

Eclipse II GNSS OEM Module

Experience unprecedented GNSS RTK and GLONASS performance



Eclipse™

The Eclipse™ II GNSS OEM module is the first in the next generation of GNSS boards available from Hemisphere GPS. Integrate with ease using Eclipse II, in precision industrial products and challenging environments. This compact module offers low power consumption, fast output rates of up to 20 Hz and OmniSTAR® support. Offering full scalability and expandability from L1 GPS through to L1/L2 GNSS and combined with advanced multipath mitigation techniques, this feature-rich multi-frequency GNSS module will provide a cost effective product compatible with other GNSS products.

Eclipse GNSS RTK with SureTrack™

With Eclipse II, 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 GNSS signals. Our exclusive SureTrack technology gives peace of mind knowing your 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. SureTrack also removes concerns with mixing GNSS data from various manufacturers. Even if your base is only L1/L2 GPS, SureTrack with GLONASS at your rover delivers complete GNSS performance where others cannot. Rely on SureTrack technology from Hemisphere GPS.

Key Eclipse II GNSS OEM Module Advantages

- Improved GNSS performance, particularly with RTK and GLONASS applications through the implementation of SureTrack technology
- Long range RTK baselines of up to 50 km
- Very fast RTK fix and reacquisition times
- Automatic detection and removal of cycle slips for robust performance
- Mechanically and electrically (pin for pin) compatible with the original Eclipse board
- Reduced power consumption provides for longer integrated operating times

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GNSS Sensor Specifications

Receiver Type:	GNSS 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) 12 L1 GLONASS 12 L2 GLONASS (with subscription code) 3 SBAS or 3 additional L1CA GPS 1 L-Band SBAS
SBAS Tracking:	3-channel, parallel tracking
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, RTK, OmniSTAR® (HP/XP/G2)

Horizontal Accuracy

	RMS (67%)	2DRMS (95%)
RTK: ^{2,3}	10 mm + 1 ppm	20 mm + 2 ppm
OmniSTAR HP: ^{2,3}	0.1 m	0.2 m
SBAS (WAAS): ²	0.3 m	0.6 m
Autonomous, no SA: ²	1.2 m	2.5 m

Communications

Serial Ports:	4 full-duplex 3.3 V CMOS (3 main serial ports, 1 differential-only port)
Baud Rates:	4800 - 115200
Correction I/O Protocol:	Hemisphere GPS proprietary, RTCM v2.3 (DGPS), RTCM v3 (RTK), CMR, CMR+ ¹
Data I/O Protocol:	NMEA 0183, Hemisphere GPS binary
Timing Output:	1 PPS (HCMOS, active low, falling edge sync, 10 kΩ, 10 pF load)
Event Marker Input:	CMOS, active low, falling edge sync, 10 kΩ, 10 pF load
	USB: 1 USB Host, 1 USB Device



Back View

Power

Input Voltage:	3.3 VDC +/- 5%
Power Consumption:	< 2.5 W nominal GPS (L1/L2), GLONASS (L1/L2), and L-Band < 1.9 W nominal GPS (L1/L2) and GLONASS (L1/L2)
Current Consumption:	760 mA nominal GPS (L1/L2), GLONASS (L1/L2), and L-Band 580 mA nominal GPS (L1/L2) and GLONASS (L1/L2)
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 (when installed in an enclosure)
Shock and Vibration: ⁵	Vibration: EP455 Section 5.15.1 Random Mechanical Shock: EP455 Section 5.14.1 Operational (when mounted in an enclosure with screw mounting holes utilized)
EMC: ⁵	CE (IEC 60945 Emissions and Immunity) FCC Part 15, Subpart B CISPR22

Mechanical

Dimensions:	10.9 L x 7.1 W x 1.6 H (cm) 4.3 L x 2.79 W x 0.63 H (in)
Weight:	< 71 g (< 2.5 oz)
Status Indication (LED):	Power, GPS lock, Differential lock, DGPS position, L-Band lock
Power/Data Connector:	70-pin male header, 0.05" pitch (1.27 mm) pitch
Antenna Connector:	MCX, female, straight



Eclipse II GNSS Module with Shield

Authorized Distributor:



HEMISPHERE GPS
4110 - 9th Street S.E.
Calgary, AB T2G 3C4
Canada

¹ Receive only, does not transmit this format.

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

³ Depends also on baseline length.

⁴ Requires a subscription from OmniSTAR.

⁵ 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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