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

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

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
MODEL COMPARISON

Differentiating Features and Key Specifications.1

<table>
<thead>
<tr>
<th>MODEL TYPE</th>
<th>MOUNT</th>
<th>DIMENSIONS</th>
<th>WEIGHT</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 66800-XX</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>SMB²</td>
<td>RG-174</td>
<td>66800-00</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3 V</td>
<td>20 mA max</td>
<td>SMA²</td>
<td>RG-174</td>
<td>66800-40</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3 V</td>
<td>15 mA typ</td>
<td>SMA²</td>
<td>RG-174</td>
<td>66800-50</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3 V</td>
<td>5 mA to 13 mA</td>
<td>H.FL²</td>
<td>RF-MF507</td>
<td>66801-00</td>
</tr>
<tr>
<td>Unpackaged 66801-XX</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>N/A</td>
<td>N/A</td>
<td>70228-70</td>
</tr>
<tr>
<td>Bulkhead 70228-XX</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>70228-00</td>
</tr>
<tr>
<td></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>70228-70</td>
</tr>
</tbody>
</table>

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

ELECTRICAL SPECIFICATIONS

Differentiating Features and Key Specifications.

**ELECTRICAL SPECIFICATIONS**

**3 V VERSION** | **5 V Version**
---|---
**Supply Power** | | |
Magnetic Mount DC Levels | Consumption | 3.0 V ±0.3 V | 5.0 V ±0.5 V or -0.75 V | 30 mA max | 15 mA max |
Unpackaged DC Levels | Consumption | 3.0 V ±0.3 V | 5 mA to 13 mA max | N/A | N/A |
Bulkhead DC Levels | Consumption | 3.0 V ±0.5 V | 5.0 V ±0.25 or -0.75 V | 35 mA max | 35 mA max |
**Frequency Range** | | 1.575.42 MHz ±1.023 MHz |
**Gain** | Magnetic Mount & Unpackaged | 27 dBi ±3dBi @ typical temperature | ±4dBi @ operating temperature |
| Bulkhead | 28 dBi ±3dBi @ typical temperature | ±4dBi @ operating temperature |
**Output Impedance** | | 50 Ω |
**LNA Noise Figure** | Magnetic Mount & Unpackaged | 27 dBi ±3dBi @ typical temperature | ±4dBi @ operating temperature |
| Bulkhead | 1.8 dB max (25 °C) | 3.3 dB max (25 °C) | 2.3 dB max (85 °C) | 3.8 dB max (85 °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% (Magnetic Mount & Bulkhead only)

**Waterproofing**
Waterproof (JIS D0203 S2) (Magnetic Mount & Bulkhead only)

**Shock**
- Vertical axis: 50 G
- All axis: 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

**Cable Pulling Force**
Minimum: 49 N

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 80 400 400 x n</td>
</tr>
<tr>
<td></td>
<td>66800-40</td>
<td></td>
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<td>66800-50</td>
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<tr>
<td></td>
<td>66800-52</td>
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</tr>
<tr>
<td>Unpackaged</td>
<td>66801-00</td>
<td>1 120 480 400 x n</td>
</tr>
<tr>
<td>Bulkhead</td>
<td>70228-70</td>
<td>1 96 480 400 x n</td>
</tr>
<tr>
<td></td>
<td>70228-00</td>
<td></td>
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</tbody>
</table>

Gain is for when antenna module is mounted on 60 mm x 60 mm ground plane.
Max is at operating temperature (-40 °C to +85 °C).
Typ is at typical temperature (25 °C ±5 °C).