

FR3 MIMO Converter

The FR3 MIMO Converter is an up/down converter which supports all FR3 cmWave bands and the increased bandwidth requirements of 6G.



Features

- Frequency range: 4.9 – 20 GHz
- Useable to 23.6 GHz with reduced specification
- Bandwidth: 1 GHz
- Supports up to four 4x4 Component Carriers
- Duplexing mode: TDD or FDD
- Benchtop or rack-mounted

Benefits

- 5G and 6G FR3 cmWave testing
- Higher Density and Scalability
- Works seamlessly with VIAVI TM500 and Vertex products

Specifications

Specifications apply when used in conjunction with the driver software supplied with the module or a later version.

All specifications apply within the allowed operating temperature range after a warm-up period of at least 30 minutes. Where indicated, certain specifications are only applicable over a limited temperature range.

Specifications are warranted unless marked as (typ)/Nom.

Channels, Bands and Bandwidths

Frequency Range	4.9 GHz to 20 GHz (useable 20-23.6 GHz)
Instantaneous Bandwidth	1 GHz
Number of TX/RX Channels	4 per module (max 4 MIMO Modules)
Carriers/Bandwidth	4CC x 100 MHz
IF Frequency Range	1.0 GHz to 2.7 GHz (band specific)
Duplexing Mode	TDD/FDD

Specifications continued

Up Converter

Gain @ 23 oC ± 4 oC. Unit should be powered up at least 5 min prior to calibration if results are temperature corrected or 70 min if not	Typ: +2 dB With Tx IF attenuator set to default
In-Band Flatness	Typ: 4 dB
100 MHz Gain Variation (FLATNESS)	Typ: 1 dB Max: 2 dB
200 MHz Gain Variation (FLATNESS)	Typ: 1.5 dB Max: 2.5 dB
400 MHz Gain Variation (FLATNESS)	Typ: 2 dB Max: 3 dB
Linearity @ 23 oC ± 4 oC. Unit should be powered up at least 5 min prior to calibration if results are temperature corrected or 70 min if not	1 dB output Compression point Typ: +15 dBm <15 GHz Typ: +12 dBm >15- 20 GHz Typ: +8 dBm >20 GHz
Temp Coefficient	Typ: 0.05dB/C
Spectral Purity	
Spurious	Typ: LO leak -50 dBm Typ: Image -20 dBc CW test. Min level -25 dBm, Max level +10 dBm
Output Noise Power @ 23 oC ± 4 oC. Unit should be powered up at least 5 min prior to calibration if results are temperature corrected or 70 min if not	Typ: -60 dBm/ GHz
Residual EVM	Typ: 0.5% or 46dB @ -10 dBm 1CC 100 MHz Max: 3.2 % or 30 dB @ -25 dBm per CC 100 MHz 4CC Max: 3.2 % or 30 dB @ 0 dBm per CC 100 MHz 4CC

Specifications continued

Down Converter

Gain @ 23 oC $\pm$ 4 oC. Unit should be powered up at least 5 min prior to calibration if results are temperature corrected or 70 min if not	Typ: +6 dB RF Rx attenuator defaults to 6 dB
100 MHz Gain Variation (FLATNESS)	Typ: 1 dB
	Max: 2 dB
200 MHz Gain Variation (FLATNESS)	Typ: 1.5 dB
	Max: 2.5 dB
400 MHz Gain Variation (FLATNESS)	Typ: 2 dB
	Max: 3 dB
Linearity	1 dB output Compression point
Temp Coefficient	(Typ) 0.03dB/C
Noise/Spurious Responses	
Image Responses	Typ: -20 dBc
Noise Figure @ 23 oC $\pm$ 4 oC. Unit should be powered up at least 5 min prior to calibration if results are temperature corrected or 70 min if not	Average Noise Figure Typ: 10 dB Max: 14 dB <i>With RX RF attenuator set to 0dB</i> By default, RxRF atttenuator =6dB therefore Rx Noise figure increased by 6dB
Residual EVM	Typ: 0.5 % or 46 dB @ -10 dBm 1 CC 100 MHz
	Max: 3.2 % or 30 dB @ -27 dBm per CC 100 MHz 4 CC

General

Connectors and Interfaces

Microwave Connectors

4 (combined/duplex) 1 (online cal)	K-type female
Damage Level	+20 dBm RMS/+25 dBm peak/0 V DC

IF Connectors

8 (Simplex Tx/Rx)	SMA female
Damage Level	+20 dBm RMS/+25 dBm peak/0 V DC

10 MHz External Reference Input

1 Connector	SMA female
Frequency	10 MHz $\pm$ 5 ppm
External Reference Input Level	Typ: 5 dBm
	Max: +13 dBm
	Min: -2 dBm
Damage Level	+15 dBm RMS/+18 dBm peak/0 V DC
Input Impedance	50 Ω

External LO Input/Output (synchronize slave converters in high order MIMO)

1 Input and 1 Output	SMA female
Input/Output Impedance	50 Ω , AC coupled
Output Level	Typ: +5 dBm
Input Level	Typ: +5 dBm
	Min: -10 dBm
Damage Level	+15 dBm RMS/+18 dBm peak/0 V DC
LAN Ethernet Port	Shielded RJ45
DC Power Input	C6P socket 12V/21A
Service Port	USB

General continued

Physical	
Dimensions and Weight	
Height (2U)	8.825 cm (3.47") without feet
	9.825 cm (3.87") including feet
Width (19" rack)	43.8 cm (17.25") box frame
	48.26 cm (19") front panel
Depth	37.7 cm (14.85") including handles and connectors
Weight	5kg (4x4), 8kg (16x16)
Power Dissipation	
4 x 4 configuration (1 MIMO Module)	<50 W DC
	<55 W AC
16 x 16 configuration (4 MIMO Modules)	<160 W DC
	<175 W AC
Compliance	
Transportation/Storage Ambient	
ETSI EN 300 019-2-2	
Temperature	-25 ±70°C (sea-level - 15,000 ft.)
Humidity	5% - 93% RH non-condensing
Duration	16 hrs
Transportation Mechanical	
ETSI EN 300 019-2-2	
Random Vibration	5 - 20 Hz: 1 ASD m ² /s ³
	20 - 200 Hz: -3 ASD dB/oct
	Duration: 30 mins in each of the 3 axis
Shock	Spectrum: half sine
	Duration: 11 ms
	Acceleration: 100 m/s ² in each 6 axis
	Repetition: 100 times
	Free fall Height: 25 cm all sides edges and corners
Safety	EN 61010-1 :2010
Electromagnetic Compatibility	EN 61326-1:2021
	CISPR 11 Emissions Class A Group 1
CE Compliance	Meets the essential requirements of the EMC safety and RoHS directives
Warranty	12 months

Ordering Information

Part Number	Description	
TK1197	FR3 MIMO Converter	Supplied with 1 MIMO Module as standard
HW1000	Adds 2nd MIMO Module	
HW1001	Adds additional 2 RF Modules	



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