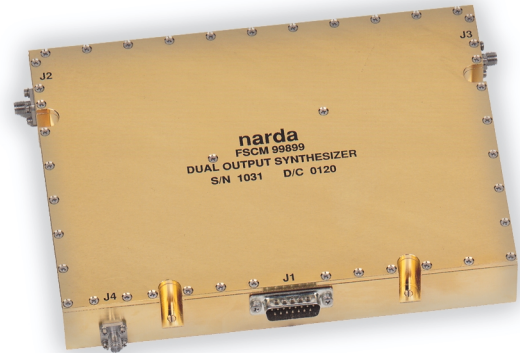


## PROGRAMMABLE, DUAL OUTPUT SYNTHESIZERS

- 6 to 28 GHz Frequency Range
- Low Phase Noise  
(typically -92 dBc/Hz @ 10 kHz  
offset @ 19 GHz for 5 MHz step size)
- Low Phase Hit Design
- High Immunity to Severe Shock  
and Vibration Environments
- Unique, Low Cost SMT Construction
- Available in Single or  
Independent-Dual Output



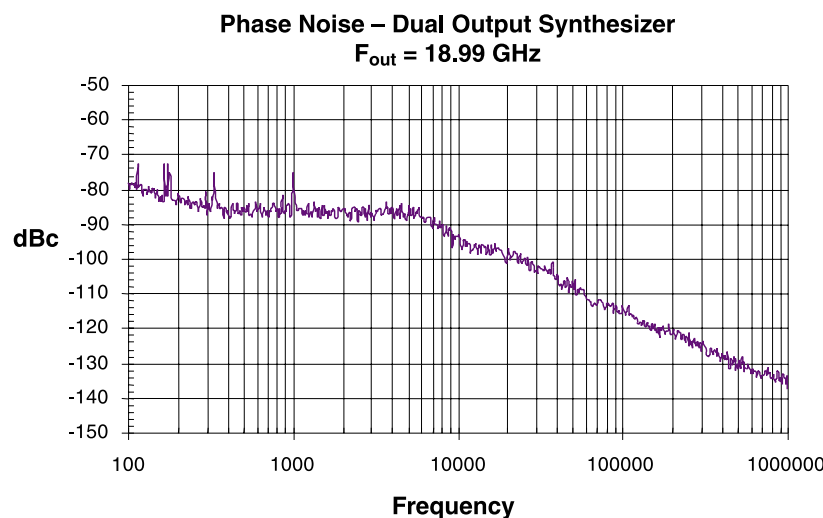
### DESCRIPTION

Narda's new high-performance, programmable microwave synthesizers meet the demanding requirements of wireless communications systems, Satcom converters, digital radio, and optical networks.

The foundation of these synthesizers is Narda's proprietary phase-locked dielectric resonator oscillator. By using this PLDRO as the low noise internal oscillator and adding programmable up-converter circuitry via an external I<sup>2</sup>C interface (or optional RS-232 interface), Narda has achieved tunable microwave synthesizers with minimal performance degradation. Programmability is achieved using PLL circuitry.

The Narda synthesizer shown provides two independently-controlled RF outputs capable of tuning with 5 kHz to 10 MHz steps over 300 MHz frequency bands within the 18 to 19 GHz range. Like our PLDRO, the synthesizer uses the same low cost SMT construction throughout and includes Narda's unique low cost RF filters to provide spurious rejection. Tested in systems, it has proven to be an excellent performer with no attributed phase hit disturbances. The unit also provides real-time digital reporting of PLL-lock status, module temperature, and selected frequencies via an internal microprocessor.

### MEASURED SYNTHESIZER PHASE NOISE CHARACTERISTIC



# Wireless Products

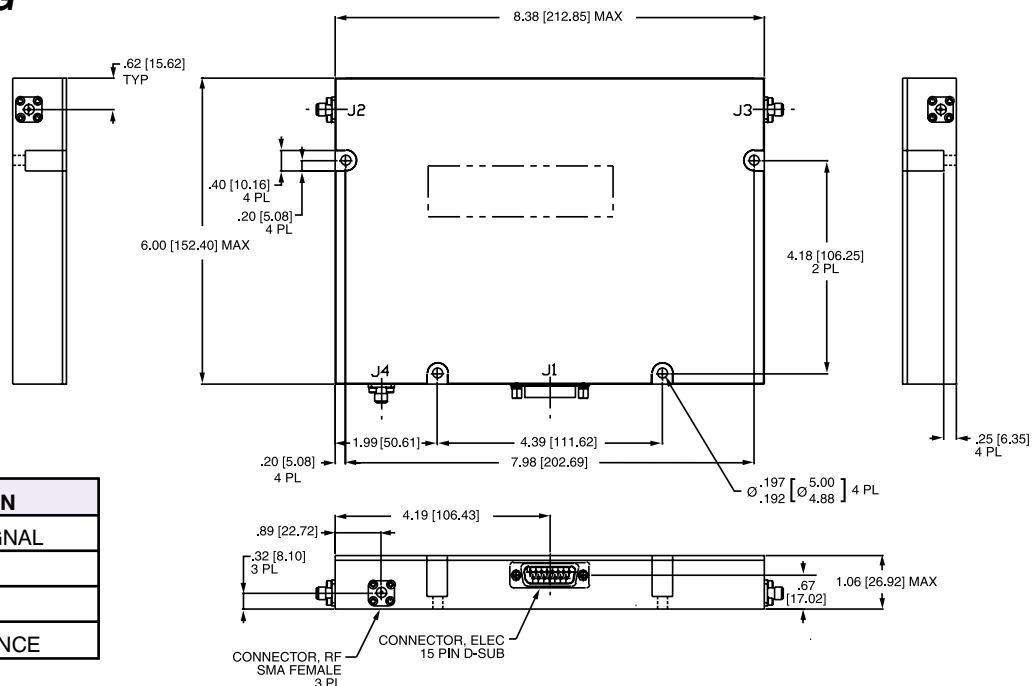
## DUAL OUTPUT SYNTHESIZER SPECIFICATIONS

PARAMETER	SPECIFICATION	NOTES
Frequency	18 to 19 GHz	Custom Capability: within 6 to 28 GHz
Frequency Step Size	5 kHz to 10 MHz	Custom Step Sizes Available
Frequency Tune Range	300 MHz	Custom Capability: up to 400 MHz
Frequency Reference	External Crystal Reference	Optional Internal Reference
Reference Frequency	50 MHz (100 MHz optional)	Customer Provided
Reference Power Required	+4 to +9 dBm	Sine Wave
RF Output Power	+10 dBm (min) +14 dBm (max)	Over Operating Temperature Range
Spurious	-50 dBc	
Harmonics	-50 dBc	
Phase Noise for 5 MHz Step Size	-75 dBc/Hz @ 100 Hz -83 dBc/Hz @ 1 KHz -90 dBc/Hz @ 10 KHz -112 dBc/Hz @ 100 KHz -132 dBc/Hz @ ≥1 MHz	Phase Noise Performance is Reference-Oscillator Dependent <sup>1</sup>
Operating Temperature	-30 to +70°C	
Power Supply Voltage	+12 Volts ± .75 -12 Volts ± .75	
Operating Current	.850 Amps (+12V) .010 Amps (-12V)	

### NOTES:

<sup>1</sup> Reference Oscillator Phase Noise Levels: -124 dBc/Hz @ 100 Hz / -139 dBc/Hz @ 1 kHz / -149 dBc/Hz @ 10 kHz / -159 dBc/Hz @ 100 kHz

## OUTLINE DRAWING



REF DES	FUNCTION
J1	DC POWER / SIGNAL
J2	LO1
J3	LO2
J4	50 MHz REFERENCE