3-port NTP & PTP Time Server

NTS 02-G

The NTS 02-G is a high precision, 3 port GNSS (GPS/ GLONASS) referenced NTP, SNTP and PTP (IEEE1588v2) Grandmaster or Boundary clock that provides secure, accurate and reliable time synchronization to enterprise networks.

Each of the ports are independently addressable and logically isolated allowing multiple Networks to be connected to the same clock without compromising the network security. The addition of multi-level password protection and user access rights, SNMPv3, and built-in NTP amplification attack immunity, makes the NTS 02-G a versatile synchronization solution for a range of critical network applications.

SUPPORTS

- DC IRIG-B (Un-modulated, DCLS)
- C37.118.1, AFNOR NF S87-500 Extensions
- User defined pulses (including 1 PPS)
- DCF77 Simulation
- PTP (Supports Power Profile - C37.238, and Telecom Slave Profile ITU G. 8265.1)
- NTP/ SNTP
- SNMP v1, v2c & v3
- PTP (IEEE 1588v2)

KEY FEATURES

- References GPS & GLONASS networks
- Isolated power supply
- 3 independent RJ45 Ethernet ports
- NTP/SNTP
- PTP (IEEE 1588v2) Master/Slave function
- UTC and LST with user defined DST
- Remote configuration over Ethernet
- Remote firmware upgrades
- Configuration encryption and security
- Enhanced security and encryption that exceeds NERC CIP requirements

PHYSICAL

- Dimensions: 160 mm x 155 mm x 40 mm (W x D x H)
- Weight: 0.8 kg
- 1U 19" rack mount bracket accessory included
- IP40 (Ingress Protection rating)

FRONT PANEL

- 2-line x 16 character FSTN LCD display
- 2 LEDs indicating multiple statuses, including:
- Sync Status
- Antenna cable fault
- Satellite acquisition mode
- Display mode button
- USB configuration port (Type B)

GNSS RECEIVER

- L1, C/A code, 32 Channel Parallel-tracking receiver

Frequency:	1598 MHz
Sensitivity:	
Acquisition	-155 dBm
Tracking	-160 dBm

OSCILLATOR - TCXO

Holdover characteristics operating at 25 °C
- TCXO 1PPS drifts 0.55 ms over a 24 hour period
- Drift rate: 7 ppb per second

INPUTS AND OUTPUTS

- 3 x RJ45 10/100 BASE-T Ethernet UTP connectors
(ST multi-mode fiber 100 BASE-FX Ethernet
available on Eth2 & Eth3)
- Timing accuracy: <100 ns to UTC (NTP/SNTP/PTP)

Protocols Supported:

General
- DHCP auto-configuration with fallback to ARP
tested link-local address
- VLAN packet tagging
- Auto-MDIX
- Auto-negotiate

NTP
- Stratum-1 NTP & SNTP time server
- Multicast & Broadcast server capability
- Optional MD5 authentication

PTP (IEEE 1588v2)
- One or Two Step operation
- End-to-End or Peer-to-Peer delay calculations
- Layer 2 (Ethernet) or Layer 3 (UDP) transport
- Slave only mode
- Default Profile support
- Power Profile support (C37.238)
- Telecom Profile support (Slave only - ITU G. 8265.1)
- C37.238 TLV supported
- Alternate Time Offset TLV supported with automatic or
manual offset
- C37.238 SNMP MIB supported

SNMP
- v1, v2c & v3 support can be independently enabled
- Configurable v1, v2c community names &
security groups
- Fully configurable via SNMP
- v3 User-based Security Module (USM) support
- USM authentication methods: MD5, SHA
- USM privacy methods: DES, AES
- USM MIB support

Notifications
- SNMP trap generation v1, v2c & v3
- SNMPv3 traps can be authenticated & privatised
via USM
- Syslog (RFC-3164 & 5424 varieties)

Plus:
- 1 x IRIG-B input

Signals:	
- DC IRIG-B (Un-modulated, DCLS)- Extensions C37.118.1	
Characteristics:	RS422
	- 7 V to +12 V (common mode range)
	1/8 unit load (150 k Ω)
	Built in 120 Ω for optional termination
	ESD protection
	IEC 61000-4-2

Plus:
- 1 x Configurable output
- DC IRIG-B (Un-modulated, DCLS)- Extensions C37.118.1,
AFNOR NF S87-500
- User defined pulses (1 to 1000 PPS)
- DCF77 simulation
- Timing accuracy <100 ns of UTC

Characteristics:	RS422
	Can drive upto 50 unit loads
	Open circuit: ±3.3 V
	Loaded: ±1V @ 80 mA
	ESD protection
	IEC 61000-4-2

Plus:
- 2 x Configurable Relay Outputs, NO contacts.

Relay outputs:	2 x Normally Open,
	Solid State Relays
	ESD protection ITU K.20/21
	Contact rating: 275 VDC, 100 mA
	Contact protection:
	275 VDC, 0.5A (fused)

CONFIGURATION SOFTWARE

Windows-based configuration software is available for download on *www.tekron.com.*
Remote configuration over Ethernet includes the following user adjustable features:
- Multi-level access control
- Privacy & authentication methods equivalent to SNMP USM
- "Supervisor-mode" prevents non-approved changes
- Test mode
- Commissioning tool

Timing & Synchronization
Worldwide daylight savings and local time configuration using either rule based or fixed date methods. Options that allow equipment checks prior to full installation and adjustable hold-over times to increase reliability in the case of poor GPS coverage. Adjustments to compensate for installation parameters such as delay of GPS signal through antenna cable.

Mounted on a 19" 1U bracket

OPTIONAL ACCESSORIES

Physical
- GNSS antenna
- Antenna cable
- Adjustable antenna mount
- Lightning protection kit

Refer to www.tekron.com for more technical specifications.

ENVIRONMENT AND ELECTRICAL

Power supply: L = 14 - 36 VDC (3 pin)
                        M = 20 - 75 VDC (3 pin)
                        H= 85 - 265 VAC/ 90-300 VDC (3 pin)
Power Rating: 4W max (copper)
Operating Temperature: -10°C to +65°C
Humidity: 10 to 95% RH (non condensing)

Back View

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.

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because timing is everything

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