**LED Type CMD**

**PH-DX/WX**

Free voltage, 12 to 240VDC and 24 to 240VAC

- Light-reception amount can be displayed with 5-point level lamp and so it is easy to check light-reception margin or dirty lens surface and dislocation of optical axis.
- Self-diagnosis function that checks light-reception margin provides with projector. This output is executed.
- Output will be made when level of light-reception amount is lower than specific value caused by dirty lens surface or dislocation of optical axis.

### Specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>Through-beam type</th>
<th>Water-cooling type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kind</td>
<td>Standard type</td>
<td>Non-air dust hood type</td>
</tr>
<tr>
<td>Model No.</td>
<td>PH-DX-R-21</td>
<td>PH-DX-M-21</td>
</tr>
<tr>
<td>Power source</td>
<td>12 to 240VDC or 24 to 240VAC (10%, -15%)</td>
<td></td>
</tr>
<tr>
<td>Power consumption</td>
<td>AC power: Projector 0.5VA or less, Receiver: 3VA or less DC power: Projector 0.5W or less, Receiver: 3W or less</td>
<td></td>
</tr>
<tr>
<td>Detection distance</td>
<td>30m or less (Without slit for both projector and receiver)</td>
<td></td>
</tr>
<tr>
<td>Detectable object</td>
<td>Opaque object with ( \geq 30 \text{mm} ) or more</td>
<td></td>
</tr>
<tr>
<td>Output</td>
<td>1a relay</td>
<td>1a phot-mos relay</td>
</tr>
<tr>
<td>Control output</td>
<td>1a relay: 250VAC 3A, 30VDC 5A, cos ( \phi = 1 )</td>
<td>1a phot-mos relay: 125VAC/DC 100mA, Residual voltage 3V or less (at 100mA)</td>
</tr>
<tr>
<td>Stable operating output</td>
<td>10msec or less</td>
<td>3msec or less</td>
</tr>
<tr>
<td>Response time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating mode</td>
<td>Changeover for Light-ON and Dark-ON</td>
<td></td>
</tr>
<tr>
<td>Sensitivity adjustment</td>
<td>Provided</td>
<td></td>
</tr>
<tr>
<td>Indication lamps</td>
<td>Projector: Power lamp (Green), Test input (Yellow) Receiver: Power lamp (Green), Output lamp (Yellow), Stable lamp (Green, lights up when normal operation), Level monitor (Yellow, 5 points)</td>
<td></td>
</tr>
<tr>
<td>Connection</td>
<td>M3 screw terminal</td>
<td></td>
</tr>
<tr>
<td>Ambient illuminance</td>
<td>10,000lux or less (Incandescent lamp)</td>
<td></td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>-10 to +55°C *</td>
<td></td>
</tr>
<tr>
<td>Ambient humidity</td>
<td>45 to 85%RH (not icing, not condensing)</td>
<td></td>
</tr>
<tr>
<td>Insulation resistance</td>
<td>20MΩ or more (between power/output contact and case, by megohmmeter with 500V)</td>
<td></td>
</tr>
<tr>
<td>Withstand voltage</td>
<td>AC1,500V, 1min. (between power/output contact and case)</td>
<td></td>
</tr>
<tr>
<td>Vibration resistance</td>
<td>Double amplitude 1.5mm, 10 to 55Hz, each 2 hour in X, Y and Z directions</td>
<td></td>
</tr>
<tr>
<td>Impact resistance</td>
<td>490m/s², each 10 times in X, Y and Z directions</td>
<td></td>
</tr>
<tr>
<td>Protective structure</td>
<td>IP66 (IEC standard), when using the cable with ( \geq 7.8 ) to 9.0</td>
<td></td>
</tr>
<tr>
<td>Case material</td>
<td>Aluminum die-casting</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>Approx. 1.5kg for both projector and receiver</td>
<td></td>
</tr>
</tbody>
</table>

*10 to +150°C when water-cooling.

★PH-DX with stable operating output, 1b and several kind of slits are lined-up.
**Characteristic data (Typical example)**

Operating margin characteristics

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Parallel moving characteristics

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**Connection**

**Projector**
(Common use for all series)

- 1 2 3
- Power (Non-polarity for DC power)
- 4 5 6
- Test for emission-stop

**Receiver**
(PH-DX-2A [ ] [ ])

- 1 2 3
- Power (Non-polarity for DC power)
- 4 5 6
- OPERATION

Control output (Operating mode can be changed by inner switch)

<table>
<thead>
<tr>
<th>Operating mode</th>
<th>Light-ON</th>
<th>Dark-ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal No.</td>
<td>Indicator</td>
<td>Terminal No.</td>
</tr>
<tr>
<td>4—5</td>
<td>OPERATION</td>
<td>4—5</td>
</tr>
<tr>
<td>Power-off state</td>
<td>OFF</td>
<td>Goes off</td>
</tr>
<tr>
<td>Power-on state</td>
<td>When light-entering</td>
<td>ON</td>
</tr>
<tr>
<td></td>
<td>When light-interrupting</td>
<td>OFF</td>
</tr>
</tbody>
</table>

Stable operating output output

<table>
<thead>
<tr>
<th>Terminal No.</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>3—6</td>
<td>STABILITY</td>
</tr>
</tbody>
</table>

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**External dimensions**

Common use for projector/receiver (PH-DX)  Common use for projector/receiver (PH-WX)