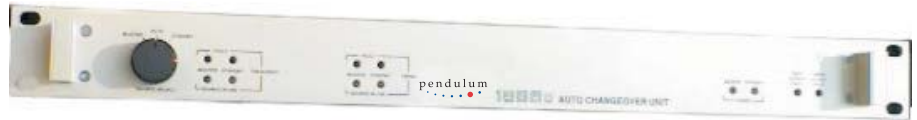


### Safe and Precise Distribution

- **High-quality and low-noise** signal distribution
- **Automatic change-over** for redundancy switching and frequency source backup
- **Dual power supply** will operate from AC or DC input, for redundancy and power supply backup
- **Un-interrupted safe operation**
- Model 1870: **14 frequency reference outputs**
- Model 1880: **10 frequency reference plus 10 timing outputs**
- **Ideal for rack mounting**, only 1U high



The 1870 and 1880 are high-performance and low phase-noise frequency distribution units for affordable point-to-multipoint distribution of reference frequencies. Via the auto changeover option they provide 100% foolproof uninterrupted frequency and timing sourcing in critical applications like broadcasting.

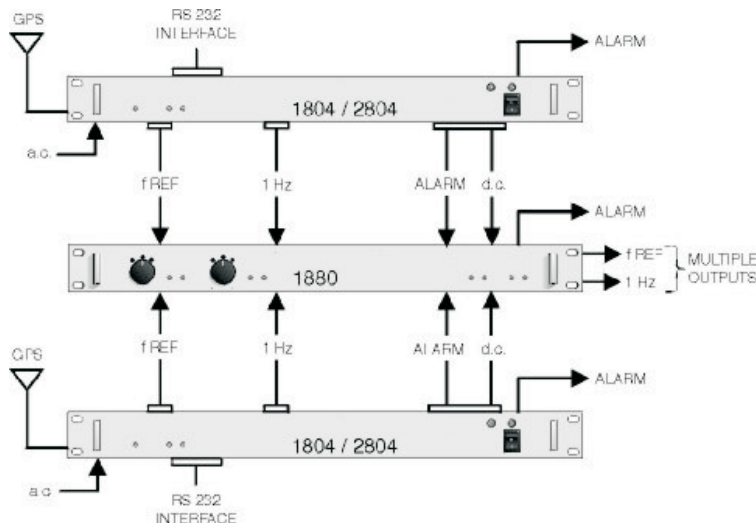
### Overview

Model 1870 and 1880 are low-phase-noise distribution amplifiers for reference frequency and 1-pps timing distribution.

They can be equipped with an automatic option to facilitate safe, continuous un-interrupted operation of critical applications like satellite ground station synchronization and digital broadcasting.

When used with two of the Pendulum Instruments frequency standards model 1804 or 2804, the 1870/1880 forms a reference frequency and timing system that offer fully redundant operation and automatic reconfiguration in the event of a fault.

The figure below illustrates such a fully redundant system, featuring both frequency source and power supply redundancy:



Each output is individually buffered, and individually monitored for signal failure.

In Automatic mode the switchover will occur on loss or significant degradation of input signal level, and (optionally) if there is an alarm from the Pendulum model 1804 or 2804 source-in-use.

Common switching channels are provided for Timing and Frequency signals; that operate together in the event of a changeover.

Interconnection cable sets are available for order with the 1870 and 1880 units for use with the unit mounted between a pair of 1804 or 2804 sources in adjacent rack locations

# Model 1870 and Model 1880 Technical Specifications

## Standard Outputs 1870

### 14x sine (BNC) at input frequency

Output level: +10 dBm (0.7V<sub>rms</sub>) in 50 Ω

### 1 x Alarm output (BNC)

Signal coding: closed contact - normal  
open contact - alarm

Alarm condition: Output level / loss of signal  
Input level / loss of signal  
Alarm input (from 1804/2804)

## Standard Inputs 1870

### 1 x sine (BNC) 1 MHz to 10 MHz

Input level: -7 to +13 dBm (0.1 to 1V<sub>rms</sub>) in 50 Ω

### 1 x 24V DC input + Alarm input (prof DIN8)

Signals: +24V, 0V, Alarm (TTL levels from  
model 1804 or 2804)

### 1 x AC mains input

## Standard Outputs 1880

### 10x sine (BNC) at input frequency

Output level: +10 dBm (0.7V<sub>rms</sub>) in 50 Ω

### 10x 1-pps (BNC)

Output level: Approx 0V to 2.0V in 50 Ω load

Accuracy - uncalibrated (ref UTC-USNO):

<± 300 ns

Jitter: <50 ns rms

### 1x Alarm output (BNC)

Signal coding: closed contact - normal  
open contact - alarm

Alarm condition: Output level / loss of signal  
Input level / loss of signal  
Alarm input (from 1804/2804)

## Standard Inputs 1880

### 1x sine (BNC) 1 MHz to 10 MHz

Input level: -7 to +13 dBm (0.1 to 1V<sub>rms</sub>) in 50 Ω

### 1x 1-pps (BNC)

Input level: Approx 0V to 2.0V in 50 Ω load

### 1 x 24V DC input + Alarm input (prof DIN8)

Signals: +24V, 0V, Alarm (TTL levels from  
model 1804 or 2804)

### 1 x AC mains input

## Auto Changeover Switch (option 16)

Master and Slave Frequency sources are connected to 2 sets of input connectors. Automatic switchover to Slave in case of Master fault

No of inputs: 1870: 2x 10 MHz

1880: 2x 10 MHz plus 2x 1-pps

Output source: Manually selectable or automatic

Automatic: Master input source is used until the 1870 or 1880 recognizes an Alarm condition, whereafter the Slave source is switched in

## Power Supply

AC mains: 100, 115 or 230V nominal, switch selectable, +/-10%, (45 to 66 Hz)

Ext. DC supply: 18V to 32V from model 1804 or 2804 or from external battery

## General Specifications

### Environmental Data

Operating Temp: 0°C to +50°C

Storage Temp: -40°C to +71°C

Safety: EN 60950, CE

EMC: EN 50081-1, EN50081-2, CE

### Dimensions and Weight

Width x Height x Depth:

483 x 44 x 350 mm (19" x 1¾" x 13¾")

Weight: 4.5 kg

## Ordering Information

1870: Distribution unit: 14x 10 MHz

1880: Distribution unit: 10x 10 MHz, 10x 1-pps

### Included with shipment

Mains cable

User manual on CD

18 months warranty

### Built in options

Option 16: Auto changeover switching

Option 17/02: 2.048 MHz distribution instead of 10 MHz, 75 ohm outputs, output levels according to G.703/10

### Other options

Option 18: Power cable to connect the 24V output from a 1804 or 2804 to the DC power input of 1870/1880

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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### US: Pendulum Instruments Inc

5811 Racine Street; Oakland, CA 94609-1519, USA  
Voice:(510)-428-9488 Fax: (510)-428-9469

### International: Pendulum Instruments AB

PO Box 20020, SE-16102 Bromma, Sweden  
Voice: +46 8 598 51057 Fax:+46 8 598 51040

[www.pendulum-instruments.com](http://www.pendulum-instruments.com)

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