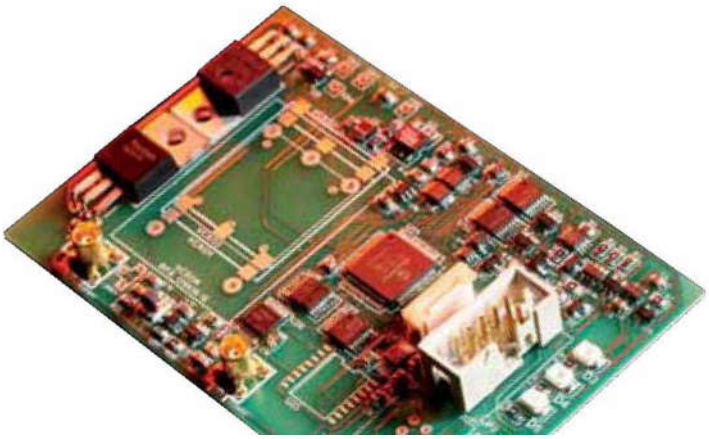
Quartzlock A6-1PPS

OEM 1PPS Timing Module

- Compact form factor
- License available
- Very fast lock to GPS



STOP PRESS Now available as a complete instrument

This is a PCB level product to control an OCXO or Rubidium oscillator from an external 1PPS.
The A6-1PPS uses a 3 state Kalman filter algorithm to measure & correct the frequency offset of the oscillator with respect to the 1PPS input. Time-tagged 1PPS to 200ps resolution & <1ns jitter.

Features

- 1PPS output
- 10MHz output
- Self-calibrating internal clock analogue interpolator
- 1PPS time tag resolution of 200ps
- < 1ns rms jitter

Benefits

- Holdover mode is initiated by failure of the 1PPS input
- Reduced 1PPS jitter
- Fast lock to high accuracy from raw GPS 1PPS

Applications

- Defence timing
- WiMax Base stations
- 3G Base stations (WCDMA, CDMA2000)
- LTE 4G
- Digital video Broadcast
- General Timing and synchronization

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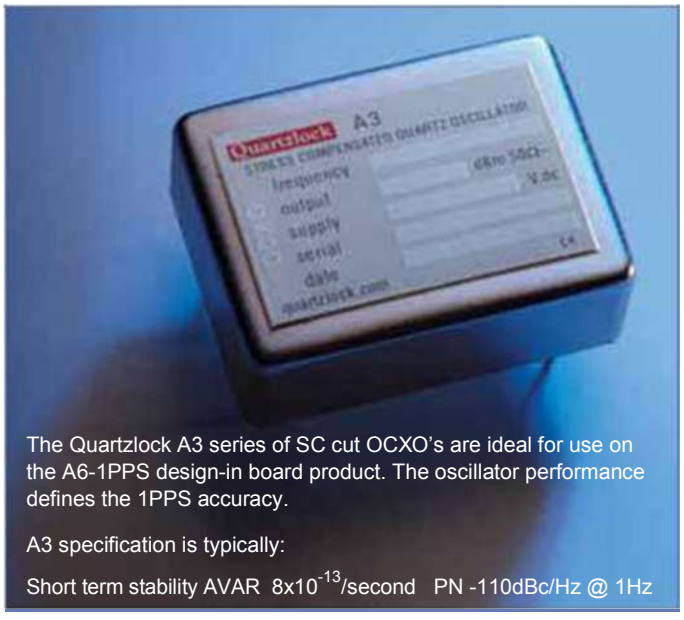
Specification

Frequency	10MHz
Input Level	100mv Pp to 5Vpp (Oscillator off board)
1PPS Input Impedance:	500 Ohms
Output Level	13+/-2 dBm (Oscillator on board)
1PPS Input Level	5V TTL/Cmos positive edge
Width	10us Minimum
Input Impedance	1000 Ohms
1PPS Output Level	5V TTL/Cmos positive edge
Width	10ms
Preset Offset Of 1PPS Output	-500000000 To +499999999 Ns in 1ns Steps
Timing Baseline	Selectable between fixed (minimum jitter) or kalman phase estimate (maximum accuracy)
External Tune Voltage	0 to span, where span is software adjustable between 5.8V and 10V
Lock Indicator	On Not Locked Off Locked, Low Phase Error Short Flash Every Second Locked, High Phase Error
Interface	See separate document
Interface Codes	See separate document
Performance	The control performance depends very much on the quality of the controlled oscillator and the source of the 1PPS synchronizing signal. For these reasons it is difficult to quote absolute performance figures.
Power Supply	14 to 30V (On board OCXO is used) An external OCXO or Rubidium may be used. 12 To 30V (No on-board OCXO)

Specification

The Following Cases Are Typical Controlled Oscillator: Rubidium	
1PPS Source	Passive Hydrogen Maser (Essentially no 1PPS Jitter) Result: Allen Variance 100s $1x10^{-12}$ 1000s $3x10^{-13}$ 10,000s $1x10^{-13}$
Controlled Oscillator: Rubidium	
1PPS Source	Quartzlock E8-Y/E8000 GPS Receiver in Position Hold Mode Result: Allen Variance 100s $1x10^{-12}$ 1000s $1x10^{-12}$ 10,000s $8x10^{-13}$
Current Consumption	150mA Typical (On-board OCXO)
Size	25 x 25 x 5mm (Without OCXO)



The Quartzlock A3 series of SC cut OCXO's are ideal for use on the A6-1PPS design-in board product. The oscillator performance defines the 1PPS accuracy.

A3 specification is typically:

Short term stability AVAR $8x10^{-13}$/second PN -110dBc/Hz @ 1Hz