



# Tekron Time Code Generator TTM 01

## A reliable and accurate GPS clock

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

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



## About Tekron

Tekron International is a leading developer of exceedingly accurate GPS clocks and time synchronization solutions for use in industrial applications.

Tekron GPS clocks are simple to install and use and are extremely rugged, attributes that are a prerequisite in the often extreme environments in which the clocks are installed.

Tekron GPS clocks have been installed in thousands of power stations & substations across the globe, where they prove invaluable in assisting power companies to operate efficiently, minimizing downtime and increasing the accuracy of control decisions.

With a Tekron GPS clock you can be confident that you can set it up and walk away.

## Features

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

## Supports

DC IRIG-B (Un-modulated, DCLS)

AM IRIG-B (Modulated)

Serial Strings

User defined pulses

Modified Manchester

DCF77

IEEE 1344

AFNOR S87-500

## Physical

UL94-V0 polycarbonate flame retardant din rail mount case with IP20 (Ingress Protection rating).

Dimensions: (W) 55mm x (D) 60mm x (H) 90mm

Weight: 0.15 Kg

## LED Indicators

Two LEDs indicating multiple Statuses:

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

## GPS Receiver

12 Channels

Frequency: 1575.42Mhz

Pulse accuracy: 15ns

## Antenna

### Physical

Conical shaped polycarbonate durable shell which minimizes snow and dust buildup.

Dimensions: 98mm tall  
90mm diameter

Weight: 200g

### Specifications

Bandwidth: 1575.42Mhz  $\pm$  1.023MHz

Attenuation: 60dB (typical) at  
1525/1625 MHz

Gain: 38dB  
5V +/- 0.5V (27mA max)

Operating temp : -40 – 85C

### Antenna Cable

LMR240 ultra-flex low loss, high shielding antenna cable

## Inputs & Outputs

### Serial Version

1 x Serial strings output

1 x Time code or pulse output

Electrical specification: +/- 9v RS232 levels.

Timing accuracy: <1.5us to UTC

1 x Sync indication output

### TTL Version

2 x TTL Outputs: Time codes & pulses

Electrical specification: TTL/CMOS compatible,  
0-5v 150mA sink/source

Timing accuracy: <200ns to UTC

1 x Sync indication output

### AM IRIG-B Version

1 x AM-IRIG\_B12x

Electrical specification: 9vpk-pk, 120 ohms impedance

Timing accuracy: <2us to UTC

1 x Sync indication output

## Options

### Lightning protection kit

Polyphaser DGXZ+06NFNF-A Impulse Suppressor multi-strike weather proofed low throughput energy lightning arrester kit.

### In-line amplifier kit

The LA-21-1575-100N In-line amplifier is available for extending cable runs.

### Antenna Mounting Bracket

Adjustable 500mm mounting bracket.

## Configuration software

Windows based configuration software is supplied on CD and is also available to be downloaded from the Tekron website. User adjustable options include:

### 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.

### Programmable Outputs

IRIG-B (B00x / B22x) time code with selectable IEEE1344 and AFNOR S87-500 extensions

DCF77 time code

User defined pulse sequences:

Repetition rates from 20ms to 24 hours

Offsets and durations from 10ms to 24 hours.

Resolution is 10ms; timing accuracy is 100ns.

### Serial Strings

NMEA-0183 ZDA

NMEA-0183 RMC

IRIG J-17

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

## Environmental & Electrical

Power supply: L = 12-36Vdc  
M = 20-72Vdc  
H = 90-300Vdc  
240Vac-24Vdc GPO plug pack

Power Drain: 3W max

Operating temperature: -10°C to +65°C

Humidity: To 95% non-condensing

### Isolation

Power to Antenna: 1kV

Power to I/O: 3.5kV

Between TTL outputs  
A + B: 5kV

## Request a quote

Web: [www.tekroninternational.com](http://www.tekroninternational.com)

Phone: +64 4 566 7722

Fax: +64 4 569 9272

Email: [information@tekroninternational.com](mailto:information@tekroninternational.com)

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