



# DUAL-, TRI- AND QUAD-BAND OUTDOOR BLOCK CONVERTERS



## FEATURES

- Small weather resistant enclosure
- RS422/485 and 10/100Base-T Ethernet remote control
- Output signal monitor port
- 30 dB gain control
- Automatic 5/10 MHz internal/external reference selection
- Low phase noise
- LNA power provided on both RF center conductor (tri-band) and separate connection with current detection (downconverter)
- High frequency stability
- Summary alarm
- AC power supply (CE Mark)

This series of multiband block upconverters and downconverters are designed for antenna mounting.

A strong set of monitor and control functions support powerful remote control. A contact closure summary alarm is provided for fault monitoring.

A continuously updated log of time stamped records of activity is also provided.

## OPTIONS

- Higher stability reference



# SPECIFICATIONS

## DOWNCONVERTERS

| Input (GHz) | Output (GHz) | Model Number  |
|-------------|--------------|---------------|
| 3.4–4.2     | 0.95–1.75    | DNB-T/Q-BCEG  |
| 7.25–7.75   | 0.95–1.45    |               |
| 10.7–11.7   | 0.95–1.95    |               |
| 11.7–12.75  | 0.95–2       |               |
| 3.4–4.2     | 0.95–1.75    | DNB-T/Q-BCDFH |
| 7.25–7.75   | 0.95–1.45    |               |
| 10.7–11.45  | 0.95–1.7     |               |
| 11.45–12.2  | 0.95–1.7     |               |
| 12.2–12.75  | 0.95–1.5     | DNB-T/Q-ACEGK |
| 3.4–4.2     | 1.2–2        |               |
| 7.25–7.75   | 0.95–1.45    |               |
| 10.7–11.7   | 0.95–1.95    |               |
| 11.7–12.75  | 0.95–2       | DNB-T/Q-CK    |
| 20.2–21.2   | 0.95–1.95    |               |
| 7.25–7.75   | 0.95–1.45    |               |
| 20.2–21.2   | 0.95–1.95    |               |

## UPCONVERTERS

| Input (GHz) | Output (GHz) | Model Number |
|-------------|--------------|--------------|
| 0.95–1.75   | 5.85–6.65    | UPB-T/Q-ABC  |
| 0.95–1.45   | 7.9–8.4      |              |
| 0.95–1.7    | 13.75–14.5   | UPB-T/Q-ABCE |
| 0.95–1.75   | 5.85–6.65    |              |
| 0.95–1.45   | 7.9–8.4      |              |
| 0.95–1.7    | 13.75–14.5   |              |
| 0.95–1.95   | 30–31        | UPB-T/Q-BE   |
| 0.95–1.45   | 7.9–8.4      |              |
| 0.95–1.95   | 30–31        | UPB-T/Q-ABCD |
| 0.95–1.75   | 5.85–6.85    |              |
| 0.95–1.45   | 7.9–8.4      |              |
| 0.95–1.75   | 13.75–14.5   |              |
| 0.95–1.45   | 14–14.5      | UPB-T/Q-ABD  |
| 0.95–1.75   | 5.85–6.65    |              |
| 0.95–1.45   | 7.9–8.4      |              |
| 0.95–1.45   | 14–14.5      |              |

Frequency sense..... No inversion

### INPUT CHARACTERISTICS

Impedance ..... 50 ohms  
 Return loss ..... 18 dB minimum  
 Nondamage..... +10 dBm  
 Local oscillator leakage (downconverter)..... -80 dBm maximum

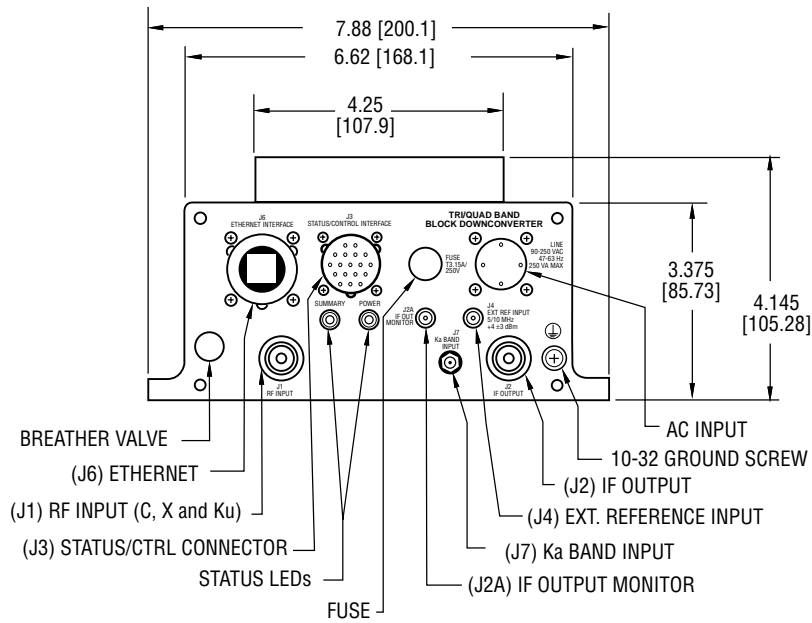
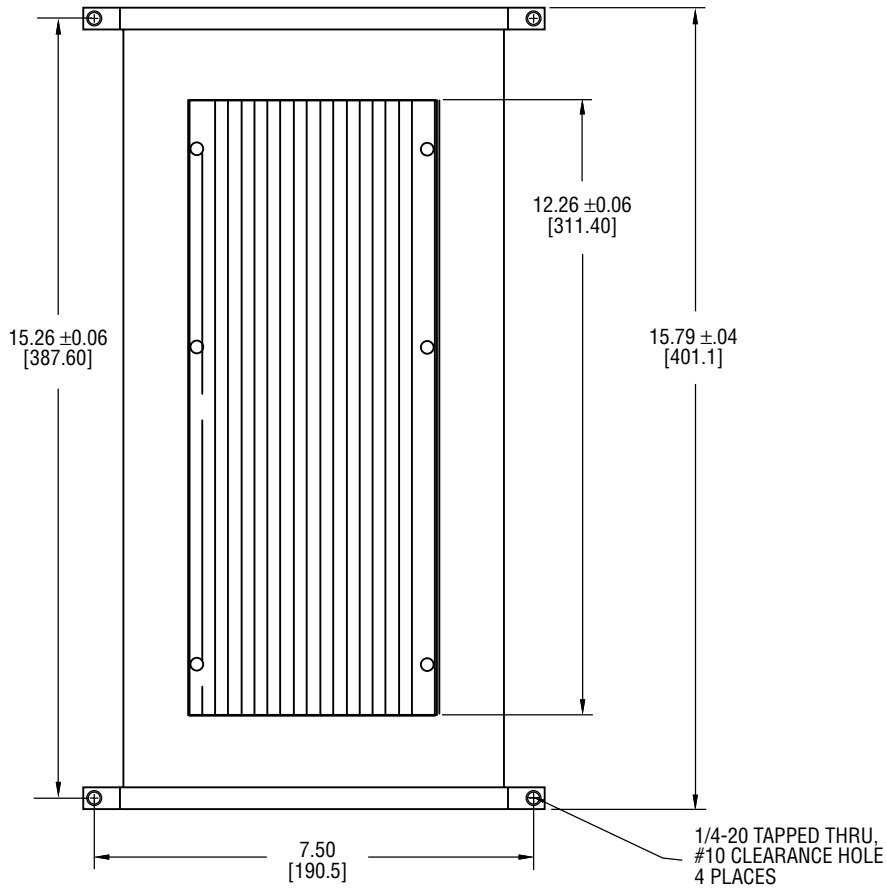
### OUTPUT CHARACTERISTICS

Impedance ..... 50 ohms  
 Return loss ..... 18 dB minimum  
 Power output (1 dB compression) ..... +10 dBm minimum  
 Signal monitor ..... 20 dBc nominal

### TRANSFER CHARACTERISTICS

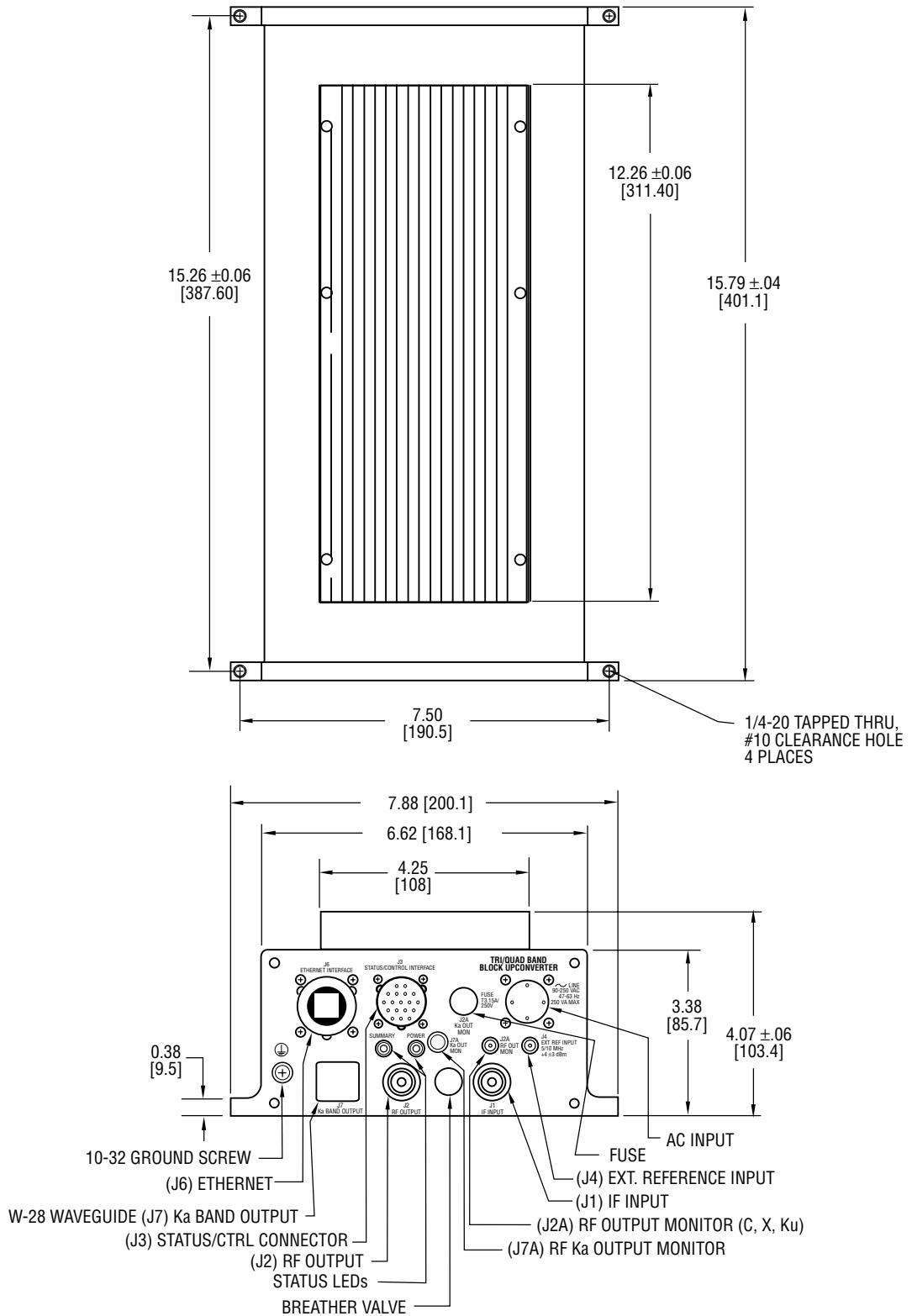
Gain (at minimum attenuation)  
 Upconverters..... 13 dB,  $\pm 3$  dB at 23°C  
 Downconverters ..... 30 dB,  $\pm 3$  dB at 23°C  
 Image rejection..... 60 dB minimum  
 Level stability  
 Constant temperature .....  $\pm 0.25$  dB/day maximum  
 Over operating temperature.....  $\pm 2$  dB maximum  
 Noise figure (at minimum attenuation)  
 Upconverters..... 20 dB maximum  
 Downconverters ..... 15 dB maximum  
 Amplitude response .....  $\pm 0.5$  dB/ $\pm 40$  MHz,  $\pm 2$  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..... 60 dBc minimum up to 0 dBm output level  
 Signal independent ..... -60 dBm maximum  
 LO leakage at RF..... -70 dBm maximum  
 Gain adjustment ..... 30 dB in 0.2 dB steps

# DOWNCONVERTER OUTLINE DRAWING



NOTE: Dimensions shown in brackets [ ] are in millimeters.

# UPCONVERTER OUTLINE DRAWING



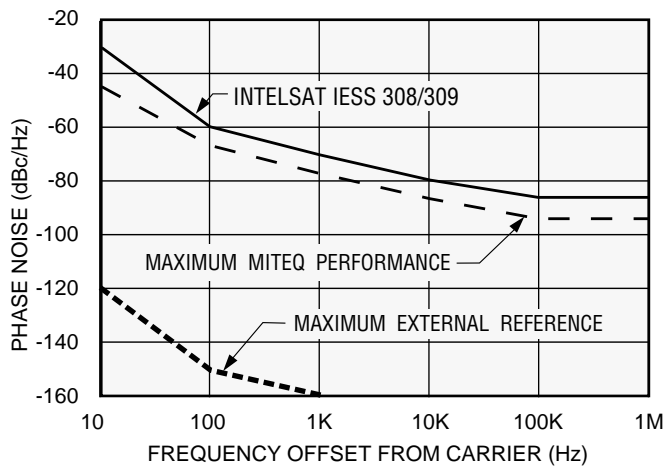
NOTE: Dimensions shown in brackets [ ] are in millimeters.

## SPECIFICATIONS (CONT.)

|   |  |
|---|--|
| Frequency stability .....               | $\pm 5 \times 10^{-8}$ , -40 to +60°C (higher stability options available),<br>$\pm 5 \times 10^{-9}$ /day typical (fixed temperature after 24 hour on time)   |
| Automatic reference configuration ..... | External 5 or 10 MHz at +4 $\pm$ 3 dBm. If external reference is below +1 dBm nominal, the converter will automatically lock to the internal reference.  |
| Remote interface.....                   | 10/100Base-T Ethernet interface providing Web-browser-based configuration, SNMP 1.0 configuration, alarm reporting via SNMP trap, telnet access, password protection and selectable RS485/RS422. Refer to MITEQ's Technical Note 25T060 for details. |

## PHASE NOISE

**TYPICAL PHASE NOISE CHARACTERISTICS  
(1.0 Hz BANDWIDTH)**



## OPTION

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

Note: Missing option numbers are not applicable for this product.  
For literature describing local control (front panel) and remote control (bus protocols), refer to MITEQ's Technical Note 25T060.

# DUAL-, TRI- AND QUAD-BAND OUTDOOR BLOCK CONVERTERS

## GENERAL SPECIFICATIONS

### PRIMARY POWER REQUIREMENTS

|                 |              |
|-----------------|--------------|
| Voltage .....   | 90–250 VAC   |
| Frequency ..... | 47–63 Hz     |
| Power .....     | 20 W typical |

### SUMMARY ALARM

Contact closure/open for DC voltage and/or LO alarm

### PHYSICAL

|                                |  |
|--------------------------------|--|
| Weight .....                   | 14 pounds typical  |
| Color .....                    | Powder coat green hybrid matte #383,<br>FED-STD-595 color #34094 |
| Connectors                     |  |
| RF                             |  |
| Below 22 GHz .....             | N female   |
| Above 26.5 GHz .....           | WR-28 grooved  |
| RF output monitor .....        | 2.92 mm female (upconverter)                                     |
| IF .....                       | N female   |
| IF output monitor .....        | SMA female (downconverter)                                       |
| External reference .....       | SMA female   |
| Ethernet interface .....       | RJ-45 female (Amphenol RJF6MGF)*                                 |
| Status/control interface ..... | MA3116F14-18P for summary alarm, RS422/485<br>and LNA power*     |
| Power/status interface .....   | FCI Clipper series CL1M1102*                                     |

\*Note: Unit supplied with mating connector.

### 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 |



100 Davids Drive, Hauppauge, NY 11788  
TEL.: +1-631-436-7400 • FAX: +1-631-436-7431  
www.miteq.com