

## A-TSM/B Time Sync Module

The Time Sync module provides Precision Time Protocol (PTP - Grand Master) and NTP Time services. This enables precision time synchronization for Logix Controllers and HMI systems. It can also provide GPS position and velocity data. The module uses an on-board GPS receiver to provide accurate time and position information.

Because the module is stand-alone and connects to various devices over an Ethernet network the module can be placed as close as possible to the antenna position removing the need for costly low-loss coaxial cables that was traditionally needed to connect the GPS antenna to the module. The on-board GPS receiver also provides velocity and odometer reading allowing the user to implement the module in various vehicle and tracking applications. The GPS accuracy information provided allows the user/controller to make calculated decision when looking at the position, velocity, or odometer information.

A built-in webserver provides detailed diagnostics of system configuration and operation, including the display of GPS time, position, and velocity without the need for any additional software.

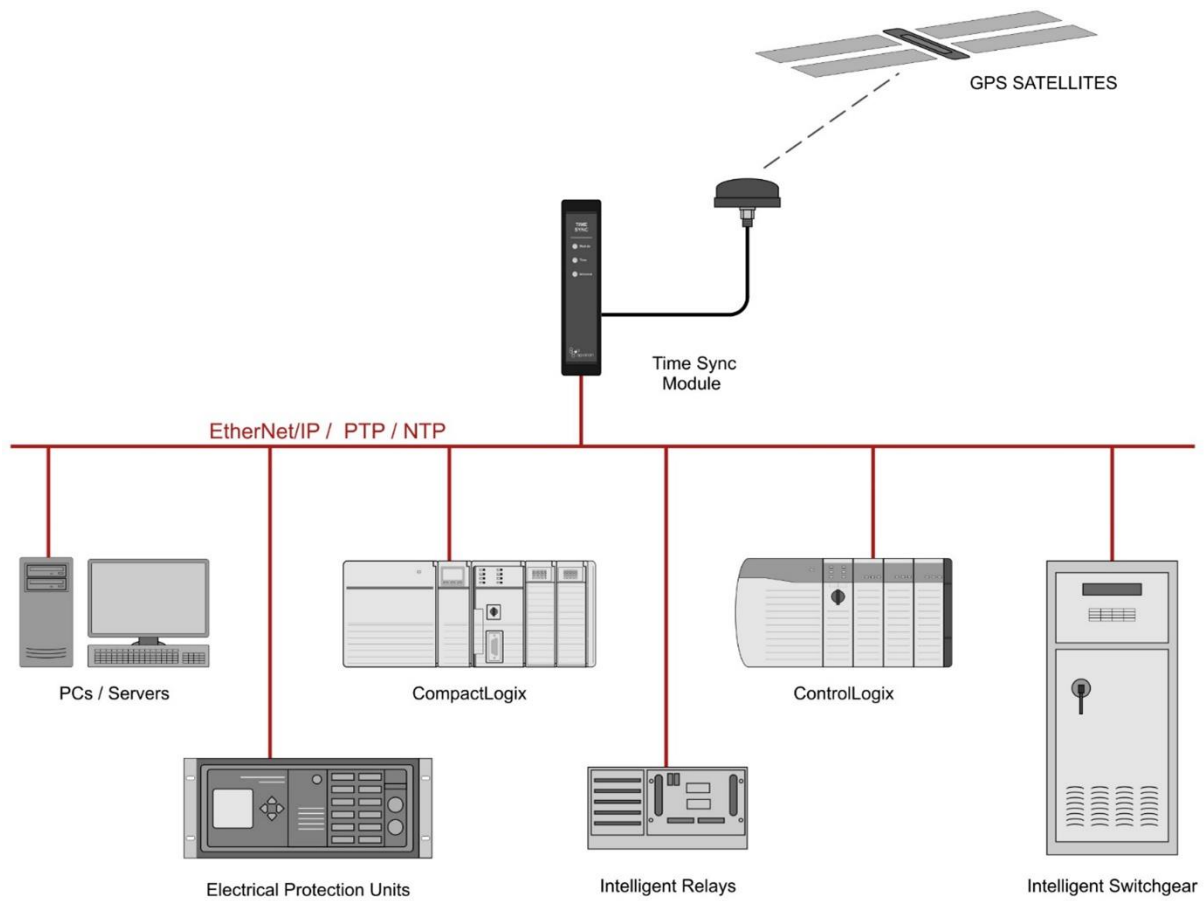


### Features

- ❖ Support for Legacy PLC5/SLC time synchronization
- ❖ 1588 Precision Time Protocol (PTP) master
- ❖ 1588 PTP Network Transport UDP or IEEE802.3
- ❖ Network Time Protocol (NTP) master or slave
- ❖ High accuracy time synchronization (onboard GPS receiver)
- ❖ Isolated GPS Receiver
- ❖ Position, Velocity and odometer readings

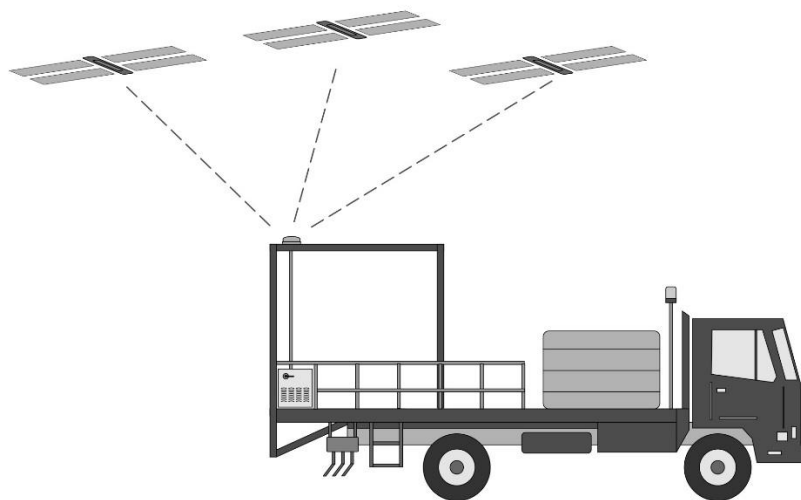
### Configuration

- ❖ The Slate Configuration Utility software is used for configuration and troubleshooting of the module. The stand-alone configuration utility allows users to define the setup and configuration of the Time Sync module, connections with controllers and devices.
- ❖ The configuration utility can be downloaded from [www.prosoft-technology.com](http://www.prosoft-technology.com)



**Figure 1 - Example of a typical network setup for a timing application**

The module can synchronize various devices across various platforms over traditional Ethernet using 1588 PTP and NTP. With position, velocity, and odometer information, various tracking and positioning applications can be implemented.



**Figure 2 - Example of a typical position and velocity application**

## Specifications

### Ethernet

| Specification      | Rating       |
|--------------------|--------------|
| Connector          | RJ45         |
| Conductors         | CAT5 STP/UTP |
| ARP Connections    | Max 100      |
| TCP Connections    | Max 20       |
| CIP Connections    | Max 10       |
| Communication Rate | 10/100 Mbps  |
| Duplex Mode        | Full / Half  |
| Auto-MDIX Support  | Yes          |

### GPS

| Specification                 | Rating                             |
|-------------------------------|------------------------------------|
| Antenna Port                  | SMA-Female                         |
| Supported Constellations      | GPS / QZSS, GLONASS, SBAS, BeiDou  |
| Velocity Accuracy             | 0.05 m/s                           |
| Heading Accuracy              | 0.3 degrees                        |
| Horizontal Position Accuracy  | 2.5 m (Autonomous)<br>2.0 m (SBAS) |
| Accuracy of Time Pulse Signal | 60 ns                              |
| Altitude Limit                | 50,000 m                           |
| Velocity Limit                | 500 m/s                            |

### GPS Antenna

| Specification     | Rating         |
|-------------------|----------------|
| Antenna Connector | SMA-Male       |
| Cable Length      | 3 m            |
| Cable Type        | RG174          |
| Antenna Type      | Active         |
| Active Gain       | 27dB (Typical) |
| Noise Figure      | 1.5 (Maximum)  |
| Voltage           | 2.7 to 5.5 VDC |
| Temperature       | -35 to +85 °C  |

### 1588 PTP / NTP

| Specification                                       | Rating                |
|---|-----------------------|
| NTP support (PC time synchronization)               | Yes                   |
| 1588 PTP Grandmaster support                        | Yes                   |
| 1588 PTP Management Support                         | Yes                   |
| 1588 PTP End-to-End (E2E) Delay Mechanism Support   | Yes                   |
| 1588 PTP Peer-to-Peer (P2P) Delay Mechanism Support | Yes                   |
| 1588 PTP / NTP GPS clock source support             | Yes                   |
| 1588 PTP Holdover reporting support                 | Yes                   |
| 1588 PTP Network Transport                          | IPv4 UDP<br>IEEE802.3 |

### Legacy Device Time Synchronization

| Specification                           | Rating |
|---|--------|
| Allen-Bradley PLC5 time synchronization | Yes    |
| Allen-Bradley SLC time synchronization  | Yes    |
| Modbus Device register updating         | Yes    |
| Legacy Device Auto Time Zone support    | Yes    |



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## Hardware

| Specification          | Rating                               |
|------------------------|--------------------------------------|
| Power Supply           | Input: 10 to 32 VDC, (80 mA @ 24VDC) |
| Power Consumption      | 1.9 W                                |
| Dimensions (H x W x D) | 101.0 x 22.5 x 120.0 mm              |
| Connector              | 3-way terminal                       |
| Conductors             | 24 to 18 AWG                         |
| Enclosure Rating       | IP20, NEMA/UL Open Type              |
| Temperature            | -20 to 70 °C                         |
| Humidity               | 0 to 95% RH, non-condensing          |
| Earth Connection       | Yes, terminal based                  |
| Emissions              | IEC61000-6-4                         |
| ESD Immunity           | EN 61000-4-2                         |
| Radiated RF Immunity   | IEC 61000-4-3                        |
| EFT/B Immunity         | IEC 61000-4-4                        |
| Surge Immunity         | IEC 61000-4-5                        |
| Conducted RF Immunity  | IEC 61000-4-6                        |

## Agency Approvals & Certifications

Please visit our website: [www.prosoft-technology.com](http://www.prosoft-technology.com)



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## Ordering Information

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### A-TSM/B

Time Sync Module

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