

Ka-Band Outdoor Block Upconverters and

Low-Noise Block Downconverters



This series of Ka-band block upconverters and downconverters are designed for antenna mounting. A contact closure summary alarm is provided for fault monitoring.

Input Frequency (GHz)	Output Frequency (GHz)	LO Frequency (GHz)	Model Number
Upconverters			
0.95 – 1.2	28.35 – 28.6	27.4	UB-WS-28.475
0.95 – 1.2	29.25 – 29.5	28.3	UB-WS-29.375
0.95 – 1.45	29 – 29.5	28.05	UB-WS-29.25
0.95 – 1.45	29.5 – 30	28.55	UB-WS-29.75
1 – 2	28 – 29	27	UB-WS-28.5
1 – 2	29 – 30	28	UB-WS-29.5
1 – 2	30 – 31	29	UB-WS-30.5
Downconverters			
18.3 – 18.8	0.95 – 1.45	17.35	DB-WS-18.55
19.7 – 20.2	0.95 – 1.45	18.75	DB-WS-19.95
20.2 – 21.2	0.95 – 1.95	19.25	DB-WS-20.7
20.2 – 21.2	1 – 2	19.2	DB-WS-20.7-1

Features

- Small size
- Weather resistant enclosure
- Low noise temperature downconverters
- Automatic 5/10 MHz and internal/external reference selection
- Low phase noise
- High frequency stability
- Summary alarm

Options

- Higher stability reference
- Remote Ethernet and RS422/RS485 remote control
- 30 dB gain control
- AC power supply (CE mark)

Specifications	Upconverters	Downconverters
Type	Single conversion	
Frequency sense	No inversion	
Input characteristics		
Impedance	50 ohms	
Return loss	18 dB minimum	
Output characteristics		
Impedance	50 ohms	
Return loss	18 dB minimum	
Power output (1 dB compression)	+10 dBm minimum	
Transfer characteristics		
Gain (at minimum attenuation with Option 17)	30 dB minimum	50 dB minimum
Image rejection	80 dB minimum	
Level stability		
Constant temperature	±0.25 dB/day maximum	
Over operating temperature	2 dB maximum	
Noise figure (at minimum attenuation)	18 dB maximum	N/A
Noise temperature	N/A	150°K maximum at 23°C
Amplitude response	±0.5 dB/±40 MHz, ±2.0 dB over RF-band	
Group delay	1 ns peak-to-peak maximum	
Intermodulation distortion (third order)	With two 0 dBm output signals, 40 dBc minimum	
Spurious outputs		
Signal related	65 dBc minimum up to 0 dBm output level	
Signal independent	-70 dBm maximum	
LO leakage at RF	-70 dBm maximum	
Gain adjustment (Option 17 only)	30 dB in 0.2 dB steps	
Frequency stability	±5 x 10 ⁻⁸ , -40 to +60°C (higher stability options available), ±5 x 10 ⁻⁹ /day typical (fixed temperature after 24 hour on time)	
Automatic reference configuration	External 5 or 10 MHz, +4 ±3 dBm. If external reference is below +1 dBm nominal, the converter will automatically lock to the internal reference.	

Options

1. AC input power
 - Voltage: 90–250 VAC
 - Frequency: 47–63 Hz
 - Connector: FCI Clipper series CL1M1102 (supplied with mating connector)
 - Mechanical: Outline 2

10. Higher frequency stability reference.
 - $\pm 5 \times 10^{-9}$, -40 to +60°C,
 - 1×10^{-9} /day typical (fixed temperature after 24 hour on time).

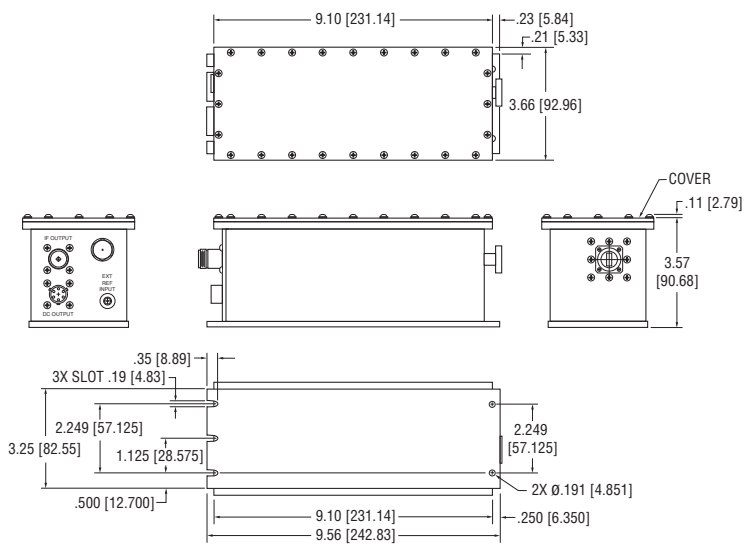
17. Remote interface and digital level adjust
 - 10/100Base-T Ethernet and RS422/485
 - TCP/IP
 - Static or DHCP addressing
 - User selectable: Control, SNMP, Agent, HTTP Server or Telnet
 - Serial remote: RS485 or RS422 selectable
 - Level adjust: 30 dB in 0.2 dB steps
 - Ethernet interface connector: RJ-45 female
 - RS422/RS485 summary alarm connector: MS3116F12-10P
 - Mechanical: Outline 2

Notes: Missing option numbers are not applicable to this product.

For literature describing Option 17 remote control (bus protocols), refer to MITEQ's Technical Note 25T060.

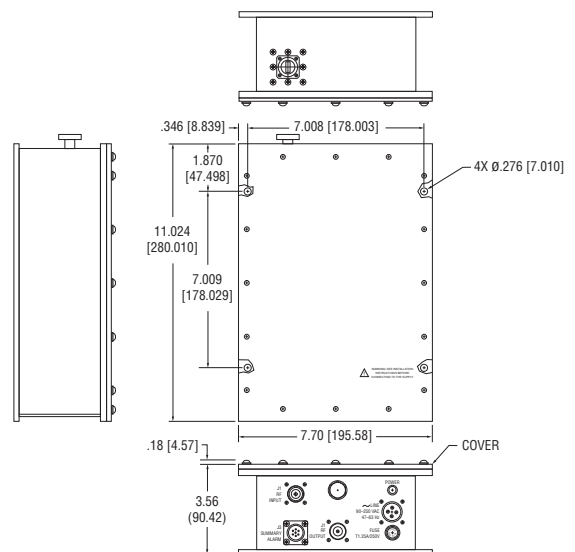
Outline Drawings

Outline 1



Outline 2

(For Units With Option 1 and/or 17)



NOTE: DIMENSIONS ARE IN INCHES, MILLIMETERS ARE SHOWN IN BRACKETS [].

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General Specifications

POWER REQUIREMENTS

Voltage..... 12–20 VDC
Current..... 800 mA maximum (no options)

PHYSICAL

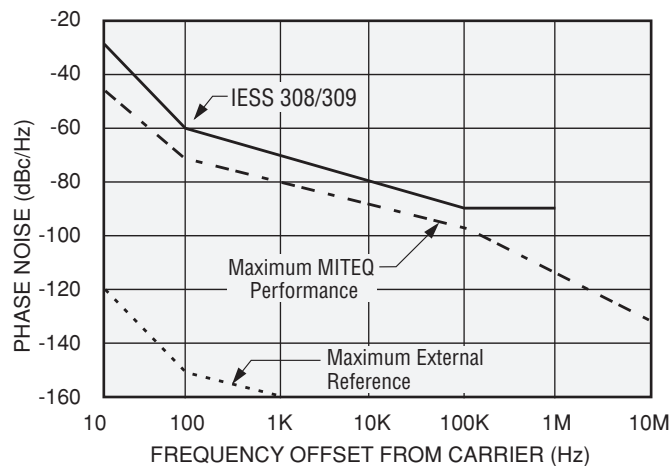
Weight..... 5 (2.27 kg) pounds nominal, 12 pounds with Options 1 and/or 17
Connectors
RF
 Below 26.5 GHz..... WR-42 grooved
 Above 26.5 GHz..... WR-28 grooved
IF..... N female
External reference..... SMA female
Power/status interface..... MS3116F10-6S (mating connector supplied)

ENVIRONMENTAL

Operating
 Ambient temperature..... -40 to +60°C
 Atmospheric pressure..... Up to 10,000 feet
Nonoperating
 Ambient temperature..... -50 to +70°C
 Atmospheric pressure..... Up to 40,000 feet
 Shock and vibration..... Normal handling by commercial carriers

Phase Noise Specifications

PHASE NOISE CHARACTERISTICS (1.0 Hz BANDWIDTH)



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