Suzhou Talent Microwave,Inc
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G-Band Up/Down-conversion Extender

140-220GHz /WR-5.1 Model: TLUCM-140220-12-05/TLDCM-140220-12-05

TLUCM-140220-12-05/TLDCM-140220-12-05 up/down-conversion extenders provide seamless frequency coverage from 140 GHz to 220 GHz, utilizing a WR05 waveguide RF connector. To support flexible operation and minimize unwanted signals,a set of four external bandpass filters is available. These filters enable the selective elimination of sideband and local oscillator signals, ensuring optimal performance and signal quality across the entirefrequency range.

Features:

- Frequency range: 140-220 GHz
- Conversion loss: 12 dB Typ
- Unconditional stability

Applications:

- Frequency extenders for communication systems measurement
- 5G Backhaul Equipment Testing
- Antenna Testing
- 6G system chip measurement

Electrical Characteristics:

Parameter	Min	Typ	Max	Units
Frequency range	140		220	GHz
LO Input Frequency	11.66		18.33	GHz
IF Input Frequency	DC		40	GHz
LO Input Power	3	5	7	dBm
IF Input Power(Up-conversion)		-10	0	dBm
RF Input Power(Down-conversion)		-10	0	dBm
Multiplication Factor		12		
Mixer Conversion Loss SSB		12		dB
AC Supply Voltage	100		240	V AC
Power Supply(External Amplifier)		12		V DC

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Mechanical Specifications:

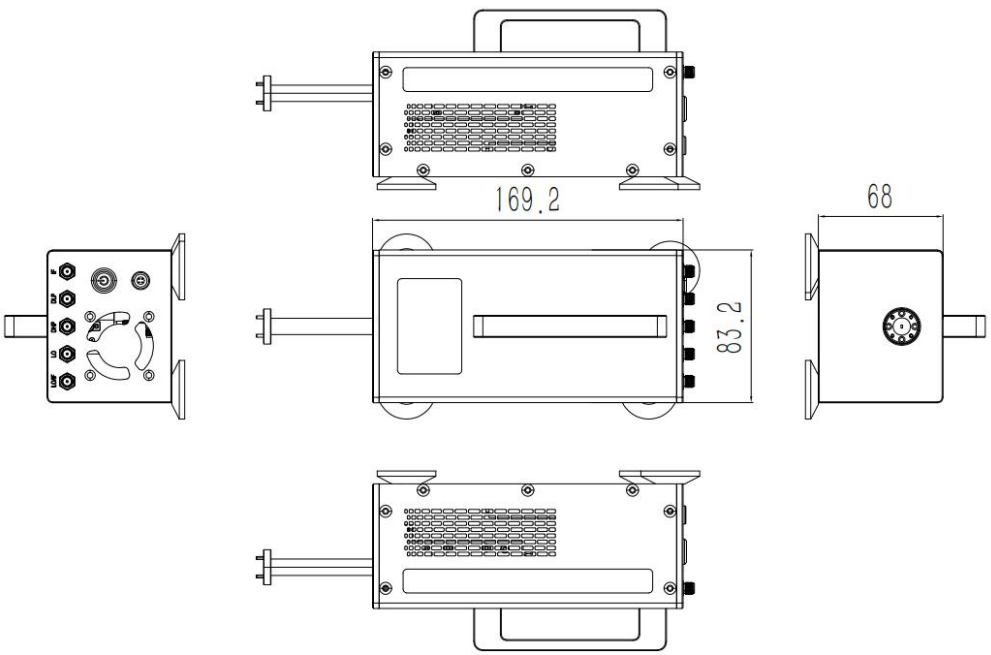
Parameter	Value	Units
RF Input Ports	WR-5.1/UG-387/U	
IF Ports	2.92mm Female	
LO Input Connector	SMA Female	
Material	Aluminum	
Finish	Spray gray paint	
Power Supply Pin	FGG 0B 4 Core	
Size	169.2*83.2*68	mm

Absolute Maximum Ratings :

Parameter	Value
IF/RF Input Power	0 dBm
LO Input Power	+10 dBm
Supply AC Voltage	+240 V AC
External Amplifier Voltage	+15 V DC
ESD sensitivity (HBm)	Class 0, passed 150V

Outline Drawing:

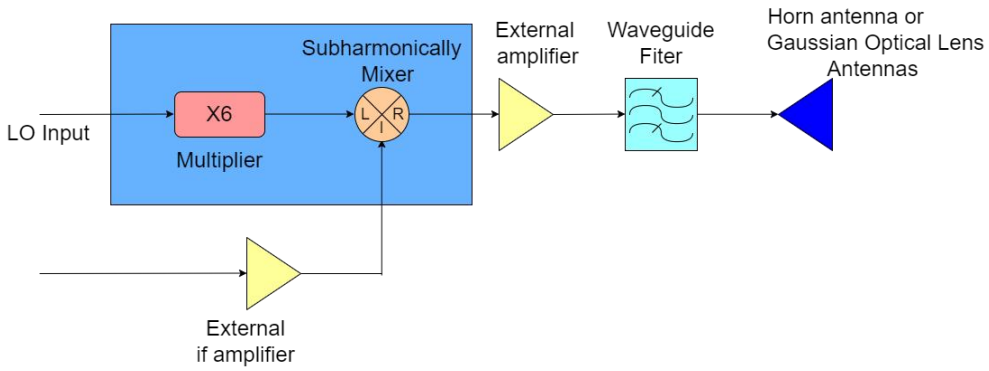
Unit:mm; Tolerance:±0.1mm



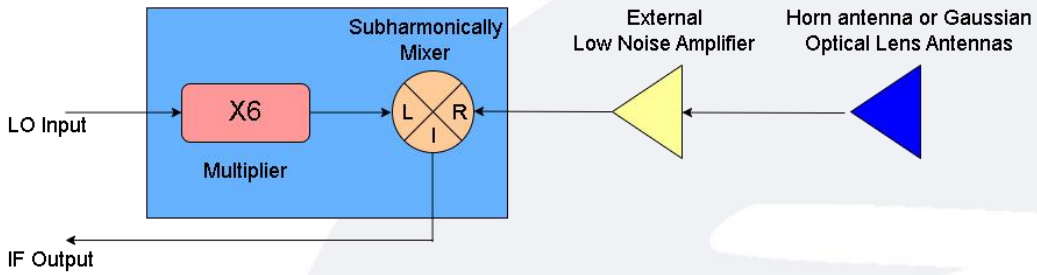
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Block Diagrams:

Up-conversion



Down-conversion



Envrionmental And Physical Characteristics:

Parameter	Min	Typ	Max	Units
Operating Temperature	0		+45	℃
Non-operating Temperature	-55		+125	℃
Relative humidity		95		%
Altitude	10,000			feet
Shock / Vibration(MIL-STD-810F)	25g rms (15 degree 2KHz) endurance, 1 hour per axis			
Shock(non operating)	20G for 11msc half sin wave,3 axis both directions			

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Ordering Information:

Part Number	Description	Revision
TLUCM-140220-12-05	G-Band Up-conversion Extender,140-220GHz, Conversion loss: 12 dB Typ	Rev.1.0
TLDCM-140220-12-05	G-Band Down-conversion Extender,140-220GHz, Conversion loss: 12 dB Typ	Rev.1.0

External Accessories:

Part Number	Description
TLBF-170200-40	Waveguide Bandpass filter, 170 GHz to 200 GHz
TLBF-CUST	Support customization
TLLA50K43G-30-50	IF amplifier 50KHz-43GHz 30dB gain
TMLA-170200-2040-05	RF amplifier, 170 GHz to 200 GHz 20 dB gain Noise Figure: 4.0
TMPA-140220-2013-05	RF amplifier, 140 GHz to 220 GHz 18dB gain Psat: 12dBm
TL-5SHA25	Horn antenna, 140 GHz to 240 GHz Gain: 25dB
TLHG-140220-45-04	Gaussian Optical Lens Antenna 140 to 220GHz Gain: 45dB