

## WORLD LEADER IN TIME SYNC



### ABOUT TEKRON

Tekron is a global leader in providing high precision GPS and atomic clock time keeping technologies and solutions that enable synchronization of advanced networks and services. Installed in over 70 countries, these solutions are used to provide critical timekeeping in national power grids, as well as civilian and military networks. Our customers are predominantly power utility network operators, telecom networks and enterprise industries such as banking and petroleum.

### INDUSTRIES

#### Power

High precision GPS clocks and Time Sync devices designed for harsh transmission & distribution environments where performance, longevity, and reliability are paramount.

#### Telecommunications

GPS clocks for use in telecommunications including LTE cellular base stations to meet today's increasing network demands.

#### Enterprise & Industry

High speed IT networks are the backbone of our modern business world and highly accurate timing is key to network accuracy, reliability, security and auditing. We provide a range of timing solutions to ensure synchronization and measurable latency from single or redundant time sources. So whether your requirement is factory automation or banking, talk to Tekron.

#### Services & Consulting

When your business needs extend beyond your core competencies, let the industry's leader in timing synchronization help you regain your focus. Tap into our deep domain knowledge, expertise, innovation and world-class service to achieve better performance, lower costs and optimize your network timing architecture.



# APPLICATIONS & FEATURES GUIDE

## Comparison of Tekron's Timing Solutions



		Entry Class	Enterprise Class		Automation		Mission Critical	
		NTS100	NTS 02-G	NTS 03-G	TSC100	TTM 01-G	TCG 01-G	TCG 02-G
<b>Ethernet Time Protocols</b>	<b>Features</b>							
	NTP Server (v1, v2, v3, v4)	✓	✓	✓	✓	✓	✓	✓
	SNTP	✓	✓	✓	✓	✓	✓	✓
	NTP Multicast Server	✓	✓	✓	✓	✓	✓	✓
	NTP Broadcast Server	✓	✓	✓	✓	✓	✓	✓
	NTP Performance, Requests/Second*	7500	22500	45000	7500	7500	7500	15000**
<b>Time References</b>	IEEE 1588v2 PTP Grandmaster (Power, Default) Support	✓	✓	✓	✓	✓	✓	✓
	GPS & GLONASS (32 Channel)	✓	✓	✓	✓	✓	✓	✓
	IEEE 1588v2 PTP Slave (Telecoms, Power, Default)	✓	✓	✓	✓	✓	✓	✓
	IRIG-B Input	---	✓	✓	---	---	✓	✓
Reference Priority, User-Configurable	✓	✓	✓	✓	✓	✓	✓	
<b>Network Protocols</b>	SNMP v1, v2c, v3, Custom MIB	✓	✓	✓	✓	✓	✓	✓
	DHCP or Static	✓	✓	✓	✓	✓	✓	✓
	IPv4	✓	✓	✓	✓	✓	✓	✓
	MD5 for NTP	✓	✓	✓	✓	✓	✓	✓
	Secure Remote Access	✓	✓	✓	✓	✓	✓	✓
	VLAN Tagging	✓	✓	✓	✓	✓	✓	✓
	Total Number of Ethernet Ports	1	3	6	1	1	1	2**
<b>User Interface</b>	LEDs: Sync, Network, Alarm	✓	✓	✓	✓	✓	✓	✓
	USB	✓	✓	✓	✓	---	---	---
	Alarm Relays	✓	✓	✓	✓	✓	✓	✓
<b>Osc.</b>	TCXO	✓	✓	✓	✓	✓	✓	✓
	OCXO	---	---	---	---	---	---	✓
	Rubidium	---	---	---	---	---	---	✓
<b>Timing Outputs</b>	Timing Accuracy	100 ns	100 ns	100 ns	100 ns	100 ns	100 ns	100 ns
	Programmable Pulse Output (1PPS, 1 PPM, 1 per 10 ...)	---	✓	✓	✓	✓	✓	✓
	Frequency Output(1.544, 2.048, 10 MHz)	---	---	---	---	---	---	✓
	T1/E1/J1 Output	---	---	---	---	---	---	✓
	AM IRIG-B Output	---	---	---	---	✓	✓	✓
	IRIG-B Fiber Output	---	---	---	---	✓	✓	✓
	Serial Time Strings & NMEA Support	---	---	---	---	✓	✓	✓
	DCLS IRIG-B Output	---	✓	✓	✓	✓	✓	✓
<b>Misc.</b>	Display	---	✓	✓	---	---	✓	✓
	Mounting	DIN Rail	19" 1U	19" 1U	DIN Rail	DIN Rail	19" 1U	19" 1U
	Optional Redundant Power Supply	---	---	✓	---	---	---	✓
	Remote Firmware Upgrade	✓	✓	✓	✓	✓	✓	✓
	Warranty	10 Years	10 Years	10 Years	10 Years	10 Years	10 Years	10 Years

\*7500 Requests per Ethernet port  
 \*\*TCG 02-G Exp 2 contains two Ethernet ports

## SATELLITE CLOCK RANGE

Our versatile range of GPS synchronized clocks provide the most precise, secure and stable, time and frequency outputs in the industry. With our easy to use configuration software, our clocks can provide a range of timing outputs and network time services to support an evolving array of time and frequency applications including PTP (IEEE 1588v2) and Network Time Protocol (NTP) requirements.



## TIME SERVER RANGE

Tekron provides cost effective and highly accurate Stratum 1 Network Time Server solutions. The benefits of having a dedicated Tekron NTP server includes not only accurate network time synchronization incorporating the latest PTP (IEEE 1588v2) protocol as an option, but also a high level of security thereby preventing unauthorized access.



## TRANSLATORS & TOOLS

Signal translators convert the signal from PTP (IEEE 1588v2) to IRIG-B, or similar legacy time codes. This solution significantly reduces capital expenditure in the event that the end user has to change manufacturers or upgrade non-PTP compliant equipment. The IRIG-B Analyzer is a unique troubleshooting tool for the decoding and validation of legacy IRIG-B signals.



### PTP TRANSLATOR

#### Features

- Compact DIN-rail mounting form factor
- Allows IEDs equipped with IRIG-B, Pulse or other common time code inputs to conveniently access a PTP network
- Input: default, telecom or power profiles
- HV MOSFET, AM IRIG-B, RS232, TTL programmable and ST Fiber output versions
- Enhanced security and encryption that exceed NERC CIP requirements

### PRPTP TRANSLATOR

#### Features

- Compact DIN-rail mounting form factor
- Allows IEDs equipped with IRIG-B, Pulse or other common time code inputs to conveniently access a PRP enabled PTP network
- Input: default, telecom or power profiles
- Output: 2x Programmable TTL Outputs
- Enhanced security and encryption that exceed NERC CIP requirements

### IRIG-B ANALYZER

with ScopeApp™

#### Features

- Multilevel signal support
- Handheld ruggedized exterior
- 2.5" backlit display
- Intuitive user interface
- AA battery powered
- Field upgradable firmware
- Supports fiber connection

## SIGNAL REPEATER RANGE

Keeping in line with Tekron's approach to provide accurate and high quality timing synchronization solutions, we also developed the Isolated Timing Repeater/Distributor which can convert from Multimode fiber to copper and vice versa. In addition to distributing DC IRIG-B, the Isolated Timing Repeater can also convert to AM IRIG-B. The Combination of Tekron's Clocks and Isolated Timing Repeaters simplifies and reduces IRIG-B cabling and allows for future expansion of the IRIG-B bus with minimal disruption.



### ISOLATED TIMING DISTRIBUTOR

#### Features

- Media conversion fiber/copper & vice versa
- Regenerates DC IRIG-B
- Provides isolation to avoid ground loops

### ISOLATED TIMING REPEATER

#### Features

- Extends an IRIG-B or Pulse signal run
- Provides isolation between A & B Protection Systems or IEDs
- Media conversion from fiber/copper & vice versa
- Converts DC IRIG-B to AM IRIG-B signals

## CONTACT US

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