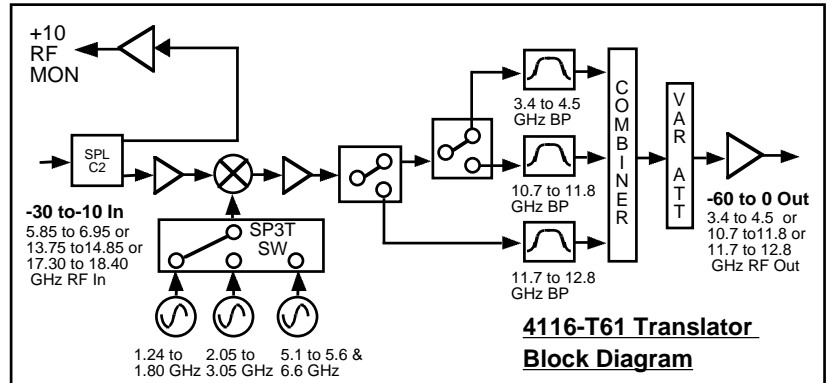
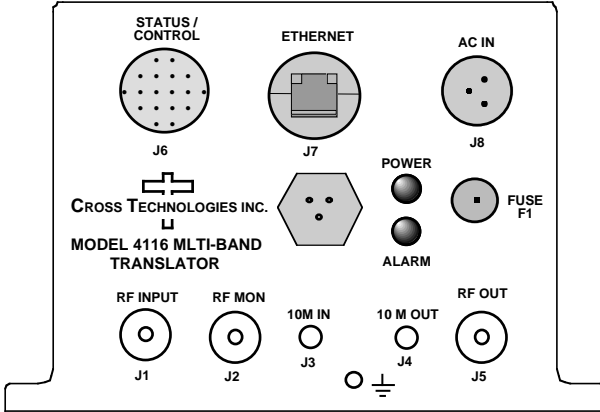


**4116-T61 Multi-Band, Block Translator, Weather Resistant\***

The 4116-T61 Translator converts one of three input RF bands to one of three output RF bands. Front panel LEDs provide indication of DC Power, and PLL Alarm. The RF to RF gain is +20 dB, maximum. Connectors are Type N female for the RF out, RF in and RF in 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. The 10 MHz reference switches to internal when the external falls below +1 dBm ± 1.5dB. 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.



**EQUIPMENT SPECIFICATIONS\*\***

**Input Characteristics**  
 Impedance/Return Loss **50Ω/12 dB, 14 dB typ**  
 Frequency (GHz) SEE BAND CHART  
 Noise Figure, Max. 20 dB at max gain  
 Input Level range -30 to -10 dBm

**Output Characteristics**  
 Impedance/Return Loss **50Ω/10 dB, 14 dB typ**  
 Frequency (GHz) SEE BAND CHART  
 Output Level Range -60 to 0 dBm  
 Output 1 dB comp., max. gain **+8 dBm, +10 typ.**

**Channel Characteristics**  
 Gain +20 ±3 dB max., (+20 to -40 dB variable in 1 dB steps)  
 Input to Output Isolation **> 45 dBC, min; > 60 dBC typ.**  
 Spurious, Inband **> 30 dBC** in band, except **25 dBC (> 30 dBC typ.)** at -10 dBm in where harmonic of LO falls in-band (See Chart)

**Spurious, Sig. Rel., Band 1**  
 Spurious, LO (at input) **< -60 dBm LO**  
 2 Tone @ -20dBm in, -5 out, ea **> 45 dBC (> 50 dBC typ.)**  
 Frequency Response ±2 dB, over RF band; ± 0.5 dB, 40 MHz BW  
 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	1K	10K	100K	1M
<b>Specification dBC/Hz</b>	70	80	85	95	110
<b>Typical dBC/Hz</b>	75	85	90	100	125

10 MHz level In/Mon +2 to +8 dBm in; Monitor Output = input level ± 1.0 dB, 50 ohms

**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., Out Connector Type N (female), 50Ω  
 10 MHz connectors SMA (female), 50Ω  
 Status/Control Connector MS3116F14-18P; RJ45 Weather Resistant\* Ethernet Connector  
 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 connector

**Band Chart - Frequencies, Translations, 10kHz Phase Noise**

BAND NO.	IN RANGE (GHz)	OUT RANGE (GHz)	TRANSLATE DEFAULT (GHz)	TRANSLATE RANGE (GHz)	TRANSLATE STEP (MHz)	PH NOISE @ 10 kHz
1	5.85-6.95	3.4-4.5	2.45	2.05-3.05	1	85
2	13.75-14.85	10.7-11.8	3.05	2.05-3.05	1	85
3	13.75-14.85	11.7-12.8	2.05	2.05-3.05	1	85
4	13.75-14.85	11.7-12.8	1.5	1.24-1.80	1	85
5	17.3-18.4	10.7-11.8	6.6	6.6	FIXED	85
6	17.3-18.4	11.7-12.8	5.6	5.1-5.6	5	85*

\* 5 MHz steps; >75 dBC for 1 MHz steps

**LO Harmonically-related In-Band Fixed Spur Frequencies**

BAND NO.	OUT RANGE (GHz)	TRANSLATE RANGE (GHz)	In-Band Fixed Spurs (25 dBC at -10 in) (5 dBC at -30 in)
1	3.4-4.5	2.05-3.05	2.05 to 2.25, Carrier related 20dBC
2	10.7-11.8	2.05-3.05	2.14 to 2.36; 2.675 to 2.95
3	11.7-12.8	2.05-3.05	2.05 to 2.1; 2.34 to 2.565; 2.925 to 3.05
4	11.7-12.8	1.24-1.80	1.24 to 1.40 ; 1.5 to 1.6 ; 1.75 to 1.8
5	10.7-11.8	6.6	None
6	11.7-12.8	5.1-5.6	None

**Options:**

W500 - Standard, Unit Requires Firmware Rev. 5.0  
 W412 - Unit Requires Firmware Rev 4.12

**\*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.

\*\*+0 to +50 degrees C; -30 to +60 degrees C Non-operating; Specifications subject to change without notice

