DSI Sync – Technical Note

Updated: October, 2017

In certain applications, scientists may wish to synchronize data collected via telemetry with other hardwired signals. This technical note reviews current sync solutions achieved with telemetry hardware and the ACQ7700.

Telemetry Hardware relative to ACQ7700	Sync Spec
MX2	±10 ms
CLC	±50 ms

Best Practices:

- For telemetry applications, when Windows' Network Time Protocol (NTP) is trained, we have confidence that sync will remain locked with no drift
    - NTP typically takes 5-6 minutes to start after you restart or turn on a computer
    - Turn off windows updates
    - Turn off anti-virus programs
- Sync spec is independent of the number of MX2s, additional variation may occur with additional CLCs
- Hardware signal typically precedes telemetry signal
- Variation between MX2 jacks typically less than 2 ms, typical less than 1ms for studies less than 1hr

Assumed conditions:

- Best practices recommend 10 minute "warm-up" period on isolated network to help facilitate NTP learning the clock
- Best practices: follow DSI IT guide technical note

How to measure sync:

Feed square wave or TTL pulse simultaneously via split cable into ABDC4 (ACQ7700) and adapted telemetry biopotential channel acquired via telemetry receiver and MX2. Acquire segment of data and perform Ponemah Review to determine delta time with digital caliper.