

**GENERAL DESCRIPTION**

The ZFR-17000-04 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

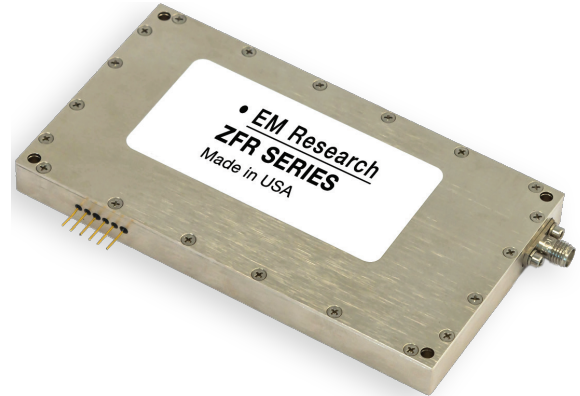
**ZFR SERIES OPTIONS**

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

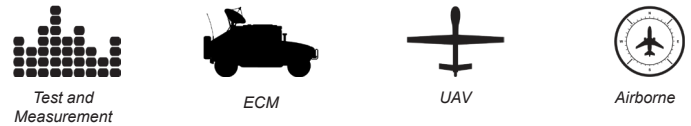
**ELECTRICAL SPECIFICATIONS**

Frequency	7000 - 17000 MHz
Output Power	+10 dBm ±3 dB , 50 Ω
Step Size	10 KHz
Switch Speed	<150 usec to within ±10 KHz Final Freq. <250 usec to within Final Phase ±10°
Stability	±5 PPM
Reference	Internal
Power Supply	+5V ±0.15V @1150mA TYP,1250mA MAX
Lock Detect	3V TTL, HIGH=LOCK
Programming	Serial; Clock, Data, Enable, 3.3V TTL Logic

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



**INDUSTRIES**

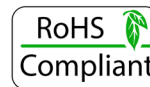


**TYPICAL APPLICATIONS**

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

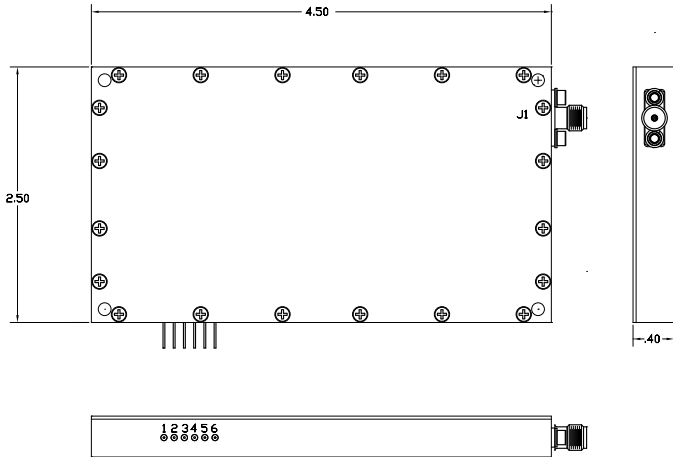
Phase Noise		
	7000-10000 MHz (dBc/Hz) MAX	10000-17000 MHz (dBc/Hz) MAX
1 KHz	-92	-86
10 KHz	-96	-90
100 KHz	-96	-90
1 MHz	-106	-100
10 MHz	-126	-120

Spurs	7 - 10 GHz	-65 dBc TYP, -60 dBc MAX
	10 - 17 GHz	-60 dBc TYP, -55 dBc MAX
Harmonics	-20 dBc TYP, -15 dBc MAX	





**PACKAGE OUTLINE**



**PIN DESCRIPTIONS**

J1	RF OUT	Female SMA
1	VCC	Feedthrough
2	GND	Feedthrough
3	ENABLE	Feedthrough
4	DATA	Feedthrough
5	CLOCK	Feedthrough
6	LOCK	Feedthrough

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

**ENVIRONMENTAL SPECIFICATIONS**

Standard Operating Temperature	-30°C to +71°C
Storage Temperature	-55°C to +125°C

Custom designs are available. Please contact EM Research.

**MECHANICAL SPECIFICATIONS**

RF Connector	Female SMA
Package	Aluminum 4.5" x 2.5" x 0.4"
Package Outline	EM Drawing 2200029004
Part Label	EM Drawing 8000040007



**DETAILS**

Title	Programmable Frequency Synthesizer Part No. ZFR-17000-04
File	SPC-ZFR-17000-04-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**