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# GPS Time Sync Master User Guide

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**OCEAN SONICS**  
Giving Our Oceans A Voice

## About Ocean Sonics

Ocean Sonics is an innovative leader in underwater listening. Established with a deep-rooted commitment to giving the oceans a voice, Ocean Sonics combines simplicity, accuracy, and reliability to develop unrivalled products. Our flagship product, the icListen, is a real-time smart digital hydrophone designed and crafted for users in the Ocean Science, Energy, Defense, Maritime Transportation, Aquaculture and Fisheries sectors.

## Introduction: GPS Time Sync Master

Ocean Sonics offers a Sync GPS Master which allows the icListen to be synchronized by receiving a GPS pulse per second (PPS). The system is very low power, small and can be mounted on a mast above water or on shore. Typical PPS can synchronize the seconds to a resolution of nanoseconds. However, the Sync GPS modulates the trailing edge of the PPS signal to encode the date & time as well. This guarantees that all instruments are fully synchronized to GPS time after two minutes.

## GPS Time Sync Master

The GPS Time Sync Master is a device which produces GPS messages, as well as a pulse per second (PPS) signal which encodes the time of day for syncing time on icListen hydrophones. Connecting this device to an Host Interface will cause it to become an IEEE 1588 PTP grand master for any devices connected on its “Remote” port. Ocean Sonics’ Ethernet extenders and icLinks are all capable of time sync using this protocol.

The GPS Time Sync Master will produce a PPS signal at all times when powered, but will not encode a time of day signal within the pulses until a valid fix has been achieved. When a valid time fix has been achieved, the pulse widths will be modulated to encode the time of day (1 pulse per second is always produced, but the widths of the ON/OFF periods will vary).

