The AH1912 and AH1913 are Diodes’ latest compact, micropower omnipolar Hall effect sensors, featuring even lower quiescent current and wider operating voltage range.

The wider 1.6V to 5.5V range of supply voltage allows the devices to operate directly from 5V and 3.3V rails and extends battery operating time which provides great flexibility for system design.

Thanks to the hibernating clocking system, the AH1912 only consumes 1.6μA (@3V) and AH1913 consumes 12μA (@1.8V) on average, making the AH1912/AH1913 a perfect fit for battery-powered consumer products, e-meters, smoke detectors, and IoT devices.

The AH1912/AH1913 comes in the industry-standard SC59 and X1-DFN1216-4 packages.

DIODES Advantage

AH1912/13 provide an accurate, simple micropower proximity detection solution for a broad range of applications.

- **Ultra-Low Power and Ultra-High Sensitivity**
  - Operates with either a north or south pole
  - Only 1.6μA @ 3V (AH1912), Tperiod: period of magnetic sampling @45ms
  - Ultra-low average supply current to extend battery lifetime.
  - 12μA @1.8V (AH1913), fast Tperiod: period of magnetic sampling @2.8ms
  - Ultra-high/ high sensitivity with typical operate points: 18G (AH1913), 30G (AH1912), eases design for compact application.

- **Wide 1.6V to 5.5V Input Voltage Range**
  Wider operating input voltage range provides greater system design flexibility.

- **Chopper-Stabilized Design Improves drift of Bop/Brp**
  Provides superior switch point accuracy across supply voltage range and temperature.

- **High 6kV (HBM) ESD Voltage Rating**
  Improves robustness and reliability.

Applications

- Smart Cover or Dock Detection for Mobile Phones and Tablets
- Medical Devices, IoT Systems
- Contactless Switches in Home Appliances and Industrial Applications
- Level, Proximity, and Position Detection
- Smart Locks, Smoke Detectors, Home Appliances
**Typical Application Schematic**

```
1.6V to 5.5V

AH1912/13

Input

MCU

Output

GPIO

Distance
```

### Table: Typical Application Schematic

<table>
<thead>
<tr>
<th>Part</th>
<th>Output Type</th>
<th>Operating Voltage (V)</th>
<th>Supply Current (µA)</th>
<th>Reverse Protection</th>
<th>ESD (kV)</th>
<th>Operating Point (Bop) (Gauss)</th>
<th>Release Point (Brp) (Gauss)</th>
<th>Temp Range (°C)</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>AH1913</td>
<td>Push Pull</td>
<td>1.6 to 5.5</td>
<td>12*</td>
<td>Yes</td>
<td>6</td>
<td>±18</td>
<td>±11</td>
<td>-40 to + 85</td>
<td>X1-DFN1216-4, SC59</td>
</tr>
<tr>
<td>AH1912</td>
<td>Push Pull</td>
<td>1.6 to 5.5</td>
<td>1.6</td>
<td>Yes</td>
<td>6</td>
<td>±30</td>
<td>±23</td>
<td>-40 to + 85</td>
<td>X1-DFN1216-4, SC59</td>
</tr>
<tr>
<td>AH1911</td>
<td>Push Pull</td>
<td>1.6 to 5.5</td>
<td>1.6</td>
<td>Yes</td>
<td>6</td>
<td>±60</td>
<td>±45</td>
<td>-40 to + 85</td>
<td>SC59</td>
</tr>
<tr>
<td>AH1921</td>
<td>Open Drain</td>
<td>1.6 to 5.5</td>
<td>1.6</td>
<td>Yes</td>
<td>6</td>
<td>±60</td>
<td>±45</td>
<td>-40 to + 85</td>
<td>SC59</td>
</tr>
</tbody>
</table>

*: high magnetic sampling rate for higher supply current, please contact Diodes if you need lower supply current.

### Ordering Information

```
AH191X - X - X
```

- **Product Name**: AH1912/13
- **Package**: FA : X1-DFN1216-4 W : SC59
- **Packing**: 7 : Tape & Reel

### Table: Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Packaging</th>
<th>Packaging Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>AH1912-W-7</td>
<td>W</td>
<td>SC59</td>
</tr>
<tr>
<td>AH1912-FA-7</td>
<td>FA</td>
<td>X1-DFN1216-4</td>
</tr>
<tr>
<td>AH1913-W-7</td>
<td>W</td>
<td>SC59</td>
</tr>
<tr>
<td>AH1913-FA-7</td>
<td>FA</td>
<td>X1-DFN1216-4</td>
</tr>
</tbody>
</table>

**7” Tape and Reel**

<table>
<thead>
<tr>
<th>Tape Width</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>8mm</td>
<td>3000</td>
</tr>
</tbody>
</table>

For more information:
- AH1912: [https://www.diodes.com/part/AH1912](https://www.diodes.com/part/AH1912)
- AH1913: [https://www.diodes.com/part/AH1913](https://www.diodes.com/part/AH1913)