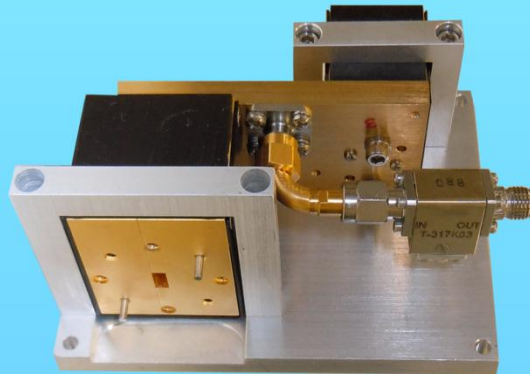
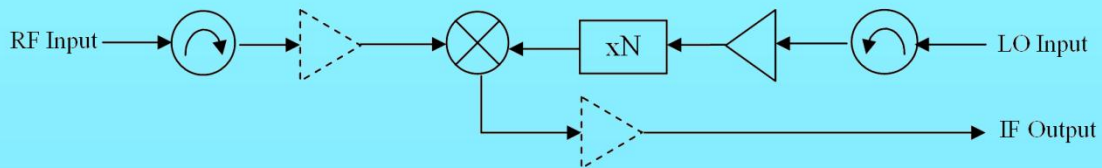




MILLIMETER WAVE CONVERTER BROCHURE



“Innovation in Millimeter Wave Measurements”

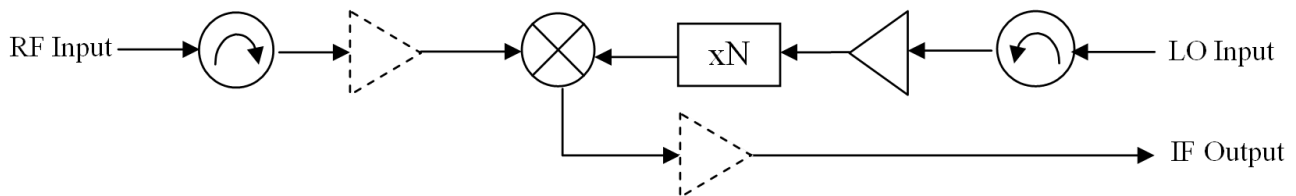
General Information

The CxxLNC Series are low noise converters developed for full waveguide band up and down conversion applications. The CxxLNC Series are currently available in the following bands: WR-28, WR-22, WR-15, and WR-10. The design leverages our fundamental mixer technology to satisfy the needs for optimized performance criteria. Our converters involve optimizing performance for size, output power, conversion loss, stability, group delay, noise figure, and bandwidth. Contact OML to discuss your specific requirements.

HIGHLIGHTS	APPLICATIONS
<ul style="list-style-type: none">• Full waveguide band coverage• Low conversion loss performance	<ul style="list-style-type: none">• Versatility to satisfy multiple applications• Noise figure measurements

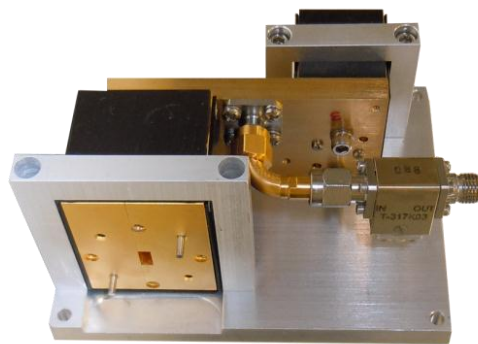
Simplified Block Diagram

As shown in the following simplified block diagram, the converter is separated into paths leading to the fundamental mixer for the RF, LO, and IF. The RF path typically includes an isolator, but can include a low noise amplifier for improved conversion loss and noise figure. Similarly, the LO path typically includes an isolator, amplifier, and harmonic mixer. The fundamental mixer output is the IF path, which may include an amplifier depending on the requirements. Flexibility is possible to further optimize this topology so please contact OML to further discuss your requirements.



Typical Converter

A typical converter is shown to illustrate the compact size associated with the CxxLNC Series. The standard waveguide interfaces simplify connections in your overall system. Contact OML to discuss your size and performance constraints.



ELECTRICAL AND PERFORMANCE SPECIFICATIONS (+25°C)

After a one hour warm-up period, the CxxLNC Series satisfy the following specifications.

Electrical Characteristics ¹	C28LNC	C22LNC	C15LNC	C10LNC
RF Input Frequency Range (GHz)	26 to 40	33 to 50	50 to 75	75.0 to 110.0
LO Input Frequency Range (GHz)	13 to 20	11 to 16.7	12.5 to 18.8	12.5 to 18.3
IF Output Frequency Range (MHz)	10 to 300			
RF Input Compression (P _{1dB}) (typ.)	TBD			
Conversion Loss (typ.)	11 dB	12 dB	15 dB	17 dB
LO Input Power	+7 to +10 dBm			
VSWR (typ.)				
RF Input	1.5:1			
LO Input	1.6:1			
IF Output ²	2.0:1			
Interface				
RF Input	WR-28 ³	WR-22 ³	WR-15 ³	WR-10 ³
LO Input	SMA(f)	SMA(f)	SMA(f)	SMA(f)
IF Output	SMA(f)	SMA(f)	SMA(f)	SMA(f)
DC Input	7 Pin Circular Bayonet Plug	7 Pin Circular Bayonet Plug	7 Pin Circular Bayonet Plug	7 Pin Circular Bayonet Plug
DC (+12 VDC) Power Requirements	1.5 A, typ.			
Operating Temperature Range (°C)	20° - 30°			

¹⁾ Specifications subject to change without notice

²⁾ With IF amplifier

³⁾ Test Port Flange Configuration is compatible with MIL-DTL-3922/54 and MIL-DTL-3922/67D

Ordering Information

Standard Model Number ¹	Converter Description	Frequency, GHz
C28LNC	WR-28 Converter	26.5-40
C22LNC	WR-22 Converter	33-50
C15LNC	WR-15 Converter	50-75
C10LNC	WR-10 Converter	75-110

Contact Information

OML, Inc.
 300 Digital Drive
 Morgan Hill, CA 95037
 Tel: (408) 779-2698
 Fax: (408) 778-0491
 Email: info@omlinc.com
www.omlinc.com

International
 Radar Systems Technology
 Tel: (650) 949-8041
 Fax: (650) 949-8082
 Email: sales@rst-radar.com



MILLIMETER WAVE RECTANGULAR TE₁₀ WAVEGUIDE INFORMATION

WG Band	Waveguide Frequency Range (GHz)	Wavelength Range λ_0 (mil)	Wavelength Range λ_0 (mm)	Guide Wavelength Range (λ_g/λ_0)	Waveguide Impedance Range (Ω)	TE ₁₀ Cutoff Freq (GHz)	TE ₁₀ Cutoff λ_c (mil)	TE ₁₀ Cutoff λ_c (mm)	Internal Dimensions (mils)	Internal Dimensions (mm)
WR-28	26.5 - 40.0	445.4 - 295.1	11.313 - 7.495	1.650 - 1.177	621.9 - 443.6	21.1	560.0	14.22	280.0 x 140.0	7.112 x 3.556
WR-22	33.0 - 50.0	357.7 - 236.1	9.085 - 5.996	1.661 - 1.177	626.0 - 443.6	26.3	448.0	11.38	224.0 x 112.0	5.690 x 2.845
WR-19	40.0 - 60.0	295.1 - 196.7	7.495 - 4.997	1.613 - 1.173	608.3 - 442.4	31.4	376.0	9.55	188.0 x 94.0	4.775 x 2.388
WR-15	50.0 - 75.0	236.1 - 157.4	5.996 - 3.997	1.657 - 1.181	624.8 - 445.1	39.9	296.0	7.52	148.0 x 74.0	3.759 x 1.880
WR-12	60.0 - 90.0	196.7 - 131.1	4.997 - 3.331	1.690 - 1.186	637.2 - 447.1	48.4	244.0	6.20	122.0 x 61.0	3.099 x 1.549
WR-10	75.0 - 110.0	157.4 - 107.3	3.997 - 2.725	1.620 - 1.185	610.9 - 446.7	59.0	200.0	5.08	100.0 x 50.0	2.50 x 1.270
WR-08	90.0 - 140.0	131.1 - 84.3	3.331 - 2.141	1.746 - 1.177	658.1 - 443.6	73.8	160.0	4.06	80.0 x 40.0	2.032 x 1.016
WR-06	110.0 - 170.0	107.3 - 69.4	2.725 - 1.763	1.771 - 1.183	667.7 - 445.9	90.8	130.0	3.30	65.0 x 32.5	1.651 x 0.826
WR-05	140.0 - 220.0	84.3 - 53.6	2.141 - 1.363	1.777 - 1.176	669.7 - 443.3	115.7	102.0	2.59	51.0 x 25.5	1.295 x 0.648
WR-04	170.0 - 260.0	69.4 - 45.4	1.763 - 1.153	1.695 - 1.177	638.8 - 443.9	137.2	86.0	2.18	43.0 x 21.5	1.092 x 0.546
WR-03	220.0 - 325.0	53.6 - 36.3	1.363 - 0.922	1.627 - 1.183	613.5 - 445.9	173.6	68.0	1.73	34.0 x 17.0	0.864 x 0.432
WR-02.8	260.0 - 400.0	45.4 - 29.5	1.153 - 0.749	1.708 - 1.177	643.8 - 443.6	210.8	56.0	1.42	28.0 x 14.0	0.711 x 0.356
WR-02.2	325.0 - 500.0	36.3 - 23.6	0.922 - 0.600	1.771 - 1.185	667.7 - 446.7	268.2	44.0	1.12	22.0 x 11.0	0.559 x 0.279
WR-01.9	400.0 - 600.0	29.5 - 19.7	0.749 - 0.500	1.587 - 1.169	598.3 - 440.6	310.6	38.0	0.97	19.0 x 9.5	0.483 x 0.241
WR-01.5	500.0 - 750.0	23.6 - 15.7	0.600 - 0.400	1.620 - 1.175	610.9 - 442.8	393.4	30.0	0.76	15.0 x 7.5	0.381 x 0.191
WR-01.2	600.0 - 900.0	19.7 - 13.1	0.500 - 0.333	1.746 - 1.194	658.1 - 450.1	491.8	24.0	0.61	12.0 x 6.0	0.305 x 0.152
WR-01.0	750.0 - 1100.0	15.7 - 10.7	0.400 - 0.273	1.620 - 1.185	610.9 - 446.7	590.1	20.0	0.51	10.0 x 5.0	0.254 x 0.127

Converter Brochure: Rev. A
 Release Date: 06-2011