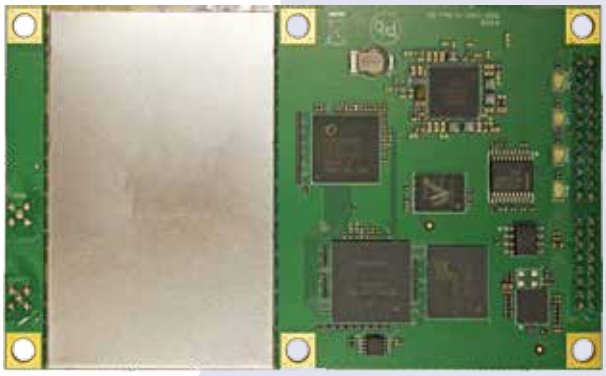
Eclipse™ P328 OEM Board

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

key features

- **Uses GPS, GLONASS, BeiDou, Galileo, and QZSS**
- **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 other manufacturers' modules**
- **Atlas L-band corrections providing position accuracy down to 2 cm RMS, positioning sustainability with Tracer™ technology, and convergence times as low as 10 minutes**
- **Athena™ GNSS engine providing best-in-class RTK performance**
- **Serial, USB, Ethernet and CAN connectivity for ease of use and integration**



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 P328 OEM board. The latest technology platform enables simultaneous tracking of all satellite signals including GPS, GLONASS, BeiDou, Galileo, QZSS, and L-band making it the most robust and reliable solution for machine control. The power management system efficiently governs the processor, memory, and ASIC making it ideal for multiple integration applications.

Experience Unparalleled Accuracy and Reliability with Advanced Technology Features

The P328 is the most accurate and reliable OEM module with two new advanced technology features; aRTK™ and Tracer™. Hemisphere's all-new aRTK technology, powered by Atlas, allows the P328 to operate with RTK accuracies when RTK corrections fail. Tracer utilizes specialized algorithms to sustain positioning in the absence of correction data.

Scalable Solutions

With the Eclipse P328, 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 GNSS correction service.

Ease of Migration

Leverage the industry standard form factor for easy upgradeability from other manufacturers' modules.

Hemisphere®

Precision@HGNSS.com
www.HGNSS.com

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GNSS Sensor Specifications

Receiver Type:	GNSS multi-frequency RTK with carrier phase	
Signals Received:	GPS L1CA/L1P/L1C/L2P/L2C/L5 GLONASS G1/G2, P1/P2 BeiDou B1/B2/B3 GALILEO E1BC/E5a/E5b QZSS L1CA/L2C/L5/L1C L-Band	
Channels:	372	
GPS Sensitivity:	-142 dBm	
SBAS Tracking:	3-channel, parallel tracking	
Update Rate:	1 Hz standard, 10, 20 Hz, 50Hz Optional	
Horizontal Accuracy:		
RMS (67%):	Horizontal	Vertical
RTK: [1]	8 mm + 1 ppm	15 mm + 2 ppm
SBAS (WAAS): [2]	0.3 m	0.6 m
Autonomous, no SA: [2]	1.2 m	2.4 m
Atlas H10 (L-band):	0.04 m	
Atlas H30 (L-band):	0.15 m	
Atlas H100 (L-band):	0.50 m	
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)	
Maximum Speed:	1,850 kph (999 kts)	
Maximum Altitude:	18,288 m (60,000 ft)	
Differential Options:	SBAS, Autonomous, External RTCM, RTK, L-band (Atlas) DGPS	

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

Serial Ports:	3 full-duplex (1 3.3 V CMOS, 1 3.3V CMOS with flow control, 1 RS-232 with flow control), 1 USB Device (OTG with future FW upgrade), Ethernet 10/100 Mbps, 2 CAN (NMEA 2000, ISO-11783)
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:	1.1 W GPS L1 1.8 W GPS L1/L2 GLONASS G1/G2 2.9 W all signals and L-band
Current Consumption:	303 mA nominal (GPS L1) 484 mA nominal (GPS/GLONASS L1/L2 G1/G2) 880 mA nominal (All Signals + L-band)
Antenna Voltage:	5 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:	Shock: Mechanical Shock: EP455 Section 5.14.1 Operational (when mounted in an enclosure with screw mounting holes utilized) Vibration: EP455 Section 5.15.1 Random

Mechanical

Dimensions:	100 L x 60 W x 10 H mm
Weight:	44 g
Status Indications (LED):	Power, GPS lock, Differential lock, DGPS position
Power/Data Connector:	24 pin male header 2 mm pitch 16 pin male header 2 mm pitch
Antenna Connectors:	MMCX, female, straight

1 Depends on multipath environment, number of satellites in view, satellite geometry baseline length (for local services) and ionospheric activity.

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3 Hemisphere GNSS proprietary

Authorized Distributor:

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Hemisphere®

Hemisphere GNSS, Inc.
8515 E. Anderson Drive
Scottsdale, AZ, USA 85255

Toll-Free: +1 (855) 203-1770
Phone: +1 (480) 348-6380
Fax: +1 (480) 270-5070
Precision@HGNSS.com
www.HGNSS.com