color: White

Cable color: Brown

- Two-color Alternate Illumination

Cable color: White

LED color: Green

Cable color: Brown (common)

LED color: Red

Lens Colors

<table>
<thead>
<tr>
<th>Illumination Type</th>
<th>Illumination Color</th>
<th>Lens Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>One Color</td>
<td>Amber (A)</td>
<td>Amber</td>
</tr>
<tr>
<td></td>
<td>Green (G)</td>
<td>Green</td>
</tr>
<tr>
<td></td>
<td>Pure White (PW)</td>
<td>Clear</td>
</tr>
<tr>
<td></td>
<td>Red (R)</td>
<td>Red</td>
</tr>
<tr>
<td></td>
<td>Blue (S)</td>
<td>Blue</td>
</tr>
<tr>
<td></td>
<td>White (W)</td>
<td>Clear</td>
</tr>
<tr>
<td></td>
<td>Yellow (Y)</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

Two-color Alternate

Resistor

LED Chip

Rectifying Diode

Condenser

Replacement Parts

<table>
<thead>
<tr>
<th>Shape</th>
<th>Material</th>
<th>Ordering Type No.</th>
<th>Lens Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lens (flat type)</td>
<td>Polyarylate</td>
<td>LH9Z-1DLH2・</td>
<td>For flat type.</td>
</tr>
</tbody>
</table>

Specify a color code in place of  in the Type No.

A: amber C: clear G: green R: red S: blue Y: yellow

Note: Use C (clear) lens for R / G (red/green alternate), W (white), or PW (pure white) illumination.
LH Series Surface Mount Indicators

Safety Precautions

- Do not disassemble, repair, or modify the LH1D indicator, otherwise electric shock, damage, fire, or malfunction may occur.
- Do not pull out or push in the cable of the LH1D indicator, otherwise damage may occur. Provide a slack in the cable while wiring.
- The LH1D indicator is a general-purpose and industrial electronic device. Do not use the LH1D indicator for electronic equipment which may damage the human body or threaten life in case of malfunction or failure.

Operating Instructions

- LED elements may vary in colors and brightness.
- The LH1D indicator is vulnerable to static electricity. Take sufficient protection against static electricity and spikes.
- For one-color illumination of cable types, the green wire is cut short because it is not used. When cutting the cable for shorter wiring, cut the green wire short or make sure that the green wire is not used.
- The pin layout of connector type is shown at the right.

Panel Mounting

Using two M3 screws (M5 screws for jumbo dome types), install the LH1D indicator to a mounting surface. Tighten the screws to a torque of 0.6 N•m maximum (1.0 to 1.4 N•m for jumbo dome types). Mounting screws are not provided and must be supplied by the user.

Inserting Marking Film into Flat Type Lens

1. Insert a flat screwdriver into the groove between the base and lens. Do not use flat screwdrivers with a tip width of 1.0 mm or more.
2. Twist the screwdriver and disengage the lens from the base.
3. Remove the lens from the base.

Specifications and other descriptions in this catalog are subject to change without notice.

Note 1: Take into account the thickness of the base (10.5 mm), when selecting the length of the screws.
Note 2: Take appropriate anti-loosening measures such as spring washers and screw locks.
Note 3: Install the LH1D using two M5 screws, one each on the top and the bottom.

Operating Instructions

- Excessive shock to the LH1D may cause damage or failure, and the internal lens may fall off even if no defects are found externally.
- The internal lens may have fallen off when: · The indicator makes a rattling sound when shaken lightly.
- The specified degree of protection cannot be assured when the lens is removed.
- When any of the above is observed, contact IDEC.

Note: Do not remove the lens.

The following precautions should be observed when handling the LH1D indicator:

- The LH1D indicator is a general-purpose and industrial electronic device. Do not use the LH1D indicator for electronic equipment which may damage the human body or threaten life in case of malfunction or failure.
- Excessive shock to the LH1D may cause damage or failure, and the internal lens may fall off even if no defects are found externally.
- The internal lens may have fallen off when the indicator makes a rattling sound when shaken lightly.
- When any of the above is observed, contact IDEC.

Note: Do not remove the lens.

The specified degree of protection cannot be assured when the lens is removed.

When any of the above is observed, contact IDEC.

Note: Do not remove the lens.

The specified degree of protection cannot be assured when the lens is removed.

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