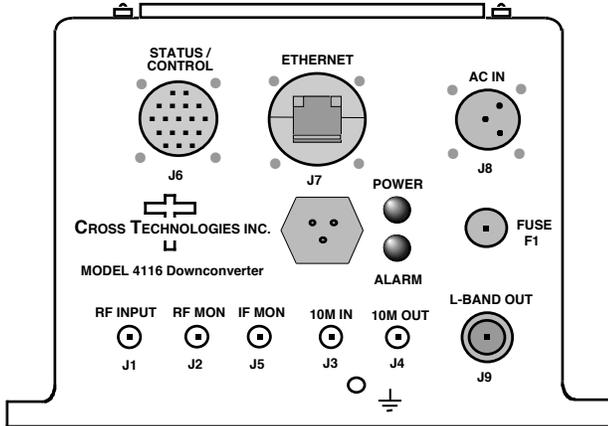


## 4116-41-213 Ka-band Block Downconverter, Weather Resistant\*

The 4116-41-213 Ka-band Block Downconverter converts 17.7 - 21.2 GHz to 0.95 - 1.95 GHz in four selectable fixed bands. Front panel LEDs provide indication of DC Power and PLL Alarms. The RF to L-band gain is **+20 dB**. Connectors are Super SMA for RF In, RF Monitor and IF Monitor, SMA for external reference input and output, and Type N (all female) for L-band out. Gain, band select, and internal 10 MHz frequency are controlled by the Ethernet M&C. In AUTO, the 10 MHz reference stays in external if the external level is in the +2 to +8 dBm range. The unit is powered by a 100-240  $\pm$ 10% VAC power supply, and is 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.

**Option W21 - Extended Temperature** option ( -30 to +60°C operating, -40 to -60 °C storage) available at an additional cost Contact Cross for quote.

### EQUIPMENT SPECIFICATIONS\*\*

#### Input Characteristics

Impedance/Return Loss 50 $\Omega$ /14 dB  
 Frequency (GHz) BAND1 17.7 to 18.7  
 BAND2 18.3 to 19.3  
 BAND3 19.2 to 20.2  
 BAND4 20.2 to 21.2  
 Noise Figure, Max. 20 dB at max. gain ( $G_{max}$ )  
 Optimum Input Level -45 to -10 dBm  
 Non-damage input 0 dBm at max. gain

#### Output Characteristics

Impedance/Return Loss 50 $\Omega$ /14 dB  
 Frequency 0.95 to 1.95 GHz  
 Output 1 dB compr. +15 dBm min. at max. gain

#### Channel Characteristics

Gain at Fc **+20  $\pm$  2 dB, (+20 to 0 dB variable in 0.5  $\pm$  0.5 dB steps)**  
 Image Rejection > 60 dB, min  
 Spurious, Inband SIG. REL. <-50dBC, -15 to 0dBm out; 2X $F_o$  <-45dBC; SIG. INDEP., <-60dBm; 95-1.95 GHz out,  $G_{max}$   
 Spurious, Out of band <-55 dBm, sig indep, <-50 dBm, LO; <-45 dBC sig rel; 0.5-0.95, 1.95-2.45 GHz out; -15 to 0dBm out,  $G_{max}$   
 Intermodulation <-50 dBC for two carriers at 4 MHz spacing, each at -5 dBm out,  $G_{max}$   
 Frequency Response  $\pm$ 2 dB, over RF band;  $\pm$  0.5 dB, 40 MHz BW (also for monitors)  
 Frequency Sense Non-inverting  
 RF, IF Monitor Gain **+5  $\pm$  2 dB above RF In for RF (17.7- 21.2 GHz) and IF (13.75- 15.15 GHz) monitors**  
 RF, IF Mon P1dB out **+0 dBm for RF (17.7- 21.2 GHz) and IF (13.75- 15.15 GHz) monitors**

#### LO Characteristics

LO Frequency Band Specific, fixed frequency  
 Frequency Accuracy  $\pm$  0.05 ppm max over temp internal reference; external reference input  
 10 MHz level In/Mon +2 to +8 dBm in; Monitor Output = input level  $\pm$  1.0 dB, 50 ohms

Phase Noise @ F (Hz) >	10	100	1K	10K	100K	1M	10M	100M
dBC/Hz	-32	-65	-75	-84	-95	-105	-114	-114

#### Controls, Indicators

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

Connectors*	Connector Part #	Mating Connector Part #	Additional Connector Specifications*		
Status/Control Connector*	MS3112E14-18S	MS3116F14-18P	RF In, RF Mon, & IF Monitor Super SMA (female) 50 $\Omega$	L-Band Mon Type N (female) 50 $\Omega$	10MHz Connectors SMA (female) 50 $\Omega$
Ethernet Connector/RJ45*	RJF21B	RJF6G			
AC Input Connector*	CL1M1102	CL1F1101			

#### Other

Size 8" Wide X 6" High X 16" Deep Weather Resistant\* Enclosure  
 Power 100-240  $\pm$ 10% VAC, 47 - 63 Hz, 25 watts max./ FCI Clipper Series CL1M1102 Connector

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

