

# HPINS - Timing specifications

## Timing and Synchronization performance

The Stellar-40 can be used as a source of time and offers multiple synchronization mechanism:

- Internal timestamping of all data
- PPS (Pulse per second)
- NTP (Network Time Protocol)
- PTP (Precise Time Protocol)

The accuracy of the clock and different synchronization mechanisms offered on the product is as follows:

Parameter	Error	Comment
Timestamp	< 200 ns	
NTP accuracy	10 ms	NTP limitations
PTP accuracy	<1 s	
PPS accuracy	~ 5-8 s	
Drift in dead reckoning	1 ppm	Drift of the internal clock measured over 1 hour. The drift is not completely linear with time so will be slightly higher for longer GNSS outages.

For more details on the time and synchronization you can check our [knowledge base article](#).