

# Eclipse™ P302™ and 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



### 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.



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# Eclipse P302 and P303 OEM Modules

## GPS Sensor Specifications

Receiver Type:	GNSS L1 & L2 RTK with carrier phase	
Signals Received:	GPS, GLONASS and GALILEO <sup>4</sup>	
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: <sup>1</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
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 <sup>3</sup>	
Timing Output:	1PPS, CMOS, active high, rising edge sync, 10 k $\Omega$ , 10 pF load	
Event Marker Input:	CMOS, active low, falling edge sync, 10 k $\Omega$ , 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 enclosure with screw mounting holes)
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)

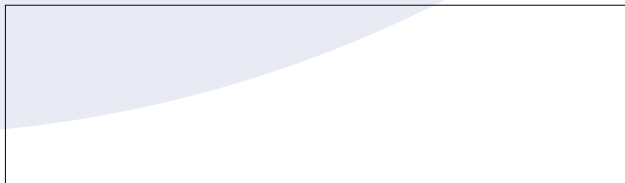
<sup>1</sup> Depends on multipath environment, number of satellites in view, satellite geometry baseline length (for local services) and ionospheric activity

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

<sup>3</sup> Hemisphere GPS proprietary

<sup>4</sup> Upgrade required

## Authorized Distributor:



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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 $\Omega$

## 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



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