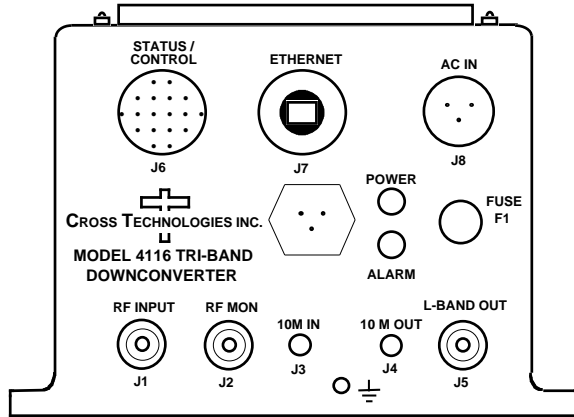


**4116-31 Tri-Band Block Downconverter, Weather Resistant\***

The 4116-31 Block Downconverter converts one of three RF bands to 0.95 - 2.05 GHz. Front panel LEDs provide indication of DC Power, and PLL Alarm. The RF to L-band gain is +30 dB. Connectors are Type N female for the L-band, RF and RF Monitor and SMA female for the external reference input and reference output. Gain, band select, and internal 10 MHz frequency are controlled by the Ethernet M&C or via the Status/Control connector. **In AUTO, the 10 MHz reference stays in external if the external level is in the +2 to +8 dBm range.** The 4116 is powered by a 100-240 ± 10% VAC power supply, and mounted in a 8" W X 6" H X 16" D Weather Resistant\* enclosure.



**\*Weather Resistant** enclosures are designed to be water resistant for installation in an outdoor enclosure/antenna hut OR mounted outdoors on an antenna assembly at their specified temperature ranges. They are designed to be located "out in the elements" (water, sleet, snow, etc.) but they are *not* designed to be "submerged under" water.

If an extended temperature range is required, there is an **Extended Temperature** option (**Option W21**; -30°C to +60°C) available at an additional cost. Contact Cross for quote.

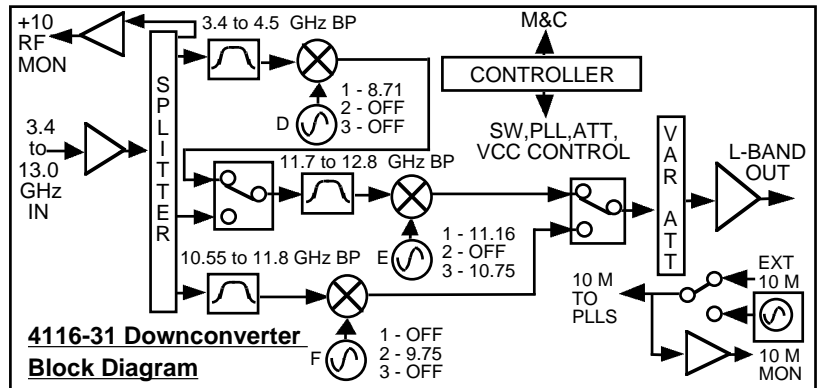
**EQUIPMENT SPECIFICATIONS\*\***

**Input Characteristics**

Impedance/Return Loss 50Ω/14 dB  
 Frequency (GHz)  
 BAND 1 - 3.4 to 4.2  
 BAND 2 - 10.7 to 11.8  
 BAND 3 - 11.7 to 12.8  
 Noise Figure, Max. 15 dB max gain  
 Input Level range -50 to -30 dBm

**Output Characteristics**

Impedance/Return Loss 50 Ω /14 dB  
 Frequency (GHz)  
 BAND 1 - 0.95 to 1.75  
 BAND 2 - 0.95 to 2.05  
 BAND 3 - 0.95 to 2.05  
 Output Level Range -20 to 0 dBm  
 Output 1 dB compression +10 dBm, at max gain



**Channel Characteristics**

Gain at  $F_c$  +30 ±3 dB, (+30 to 0 dB variable in 0.5 dB steps)  
 Image Rejection > 60 dB, min  
 Spurious, Inband SIGNAL RELATED <-50 dBC in band, -15 to 0 dBm out; SIGNAL INDEPENDENT, <-60 dBC  
 Spurious, Out of band <-50 dBm spurious, signal independent; 0.5 to 3 GHz out  
 Harmonics, in band <-40 dBC at 0 dBm out, 0.95 to  $F_{max}$  out (1.75 or 2.05 GHz depending on band)  
 Intermodulation <-50 dBC for two carriers at 4 MHz spacing, each at -5 dBm out  
 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  
 10 MHz level In/Mon Input = +2 to +8 dBm in; Monitor Output = Input Level ± 1.0 dB, 50 ohms

Phase Noise @ F (Hz) >	100	1K	10K	100K	1M
dBC/Hz	70	78	83	100	110

**Controls, Indicators**

Gain, Band, 10M Freq. Gain, band select, and internal 10 MHz frequency via Ethernet M&C or Status/Control Connector.  
 PLL Alarm Red LED, External contact closure  
 Power Green LED

**Other**

RF In, Mon. Connector Type N (female), 50Ω  
 L-Band Connector Type N (female), 50Ω  
 10 MHz Connectors SMA (female), 50Ω  
 Status/Control Connector Multipin MS3112E14-18S Weather Resistant Connector  
 Ethernet Connector Standard RJ45 Weather Resistant\* Ethernet Connector, RJF6G  
 Size 8" W X 6" H X 16" D Weather Resistant\* Enclosure  
 Power 100-240 ±10% VAC, 47 - 63 Hz, 25 watts max./ FCI Clipper Series CL1M1102 W/R\* Connector

\*\*+0 to +50 degrees C; Specifications subject to change without notice

