3116-31 Multi-Band Block Downconverter

The 3116-31 Block Downconverter converts one of three RF bands to 0.95 - 2.05 GHz (Band 1 to 0.95 - 1.75 GHz). The RF to L-band gain is +30 dB, maximum. Connectors are SMA female for the L-band, RF and RF Monitor and BNC female for the external reference input and reference output. Front panel LEDs provide indication of Remote Operation, DC Power, and PLL Alarm. Gain, band select, and internal/external/Auto reference selection are controlled by front panel switches or remote selection (Ethernet M&C or via the RS-232C/485 Monitor and Control connector) and are viewable on the LCD Display. In AUTO, the 10 MHz reference stays in external if the external level is in the +2 to +8 dBm range. The 3116 is powered by a 100-240 ± 10% VAC power supply, and housed in a 1RU rack mount chassis, 1.75” H X 19.0” W X 19.0” deep.

**Specifications**

- **Input Characteristics**
  - Impedance/Return Loss: 50Ω/14 dB
  - Frequency (GHz): Band 1 - 0.95 to 4.2 GHz, Band 2 - 4.2 to 11.8 GHz, Band 3 - 11.8 to 12.8 GHz
  - Noise Figure, Max.: 15 dB at max. gain (Gmax)
  - Input Level Range: -50 to -30 dBm
  - Non-damage input: 0 dBm at max. gain

- **Output Characteristics**
  - Impedance/Return Loss: 50Ω/14 dB
  - Frequency (GHz): Band 1 - 0.95 to 1.75 GHz, Band 2 - 0.95 to 2.05 GHz, Band 3 - 0.95 to 2.05 GHz
  - Output Level Range: -20 to 0 dBm
  - Output 1 dB Compr.: +10 dBm, min. at max gain

- **Channel Characteristics**
  - Gain at Fc, R-L: RF Mon +30 ± 3 dB maximum, (+30 to 0 dB variable in 0.5 ± 0.5 dB steps); RF Mon +10 dB of RF In, ±2 dB
  - Input to Output Isolation: > 45 dB, min; (at max gain and -30 dBm input)
  - Image Rejection: > 60 dB, min at max gain
  - Spurious, Inband: SIG. REL. < -50dBc, -15 to 0 dBm out, 12Xfo < -40dBc; SIG. INDEP. < -60dBm, 95-1.75 GHz out, Gmax < -50 dBm, sig indep. < -50 dBm, LO: < -40 dBc sig rel. 0.5-0.95, Fmax 3.05 GHz out; -15 to 0 dBm out, Gmax
  - Intermodulation: < -50 dBc for two carriers at 4 MHz spacing, each at -5 dBm out, Gmax
  - Frequency Response: ±2 dB, over RF band; ± 0.5 dB, 40 MHz BW
  - Frequency Sense: Non-inverting

- **LO Characteristics**
  - LO Frequency: Band Specific
  - Frequency Accuracy: ± 0.05 ppm max over temp internal reference; ext. ref. input
  - Phase Noise @ F (Hz) >:
    - 100: +30 dBc/Hz
    - 1K: +30 dBc/Hz
    - 10K: +30 dBc/Hz
    - 100K: +30 dBc/Hz
    - 1M: +30 dBc/Hz
  - Power: 10 MHz level In/Mon = Input ± 10 dB, 50 ohms

- **Controls, Indicators**
  - Gain, Band, 10M Freq.: Direct readout LCD; pushbutton switches or via Ethernet M&C or Monitor and Control Connector.
  - PLL Alarm: Red LED, External contact closure
  - Remote, Power, Alarm: Yellow LED: Green LED: Red LED

- **Other**
  - RF In, Out, Mon. Conn.: BNC (female), 50Ω, Works with 75Ω
  - 10 MHz Connectors: BNC (female), 50Ω, Works with 75Ω
  - Monitor/Control Conn.: RS-232C/485, DB9, Female; Ethernet, RJ45, Female, w/Web Browser & SNMP User interfaces.
  - Power: 100-240 ± 10% VAC, 47-63 Hz, 25 watts max

* **+0 to +50 degrees C Operating; -30 to +60 degrees C Non-operating; 95% relative humidity, non-condensing; Specifications subject to change without notice**