



## A12 Receiver

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

#### LOW POWER, HIGH PERFORMANCE SOLUTION

The A12™ OEM board from Thales 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 has optimized the A12 for fleet management and navigation applications such as vehicle tracking, mobile data terminals, 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 G8™ board, but consumes only 0.23 watts of power.

#### INNOVATIVE FEATURES

The A12 from Thales 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 the A12 into your application. It includes the A12 housed in a rugged enclosure, an antenna, cables and everything needed to integrate the A12, including the Windows®-based Evaluate™ software. Use the kit with confidence to prove the A12's power and productivity in all of your GPS mobile application needs.



#### A12 OFFERS A RANGE OF FEATURES:

- Low power consumption - only 0.23 watts
- User-defined and pre-defined datums
- Two-way serial port communications
- 1PPS output accurate to better than 250 nanoseconds
- Same form factor and interface as G8 OEM board
- Also available in a rugged sensor or as a Development Kit

# A12 RECEIVER

## TECHNICAL SPECIFICATIONS

### Standard Features

- 12-channel GPS receiver with up to 2 channels for SBAS
- L1 frequency, C/A code (SPS)
- DGPS ready (Remote)
- 1-Hz update rate
- 1 PPS (TTL)  
Precision: 250 ns (Stand-alone)
- Single Port Operation
- 99 Predefined Datums
- User-defined datum Support
- WAAS/EGNOS Support
- 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 Thales 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

### 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

With shield case:	
inches	1.58 x 2.41 x 0.52
mm	40 x 61.2 x 13.3

Without shield case:	
inches	1.54 x 2.36 x 0.51
mm	39 x 60 x 13

#### Weight

With shield case:	1.6 oz. (45.4 gr)
Without shield case:	0.7 oz. (18.0 gr)

#### Primary Voltage

3.3 to 5.0 VDC

#### Current Consumption

– 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

### Mini Magnetic Mount Antenna

5V active micro patch antenna

Dimensions: 46 x 39 x 12.5 mm

Cable Length: 6 m

Connector: SMB (board) or SMA (sensor)

Gain: 24.5 dBi

### 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.



A12 Sensor

### Thales

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