

# Analog Devices Welcomes Hittite Microwave Corporation

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# HMC-T2100

SYNTHESIZED SIGNAL GENERATOR, 10 MHz to 20 GHz



SIGNAL GENERATORS

The HMC-T2100 is an easy to implement test equipment solution designed to fulfill your signal generation needs. Built on a foundation of high quality and market leading Hittite MMICs, the HMC-T2100 provides the highest output power, lowest harmonic levels and broadest frequency range amongst signal generators of its size and cost.

This compact and lightweight signal generator also features USB, GPIB and Ethernet interfaces with innovative control software ensuring carefree integration within various test environments while improving overall productivity and equipment utilization.

## Applications

- ◆ ATE
- ◆ Test & Measurement
- ◆ R&D Laboratories

## Advantages

- ◆ Versatile: Higher Drive Simplifies Test Set-Ups
- ◆ Efficient: 300  $\mu$ s Frequency Switching
- ◆ Reliable: Incorporates Hittite MMICs
- ◆ Flexible: Manual or Software Control  
Via USB, GPIB or Ethernet

## Performance

- ◆ High Output Power: +27 dBm
- ◆ Wide Frequency Range:  
10 MHz to 20 GHz
- ◆ Excellent Phase Noise Performance:  
-113 dBc/Hz @ 100 kHz Offset @ 1 GHz
- ◆ Spurious Rejection: -65 dBc @ 10 GHz
- ◆ Power Resolution: 0.1 dB
- ◆ Frequency Resolution: 10 kHz

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### Frequency

Accuracy: As Per Internal Ref.  $\pm 1.5$  ppm  
 Resolution: 10 kHz  
 Internal Reference: 10 MHz  
 Aging Rate: <1 ppm/yr  
 External Reference Input: 10 MHz (Sine)  
 Internal Reference Output: 10 MHz (Sine)  
 Frequency Switching Speed: 300  $\mu$ s

### Output Power (Maximum Leveled)

Frequency (GHz)	Power Output (dBm)
0.01	22
0.05	26
0.1	26
0.5	25
1	25
2	26
4	27
10	25
15	24
20	22

Minimum Settable: -15 dBm (all frequencies)  
 Dynamic Range: >40 dB @ 10 GHz  
 Resolution: 0.1 dB  
 Output Source Match: < 2.0:1  
 Power Accuracy:  $\pm 1$  dB for leveled outputs  
 RF Off: < -60 dBm

### Spurious @ 10 dBm Output

< -33 dBc @ Fractional Frequencies < 10 GHz  
 < -27 dBc @ Fractional Frequencies > 10 GHz

### Spectral Purity\*

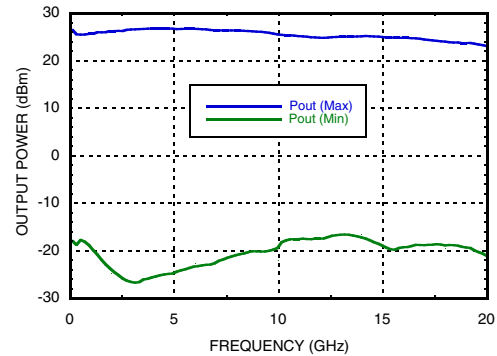
Frequency (GHz)	2nd Harmonics (dBc)	3rd Harmonics (dBc)	Spurious (dBc)
0.01	-20	-31	-78
0.05	-20	-31	-52
0.1	-21	-31	-80
0.5	-27	-36	-80
1	-34	-39	-80
2	-32	-52	-89
5	-38	-56	-75
10	-30	-55	-65
15	-30	-40	-51
20	-42	-	-55

Output Power = +10 dBm

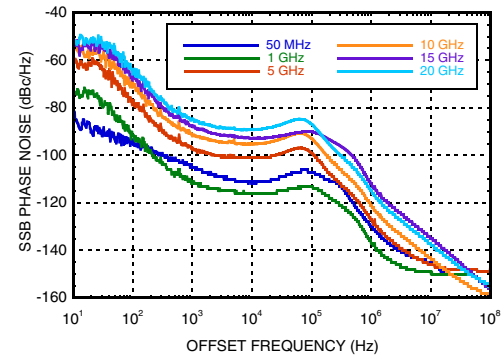
\*Spurious at integer mode frequencies shown above.

Above data is typical performance at +25°C after 30 minutes of warm-up time unless otherwise stated.

### Output Power Range @ 25°C



### SSB Phase Noise vs. Frequency



### SSB Phase Noise (dBc/Hz)

Frequency (GHz)	Offset From Carrier						
	10 Hz	100 Hz	1 kHz	10 kHz	100 kHz	1 MHz	10 MHz
0.01	-79	-89	-97	-105	-104	-126	n/a
0.05	-89	-95	-105	-111	-107	-130	-145
0.1	-83	-94	-105	-112	-107	-129	-145
0.5	-80	-96	-117	-122	-119	-142	-150
1	-73	-91	-111	-116	-113	-137	-149
2	-67	-83	-106	-110	-107	-131	-147
5	-59	-77	-98	-101	-99	-127	-146
10	-55	-69	-92	-95	-93	-121	-143
15	-51	-67	-87	-93	-90	-112	-135
20	-53	-66	-85	-89	-87	-115	-137

Output Noise: Floor < -155 dBc/Hz

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### General Specifications

#### Power - AC:

100 to 240 VAC@ 50 to 60 Hz

#### Fan Noise: < 60 dBA

Environment (for indoor use only): 0 to 35 °C

Cooling: 2 Internal Fans

#### Input / Output:

10 MHz REFOUT [1]

10 MHz REFIN [2]

TRIGGER IN [3]: LVTTTL

RS-232 (factory use only)

Ethernet

GPIB

USB 1.1/2.0

#### Mechanical Vibration & Shock:

MIL PRF-288000 Class 4

#### Compliance:

CSA & CE

#### General Mechanical Characteristics

H: 76.2 mm (3 in)

W: 203 mm (8 in)

D: 305 mm (10 in)

Weight 3.2 kg (7 lbs)

#### Warranty: 1 Year Parts and Labor

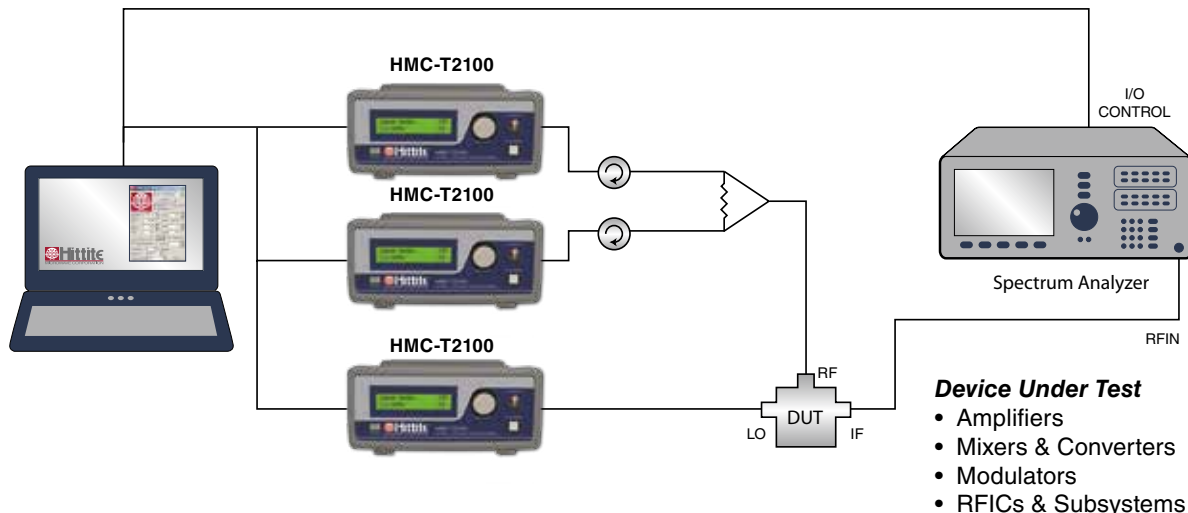
Storage Temperature: -20 to 70 °C

[1] +10 dBm max. into 50 Ohms; BNC Connector

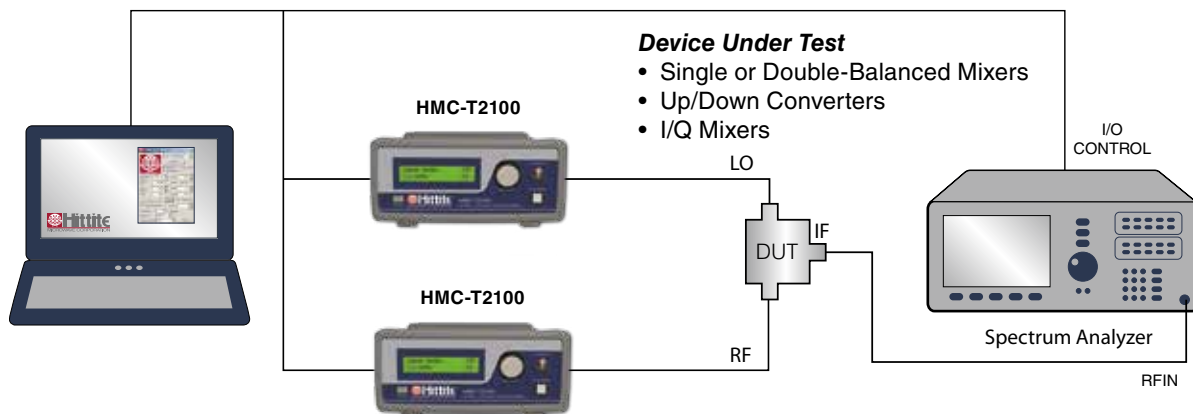
[2] +5 dBm max., -5 dBm min., 50 Ohms; BNC Connector

[3] The trigger input can be driven from either 3.3V or 5V sources for direct interface with TTL signal levels; BNC Connector

### Two Tone Third Order Intercept Test Set-up



### Efficient Mixer Conversion Loss, Isolation & MxN Spurious Test Set-up



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### HMC-T2100 Rear Panel I/O Connections



### Connectivity & Control

Its compact size, light weight, fast switching speed and USB, GBIP and Ethernet control interfaces support the standard SCPI command set ensuring smooth integration within all test environments, particularly those associated with automated test. An installation disk that accompanies each unit includes all the drivers required to remotely control the device as well as a user friendly GUI interface (right) compatible with a Windows XP® or Windows Vista® operating system. User control is facilitated via pull down menus that allow programming of single or swept modes in frequency and/or power. Integration of multiple units within a production test environment is easy, and affordable.

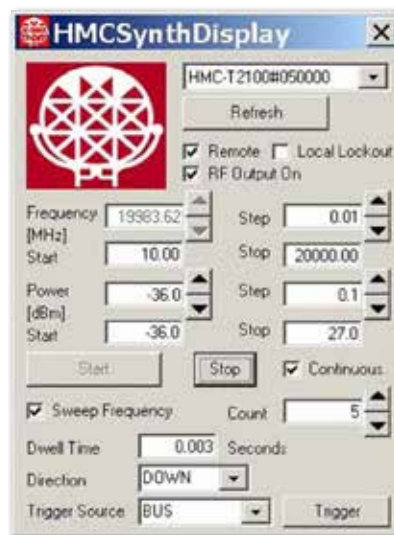
#### Remote Interface

**Hardware:** USB (Windows XP®, Windows Vista® Drivers Supplied), GPIB or Ethernet

**Software:** LabVIEW Driver (XP)

#### Local Interface

Front Panel Rotary Knob & Display



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### HMC-T2100



### HMC-T2100DRM



#### Ordering Information

Model Number	Description	Price
<b>HMC-T2100</b>	Synthesized Signal Generator 10 MHz to 20 GHz	\$7,998.00

*Includes 100 - 240V AC Power Supply and one Power Cord at no cost. Please specify your preferred power cord part number at time of ordering. (see "Optional Power Cord" table)*

#### Ordering Information

Model Number	Description	Price
<b>HMC-T2100DRM</b>	Synthesized Signal Generator 10 MHz to 20 GHz, Dual Rack Mountable	\$7,998.00

*Includes 100 - 240V AC Power Supply and one Power Cord at no cost. Please specify your preferred power cord part number at time of ordering. (see "Optional Power Cord" table)*

#### Power Cord

Part Number	Region	
HMC-PC01	Continental Europe	
HMC-PC02	United Kingdom	
HMC-PC03	China	
HMC-PC04	Australia, New Zealand	
HMC-PC05	North America	
HMC-PC06	South Africa / India	
HMC-PC07	Switzerland	
HMC-PC08	Denmark	
HMC-PC09	Israel	
HMC-PC10	Italy	
HMC-PC11	Japan	

#### Test Rack Mount Kit

Part Number	Description	Price
HMC-RM02	Dual Rack Mounting Plate 19" 2u Chassis	\$385.00



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*All pricing is in U.S. Dollars and is subject to change without notice.*

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**Notes:**