

Quartzlock

A6

H-Maser
compatible
performance

Frequency Converter



DESCRIPTION

The Quartzlock model A6 Frequency Converter precisely changes either 5 or 10MHz sinewave signals to a number of other frequencies from 1Hz and 1pps upwards to other standard frequencies.

FEATURES

A5 design criteria for stability and low noise
All outputs synchronised

A5...4 output OEM Modules provide multiple outputs of input frequency
24Vdc or 90...240Vac operation
1 Hz / 1pps sync input

BENEFITS

Hydrogen Maser 5MHz output conversion to 100kHz, 1MHz, 10MHz & 2048kHz Telecomms Outputs
Rubidium, GPS, OAS, Quartz or Tracking RX 10MHz outputs converted to 1Hz, 1pps, 0.1MHz and 5MHz (2048kHz option)
Input signal characteristics closely monitored

APPLICATIONS

National Standards Laboratories
Calibration Laboratories
Standards Laboratories
Observatories
Research
Production test and development

STANDARD SPECIFICATIONS

Inputs:	a/ 5MHz sine wave, 10dBm nom into 50 ohms nom. b/ 1pps, pulse width 10 to 20us, rise time <30ns>2.5Vpeak																																																																																																										
Outputs:	a/ 1 off 10MHz sine wave b/ 3 off 5MHz sine wave c/ 1 off 1 MHz sine wave d/ 1 off 100kHz sine wave e/ 2 off 10 Mhz square wave, complementary outputs f/ 2 off 5MHz square wave, complementary outputs g/ 2 off 1 MHz square wave, complementary outputs h/ 2 off 100kHz square wave, complementary outputs																																																																																																										
Input characteristics:	a/ Sine wave impedance: 50 Ohm nominal Level: 5 dB to + 13 dBm adjustable Input SWR: <1.2:1 b/ Pulse TTL/CMOS compatible																																																																																																										
Output Characteristics:	a/ Sine wave: impedance: 50 Ohm nominal Level: 13dBm nominal into 50 ohms (1 volt RMS) b/ Square wave: unipolar (CMOS/TTL logic) impedance: 50 ohms internally terminated High Level: 5V +/-0.2V into open circuit 2.4V min into 50 ohms rise/fall times <1.5 ns overshoot/ringing<15%																																																																																																										
Harmonics & spurious outputs (sine wave outputs): (Source harmonics <-60dBc)	<table border="0"> <tr><td>a/ 5MHz outputs</td><td></td><td></td></tr> <tr><td> second harmonic</td><td>< -50dBc</td><td></td></tr> <tr><td> third harmonic</td><td>< -40dBc</td><td></td></tr> <tr><td> spurious outputs</td><td>< -75dBc</td><td></td></tr> <tr><td>b/ 10 MHz output</td><td></td><td></td></tr> <tr><td> second harmonic</td><td>< -50dBc</td><td></td></tr> <tr><td> third harmonic</td><td>< -40dBc</td><td></td></tr> <tr><td> subharmonics</td><td>< -75dBc</td><td></td></tr> <tr><td> spurious outputs</td><td>< -75dBc</td><td></td></tr> <tr><td>c/ 1MHz output</td><td></td><td></td></tr> <tr><td> second harmonic</td><td>< -50dBc</td><td></td></tr> <tr><td> third harmonic</td><td>< -40dBc</td><td></td></tr> <tr><td> spurious outputs</td><td>< -65dBc</td><td></td></tr> <tr><td>d/ 100kHz output</td><td></td><td></td></tr> <tr><td> second harmonic</td><td>< -40dBc</td><td></td></tr> <tr><td> third harmonic</td><td>< -50dBc</td><td></td></tr> <tr><td> spurious outputs</td><td>< -75dBc</td><td></td></tr> </table>	a/ 5MHz outputs			second harmonic	< -50dBc		third harmonic	< -40dBc		spurious outputs	< -75dBc		b/ 10 MHz output			second harmonic	< -50dBc		third harmonic	< -40dBc		subharmonics	< -75dBc		spurious outputs	< -75dBc		c/ 1MHz output			second harmonic	< -50dBc		third harmonic	< -40dBc		spurious outputs	< -65dBc		d/ 100kHz output			second harmonic	< -40dBc		third harmonic	< -50dBc		spurious outputs	< -75dBc		<table border="0"> <tr><td>Option 005 - tuned output amplifiers</td><td></td><td></td></tr> <tr><td>a/ 5MHz outputs</td><td></td><td></td></tr> <tr><td> second harmonic</td><td>< -75dBc</td><td></td></tr> <tr><td> third harmonic</td><td>< -60dBc</td><td></td></tr> <tr><td> spurious outputs</td><td>< -75dBc</td><td></td></tr> <tr><td>b/ 10 MHz output</td><td></td><td></td></tr> <tr><td> second harmonic</td><td>< -75dBc</td><td></td></tr> <tr><td> third harmonic</td><td>< -60dBc</td><td></td></tr> <tr><td> subharmonics</td><td>< -75dBc</td><td></td></tr> <tr><td> spurious outputs</td><td>< -75dBc</td><td></td></tr> <tr><td>c/ 1MHz output</td><td></td><td></td></tr> <tr><td> second harmonic</td><td>< -60dBc</td><td></td></tr> <tr><td> third harmonic</td><td>< -60dBc</td><td></td></tr> <tr><td> spurious outputs</td><td>< -75dBc</td><td></td></tr> <tr><td>d/ 2048kHz output</td><td></td><td></td></tr> <tr><td> second harmonic</td><td>< -60dBc</td><td></td></tr> <tr><td> third harmonic</td><td>< -60dBc</td><td></td></tr> <tr><td> spurious outputs</td><td>< -75dBc</td><td></td></tr> </table>	Option 005 - tuned output amplifiers			a/ 5MHz outputs			second harmonic	< -75dBc		third harmonic	< -60dBc		spurious outputs	< -75dBc		b/ 10 MHz output			second harmonic	< -75dBc		third harmonic	< -60dBc		subharmonics	< -75dBc		spurious outputs	< -75dBc		c/ 1MHz output			second harmonic	< -60dBc		third harmonic	< -60dBc		spurious outputs	< -75dBc		d/ 2048kHz output			second harmonic	< -60dBc		third harmonic	< -60dBc		spurious outputs	< -75dBc	
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Broadband noise (sinewave outputs):	< -150dBm/Hz																																																																																																										
Output failure alarm:	Front panel LED + common active low logic output																																																																																																										
Synchronisation:	Square wave outputs are synchronised to rising edge of 1 pps input to within -0/+300ns																																																																																																										
Supply:	115/230Vac ±10% and/or 24Vdc for UPS reliability																																																																																																										

OPTION 001

1Hz square wave

Option 001 provides complementary 1Hz square wave instead of 100kHz square wave.

OPTION 002

2048kHz square wave

Option 002 provides complementary 2048kHz square wave instead of 100kHz square wave.

OPTION 003

2048kHz sine wave

Option 003 provides 2048kHz sine wave instead of 100kHz sine wave. Output Level: 13dBm nominal into 50 ohms
Harmonic & spurious outputs:
second harmonic <-50dBc
third harmonic <-40dBc
spurious outputs <-65dBc

OPTION 004

1pps outputs

Option 004 provides 1pps complementary outputs instead of 100kHz square wave. These outputs will be delayed no more than 10ns relative to the 1pps input.

OPTION 005

tuned output amplifiers

Option 005 provides tuned output amplifiers on the 10MHz, 5MHz, 1MHz and 2048kHz sine wave outputs. This will provide the above improved harmonic & spurious specifications.

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