



## THE PERFORMANCE STANDARD FOR LOW COST GPS + SBAS RECEIVER

# B12 Receiver

### LOW POWER SOLUTION

The B12™ OEM board from Thales Navigation professional products combines our proven precise GPS positioning technology and our high-performance OEM expertise on a low-cost board, about two-thirds the size of a business card. It incorporates several features traditionally associated with "high end" GPS receivers, making B12 the preferred choice for system integrators and OEM providers. Using unique software algorithms and the latest GPS technology, Thales Navigation has optimized the B12 for fleet management, navigation, vehicle tracking, mobile data, telematics, and handheld computing. The B12 supports differential remote operation and is capable of tracking Satellite Based Augmentation System (SBAS – WAAS/EGNOS/MSAS) satellites to provide precise DGPS positioning. The B12 is identical to the A12 in functionality, operation and performance. It only differs from A12 in hardware, power, I/O and RF connectors.

### INNOVATIVE FEATURES

The B12 from Thales Navigation has been designed to minimize the impact of common mobile application challenges such as obstructions to satellite visibility, GPS signal multipath, and power consumption. In addition, the B12's advanced satellite reacquisition techniques enable the unit to reacquire a satellite previously hidden from view in less than one second after reappearing. With capabilities like these, you can rest assured that the B12 delivers reliable, consistent position reports in the toughest conditions.



### EASY TO INTEGRATE

The B12 is designed to minimize the effort in integrating GPS with other applications by utilizing industry standard NMEA 0183 messages. Easy to use commands provide a simple way to setup the receiver for a broad range of outputs. The B12 board has a standard SMB RF connector and supports an 8-pin I/O connector that can plug right into your mother board for easy assembly. The B12 boards have low profile RF shields for protection against EMI and RFI. The B12 board can replace the Trimble Lassen SKII in any system. It has the same dimensions, mounting holes, and identical I/O connector pin-out as SKII.

### DEVELOPMENT KIT

The B12 Development Kit for system integrators and OEM developers is available to assess B12 performance, begin development, and fully incorporate B12 into your application. It includes a B12 housed in an easy-to-use enclosure, antenna, cables, and everything you need to evaluate the B12 and begin development, including the Windows-based Ashtech® Evaluate™ software. Use the kit with confidence to prove the B12's power and productivity in all of your GPS mobile application needs.

# B12 RECEIVER

## TECHNICAL SPECIFICATIONS

### Standard Features

- 12-channels, continuous tracking  
10 GPS + 2 SBAS configuration
- L1 frequency, C/A code (SPS)
- DGPS ready (Remote)
- 1-Hz update rate
- 1 PPS
- Speed (max) 514 m/s (1,000 knots)
- Altitude (max) 18,288 m (60,000 ft)

### Accuracy

#### Real Time Position<sup>1</sup>

##### Autonomous

Horizontal CEP	3.0 m (9.843 ft)
Horizontal 95%	5.0 m (16.48 ft)

##### SBAS (WAAS/EGNOS/MSAS)

Horizontal CEP	1.0 m (3.28 ft)
Horizontal 95%	3.0 m (9.843 ft)

##### DGPS

Horizontal CEP	0.8 m (2.62 ft)
Horizontal 95%	1.5 m (4.92 ft)

#### Acquisition Time<sup>2</sup>

##### Typical Acquisition Time

Hot start	<10 sec
Warm start	<45 sec
Cold start	<150 sec

##### Typical Reacquisition Time

Total satellite blockage for < 20 seconds	1–2 sec
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Total satellite blockage for < 180 seconds	3–5 sec
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### Communication

- Standard NMEA-0183 V3.0 interface utilizing common Ashtech OEM receiver command set
- Differential remote operation using RTCM V2.2 Message Types 1, 3 and 9.
- Software-selectable baud rate ranging from 1200 bps to 115K bps

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### B12 OEM Board

#### Operating Temp

–30°C to +80°C  
(–22°F to 176°F)

#### Storage Temp

–40°C to +85°C  
(–40°F to 185°F)

#### Humidity

95% RH, non-condensing

#### Vibration

5-20 Hz	0.008 g <sup>2</sup> /Hz
20-100 Hz	0.05 g <sup>2</sup> /Hz
100-900 Hz	3 dB/octave

#### Size (including connectors)

inches	3.69 x 1.25 x 0.485
mm	93.7 x 31.75 x 12.32

#### Weight

B12 0.8 oz. (20 gr)

Primary Voltage 5.0 VDC ± 5%

Current Consumption 55-70 mA

- Power (typical) 300 mW

- Back-up Voltage 2.7-3.6 VDC = 6 µA

#### I/O Ports

- 1 full-duplex serial port (TTL compatible) for primary I/O

- 1 half-duplex serial port (TTL compatible) for RTCM input

### B12 Sensor

#### Operating Temp

–30°C to +70°C  
(–22°F to 158°F)

#### Storage Temp

–40°C to +85°C  
(–40°F to 185°F)

#### Size

inches	5.12 x 4.38 x 1.16
mm	130 x 111.2 x 29.5

#### Weight

8.5 oz. (240.0 gr)

I/O Ports 2 RS-232 Ports

Input Voltage 10-18 VDC

Current Consumption 70-90 mA

Power Consumption (typical) 1 watt

### Antenna

For information about compatible antennas or antenna accessories, please contact Thales Navigation directly.

### Evaluation and Development Kit

#### Kit includes:

- PC compatible Evaluate and Mission Planning™ Software
- B12 Evaluator: B12 receiver in a rugged enclosure with 12 VDC power supply and RS-232 interface.
- Magnetic-mount antenna with cable
- Null modem cable and RS-232 interface cable with integral power connector
- Power source adapters (auto lighter adapter, AC adapter)

<sup>1</sup> Position accuracies are based on tests calculated in low multipath environment under clear sky conditions. Accuracy may degrade in high multipath environments.

<sup>2</sup> Assumes that at least 4 GPS satellites are clearly visible.

