CSLW Series
Miniature Wired Open-Loop Current Sensors

DESCRIPTION
Honeywell’s CSLW Series miniature, open-loop current sensors incorporate our SS490 Series miniature ratiometric linear Hall-effect sensor (MRL™). The sensing element is encapsulated in a printed circuit board-mountable plastic package.

FEATURES
• Wired open-loop design with multiple turns for increased sensitivity
• ac or dc current sensing
• Linear ratiometric output
• Current sinking or sourcing output for interfacing flexibility
• Low insertion loss
• Fast response time
• Compact size for applications with limited space
• Accurate, low-cost sensing
• Minimum energy dissipation
• Maximum current limited only by conductor size
• Built-in temperature compensation promotes reliable operation
• Operating temperature range -25 °C to 100 °C [-13 °F to 212 °F]
• RoHs compliant (lead-free)

POTENTIAL APPLICATIONS
• Motor control in appliances, HVAC and consumer tools
• Current monitoring of electronic circuits
• Overcurrent protection
• Ground fault detectors
• Robotics
• Industrial process control
• UPS and telecommunication power supplies
• Welding current monitoring
• Battery management systems in mobile equipment
• Watt meters
• Variable speed drives

The combination of sensor, flux collector, housing, and wire coil comprises the current sensor assembly. These sensors are ratiometric.
CSLW Series

PRODUCT SPECIFICATIONS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>CSLW6B1</th>
<th>CSLW6B5</th>
<th>CSLW6B40M</th>
<th>CSLW6B200M</th>
<th>Units</th>
<th>Symbol</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current range (min.)</td>
<td>±1 A</td>
<td>±5 A</td>
<td>±40 mA</td>
<td>±200 mA</td>
<td>—</td>
<td>Ip</td>
<td>&lt;±1.5 % error (-25 °C to 100 °C [-13 °F to 212 °F])</td>
</tr>
<tr>
<td>Supply voltage</td>
<td>4.5 to 10.5</td>
<td>4.5 to 10.5</td>
<td>4.5 to 10.5</td>
<td>4.5 to 10.5</td>
<td>V</td>
<td>V_s</td>
<td>—</td>
</tr>
<tr>
<td>V_{sat} @ 0 AT</td>
<td>2.50 ±0.15</td>
<td>2.50 ±0.15</td>
<td>2.50 ±0.15</td>
<td>2.50 ±0.15</td>
<td>V</td>
<td>V_s</td>
<td>—</td>
</tr>
<tr>
<td>Supply current typ.</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>mA</td>
<td>I_p</td>
<td>No Load</td>
</tr>
<tr>
<td>Supply current max.</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Turns</td>
<td>60 ±1</td>
<td>12</td>
<td>1500 ±20</td>
<td>300 ±5</td>
<td>—</td>
<td>N</td>
<td>—</td>
</tr>
<tr>
<td>Coil resistance typ.</td>
<td>0.16</td>
<td>0.01</td>
<td>120</td>
<td>4</td>
<td>Ω</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Sensitivity min. typ.</td>
<td>898</td>
<td>179</td>
<td>22400</td>
<td>4500</td>
<td>mV/A</td>
<td>ΔV/I</td>
<td>-25 °C to 100 °C [-13 °F to 212 °F]</td>
</tr>
<tr>
<td>Sensitivity typ. max.</td>
<td>1020</td>
<td>204</td>
<td>25500</td>
<td>5100</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Sensitivity min. max.</td>
<td>1142</td>
<td>229</td>
<td>30000</td>
<td>5700</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Hysteresis max.</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>%</td>
<td>—</td>
<td>@ min current range</td>
</tr>
<tr>
<td>Temp error - null max.</td>
<td>±0.064</td>
<td>±0.064</td>
<td>±0.064</td>
<td>±0.064</td>
<td>%/°C</td>
<td>TC_{nulls}</td>
<td>—</td>
</tr>
<tr>
<td>Temp error - gain max.</td>
<td>-0.03 +0.12</td>
<td>-0.03 +0.12</td>
<td>-0.03 +0.12</td>
<td>-0.03 +0.12</td>
<td>%/°C</td>
<td>TC_o</td>
<td>-25 °C to 100 °C [-13 °F to 212 °F]</td>
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<tr>
<td>Rise time typ.</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>μs</td>
<td>t_i</td>
<td>0 to 40% of min current range</td>
</tr>
</tbody>
</table>

BLOCK DIAGRAM

CSLW6B1 TYPICAL TRANSFER FUNCTION [25 °C]

CSLW6B5 TYPICAL TRANSFER FUNCTION [25 °C]
Miniature Wired Open-Loop Current Sensors

**CSLW6B40M TYPICAL TRANSFER FUNCTION [25 °C]**

![Graph](image1)

**CSLW6B200M TYPICAL TRANSFER FUNCTION [25 °C]**

![Graph](image2)

**DIMENSIONAL DRAWING (For reference only [mm])**

![Dimensional Drawing](image3)

**ORDER GUIDE**

<table>
<thead>
<tr>
<th>Catalog Listing</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSLW6B1</td>
<td>CSLW Series, Miniature, Open-Loop Current Sensor, 1 A</td>
</tr>
<tr>
<td>CSLW6B5</td>
<td>CSLW Series, Miniature, Open-Loop Current Sensor, 5 A</td>
</tr>
<tr>
<td>CSLW6B40M</td>
<td>CSLW Series, Miniature, Open-Loop Current Sensor, 40 mA</td>
</tr>
<tr>
<td>CSLWB200M</td>
<td>CSLW Series, Miniature, Open-Loop Current Sensor, 200 mA</td>
</tr>
</tbody>
</table>
**WARNING**

**PERSONAL INJURY**

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury. **Failure to comply with these instructions could result in death or serious injury.**

**WARNING**

**MISUSE OF DOCUMENTATION**

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product. **Failure to comply with these instructions could result in death or serious injury.**

**WARRANTY/REMEDY**

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell’s standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items it finds defective. The foregoing is buyer’s sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

**SALES AND SERVICE**

Honeywell serves its customers through a worldwide network of sales offices, representatives and distributors. For application assistance, current specifications, pricing or name of the nearest Authorized Distributor, contact your local sales office or:

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- **Phone and Fax:**
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  - Europe: +44 (0) 1698 481481, +44 (0) 1698 481676 Fax
  - Latin America: +1-305-805-8188, +1-305-883-8257 Fax
  - USA/Canada: +1-800-537-6945, +1-815-235-6847, +1-815-235-6545 Fax