The KD50 Series HMDs are extremely compact and low-cost for an amplifier-integrated water-cooled sensors. The KD50 Series sensors directly detect infrared radiation and output ON-OFF signals, which is useful for applications such as detection of passage or position of red-hot steel materials including ingots, slabs, steel plates and mold steel.

- **Features**
  - **Water-cooled**
    The KD50 Series sensors are the smallest of water-cooled sensors with built-in amplifiers and are enclosed in a robust case that withstands severe operating conditions.
  - **Narrow-view and wide-view types available**
    Choice between narrow-view and wide-view types allows selection according to installation conditions, etc.
  - **Reasonable Cost**
    High performance allows detection of low-temperature (450 °C min.) steel material. Streamlined design offers even more reasonable price.
  - **Performance comparable to full-size HMDs**
    Long detecting distance, sensitivity adjustment feature and high sensitivity offer excellent stability
  - **Airless dust hood or air purge hood attachable**
    Prevents dirt deposits on lens, dust hoods that do not require air (F38S, F38N) and air purge hoods (302NC-305NC) are available.

- **Detection field of view**
  - **Narrow-view type**
    Model: KD50
    - KD50 (relay output)
    - KD50E (voltage output)
    - Detection range: 10m, about 250°
    - About 50°, about 1m
    - About 25°

  - **Wide-view type**
    Model: KD50W
    - KD50W (relay output)
    - KD50EW (voltage output)
    - Detection range: 10m, about 600°
    - About 120°, about 2m
    - About 60°, about 1m

(Contact Takex for detailed material data.)
**Rating/Performance/Specification/Environmental Specification**

<table>
<thead>
<tr>
<th>Model</th>
<th>KD50</th>
<th>KD50W</th>
<th>KD50E</th>
<th>KD50EW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detection method</td>
<td>Radiation detection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Supply</td>
<td>AC100<del>110V/200</del>220V ±10% 50/60Hz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power consumption</td>
<td>4W max.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operation mode</td>
<td>Light-ON</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output mode</td>
<td>Relay output  Voltage output</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rating</td>
<td>1 transfer contact (300 VAC, 5 A resistance load)  10VDC 5mA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detection object temperature</td>
<td>450 °C min. (ordinary steel material)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response time</td>
<td>25ms max.  5ms max.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indicator</td>
<td>Light reception indicator (red LED)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensitivity adjustment</td>
<td>Adjustable with volume</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>-10~+55 °C (150 °C max. with water-cooling)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient humidity</td>
<td>35~85%RH (non-freezing, non-condensing)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insulation resistance</td>
<td>500 VDC, 20 MΩ or higher (between primary side of transformer/output terminal and case)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dielectric withstanding</td>
<td>1.5 kVAC for 1 minute (between primary side of transformer/output terminal and case)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vibration</td>
<td>10~55 Hz / 1.5 mm amplitude / 2 hours each in 3 directions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shock</td>
<td>500 m/s² / twice each in 3 directions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protective structure</td>
<td>IP66</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Case material</td>
<td>Aluminum die-cast (cord opening ground hub)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connection</td>
<td>Terminal block</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mass</td>
<td>About 2kg</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Cooling water specification**
  - Flow rate: 2 m³/minute min.
  - Temperature: +10~+35 °C
  - Withstand voltage: 0.29 MPa

- **Air purge specification (with optional part)**
  - Flow rate: 200 m³/minute min.
  - Withstand voltage: 0.98 MPa
  - Air not required for use of airless dust hood.

**Connection**

**Relay output type**

- 0V 100V 200V 110V 220V
- Power supply (AC)
- NC
- Contact output
- NO
- C

**Voltage output type**

- 0V 100V 200V 110V 220V
- Power supply (AC)
- E
- Voltage output
- 10V

**Dimensions (in mm)**

- **With Airless hood F38S Series attached**
  - Model Length (L)
  - F38S 120mm
  - F38S-03 300mm
  - F38S-04 400mm
  - F38S-05 500mm

- **With Airless hood F38N Series attached**

- **With air purge hood attached**

**Model Length (L)**

- 302NC 215mm
- 303NC 315mm
- 304NC 415mm
- 305NC 515mm