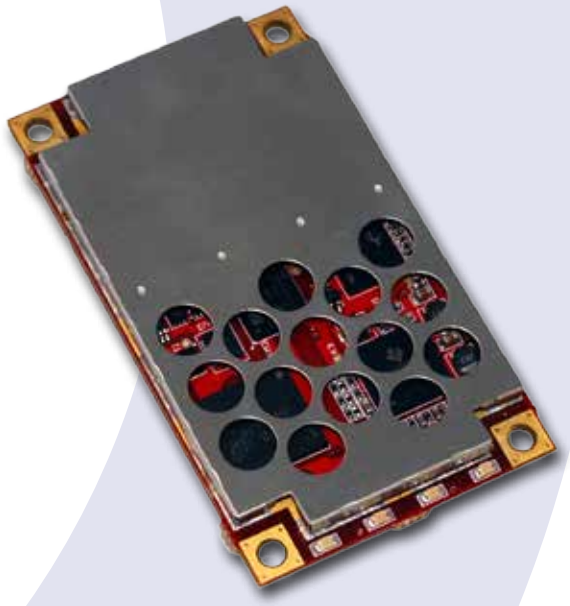
Eclipse P302 & P303 OEM Modules

Experience Eclipse RTK with GPS and GLONASS

key features

- **Robust RTK with dual frequency GPS and GLONASS**
- **Long-range RTK baselines up to 50 km with fast acquisition times**
- **Compatible with other RTK sources including Hemisphere GNSS' ROX Format, RTCM v3, CMR, CMR+**
- **COAST technology maintains differentially-corrected positioning for 40 minutes or more after loss of differential signal**
- **Mechanically and electrically (pin-for-pin) compatible with our Crescent line of boards**
- **Low power consumption provides an excellent solution for portable GNSS applications**
- **Radar-simulated pulse output provides**



Experience Dual Frequency GNSS RTK with Eclipse Technology
Integrate with ease using the Eclipse™ P302™ and P303™ OEM modules in precision industrial products and challenging environments. These compact modules offer low power consumption, fast output rates of up to 20 Hz and superb RTK performance. These feature-rich multi-frequency GNSS modules provide a cost effective product compatible with other GNSS products.
Eclipse P302 is a drop-in replacement for Hemisphere GNSS 34 pin modules. Eclipse P303 has a mechanical design compatible with Standard 20 pin modules from other manufacturers.

Scalable Eclipse Positioning Solutions
With the Eclipse P302 and P303, 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.

DGPS and SBAS with COAST
Patented COAST software enables Hemisphere receivers to utilize previous DGPS and SBAS 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.

Hemisphere

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GPS Sensor Specifications

Receiver Type:	GNSS L1 & L2 RTK with carrier phase	
Signals Received:	GPS, GLONASS and GALILEO [4]	
Channels:	270	
GPS Sensitivity:	-142 dBm	
SBAS Tracking:	3-channel, parallel tracking	
Update Rate:	1 Hz standard, 10 Hz optional	
Horizontal Accuracy:	RMS (67%)	2DRMS (95%)
RTK: [1]	10 mm + 1 ppm	20 mm + 2 ppm
SBAS (WAAS): [2]	0.3 m	0.6 m
Autonomous, no SA: [2]	1.2 m	2.5 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)	

Communications

Serial Ports:	4 full-duplex 3.3 V CMOS (3 main serial ports, 1 differential-only port), 1 USB Host, 1 USB Device
Baud Rates:	4800 - 115200
Correction I/O Protocol:	Hemisphere GPS proprietary, ROX Format, RTCM v2.3 (DGPS), RTCM v3 (RTK), 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

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:	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
EMC:	CE (IEC 60945 Emissions and Immunity) FCC Part 15, Subpart B, CISPR22

Power

Input Voltage:	3.3 VDC +/- 5%
Power Consumption:	< 1.9 W nominal GPS (L1/L2) and GLONASS (L1/L2)
Current Consumption:	550 mA nominal GPS (L1/L2) and GLONASS (L1/L2)
Antenna Voltage:	15 VDC maximum
Antenna Short Circuit Protection:	Yes
Antenna Gain Input Range:	10 to 40 dB
Antenna Input Impedance:	50 Ω

Mechanical

Dimensions	
P302:	7.1 L x 4.1 W x 1.3 H (cm) 2.8 L x 1.6 W x 0.5 H (in)
P303:	7.2 L x 4.1 W x 1.3 H (cm) 2.85 L x 1.6 W x 0.5 H (in)
Weight:	< .02 kg (< 0.70 oz.)
Status Indication (LED):	Power, GPS lock, Differential lock, DGPS position
Power/Data Connector	
P302:	34-pin male header, 0.05" or 1.27 mm pitch
P303:	20-pin male header, 0.08" or 2 mm pitch
Antenna Connectors:	MCX, female, straight**Power**

[1] Depends on multipath environment, number of satellites in view, satellite geometry baseline length (for local services) and ionospheric activity
[2] Depends on multipath environment, number of satellites in view, satellite geometry and ionospheric activity
[3] Hemisphere GPS proprietary
[4] Upgrade required

Authorized Distributor:

Hemisphere

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