Maxtek VPLO-6

Vacuum Phase Lock Oscillator

MORE LAYERS, THICKER DEPOSITS, LONGER CRYSTAL LIFE

The VPLO-6 is a high performance phase lock oscillator with many advantages over common non-phase lock oscillators including longer crystal life, a true measure of crystal health, improved rate stability and fault detection.

The most important feature of the VPLO-6 is its ability to work with heavily loaded crystals. Compared to common oscillators, the VPLO-6 will support crystals that are two to ten times more heavily loaded. This simply means that the VPLO will allow for many more layers, thicker deposits, lower crystal usage and longer crystal life.

Another feature of the VPLO-6 is that it provides an accurate measure of the true health of the crystal. The VPLO-6 actually measures the crystal's Quality, or Q, which is predictive of when the crystal will fail. Since common oscillators don't provide this second measurement, most deposition monitors and controllers are forced to display crystal "life" or "health" based only on the crystal's frequency. This method is completely inaccurate with some crystals failing after only a few percent while others last many times longer.

The VPLO-6 improves rate stability especially toward the end of the crystal's life, thanks to the VPLO's automatic capacitance compensation. All crystal installations have inherent capacitance in the cables, feedthrough, sensor and the crystal itself. This capacitance cannot be eliminated, but it can and should be compensated for.

Common oscillators provide a fixed amount of capacitance compensation chosen to match that of a typical installation, however, the actual amount of capacitance varies with each installation. Improper capacitance compensation leads to excessive rate noise and premature crystal failure. The VPLO automatically compensates for this unwanted capacitance each time power is applied so it is optimized for every installation.

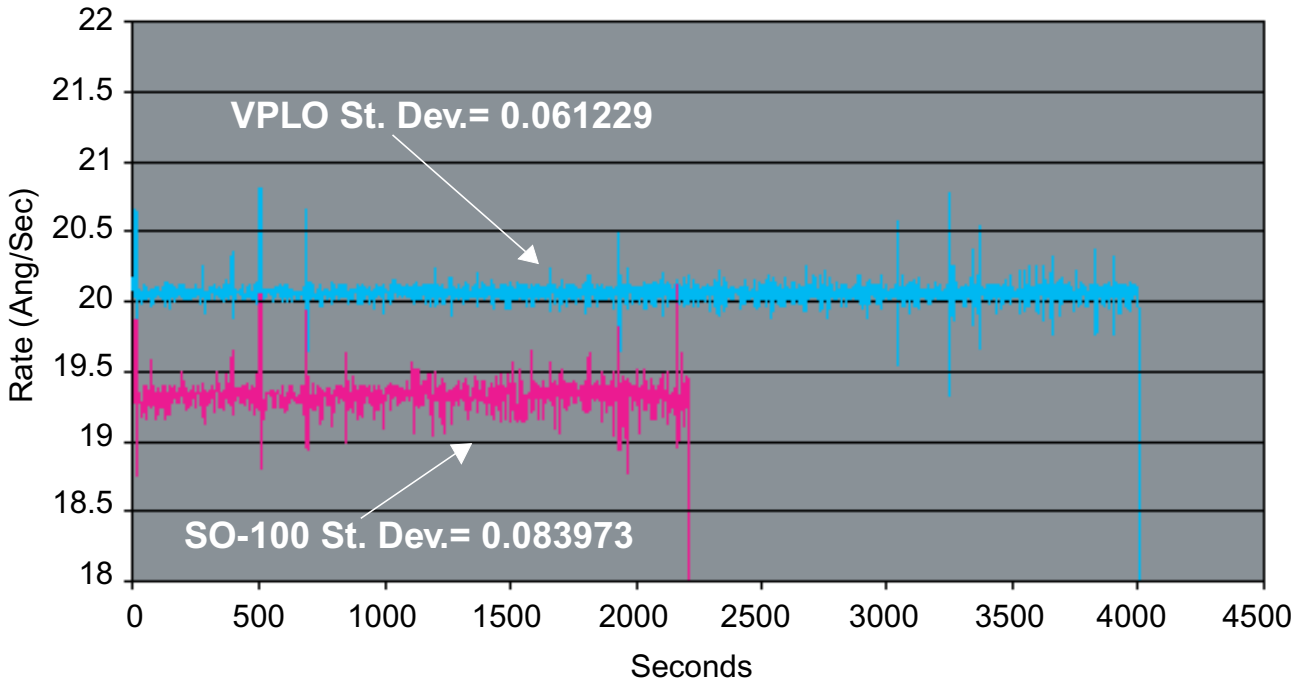
The VPLO-6 incorporates fault detection to help the user identify electrical shorts or open circuits in the sensor head, feedthrough and cables. Upon detection, the VPLO sends a signal to the deposition controller which displays the appropriate error message. This greatly reduces the guesswork in troubleshooting sensor head and cabling problems.

FEATURES AT A GLANCE

- Increased crystal life
- Improved rate stability
- True crystal quality
- Fault detection

Indium (VPLO and SO-100) Rate vs. Time

Rate Stability Improvement = 27.08%
Crystal Life Improvement = 80.4%



SPECIFICATIONS

Frequency Range	3.9 to 6.06 MHz
Crystal resistance range supported	5 ohms to 5 kohms
Capacitance compensation range	20 to 220 pfd
Maximum cable length	7 ft. (from crystal to oscillator)
Operating temperature range	0º to 50ºC
Crystal drive voltage, open circuit	140 mV RMS
Crystal drive source impedance	50 ohms ±1%
Frequency output level	4 Vp-p
Frequency output source impedance	50 ohms
Dimensions in inches	1.6” W x 3.2” H x 4.8” D

NOTE:

Older controllers and monitors do not have the internal circuitry to monitor and display this crystal quality information and cannot provide the power required by the VPLO-6. Check with INFICON to determine whether your current controller or monitor supports the VPLO-6 or can be upgraded to do so.

ORDERING INFORMATION

Model #	Part #	Description
VPLO-6	621205	Vacuum Phase Lock Oscillator
VPLO-6	621201	Vacuum Phase Lock Oscillator with (1) 6” and (1) 10’ BNC cable

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