



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

# A12 Receiver

### LOW POWER SOLUTION

The A12™ 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 half the size of a business card. It incorporates several features traditionally associated with "high end" GPS receivers, making A12 the preferred choice for system integrators and OEM providers. Using unique software algorithms and the latest GPS technology, Thales Navigation has optimized the A12 for fleet management and navigation applications such as vehicle tracking, mobile data, car navigation, telematics, and handheld computing. The A12 supports differential remote operation and is capable of tracking Satellite Based Augmentation System (SBAS – WAAS/EGNOS/MSAS) satellites to provide precise DGPS positioning. A12 has the same form factor and interface of its predecessor, the Ashtech® G8™ OEM board, but consumes only 0.23 watts of power. This Ashtech product is now part of the Thales Navigation Professional Products family.

### INNOVATIVE FEATURES

The A12 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 A12'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 A12 delivers reliable, consistent position reports in the toughest conditions.



### A12 DEVELOPMENT KIT

The A12 Evaluation and Development Kit for system integrators and OEM developers is available to assess A12 performance, begin development, and fully incorporate A12 into your application. It includes A12 housed in an easy-to-use enclosure, antenna, cables, and everything you need to integrate the A12, including the Windows-based Ashtech Evaluate™ software. Use the kit with confidence to prove the A12's power and productivity in all of your GPS mobile application needs.

### COMPATIBILITY

A12 is hardware compatible with the Ashtech G8. A12 has same dimensions, mounting holes, and identical I/O connector pin-out as G8. A12 is available in two different versions. Version 1 is enclosed in a shield case and features I/O connector suitable for cable interface. Version 2 is the same as Version 1, but without the mechanical shield case. A12 is also available in a rugged sensor enclosure for easy evaluation.

# A12 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
--------------------------	--------------------------

Total satellite blockage	for < 180 seconds 3–5 sec
--------------------------	---------------------------

### 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

### Thales Navigation, Inc.

#### Corporate Headquarters, Santa Clara, CA, USA

+1 408 615 5100 • Fax +1 408 615 5200

Toll Free (Sales in USA/Canada) 1 800 922 2401

Email [professionalsales@thalenavigation.com](mailto:professionalsales@thalenavigation.com)

In Washington, DC +1 703 476 2212 • Fax +1 703 476 2214

In South America +56 2 234 56 43 • Fax +56 2 234 56 47

In China +86 10 6566 9866 • Fax +86 10 6566 0246

#### European Headquarters, Carquefou, France

+33 2 28 09 38 00 • Fax +33 2 28 09 39 39

Email [professionalsalesemea@thalenavigation.com](mailto:professionalsalesemea@thalenavigation.com)

In Germany +49 81 6564 7930 • Fax +49 81 6564 7950

In Russia +7 095 956 5400 • Fax +7 095 956 5360

In UK +44 1993 8867 66 • Fax +44 1993 8867 67

In the Netherlands +31 78 61 57 988 • Fax +31 78 61 52 027

Web site [www.thalenavigation.com](http://www.thalenavigation.com)

### A12 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

Version 1 (with shield case):	
inches	1.58 x 2.41 x 0.52
mm	40 x 61.2 x 13.3
Version 2 (without shield case):	
inches	1.54 x 2.36 x 0.51
mm	39 x 60 x 13

#### Weight

A12 (Version 1)	1.6 oz. (45.4 gr)
A12 (Version 2)	0.7 oz. (18.0 gr)

Primary Voltage 3.3 to 5.0 VDC

Current Consumption 55-70 mA

- Power (typical) 230 to 250 mW @3.3 to 5.0 VDC

- 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

### A12 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	4.38 x 4.12 x 1.16
mm	111.2 x 104.6 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
- A12 Evaluator: A12 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.

