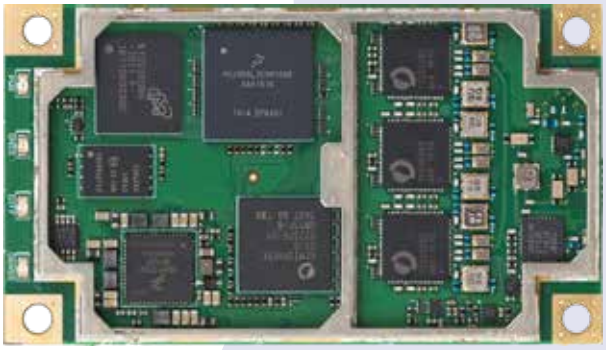
# Eclipse™ P326 and P327 OEM Boards

## Experience Unparalleled Accuracy and Reliability with Multi-Frequency, Multi-GNSS RTK and Onboard Atlas® L-Band

key features

- **Multi-Frequency GPS, GLONASS, BeiDou, and Galileo and is QZSS ready**
- **Long-range RTK baselines up to 50 km with fast acquisition times**
- **Compatible with many RTK sources including Hemisphere GNSS' ROX format, RTCM, CMR, CMR+**
- **Mechanically and electrically (pin-for-pin) compatible with many Hemisphere and other manufacturers' modules**
- **Atlas® L-band capable to 4 cm RMS**
- **Athena™ GNSS engine providing best-in-class RTK performance**



atlas

**Track More Signals for the Most Robust Low-Power, Multi-Frequency, Multi-GNSS Solution**

Track more signals for unparalleled positioning performance with Hemisphere GNSS' new Eclipse P326 and P327 OEM modules. The latest technology platform enables simultaneous tracking of all satellite signals including GPS, GLONASS, BeiDou, Galileo, and L-band (QZSS ready) making it the most robust and reliable solution. The updated power management system efficiently governs the processor, memory, and ASIC making it ideal for multiple integration applications including handheld and battery-powered devices.

**Experience Unparalleled Accuracy and Reliability with Advanced Technology Features**

The P326 and P327 are the most accurate and reliable OEM modules with two new advanced technology features; aRTK™ and Tracer™. Hemisphere's aRTK technology, powered by Atlas, allows the P326 and P327 to operate with RTK accuracies when RTK corrections fail. Tracer utilizes specialized algorithms to sustain positioning in the absence of corrections data.

**Scalable Solutions**

With the Eclipse P326 and P327, positioning is scalable and field upgradable with all Hemisphere software and service options. Utilize the same centimeter-level accuracy in either single frequency mode, or employ the full performance and fast RTK initialization times over long distances with multi-frequency, multi-constellation GNSS signals. High-accuracy L-band positioning from meter to sub-decimeter levels available via Atlas correction service.

**Ease of Migration**

Leverage the compact size and easy integration in your design. The 34-pin P326 module is a drop-in upgrade for many Hemisphere products. P327 is a drop-in upgrade for existing designs using standard 20-pin modules from other manufacturers.

Hemisphere®

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# Eclipse P326 and P327 OEM Boards

**GNSS Sensor Specifications**

| | |
|---|---|
| Receiver Type: | Multi-Frequency GPS, GLONASS, BeiDou, Galileo, QZSS, and Atlas |
| Signals Received: | GPS L1CA/L1P/L1C/L2P/L2C/L5<br>GLONASS G1/G2, P1/P2<br>BeiDou,B1/B2 (B3 separate variant without L5)<br>GALILEO E1BC/E5a/E5b<br>QZSS [4] L1CA/L2C/L5/L1C<br>Atlas |
| Channels: | P326/P327 (L5): 572<br>P326/P327 (B3) 488 |
| GPS Sensitivity: | -142 dBm |
| SBAS Tracking: | 3-channel, parallel tracking |
| Update Rate: | 1 Hz standard, 10 Hz, 20 Hz, or 50Hz [4] optional (with activation) |
| Timing (1PPS) Accuracy: | 20 ns |
| Cold Start: | 60 s typical (no almanac or RTC) |
| Warm Start: | 30 s typical (almanac and RTC) |
| Hot Start: | 10 s typical (almanac, RTC and position) |
| Antenna Input Impedance: | 50 Ω |
| Maximum Speed: | 1,850 kph (999 kts) |
| Maximum Altitude: | 18,288 m (60,000 ft) |

**Accuracy**

| Position: | RMS (67%) | 2DRMS (95%) |
|---|---|---|
| Autonomous, no SA: [1] | 1.2 m | 2.5 m |
| SBAS: [2] | 0.3 m | 0.6 m |
| Atlas H10 (L-band): [1, 3] | 0.04 m | 0.08 m |
| Atlas H30 (L-band): [1, 3] | 0.15 m | 0.30 m |
| Atlas Basic (L-band): [1, 3] | 0.50 m | 1.0 m |
| RTK: [1] | 8 mm + 1 ppm | 15 mm + 2 ppm |

**L-Band Sensor Specifications**

| | |
|---|---|
| Receiver Type: | Single Channel |
| Channels: | 1525 to 1560 MHz |
| Sensitivity: | -140 dBm |
| Channel Spacing: | 5.0 kHz |
| Satellite Selection: | Manual and Automatic |
| Reacquisition Time: | 15 seconds (typical) |

**Communications**

| | |
|---|---|
| Ports: | 4 x full-duplex 3.3V CMOS<br>(3 x main serial ports, 1 x differential-only port)<br>1 x USB Host<br>1 x USB Device<br>2 x CAN |
| Interface Level: | 3.3V CMOS |
| Baud Rates: | 4800 - 115200 |
| Correction I/O Protocol: | Hemisphere GNSS proprietary ROX Format, RTCM v2.3, RTCM v3.2, CMR, CMR+ |
| Data I/O Protocol: | NMEA 0183, Crescent binary [3] |
| Timing Output: | 1PPS, CMOS, active high, rising edge sync, 10 kΩ, 10 pF load |
| Event Marker Input: | CMOS, active low, falling edge sync, 10 kΩ, 10 pF load |

**Power**

| | |
|---|---|
| Input Voltage: | 3.3 VDC +/- 5% |
| Power Consumption: | 1.0 W nominal GPS (L1)<br>1.6 W nominal GPS (L1/L2) and GLONASS (G1/G2)<br>2.3 W nominal All Signals + L-Band |
| Current Consumption: | 0.30 A nominal GPS (L1)<br>0.48 A nominal GPS (L1/L2) and GLONASS (G1/G2)<br>0.70 A nominal All Signals + L-Band |
| Antenna Voltage: | 5 VDC maximum |
| Antenna Short Circuit Protection: | Yes |
| Antenna Gain Input Range: | 10 to 40 dB |

**Environmental**

| | |
|---|---|
| Operating Temperature: | -40°C to +85°C (-40°F to +185°F) |
| Storage Temperature: | -40°C to +85°C (-40°F to +185°F) |
| Humidity: | 95% non-condensing (when in an enclosure) |
| Mechanical Shock: | EP455 Section 5.14.1<br>Operational (when mounted in an enclosure with screw mounting holes utilized) |
| Vibration: | EP455 Section 5.15.1 Random |
| EMC: | CE (IEC 60945 Emissions and Immunity)<br>FCC Part 15, Subpart B<br>CISPR 22 |

**Mechanical**

| | |
|---|---|
| Dimensions: | P326: 71 L x 41 W x 10.1 H (mm)<br>P326: 2.8 L x 1.6 W x 0.4 H (in)<br>P327: 72 L x 41 W x 10.1 H (mm)<br>P327: 2.8 L x 1.6 W x 0.4 H (in) |
| Weight: | 22 g (0.79 oz) |
| Status Indications (LED): | Power, GNSS lock, Differential lock, DGNSS position |
| Power/Data Connector: | P326: 34-pin male header, 0.05" (1.27 mm) pitch<br>P327: 20-pin male header, 0.08" (2 mm) pitch |
| Antenna Connectors: | MCX, female, straight |

1 Depends on multipath environment, number of satellites in view, satellite geometry, and ionospheric activity

2 Depends on multipath environment, number of satellites in view, SBAS coverage, satellite geometry, and ionospheric activity

3 Hemisphere GNSS proprietary

4 With future firmware upgrade and activation

Authorized Distributor:


Rev. 04/19

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