

# User Guide GPS 400 GPS Receiver

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*August 20, 2018*

*Version 1.00*

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## Document Revisions

Date	Version Number	Document Changes
8/20/2018	1.00	Preliminary Draft

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# 1 Introduction

The GPS 400 is a complete GPS sensor which includes an embedded 12 channel GPS receiver and antenna. It is designed to withstand rugged operation and is waterproof to IEC 60529 IPX7, immersion in 1 meter of water for 30 minutes.

Installation is simple. All that is required is for the GPS 400 to have a clear view of the sky. It can connect directly to either a PME GPS 0100 Network Time Serve or a ProTime GPS Clock. Power for the GPS 400 is provided from either of these modules through a standard CAT 5 cable. Communications between the modules uses RS-485 signal levels. The cable can be up to 1,000 Ft. in length.

## 1.1 Features

- 12-channel GPS receiver tracks up to 12 satellites for fast, accurate, time and position.
- Differential DGPS capability using real-time WAAS corrections yielding 3 to 5 meter position accuracy.
- Compact, rugged design ideal for application with minimal space.
- Simple installation. No coax cable or power cable to run.
- User initialization not required.
- Highly accurate 1 pulse-per-second output.
- Waterproof design allows continuous exposure to the prevailing weather conditions at most locations.

## 2 Installation

The GPS 400 should be mounted with a clear view of the sky and as far away from electrical machinery as possible. It can be mounted using a 1"-14 thread marine antenna mount. The GPS 400 is supplied with a 10 ft. cable terminated in a standard RJ45 connector. An IP-67 rated in-line connector is supplied for installations that require addition cable length. Up to 1,000 ft. of additional CAT5 cable may be used to connect the GPS 400 to the PME GPS 0100 or ProTime GPS Clock. Shielded CAT5 is recommended for long runs in noisy environments.

## 3 Technical Specifications

Specifications are subject to change without notice.

### 3.1 Input Current

- 65 mA @ 12 VDC      When powered by ProTime GPS Clock
- 34 mA @ 24 VDC      When powered by PME GPS 0100

### 3.2 GPS Receiver Sensitivity

- -165dbw minimum

### 3.3 Environmental Characteristics

- Operating Temperature: -30°C to +80°C
- Storage Temperature: -40°C to +90°C

### 3.4 Acquisition Times

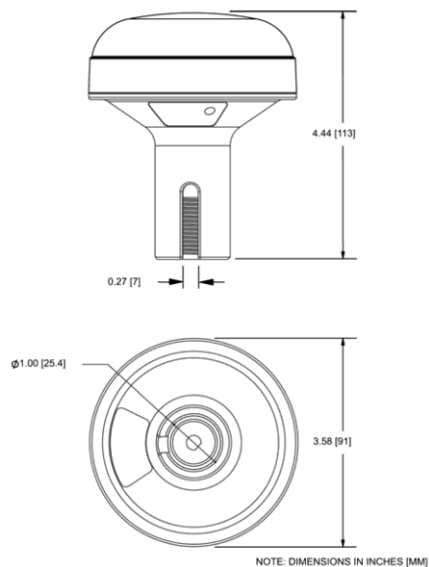
- Reacquisition: Less than 2 seconds
- Warm: Approx. 15 seconds (all data known)
- Cold: Approx. 45 seconds (initial position, time and almanac known; ephemeris unknown)
- AutoLocate: 5 minutes (almanac known; initial position and time unknown)
- SkySearch: 5 minutes (no known data)

### 3.5 Accuracy

- GPS Standard Positioning Service  
Position: <15 meters, 95% typical  
Velocity: 0.1 knot RMS steady state
- Differential GPS (WAAS)  
Position: <3 meters, 95% typical  
Velocity: 0.1 knot RMS steady state
- PPS Time: +/- 1microsecond at rising edge of PPS pulse

### 3.6 Size

- 3.58" (91 mm) diameter, 4.44" (113 mm) high



### 3.7 Weight

- 16.4 oz. (500 g) with 10 foot cable

### 3.8 Case Material

- Polycarbonate thermoplastic that is waterproof to IEC 60529 IPX 7 (immersion in 1 meter of water for 30 minutes)

### 3.9 Mounting

- 1"-14 thread Marine antenna mount

### 3.10 Cable Connector

- Industrial Ethernet
- IP 67 Rated
- May be panel mounted
- Amphenol LTW part number RDP-00BFFA-SLM7001

