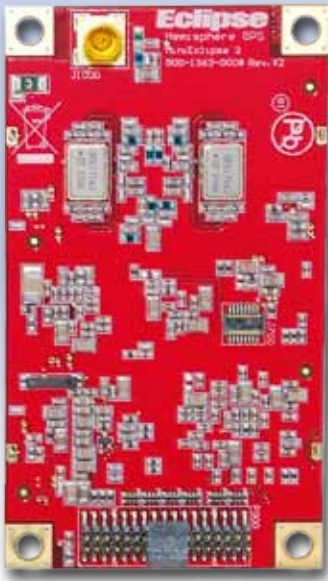


# miniEclipse GNSS Receiver Board

The world's smallest dual-frequency GNSS receiver



## **Eclipse™**

Built as the world's smallest dual-frequency GNSS receiver board, miniEclipse™ by Hemisphere GPS offers integrators unprecedented performance for applications where size and space are critical. Measuring 41 millimeters by 71 millimeters in size, the low power consumption and simple on-board firmware of miniEclipse make it an ideal solution, offering scalability and expandability from L1 GPS with SBAS to L1/L2 GPS with RTK.

miniEclipse takes Hemisphere GPS' latest Eclipse II™ technology and shrinks it into a tiny package. miniEclipse receivers are offered in two common industry form factors: P200™ and P201™. P200 is a drop-in replacement for Hemisphere GPS' Crescent® receiver, while P201 has a mechanical design compatible with SSII/OEMV®-1 or OEMV®-1DF receivers of NovAtel, Inc. The reliable positioning performance of miniEclipse is further enhanced through Eclipse RTK and COAST™ DGPS technology.

### **Eclipse RTK with SureTrack®**

With miniEclipse, RTK performance is scalable. Utilize the same centimeter-level accuracy in either L1-only mode, or employ the full performance of fast RTK performance over long distances with L1/L2 GPS signals. Our exclusive SureTrack technology gives peace of mind knowing the RTK rover is making use of every satellite it is tracking, even satellites not tracked at the base. Benefit from fewer RTK dropouts in congested environments, faster reacquisitions and more robust solutions due to better cycle slip detection. Rely on SureTrack technology from Hemisphere GPS.

### **DGPS and SBAS with COAST**

Patented COAST software enables select Hemisphere GPS receivers to utilize previous DGPS correction data during times of interference, signal blockage and weak signal. The receiver will coast and continue to maintain sub-meter positioning for up to 40 minutes without any DGPS signal.

## **Key miniEclipse GNSS Receiver Board Advantages**

- Improved GPS performance with Long Range RTK applications up to 50 km
- RTK fix times are improved providing fast solutions
- Compatible with other RTK sources including Hemisphere GPS' ROX Format, RTCM v3, CMR, CMR+
- Reliable DGPS accuracy for up to 40 minutes using Hemisphere GPS' COAST® technology
- Extremely affordable DGPS solution with update rates of up to 20 Hz

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## GPS Sensor Specifications

Receiver Type:	L1 & L2 RTK with carrier phase
Channels:	12 L1CA GPS 12 L1P GPS 12 L2P GPS (with subscription code) 12 L2C GPS (with subscription code) 3 SBAS or 3 additional L1CA GPS
SBAS Tracking:	3
Update Rate:	10 Hz standard, 20 Hz available
Timing (1PPS) Accuracy:	20 ns
Cold Start Time:	< 60 s typical (no almanac or RTC)
Warm Start Time:	< 30 s typical (almanac and RTC)
Hot Start Time:	< 10 s typical (almanac, RTC and position)
Maximum Speed:	1,850 kph (999 kts)
Maximum Altitude:	18,288 m (60,000 ft)
Differential Options:	SBAS, Autonomous, External RTCM v2.3, RTK v3

## Horizontal Accuracy

	RMS (67%)	2DRMS (95%)
RTK: <sup>2,3</sup>	10 mm + 1 ppm	20 mm + 2 ppm
SBAS (WAAS): <sup>2</sup>	0.3 m	0.6 m
Autonomous, no SA: <sup>2</sup>	1.2 m	2.5 m

## Communications

Serial Ports:	3 full duplex 3.3 V CMOS
Baud Rates:	4800 - 115200
USB:	1 USB device
Correction I/O Protocol:	Hemisphere GPS' ROX, RTCM v2.3 (DGPS), RTCM v3 (RTK), CMR, CMR+ <sup>1</sup>
Data I/O Protocol:	NMEA 0183, Hemisphere GPS binary
Timing Output:	1 PPS (HCMOS, active high, rising edge sync, 10 kΩ, 10 pF load)
Event Marker Input:	HCMOS, active low, falling edge sync, 10 kΩ

## Power

Input Voltage:	3.3 VDC +/- 5%
Power Consumption:	< 1.35 W nominal (L1/L2 RTK) < 1.25 W nominal (L1 SBAS)
Current Consumption:	410 mA nominal (L1/L2 RTK) 380 mA nominal (L1 SBAS)

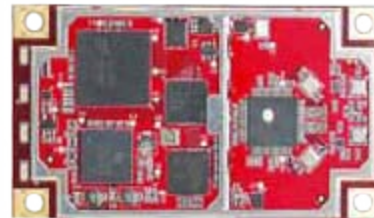
Antenna Voltage Input:	15 VDC maximum
Antenna Short Circuit Protection:	Yes
Antenna Gain Input Range:	10 to 40 dB
Antenna Input Impedance:	50 Ω

## 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
Shock and Vibration: <sup>4</sup>	Mechanical Shock: EP455 Section 5.14.1 Operational Vibration: EP455 Section 5.15.1 Random
EMC: <sup>4</sup>	CE (IEC 60945 Emissions and Immunity) FCC Part 15, Subpart B, CISPR22

## Mechanical

Dimensions	
P200:	71.1 L x 40.6 W x 13.4 H mm (2.8 L x 1.6 W x 0.53 H in)
P201:	72.4 L x 40.6 W x 13.4 H mm (2.85 L x 1.6 W x 0.53 H in)
Weight:	< 20 g (< 0.7 oz)
Status Indication (LED):	Power, GPS lock, Differential lock, DGPS position
Power/Data Connector	
P200:	34-pin male header, 0.05" (1.27 mm) pitch
P201:	20-pin male header, 0.08" (2 mm) pitch
Antenna Connector:	MCX, female, straight



Back View

## Authorized Distributor:

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<sup>1</sup> Receive only, does not transmit this format.

<sup>2</sup> Depends on multipath environment, number of satellites in view, satellite geometry and ionospheric activity.

<sup>3</sup> Depends also on baseline length.

<sup>4</sup> When integrated in conjunction with the recommended shielding and protection as outlined in the Integrator's Guide.

Note: The Eclipse receiver technology is not designed or modified to use the GPS Y-Code

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