TRIMBLE GPS ANTENNAS
GPS ANTENNAS FOR EMBEDDED SYSTEMS

YOUR CHOICE OF GPS ANTENNAS

Trimble offers a variety of active micropatch antenna products for use with Trimble’s GPS receivers to suit many applications.

All packaged antennas are waterproof and corrosion resistant. All antennas include an internal low noise amplifier (LNA) to provide sensitive performance in the toughest environments (–40 °C to +85 °C with high humidity).

Trimble’s antenna products are built with the best components and meet the highest production quality standards.

Are you designing a system with a Trimble GPS receiver? Are you looking for top-tier positioning performance, accuracy, and sensitivity? These antennas complete your GPS solution from Trimble.

FORM FACTORS OF YOUR CHOICE

Trimble GPS antennas are available in several form factors, providing choices of housing, mounting and connectors, as well as choice of supply voltage (3 V or 5 V).

Magnetic Mount antennas, with their small size and slim profile, are designed for quick and convenient installation on, or inside, vehicles or equipment. The tough plastic housing and magnetic base enable them to withstand exposure to shock, vibration, and weather extremes. Available in both 3 V and 5 V models, they additionally provide a choice of connector type.

The 3 V Unpackaged antenna is embeddable within devices and systems. It has the lowest power consumption (5 to 13 mA), an H.FL right-angle connector, and an 85 mm cable.

Bulkhead models, in both 3 V and 5 V, are designed for drill-through mounting on vehicle roof and trunk panels. The tough plastic housing and the feedthrough threaded nut mount enable these units to withstand exposure to shock, vibration, and weather extremes. These models feature a TNC connector.

SUPPLY VOLTAGES TO SUIT RECEIVERS

The 5 V antennas are designed for use with Trimble’s Lassen SK II GPS receiver and with receivers from other manufacturers.

The 3 V antennas, which are ideal for GPS devices requiring lower power consumption, are designed for use with receivers from other manufacturers and with the following GPS receiver modules from Trimble:

• Condor
• Copernicus
• Lassen iQ
• Lassen LP
• Lassen SQ
• Silvana

BENEFIT HIGHLIGHTS

• Active GPS antennas include low noise amplifier
• Three form factors: Magnetic Mount, Unpackaged, and Bulkhead
• Various connector options
• 3 V or 5 V supply voltage
• Ideal for complete solutions

KEY FEATURES

• Magnetic Mount, Unpackaged, and Bulkhead micropatch active GPS antennas
• Internal low noise amplifier (LNA)
• Waterproof, corrosion-resistant (packaged versions only)
• Mounting / Connector choices:
  – Magnetic mount: MCX, SMA, SMB connectors
  – Unpackaged: H.FL right-angle connector
  – Bulkhead: TNC connector
• Specifications:
  – Frequency range: 1,575.42 MHz
  – Gain: up to 28 dBi @ 25 °C
  – Output Impedence: 50 Ω
  – LNA Noise Figure: as low as 1.5 dB @ 25 °C
## MODEL COMPARISON

### Differentiating Features and Key Specifications

<table>
<thead>
<tr>
<th>MODEL TYPE</th>
<th>MOUNT</th>
<th>DIMENSIONS</th>
<th>WEIGHT (without cable)</th>
<th>CABLE LENGTH</th>
<th>SUPPLY VOLTAGE</th>
<th>POWER CONSUMPTION</th>
<th>OUTPUT CONNECTOR</th>
<th>CABLE TYPE</th>
<th>PART NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnetic Mount</td>
<td>Magnetic</td>
<td>37.4 mm x 34 mm x 12.9 mm</td>
<td>25 g</td>
<td>5 m</td>
<td>5 V</td>
<td>30 mA max</td>
<td>SMB'</td>
<td>RG-174</td>
<td>66800-00</td>
</tr>
<tr>
<td>66800-XX</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3 V</td>
<td>20 mA max</td>
<td>SMA'</td>
<td>RG-174</td>
<td>66800-40</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15 mA typ</td>
<td>MCK'</td>
<td>RG-174</td>
<td>66800-50</td>
</tr>
<tr>
<td>Unpackaged</td>
<td>Embedded</td>
<td>22 mm x 21 mm x 7.5 mm</td>
<td>20 g</td>
<td>85 mm</td>
<td>3 V</td>
<td>5 mA to 13 mA</td>
<td>H.FL'</td>
<td>RF-MF507</td>
<td>66801-00</td>
</tr>
<tr>
<td>66801-XX</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bulkhead</td>
<td>Threaded Nut Mount</td>
<td>64.5 mm dia x 40 mm</td>
<td>150 g</td>
<td>N/A</td>
<td>5 V</td>
<td>35 mA max</td>
<td>TNC</td>
<td>N/A</td>
<td>70228-70</td>
</tr>
<tr>
<td>70228-XX</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3 V</td>
<td>35 mA max</td>
<td>TNC</td>
<td>N/A</td>
<td>70228-00</td>
</tr>
</tbody>
</table>

1. Standard models; special order models are available.
2. Straight plug.

### ELECTRICAL SPECIFICATIONS

#### 3 V Version

<table>
<thead>
<tr>
<th>Supply Power</th>
<th>DC Levels Consumption</th>
<th>3.0 V ±0.3 V</th>
<th>20 mA max</th>
<th>15 mA typ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnetic Mount</td>
<td></td>
<td>5.0 V ±0.5 V or –0.75 V</td>
<td>30 mA max</td>
<td></td>
</tr>
<tr>
<td>Unpackaged</td>
<td></td>
<td>3.0 V ±0.3 V</td>
<td>5 mA to 13 mA max</td>
<td></td>
</tr>
<tr>
<td>Bulkhead</td>
<td></td>
<td>3.0 V ±0.5 V</td>
<td>5 mA to 13 mA max</td>
<td></td>
</tr>
</tbody>
</table>

#### 5 V Version

<table>
<thead>
<tr>
<th>Supply Power</th>
<th>DC Levels Consumption</th>
<th>5.0 V ±0.5 V</th>
<th>0.75 V</th>
<th>35 mA max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnetic Mount</td>
<td></td>
<td>5.0 V ±0.5 V</td>
<td>0.75 V</td>
<td>35 mA max</td>
</tr>
<tr>
<td>Unpackaged</td>
<td></td>
<td>5.0 V ±0.5 V</td>
<td>0.75 V</td>
<td>35 mA max</td>
</tr>
</tbody>
</table>

### Frequency Range

<table>
<thead>
<tr>
<th>Magnetic Mount &amp; Unpackaged</th>
<th>1,575.42 MHz ±1.023 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulkhead</td>
<td>1,575.42 MHz ±1.023 MHz</td>
</tr>
</tbody>
</table>

### Gain

- **Magnetic Mount & Unpackaged**: 27 dBi ±3dBi @ typical temperature ±4dBi @ operating temperature
- **Bulkhead**: 28 dBi ±3dBi @ typical temperature ±4dBi @ operating temperature

### Output Impedance

<table>
<thead>
<tr>
<th>Magnetic Mount &amp; Unpackaged</th>
<th>50 Ω</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulkhead</td>
<td>50 Ω</td>
</tr>
</tbody>
</table>

### LNA Noise Figure

- **Magnetic Mount & Unpackaged**: 1.5 dB max (25 °C)
- **Bulkhead**: 1.8 dB max (25 °C)

### ENVIRONMENTAL SPECIFICATIONS

#### Temperature

- **Typical**: 25 °C ±5 °C
- **Operating**: –40 °C to +85 °C
- **Storage**: –40 °C to +100 °C

#### Humidity

- 20% to 95%

#### Waterproofing

- 20% to 95%

#### Shock

- Vertical axis: 50 G
- All axes: 30 G

#### Vibration

- 10 Hz to 200 Hz: Log sweep 3.0 g (Sweep time: 15 minutes) 3 axis

#### Magnetic Mount Pulling Force

- Pulling Force: 29.4 N
- Withstand: Up to speed of 180 Km/h

#### Bulkhead Antenna Installation

- Minimum Torque: 3 N·m
- Maximum Torque: 8 N·m
- Recommended Drill Size: 19 mm

### ORDERING INFORMATION

<table>
<thead>
<tr>
<th>MODEL TYPE</th>
<th>PART NUMBER</th>
<th>ORDER QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnetic Mount</td>
<td>66800-00</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>66800-40</td>
<td>400 x n</td>
</tr>
<tr>
<td></td>
<td>66800-50</td>
<td>400 x n</td>
</tr>
<tr>
<td></td>
<td>66800-52</td>
<td>400 x n</td>
</tr>
<tr>
<td>Unpackaged</td>
<td>66801-00</td>
<td>1</td>
</tr>
<tr>
<td>Bulkhead</td>
<td>70228-70</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>70228-00</td>
<td>480 x n</td>
</tr>
</tbody>
</table>

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