The NTS 03-G+ is a fully customizable satellite reference clock. It meets the demanding precision and reliability requirements of the Power, Telecommunications and Enterprise sectors.

Key Features

- References GPS and GLONASS networks
- Multi-level password protection
- Isolated singular or dual power supplies
- High power line drivers
- Low noise characteristics due to balanced pair distribution
- UTC and LST with user defined DST options
- Master/Slave function
- Up to 9 outputs
- Supports IEC61850
- Enhanced Security and encryption that exceed NERC CIP requirements
- Remote configuration and firmware upgrades
- OCXO/Atomic options

Multiple Ethernet ports support advanced PTP and NTP time synchronization solutions, while the high drive IRIG-B option delivers legacy device interoperability. This ruggedized platform brings ultimate reliability through Rubidium and OCXO oscillator options, and time sync redundancy through Parallel Redundancy Protocol (PRP) support.

Enhanced security is delivered through fully encrypted and authenticated configuration access. Multiple user accounts are supported with configurable access control. Independently addressable and logically isolated Ethernet ports allow multiple networks to be connected to the same clock without compromising the network security. SNMPv3 and built-in NTP amplification attack immunity coupled with IRIG-B and PTP support makes the NTS 03-G Plus a versatile synchronization solution.

Supports

- DC IRIG-B or Modified Manchester
- Fiber IRIG-B
- AM IRIG-B (Modulated)
- IEEE C37.118.1 extensions
- User defined pulses (including 1PPS)
- 100BASEFX Fiber (62.5/125 µm, λ 1300 nm)
- PTP (IEEE 1588v2) – from IEEE 61850
- NTP/SNTP
- SNMP v1, v2c, v3

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2019
Physical
- 19" rack mount 1U high
- (W) 430 mm x (D) 270 mm x (H) 45 mm
- 2.0 kg
- IP40 (Ingress Protection rating)

Front Panel
2 line x 16 character FSTN LCD display and two 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, GPS and GLONASS

Sensitivity:
Acquisition: -155 dBm
Tracking: -160 dBm

Oscillator Options
Select your holdover needs:

TCXO (25°C)
±100 μs/4 hours (24 hours aging)
<±0.6 ms/24 hours (24 hours aging)

OCXO (25°C)*
±5 μs/8 hours (48 hours aging)
±10 μs/18 hours (48 hours aging)
±10 μs/24 hours (7 days aging)
*not compatible with Fiber Ethernet on 4 or 6 port options

Rubidium (25°C)
±1 μs/24 hours (7 days aging)
±3 μs/72 hours (7 days aging)
±10 μs/7 days (7 days aging)

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

PTP (IEEE 1588v2)
- One or Two Step operation
- End-to-End, Peer-to-Peer or manual 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)
- Telecom Profile support (Master/Slave - ITU G. 8275.1)
- C37.238 TLV supported
- Alternate Time Offset TLV supported with automatic or manual offset
- C37.238 SNMP MIB supported

NTP
- Stratum-1 NTP & SNTP time server
- Multicast & Broadcast server capability
- Optional MD5 authentication
- Supports NTP v1, v2, v3, v4

PRP
- IEC 62439-3 (2016)
- Redundant Master Clock
- Fast failover slave
- Supports up to two PRP pairs
- PTP (IEEE 1588v2) Default & Power Profiles
- NTP not available over PRP

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)

Optional Accessories
Physical
- GNSS antenna
- Antenna cable
- Adjustable antenna mount
- Lightning protection kit
- BNC-2PIN adapter

Environment and Electrical
Power Supply
- M = 20 - 75 VDC (2 pin)
- H = 90 - 300 VDC (2 pin)
- I = 85 - 250 VAC (IEC 320 inlet)

Power Rating
12W - 28W max (depending on order options)

Operating Temperature
- -10°C to +65°C
- -10°C to +65°C (Rubidium)

Humidity
10 to 95% RH (non-condensing)

3 Port Option
3x Network Time Server Ports

Characteristics
- Copper: RJ45 10/100 BASE-T Ethernet
- Fiber: ST multi-mode fiber 100 BASE-FX Ethernet (available on Eth2 or Eth3)
- Timing Accuracy: <100 ns to UTC (NTP/SNTP/PTP)
- PRP: 1 pair (Eth2 with Eth3)

Plus
- 1x IRIG-B Input: DC IRIG-B (Un-modulated, DCLS)
- Signals: Extensions C37.118.1

Characteristics
RS422:
-7V to +12V (common mode range)
1/8 unit load (150 kΩ)
Built in 120 Ω for optional termination

Plus
1 x Programmable output
Signals:
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 up to 50 unit loads
Open circuit: ±3.3 V
Loaded: ±1V @ 80 mA

Plus
4x Alarm Relay Outputs
- Alarm Types: Antenna, Sync, Power A and Power B
- Relay outputs: Normally Open (Form A)
  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 the Tekron website. 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 GNSS coverage. Adjustments to compensate for installation parameters such as delay of GNSS signal through antenna cable.

Contact Us

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Note:
The quickest and most effective method to request a quote is through the online quote request form on the Tekron website.

6 Port Option

3x additional Network Time Server Ports

**Characteristics**

- **Copper:** RJ45 10/100 BASE-T Ethernet
- **Fiber:** ST multi-mode fiber 100 BASE-FX Ethernet (available on Eth2 to Eth6)
- **Timing Accuracy:** <100 ns to UTC (NTP/SNTP/PTP)
- **PRP:** 2 pair (Eth2 with Eth3 & Eth5 with Eth6)

4 Port + IRIG Option

1x additional Network Time Server Port

**Characteristics**

- **Copper:** RJ45 10/100 BASE-T Ethernet
- **Fiber:** ST multi-mode fiber 100 BASE-FX Ethernet (available on Eth2 to Eth4)
- **Timing Accuracy:** <100 ns to UTC (NTP/SNTP/PTP)
- **PRP:** 1 pair (Eth2 with Eth3)

**Plus**

4x Programmable output

**Signals:** 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**

- **BNC:** 5V TTL, 150 mA (with current sense)
- **ST Fiber:** TX (62.5/125 µm, λ 820 nm), compatible with multi-mode fiber

**Plus**

2x Programmable output

**Signals:** DC IRIG-B (Un-modulated, DCLS)
- Selectable AM IRIG-B (Modulated)
- Extensions C37.118.1, AFNOR NF S87-500
- User defined pulses (1 to 1000 PPS)
- DCF77 simulation