PTP to IRIG Conversion

By

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As technology evolves, especially in today's military test ranges and power utilities, changes are implemented throughout the world. One such change is a transition from legacy timing known as IRIG (Inter-Range Instrumentation Group) to network centric timing solutions known as either NTP (Network Time Protocol) or PTP (Precision Time Protocol), with PTP being more precise. Some of the many reasons these test ranges, power utilities and others are transitioning to a network centric timing solution is to help save in cost, to provide overall better accuracy, to improve accessibility and to increase overall distribution efficiency. This change allows all of the timing to come from a reliable "Master Timing Station."

A significant problem with transitioning to a network centric timing solution is that many of today's precision timing users still rely on legacy products that utilize IRIG Time Codes. This means the current products would either have to be replaced or upgraded if an IRIG signal was no longer available. ORCA Technologies has created a solution that will synchronize to the incoming PTP packets and generate the legacy IRIG time code still desired. This provides our customers with a more affordable solution compared to purchasing replacement hardware.

	PTP	NTP	IRIG
Peak Time Transfer Error	>100 ns	>1 MS	10µs
Network Type	LAN/WAN	LAN/WAN	Dedicated coaxial cables
Spatial Extent	A few subnets	LAN/WAN	1 Mile over coax
Style	Master/Slave	Peer ensemble & Client/Server	Master/Slave
Protocols	UPD/IP-Multicast	UDP/IP - Unicast (mainly)	
Latency correction	YES	Yes	User input cable length per slave
Protocol specifies security	NO	Yes- MD5 or Autokey	No
Administration	Self organizing	Configured	Configure
Hardware at time client?	Requird for highest accuracy	No	Required
Update interval	2 seconds	Varies, nominally minutes	1 PPS

ORCA Technologies offers two suitable products designed for this application. The TT-101B is a small hand-held product housed in a portable case which can be hand carried out to the site. The other solution, GS-301, is a 19" rack-mount which offers some additional features not found on the TT-101B. Both products will provide many of the necessary IRIG time codes, such as IRIG B, IRIG A, or IRIG G for synchronizing the on-board clock in the legacy product. Both can also be used to convert any IRIG AM signal into any IRIG DCLS signal. Many other features are available on the product such as a 1PPS output, two N1 Rate Synthesizers, and other time and frequency signals.

ORCA Technologies realizes that legacy timing is still going to be needed for many applications today and in the future. Our organization is focused on supplying precision timing products that are both affordable and flexible for many different types of applications across our various end users. For additional information regarding our TT-101B, GS-301, or any other ORCA Technologies products please visit our web-site.

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