LH Series Surface Mount Indicators

Innovative indicators in a slim & stylish design. Reduces installation space.

Key features of the LH series include:
- Direct mounting on surfaces such as panels, aluminum frames, and walls.
- Surface mount style does not affect the placement of other components.
- Requires only a small space behind the mounting surface for screws and nuts.
- Slim design well suited for installation in small spaces.
- Direct cable wiring style ensures waterproof characteristics.
- 1m, 3m, and 5m cables available.
- IP67, Type 4X
- Excellent visibility from the front and from the side.
- Legends and symbols can be printed on marking film to customize flat type.
- Red/Green two-color alternate illumination available.
- Three-color alternate illumination available with jumbo-dome models.
- Jumbo dome models available with connector.

Part Numbers

<table>
<thead>
<tr>
<th>Style</th>
<th>Cable</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dome ø37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One Color</td>
<td>1m</td>
<td>LH1D-D2HQ4C10-○</td>
</tr>
<tr>
<td></td>
<td>3m</td>
<td>LH1D-D2HQ4C30-○</td>
</tr>
<tr>
<td></td>
<td>5m</td>
<td>LH1D-D2HQ4C50-○</td>
</tr>
<tr>
<td>Dome ø37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red/Green 2-color</td>
<td>1m</td>
<td>LH1D-D2HQ4C10-RG</td>
</tr>
<tr>
<td>Alternate</td>
<td>3m</td>
<td>LH1D-D2HQ4C30-RG</td>
</tr>
<tr>
<td></td>
<td>5m</td>
<td>LH1D-D2HQ4C50-RG</td>
</tr>
<tr>
<td>Flat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One Color Full</td>
<td>1m</td>
<td>LH1D-H2HQ4C10-○</td>
</tr>
<tr>
<td></td>
<td>3m</td>
<td>LH1D-H2HQ4C30-○</td>
</tr>
<tr>
<td></td>
<td>5m</td>
<td>LH1D-H2HQ4C50-○</td>
</tr>
<tr>
<td>Flat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red/Green 2-color</td>
<td>1m</td>
<td>LH1D-H2HQ4C10-RG</td>
</tr>
<tr>
<td>Alternate</td>
<td>3m</td>
<td>LH1D-H2HQ4C30-RG</td>
</tr>
<tr>
<td></td>
<td>5m</td>
<td>LH1D-H2HQ4C50-RG</td>
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</table>

Cable Connections Part No.

<table>
<thead>
<tr>
<th>Style</th>
<th>1m</th>
<th>3m</th>
<th>5m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable</td>
<td>LH1D-D3HQ4C10-○</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connector</td>
<td>LH1D-D3HQ4CN1-○</td>
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<td></td>
</tr>
<tr>
<td>Jumbo Dome (one color)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jumbo Dome (two color)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jumbo Dome (three color)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. Specify a color code in place of ○ in the Part No.: RGW: red/green/warm white, RGPW: red/green/cool white
5. RG: R (red) / G (green) 2-color alternate illumination
Note: Dual- and tri-color units use a white lens.
## Replacement Parts

<table>
<thead>
<tr>
<th>Style</th>
<th>Material</th>
<th>Part Number</th>
<th>Lens Color</th>
</tr>
</thead>
</table>
| Lens (flat) | Polyarylate | LH9Z-1DLH2-○ | For flat lens. Specify a color code in place of ○ in the Part No.  
A: amber  
G: green  
C: clear  
R: red  
S: blue  
Y: yellow  
Note: Use C (clear) lens for R/G (red/green alternate), W (warm white), or PW (cool white) illumination. |
| Lens (jumbo dome) | Polycarbonate | HW1A-P5○ | For jumbo dome lens. Specify a color code in place of ○ in the Part No.  
A: amber  
G: green  
R: red  
S: blue  
W: white  
Y: yellow  
Note: Dual- and tri-color units use a white lens. |

## LH Specifications

### Applicable Standards
- IEC 60947-1, IEC 60947-5-1, EN 60598-2-1, EN 60947-5-1
- UL508, CSA C22.2 No.14

### Standards

<table>
<thead>
<tr>
<th>Standards</th>
<th>Marks</th>
<th>File No. or Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN 60598-2-1</td>
<td>TÜV SÜD</td>
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<tr>
<td>EN 60598-2-1, EN 60947-5-1</td>
<td>EC Low Voltage Directive</td>
<td></td>
</tr>
<tr>
<td>UL508</td>
<td>UL, cUL</td>
<td></td>
</tr>
</tbody>
</table>

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

### Specifications

- **Rated Insulation Voltage (Ui)**: 32V
- **Rated Voltage**: 24V AC/DC
- **Operating Voltage Range**: 24V AC/DC ±10%
- **Rated Current**: 17 mA
- **Maximum Power/Current**: 0.6W (25 mA)
- **Illumination Color**: A (amber), G (green), PW (cool white), R (red), S (blue), W (warm white), Y (yellow)  
R (red) /G (green) alternate
- **LED Lamp Life**: Approx. 50,000 hours (When used on complete DC at 25°C, brightness reduces to 50% of the initial intensity.)

- **Vibration Resistance**: 60m/s², 5 to 55 Hz, amplitude 0.5 mm
- **Shock Resistance**: 1000m/s²
- **Cable Tensile Strength**: 90N minimum
- **Degree of Protection**: IP67, Type 4X
- **Housing Color**: Black
- **Cable**: 24 AWG  
2-core (one-color)  
3-core (2-color alternate)  
4-core (3-color alternate)
- **Cable Outside Diameter**: ø4.1mm
- **Allowable Cable Bending Radius**: 24.6mm minimum
- **Weight (1m cable)**: 50g (dome type, flat type)  
140g (jumbo dome type)
Internal Circuit
One-color Illumination (Dome)

Cable color: White

Cable color: Brown

LED module (color: red)

Two-color (Dome)

Cable color: White

LED color: Green

Cable color: Brown

(remainder)

Cable color: Green

LED color: Red

Internal Circuit
One-color Illumination

Cable color: White / Connector pin No. 4

Cable color: Brown / Connector pin No. 3

Cable color: Green / Connector pin No. 2

(remainder)

Cable color: Yellow / Connector pin No. 1

(remainder)

Cable color: Brown / Connector pin No. 3

(remainder)

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

N.C. means No connection

Three-color Alternate Illumination

Cable color: White / Connector pin No. 4

Cable color: Green / Connector pin No. 2

Cable color: Yellow / Connector pin No. 1

Two-color Alternate Illumination

Cable color: White / Connector pin No. 4

Cable color: Green / Connector pin No. 2

Cable color: Brown / Connector pin No. 3

(remainder)

Cable color: Yellow / Connector pin No. 1

(remainder)

LED module (color: red)

LED module (color: green)

LED module (color: red)

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

Resistor

LED Chip

Rectifying Diode

Zener Diode

Lens Colors

Illumination Type | Illumination Color | White Lens Color
--- | --- | ---
| One-color | | |
| Cool White | Clear (Note) |
| Red | Red |
| Warm White | Clear (Note) |
| Yellow | Yellow |
| Red/Green | Clear (Note) |
| One-color | | |
| Green | Green |
| Red | Red |
| Blue | Blue |
| Yellow | Yellow |
| Red/Green | White |
| Green/White | White |
| Red/White | White |
| Amber/White | White |
| Amber/Green | White |
| Red/Pure White | White |
| Green/Pure White | White |
| Amber/Pure White | White |
| Three-color | | |
| Red/Green/White | White |
| Red/Green/Pure White | White |
| Resistor

LED Chip

Rectifying Diode

Zener Diode

Note: Because lenses have a white diffusion cover inside, cool white, warm white, and red/green types look white when the light is off.
Dimensions (mm)

Dome

Not to scale.

Flat

Jumbo Dome
**Instructions**

**Panel Mounting**

Using two M3 screws, install the LH indicator to a mounting surface. Tighten the screws to a torque of 0.6 N·m maximum. Mounting screws are not provided and must be supplied by the user.

Note: The standard dome lens is not removable. Do not attempt to remove or damage may occur. However, the jumbo dome lens is removable and replaceable.

**Inserting Marking Film into Flat Type Lens**

1. Insert a flat screwdriver into the groove between the base and lens.

2. Twist the screwdriver and disengage the lens from the base.

3. Remove the lens from the base.

4. Insert the edge of a marking film into the gap between the base and the diffusion plate, and place the marking film on top of the diffusion plate.

5. Replace the lens. Ensure that the lens is installed snugly.

Note 1: Do not touch the gasket, as this may affect its waterproof characteristics.

Note 2: Do not touch the diffusion plate.

**Markings**

Legends and symbols can be printed on marking film that can be used with the flat lens. One 0.1mm-thick film can be inserted.

Marking films are not included and must be supplied by the user.

Recommended marking film: Polyester