



TTM 01-G

The TTM 01-G is a reliable and accurate GPS and GLONASS clock with sub-microsecond timing that is used to synchronize Intelligent Electronic Devices (IEDs) in the power industry and other industries where precise and reliable timing is required.

As with all Tekron clocks, the TTM 01-G has electrically isolated outputs, providing an extra layer of protection to all IEDs attached to it.

KEY FEATURES

- Supports GPS and GLONASS
- Independently isolated outputs
- Isolated power supply
- High power line drivers
- Low noise characteristics due to balanced pair distribution
- UTC and LST with user defined DST options
- Remote configuration
- Configuration Security

SUPPORTS

- DC IRIG-B (Un-modulated, DCLS)
- AM IRIG-B (Modulated)
- Serial Strings
- User defined pulses
- Modified Manchester
- NTP/ SNTP (IEC 61850)
- PTP (IEEE 1588 v2)
- DCF77
- Fiber output option

PHYSICAL

- UL94-V0 polycarbonate flame retardant DIN-rail mount case with IP40 (Ingress Protection rating).
- (W) 72 mm x (D) 60 mm x (H) 90 mm, 0.2 Kg
- Rising clamp terminals: Wire size (max): 1.5 mm Ø

LED INDICATORS

Two LEDs indicating multiple statuses:

- Sync Status
- Antenna/ cable fault
- Satellite acquisition mode

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 degrees C;

- TCXO 1PPS drifts 0.55 ms over a 24 hour period.
- Drift rate: 7 ppb per second

STANDARD OUTPUTS

TTL

1 x TTL programmable output, 0-5v, 150 mA, 2-pin

Fiber

1 x Fiber programmable output, 62.5/ 125 µm, λ 820 nm, compatible with multi-mode fiber.

ADDITIONAL OUTPUTS

In addition to the standard output, one of the following output options are also available for the TTM 01-G:

TTL

1 x TTL Programmable output, 0-5v, 150 mA, 2-pin or

AM IRIG-B

1 x AM IRIG-B output, 9 Vpp, 120 ohm, 2-pin or

Serial Strings

1 x RS232 Level serial strings output or

HV MOSFET

1 x HV MOSFET programmable output, 0-300 V, 1A

ETHERNET OUTPUT

1 x RJ45 10/100 Ethernet UTP connector

Or

1 x ST multi-mode fiber Ethernet available

Protocols Supported:

ARP, UDP, ICMP, TFTP, DHCP, SNMP v1, v2c, v3

General

DHCP auto-configuration with fallback to ARP tested link-local address

VLAN packet tagging

NTP

Stratum-1 NTP & SNTP time server

Multicast & Broadcast server capability

Optional MD5 authentication

Timing accuracy: <100 ns to UTC

SNMP

v1, v2c & v3 support can be independently enabled

Configurable v1, v2c community names and securitygroups

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 & privatized via USM

Syslog (RFC-3164 & 5424 verities)

IEEE 1588 v2 support (PTP)

As per Ethernet Output section plus:-

PTP (IEEE1588) v2 operation

GrandMaster (GNSS) or ordinary clock functions

Profile selection:

- Default

- C37.238 Power Profile (full support)

- Telecom Profile (slave only)

1-step tx, 1-step/ 2-step rx

Layer 2 or Layer 3 mapping

Peer to Peer and End to End delay support

Typical timing accuracy (single sub-net) <100 ns

ENVIRONMENTAL AND ELECTRICAL

Power supply:

L = 14-36 Vdc
M = 20-75 Vdc
H = 90-300 Vdc

Power Drain:

4 W max

Operating temperature:

-10 to +65°C

Humidity:

To 95% non-condensing

Isolation

Power to Antenna: 1 kV

Power to I/O: 3.5 kV

Between TTL outputs: 2.5 kV

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.

Programmable Outputs

IRIG-B (B00x / B22x) time code with selectable

C37.118.1 and AFNOR S87-500 extensions

DCF77 time code 1 kHz square wave

User defined pulse sequences:

Repetition rates from 20 ms to 24 hours

Offsets and durations from 10 ms to 24 hours

Resolution is 10ms; timing accuracy is 100 ns

Serial Strings

NMEA-0183 ZDA

NMEA-0183 RMC

IRIG J-17

Tekron A - G (Seven protocols for plug and play compatibility with a wide range of equipment).

OPTIONAL ACCESSORIES

Physical

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

Refer to tekron.com for full technical specifications.



ABOUT TEKRON

Tekron is a leading developer of accurate GPS/GLONASS clocks and time synchronisation solutions for use in industrial applications.



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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.