



GENERAL DESCRIPTION

The ZFR-16000-02 synthesizer combines multi-octave bandwidth with a small step size, fast switching speed, good phase noise, and a compact package size. It is a versatile synthesizer that can be tailored to the specific frequency range and control interface required. It is used in applications from lab benchtops to airborne military electronics.

ZFR SERIES FEATURES

- Programmable Frequencies to 20 GHz
- Fast Switching Speed
- Step Sizes as low as 10 kHz
- Multi-octave bandwidth
- Low Phase Noise
- Small Package Size: 2.5" x 4.5" x 0.6" typical

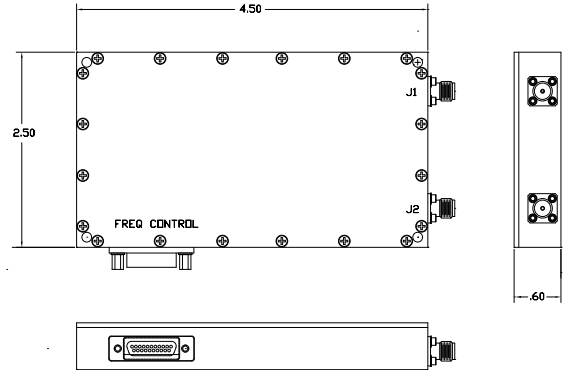
ZFR SERIES OPTIONS

- Step size configurable to larger size
- Switch speeds <150 usec available
- Serial or USB communication interfaces available
- Internal Reference available

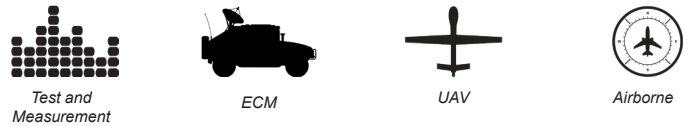
ELECTRICAL SPECIFICATIONS

Frequency	2000 - 16000 MHz
Output Power	+13 dBm \pm 3 dB , 50 Ω
Step Size	10 MHz
Switch Speed	<250 usec to within \pm 10 kHz Final Freq.
Stability	Same as Reference
Reference	10 MHz EXTERNAL, 0 dBm \pm 3 dB, 50 Ω
Power Supply	+15 V \pm 0.15 V @ 650 mA MAX
Lock Detect	5V TTL, HIGH=LOCK
Programming	Serial; Clock, Data, Enable

All specifications are typical unless otherwise specified and subject to change without notice.



INDUSTRIES



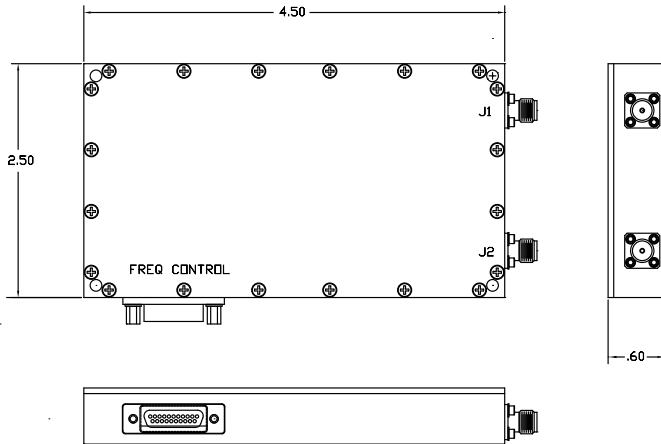
TYPICAL APPLICATIONS

- Laboratory Testing
- Remote Sensing / Monitoring
- Electronic Countermeasures
- Radar Systems

Phase Noise		
	2000-10000 MHz (dBc/Hz) MAX	10000-16000 MHz (dBc/Hz) MAX
1 KHz	-86	-80
10 KHz	-90	-84
100 KHz	-90	-84
1 MHz	-100	-94
10 MHz	-127	-121
Spurs	2 - 10 GHz	-65 dBc TYP, -60 dBc MAX
	10 - 16 GHz	-60 dBc TYP, -55 dBc MAX
Harmonics		-20 dBc TYP, -15 dBc MAX



PACKAGE OUTLINE



All dimensions are in inches unless otherwise specified
.XX = +/- 0.01
.XXX = +/- 0.005.

PIN DESCRIPTIONS

J1	RF OUT	Female SMA
J2	REF IN	Female SMA
PIN 1-11	NU	Freq. Control, Feedthrough
PIN 12	VCC	Freq. Control, Feedthrough
PIN 13	VCC	Freq. Control, Feedthrough
PIN 14	GND	Freq. Control, Feedthrough
PIN 15	GND	Freq. Control, Feedthrough
PIN 16	NU	Freq. Control, Feedthrough
PIN 17	NU	Freq. Control, Feedthrough
PIN 18	ENABLE	Freq. Control, Feedthrough
PIN 19	DATA	Freq. Control, Feedthrough
PIN 20	CLK	Freq. Control, Feedthrough
PIN 21	LOCK	Freq. Control, Feedthrough

ENVIRONMENTAL SPECIFICATIONS

Standard Operating Temperature	0°C to +50°C
Storage Temperature	-55°C to +125°C

Custom designs are available. Please contact EM Research.

MECHANICAL SPECIFICATIONS

REF & RF Connector	Female SMA
Freq. Control Connector	21 Pin Micro D Male
Package	Aluminum 4.5" x 2.5" x 0.6"
Package Outline	EM Drawing 2200029006
Part Label	EM Drawing 8000040001



DETAILS

Title	Programmable Frequency Synthesizer Part No. ZFR-16000-02
File	SPC-ZFR-16000-02-REVA
Scale	N/A
Size	A
Rev.	A

APPROVALS

Department	Date
DWN: M. Anderson	1/15/18
QA: S. Zandonella	12/27/17
MKTG: M. Eiting	1/15/18
ENG: E. Smith	1/8/18
MFG: G. Evans	12/28/17
Other:	

REVISION HISTORY

Rev.	Description	Date	Approved
A	Configurable Product	1/17/18	DCR# 1703775

NOTES