

### Portable Precision

- **Accurate time and frequency** due to calibration via GPS and high quality internal oscillator
- **Unique oscillator attitude** sensing and compensation for optimal frequency stability
- **Rugged design and construction** for use in all industries and environments
- **Battery powered** for "go anywhere" use
- **Low power consumption** for up to 8 hours battery life between recharges
- **Compact and light-weight**



The 7370 Portable Frequency Standard gives precise frequency and time signals in all situations where conventional laboratory instrumentation cannot be used.

### Innovative Portable Precision

The 7370 is a cost effective and fully portable GPS Synchronised Time & Frequency Standard, which will continue to operate for up to 8 hours without the connection of its GPS and power.

The instrument has fully automatic battery recharging and oscillator calibration overnight, using optional fixed antenna, or while travelling (via in-car charger lead and magnetic base GPS antenna).

The 7370 retains accurate time and frequency during long periods of field use, due to calibration via GPS and high quality internal oscillator. When there is no connection to GPS and power, the frequency error will remain within  $<4 \cdot 10^{-10}$  and timing error  $<6 \mu\text{s}$ . With the GPS and power re-connected, the instrument will automatically re-charge and re-synchronize to GPS, and maintain accuracy (ref USNO) of  $\pm 5 \cdot 10^{-11}$ . The frequency standard will remain at this level of performance all the while, while it remains connected to its power supply (mains or vehicle) and GPS-antenna.

The 7370 has also LED and audible warning of low batteries or approaching calibration limit, which assures that all use is within guaranteed levels.

Designed originally as a calibration instrument for use in remote rural regions of the world, the 7370 lends itself to many other varied applications where portable precision is a must. The instrument will operate either in fixed or mobile applications and is supplied with an in-car battery charger and car top magnetic GPS patch antenna. It weighs just 2.6 kg, and is very compact.

The frequency standard offers basic outputs of 1 PPS, 10 MHz and 5 MHz.

### Military Version

There is also a military version of the instrument, see picture below, which shows a TFRU, the time and frequency standard, plus a TFSU, the distribution unit.

These instruments are very suitable for man pack and vehicles (AV mounts).



# 7370 Technical Specifications

## 7370 Frequency Stability

### Locked to GPS

*Oscillator type:* 10 MHz SC-cut Quartz OCXO  
*Calibration:* Built-in self-calibration software  
active when GPS is connected; time-to-calibrate approx. 2 hours  
from a warm start

*Accuracy following calibration:*

*These are ongoing performance levels during continuous GPS reception at quasi-constant temperature*

#### Frequency Accuracy after calibration:

better than  $\pm 5 \cdot 10^{-11}$ , ref USNO

#### Timing (1 Hz) after calibration:

better than  $\pm 300$  nanosec ref UTC(GPS)

### Hold-over

*Stand-alone (holdover) performance without GPS:*

10 MHz Frequency Drift (due to ageing, attitude, temperature)

$< 4 \cdot 10^{-10}$  per 8 hour run

Timing error after 8 hours  $< 6$  microsec ref UTC (GPS)

## Inputs and Outputs

### Outputs

1 x 10 MHz (sine) output, +10dBm, 50ohm, BNC

1 x 5 MHz (sine) output, +10dBm, 50ohm, BNC

1 x Timing, 1Hz, UTC aligned, (TTL), output, 50ohm, BNC

#### Rear panel inputs/outputs:

1 x d.c. power input, 7 way DIN conn.

1 x Control and Monitoring port, 'D' conn. 9-way skt. RS232, standard [2,3,5] pin out.

[ RS422 signalling on separate pins may be selected via internal circuit jumper link ]

1 x GPS antenna r.f. input (+ d.c. out to Antenna), N-type connector

## Front Panel Indicators

External dc-power ON (amber)

Internal battery power ON (red)

Calibration OK (green)

Calibration timeout (amber)

GPS status (green)

Fault alarm status (BIT) (red)

## GPS Receiver

*GPS Receiver:* 12-Channel, timing oriented, with self-survey, position-hold and TRAIM

## Power Supply

*Universal AC adapter:*

100V to 250V for world-wide use

*or Internal battery:*

Giving support times of up to 8 hours

Recharge time 12 hours approx

*or External DC supply:*

Voltage range 10.5V to 16.5V

Cable supplied, fitted with vehicle cigarette-lighter plug

## Environmental

### Operating temperature range:

0 °C to +40 °C ambient.

### Weight (excluding cables and antenna):

2.6 kg approx

### Size:

Height 49 mm (1.9")

Width 215 mm (8.5") incl. fold-flat handle

Depth 365 mm (14.4") incl. panel components

## Ordering Information

**7370:** Portable Calibration unit

### Included with Shipment

1x AC power adapter

1x AC power input cable

1x DC power input cable

1x User Manual

### Options

Option 01/10: 1 x marine type outdoor GPS antenna

Option 02/20: Antenna downlead (length 20m, assembled, c/w connectors)

Option 02/50: Antenna downlead (length 50m, assembled, c/w connectors).

Option 01/50: Antenna Mounting Hardware Kit (Mast, wall brackets etc.)

Option 01/20: Magnetic-mount GPS antenna, 3m integral cable, N-type

Option 03/00: Serial RS232 port cable, to PC/Laptop, 3m

### Other options

Option 95/03: Extended warranty to 3 years  
(instead of 18 months)

Option 95/05: Extended warranty to 5 years  
(instead of 18 months)

*Specifications subject to change without notice*

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- Experts in time & frequency calibration, measurement and analysis

Pendulum Instruments is a company of the Orolia Group