

# Ageless Master Oscillator

Models 8194B



- **Reduce HDTV Adjacent Channel Interference**
- **Calibration Labs, Engineering Labs and Factory Reference**
- **GPS Time RAIM Satellite Error Detection**
- **Zero Calibration Costs**
- **5-Year Limited Warranty**

The patented Spectracom Ageless Master Oscillator is a highly accurate frequency and timing source. Outputs are locked to the U.S. Naval Observatory via the NAVSTAR Global Positioning System (GPS). A Time Receiver Autonomous Integrity Monitor (T-RAIM) algorithm detects and disqualifies faulty satellites to maintain the reliability of system outputs. Spectracom's field-proven Ageless Oscillator technology provides continuous automatic frequency control, compensating for aging and temperature drift.

The Ageless Master Oscillator is ideally suited for use as a site master oscillator for communications systems. Typical applications include calibration, narrow band land mobile radio, paging simulcast, satellite/ microwave communication links, and broadcast radio and television. To support your installation, Spectracom offers ancillary system components, including distribution amplifiers, frequency synthesizers, clock selectors, and clock converters.

**Output Accuracy**

locked:  $\pm 1 \times 10^{-11}$  typical, 24-hour average  
 unlocked:  $\pm 2 \times 10^{-9}$ /week typical aging

**Front Panel****10 MHz:**

One 10 MHz output (BNC Female); 750 mVrms sinewave, 50 ohm impedance 30 dB harmonic suppression.

**1PPS:**

TTL signal (BNC Female), accuracy is  $\pm 500$  nanosecond typical with SA off and in position hold.

**Data Comm Port:**

RS-232 (DB 9 Female) interface for maintenance and performance monitoring.

**Rear Panel****10 MHz:**

Four 10 MHz outputs (BNC Female); 750 mVrms sinewave, 50 ohm impedance 30 dB harmonic suppression.

**Phase Noise at 10 MHz:**

Phase Noise:	Offset:
< -75 dBc	1 Hz
< -115 dBc	10 Hz
< -135 dBc	100 Hz
< -145 dBc	1000 Hz

**Data Clock Outputs:**

Disciplined 1PPS at RS-485 levels (DB 9 Female)

**Alarm Outputs:**

Relay contacts SPDT, 2A @ 30 VDC (terminal strip)

**GPS Antenna:**

L1, C/A Code transmitted at 1575.42 MHz ("N" Type Female)

**Received Frequency:** 1575.42 MHz

**Satellites Tracked:** Up to 12, simultaneous, GPS T-RAIM satellite error management

**Power:**

115/230 VAC  $\pm 15\%$ , 50/60 Hz (3-prong connector, 7' cord included). Maximum power consumption, 20W. Option 02 adds 20W. Option 03 adds 25W.

**Options****Internal Battery Backup:**

Option 02 Internal Battery Backup is available only on 115/230 VAC power. Upon start-up after a power failure of up to 18 hours, oscillator lock time is reduced to 2 hours from 3-4 hours, and the 1PPS outputs are rapidly realigned to GPS.

**Internal Frequency Distribution Amplifier:**

Option 03 converts four 10 MHz outputs to an output amplifier to the equivalent of Model 8140. Provides 10 MHz and +12 VDC to power LineTaps, MultiTaps, and VersaTaps which can also provide frequencies other than 10 MHz. For more information, see Model 8140 data sheet.

**Frequency Outputs:**

Option 07 converts four 10 MHz rear panel outputs and the front panel output to 5 MHz.

**Mounting Slides:**

Option 11 provides mounting slides to enable rack mounting in a 19" rack with slide-out capabilities.

**Power:**

12 VDC; Option 52,  $\pm 13.8$  VDC  $\pm 20\%$  (terminal strip)  
 24 VDC; Option 53,  $\pm 27.6$  VDC  $\pm 20\%$  (terminal strip)  
 48 VDC; Option 54,  $\pm 55.2$  VDC  $\pm 20\%$  (terminal strip)

**Physical & Environmental****Size/Weight:**

EIA 19" W X 3.5" H (2ru) x 12.5" D/20 lbs. max

**Indicators:**

Power, tracking GPS, oscillator locked, minor alarm, major alarm

**Environmental:**

-30° to +60° C (-22° to +140° F) operating range  
 -40° to +85° C (-40° to +185° F) storage range  
 95% R.H. non-condensing

**FCC Information**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

**Ordering Information**

- Specify **Spectracom Model 8194B**, plus:
  - Option 02:** Internal Battery Backup (on 115/230 VAC version only)
  - Option 03:** Internal Frequency Distribution Amplifier
  - Option 07:** 5 MHz Outputs
  - Option 11:** Mounting Slides

For power input other than 115/230 VAC:

**Option 52:** 12 VDC **Option 53:** 24 VDC **Option 54:** 48 VDC

- Specify Antenna and Accessories:
  - GPS Outdoor Antenna, Model 8225 and mounting hardware
  - Antenna Surge Protector, GPS, Model 8226
  - Antenna Preamplifier, Model 8227
  - Antenna Flat Roof Mount, Model 8213
  - Antenna Cable, LMR-400 equivalent, CAL7xxx (xxx=length in feet)

**Warranty:**

5-Year Limited Warranty

<sup>1</sup>The warranty period may be dependent on country.