



**M12H6DC Series**  
**WR12 Frequency Converter Extenders**  
**60 to 90 GHz**

WR15 WR12 WR10 WR08 WR06 WR05 WR03 WR02.2

**DESCRIPTION**

The M12H6DC Series is designed specifically for handheld spectrum analyzers as a portable solution for millimeter wave spectrum analysis measurement. Utilizing the handheld spectrum analyzer tracking generator as an LO source and the built-in DC supply, this harmonic mixer provides millimeter wave measurements in WR-12 (60-90 GHz).



**HIGHLIGHTS**

- Useful tool to extend measurements to mm-wave
- 26 dB Typical Noise Figure
- Portable Field & Lab Solution
- Industry waveguide compatibility

**APPLICATIONS**

- E Band Backhaul
- Collision Avoidance Radar
- 5G, WiGig
- Military & Defense



**ELECTRICAL AND PERFORMANCE SPECIFICATIONS (+25°C)**

After a 0.5 hour warm-up period, the M12H6DC will satisfy the following specifications.

Electrical Characteristics <sup>1</sup>	MIN	TYP	MAX
RF Input Frequency Range (GHz)	60	--	90
IF Frequency Range (GHz)	.05		2
LO Harmonic Number	--	6	--
LO Input Frequency Range (GHz) <sup>2</sup>	9.92	--	14.92
LO Input Power (dBm)	-3	--	0
Conversion Factor (dB) IF = 0.5 GHz	--	-6	--
Noise Figure (dB) <sup>3</sup>	--	26	--
Sensitivity (dBm) <sup>4</sup>	--	148	--
Gain Compression P1dB (dBm)	--	-5	--
Operating Temperature Range (°C)	20°	25°	30°

Module Characteristics <sup>1</sup>	Description
RF Input Waveguide Interface (dB) <sup>5</sup>	WR-12
LO Input Interface	SMA (f)
IF Output Interface	SMA (f)
DC Power	5V @ .45 A Max.
Maximum RF Input Power (dBm)	+20 dBm (100 mW)
Size <sup>6</sup> (L x W x H)	2.86" x 3.72" x 1.64" (72.7 mm x 94.5 mm x 41.7 mm)
Weight	≤ 14 oz (397 g)

<sup>1</sup> Specifications are typical and subject to change without notice

<sup>2</sup> LO frequency is calculated with IF = 500 MHz IF

<sup>3</sup> Noise figure includes the internal IF amplifier

<sup>4</sup> Calculate Sensitivity (RBW of 1 Hz) = -174 dBm + conversion loss; represents theoretical minimum discernable signal

<sup>5</sup> Test Port Flange Configuration is compatible with MIL-DTL-3922/67E (UG387/U)

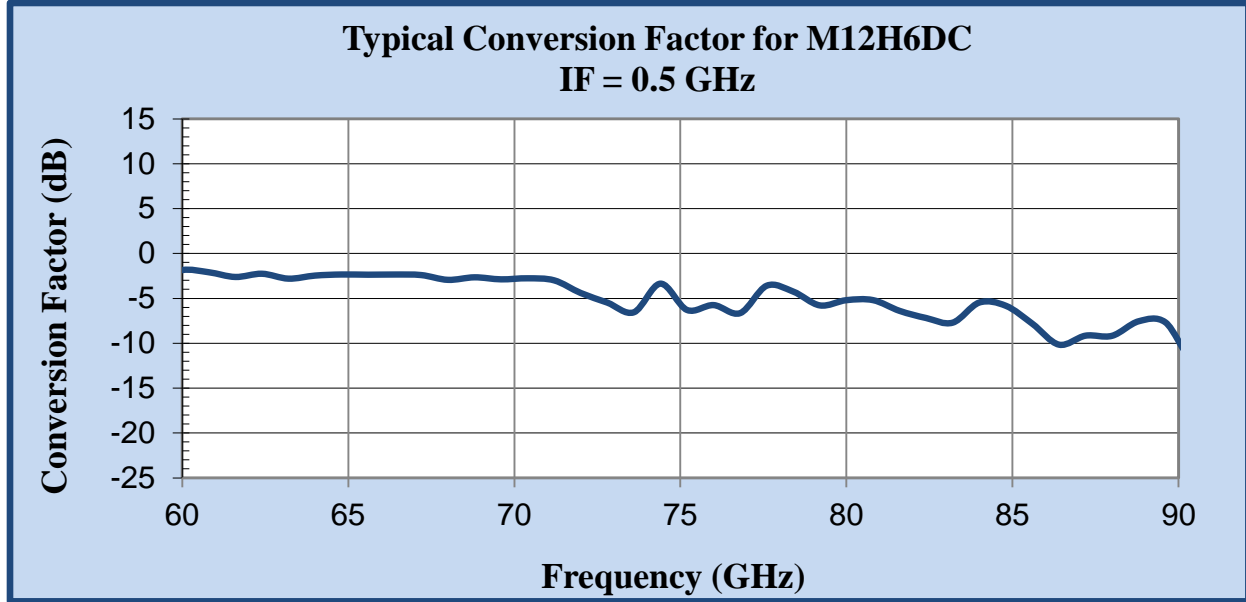
<sup>6</sup> Excludes SMA connector & Waveguide output flange





**TYPICAL PERFORMANCE**

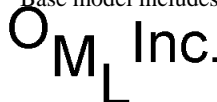
The following typical performance is available when used with the Keysight FieldFox.



**ORDER INFORMATION**

Model Number	Description
M12H6DC <sup>1</sup>	WR-12 Harmonic Mixer Module, 60 to 90 GHz
M12H6DC <sup>1</sup> 5696	Extended WR-12 Harmonic Mixer Module, 56 to 96 GHz
Options	
M12H6DC-100	WR-12 Harmonic Mixer Module with 2 ea. N(m)/SMA(f) Adapter
M12H6DC-101	WR-12 Harmonic Mixer Module with 2 ea. N(m)/SMA(f) Adapter & a WR-12 24 dBi Horn Antenna
M12H6DC-102	WR-12 Harmonic Mixer Module with 2 ea. SMA(m)/SMA(f) Adapter
M12H6DC-103	WR-12 Harmonic Mixer Module with 2 ea. SMA(m)/SMA(f) Adapter & a WR-12 24 dBi Horn Antenna
M12H6DC-104	WR-12 Harmonic Mixer Module with 2 ea. SMA(m)/2.4mm(f) Adapter
M12H6DC-105	WR-12 Harmonic Mixer Module with 2 ea. SMA(m)/2.4mm(f) Adapter & a WR-12 24 dBi Horn Antenna
M12H6DC5696-100	Extended WR-12, 56 to 96 GHz, Harmonic Mixer Module, 56 to 96 GHz, with 2 ea. N(m)/SMA(f) Adapter
M12H6DC5696-101	Extended WR-12, 56 to 96 GHz, Harmonic Mixer Module, 56 to 96 GHz, with 2 ea. N(m)/SMA(f) Adapter & a WR-12 24 dBi Horn Antenna
M12H6DC5696-102	Extended WR-12 Harmonic Mixer Module, 56 to 96 GHz, with 2 ea. SMA(m)/SMA(f) Adapter
M12H6DC5696-103	Extended WR-12, 56 to 96 GHz, Harmonic Mixer Module, 56 to 96 GHz, with 2 ea. SMA(m)/SMA(f) Adapter & a WR-12 24 dBi Horn Antenna
M12H6DC5696-104	Extended WR-12, 56 to 96 GHz, Harmonic Mixer Module, 56 to 96 GHz, with 2 ea. SMA(m)/2.4mm(f) Adapter
M12H6DC5696-105	Extended WR-12, 56 to 96 GHz, Harmonic Mixer Module, 56 to 96 GHz, with 2 ea. SMA(m)/2.4mm(f) Adapter & a WR-12 24 dBi Horn Antenna
Accessories:	
V00DCUSBS1	DC Bias Cable, USB(m) to 90° SMB(f), 12" Lg
M00NMSM	Adapter, Type-N(m) to SMA(m)
M00SMSF	Adapter, SMA(m) to SMA(f)
M00SM2.4F	Adapter, SMA(m) to 2.4mm(f)
M12RH	Horn Antenna, WR-12, 24 dBi

<sup>1</sup> Base model includes a DC bias cable (V00DCUSBS1)





**MECHANICAL DIMENSIONS** (If necessary, contact OML for more detailed drawings)

