

PIPE OEM Time Sync Device_2

Sub-Millisecond GNSS-Based Time Synchronization

Enable precise GNSS-based time synchronization for Echoscope PIPE® sonar systems, ensuring accurate alignment of sonar, navigation, and survey data across any deployment.

The PIPE OEM Time Sync Device_2 is a compact integration module designed to provide precise time synchronization for Echoscope PIPE® sonar systems using a GNSS Pulse Per Second (PPS) signal and NMEA ZDA time data from a standard GNSS receiver. The device can also function as an NTP (Network Time Protocol) server, providing network time synchronization to third-party systems and sensors.

Accurate time synchronization is critical when combining sonar, positioning and inertial navigation data, ensuring that dense 3D point cloud datasets are correctly aligned with real-world coordinates and correlated with other survey information.

The Echoscope PIPE® ecosystem supports multiple synchronization methods:

- **Integrated GNSS Synchronization** — 3D Connect 5G and 3D PSU 5G top-end units integrate the Coda Octopus Time Sync Feature, automatically synchronizing the sonar using GNSS PPS and serial NMEA ZDA inputs.
- **Direct Network NTP synchronization** — Echoscope PIPE® sonar systems can synchronize directly to an NTP server available on the network.
- **PIPE OEM Time Sync Device_2** — provides a simple and flexible solution where direct PPS/ZDA connection to the sonar or access to an existing NTP server is impractical.



Some of the innovative PIPE OEM Time Sync Device_2 features available are:



GNSS-Based Time Synchronization for Echoscope PIPE®

Synchronizes Echoscope® sonar data using industry-standard GNSS PPS and NMEA ZDA signals, providing accurate timestamping for improved data correlation and survey accuracy.



Maintains Synchronization Accuracy to within 1ms

Continuously monitors and updates sonar head timing to maintain accuracy within 1 ms, ensuring reliable synchronization between sonar, positioning, and motion reference system



An NTP Time Server for Third-Party Devices and Systems

The PIPE OEM Time Sync Device_2 can be used as an NTP time server for time synchronization of third-party devices across the network



No Need to Route PPS and ZDA Signals Directly to the Topside PSU

Eliminates the need to route PPS and ZDA signals directly to the sonar topside power unit, reducing installation complexity and simplifying system integration



Ideal for Remote Deployments where an NTP Source is Unavailable

Provides accurate GNSS-based time synchronization in locations where an NTP source is unavailable, ensuring survey information



Well Suited to Large Vessel Installations where GNSS Signal Distribution can be Challenging

Practical time synchronization solution for large vessels where distributing GNSS signal information across the survey network can be difficult



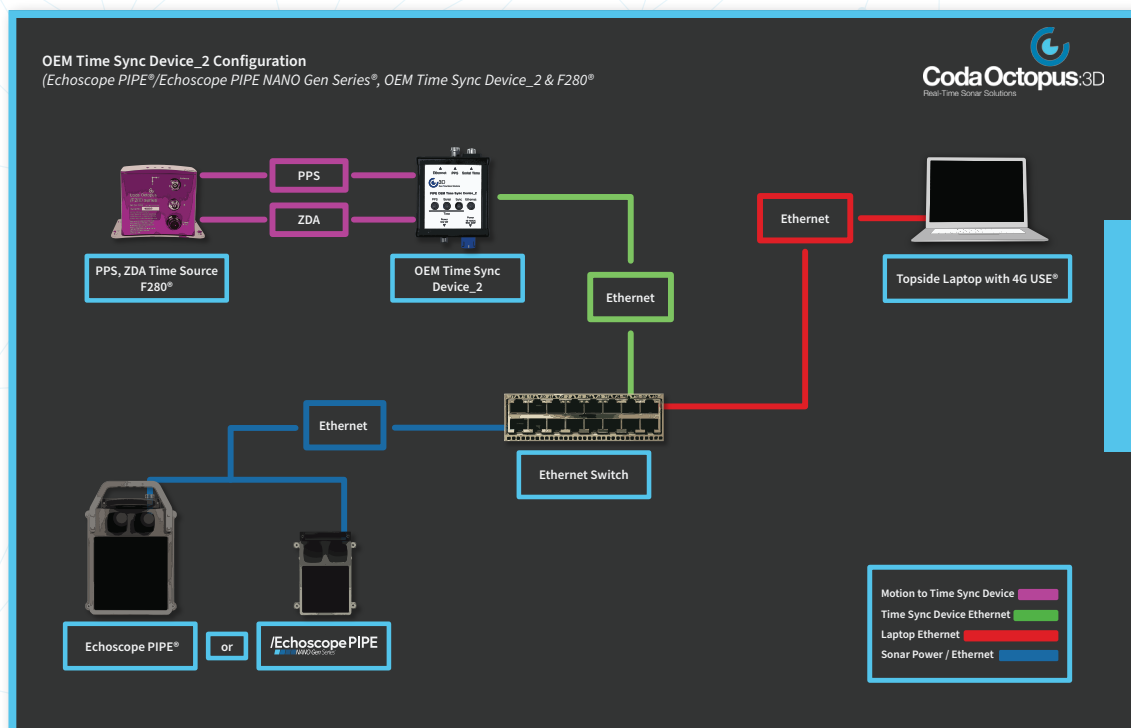
Simple Network-Based Integration with Minimal Impact on Existing System Architecture

Integrates seamlessly into existing architecture with minimal changes, reducing installation effort and simplifying deployment

The PIPE OEM Time Sync Device_2 receives external GNSS PPS and NMEA ZDA inputs and maintains an accurate internal time reference. It then periodically transmits synchronization commands to Echoscope PIPE® sonar heads across the network, maintaining system synchronization with a drift accuracy of better than 1 ms.

The device may be installed at any convenient location on the network and operates transparently once connected to the GNSS source and survey network. Continuous synchronization is maintained without requiring modifications to the existing sonar deployment architecture.

By ensuring consistent and accurate timestamping across the survey system, the PIPE OEM Time Sync Device_2 enables reliable integration of Echoscope PIPE® sonar data, GNSS positioning, INS navigation data, and third-party survey sensors, supporting accurate georeferencing and high-quality survey results.



Power Input

15 - 18 VDC
(Max 20 W)

Dimensions (L x W x H) (Including Connectors)

111.5 mm x 81.2 mm x 58 mm
(4.38" x 3.19" x 2.28")

Weight

0.26 kg
(0.57 lbs)