Overview
The HFP01SC, manufactured by Hukseflux, measures soil heat flux—typically for energy-balance or Bowen-ratio flux systems. It is intended for applications requiring the highest possible degree of measurement accuracy. The HFP01SC outputs a voltage signal that is proportional to the heat flux of the surrounding medium. At least two sensors are required for each site to provide spatial averaging. Sites with heterogeneous media may require additional sensors.

Benefits and Features
- Corrects for errors due to differences in thermal conductivity between the sensor and surrounding medium, temperature variations, and slight sensor instabilities
- Compatible with most Campbell Scientific data loggers
- Uses Van den Bos-Hoeksma self-calibration method to provide a high degree of measurement accuracy

Detailed Description
The HFP01SC consists of a thermopile and a film heater. The thermopile measures temperature gradients across the plate. During the in-situ field calibration, the film heater is used to generate a heat flux through the plate. The amount of power used to generate the calibration heat flux is measured by the data logger. Each plate is individually calibrated, at the factory, to output flux. Self-calibration corrects for errors due to differences in thermal conductivity between the sensor and surrounding medium, temperature variations, and slight sensor instabilities.

Note: In an energy-balance installation, all sensors must be completely inserted into the soil face before the hole is backfilled.

Specifications
<table>
<thead>
<tr>
<th>Sensor Type</th>
<th>Thermopile with film heater</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity</td>
<td>50 μV m W⁻¹ m⁻² (nominal)</td>
</tr>
<tr>
<td>Nominal Resistance</td>
<td>2 Ω</td>
</tr>
<tr>
<td>Temperature Range</td>
<td>-30° to +70°C</td>
</tr>
<tr>
<td>Expected Typical Accuracy</td>
<td>±3% of reading</td>
</tr>
<tr>
<td>Heater Resistance</td>
<td>100 Ω (nominal)</td>
</tr>
</tbody>
</table>

For comprehensive details, visit: www.campbellsci.com/hfp01sc-l
<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heater Voltage Input</td>
<td>9 to 15 Vdc</td>
</tr>
<tr>
<td>Heater Voltage Output</td>
<td>0 to 2 Vdc</td>
</tr>
<tr>
<td>Duration of Calibration</td>
<td>±3 minutes @ 1.5 W (typically performed every 3 to 6 hours)</td>
</tr>
<tr>
<td>Average Power Consumption</td>
<td>0.02 to 0.04 W</td>
</tr>
<tr>
<td>Plate Diameter</td>
<td>80 mm (3.15 in.)</td>
</tr>
<tr>
<td>Plate Thickness</td>
<td>5 mm (0.20 in.)</td>
</tr>
<tr>
<td>Weight</td>
<td>200 g (7.05 oz) without cable</td>
</tr>
</tbody>
</table>