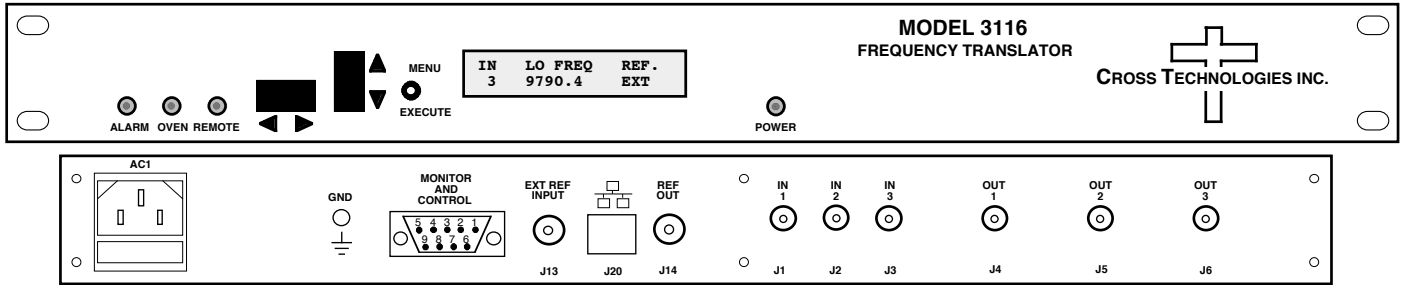


## 3116-T291 Block Translator

The 3116-T291 Translator converts one of three selected 27.6 - 29.1 GHz input bands to a 17.8 - 19.3 GHz output band via a three way **switch**. Front panel LEDs provide indication of PLL Alarm, internal OCXO oven Alarm, Remote operation, and DC Power. The RF to RF gain is **-29±3 dB**, fixed. Connectors are 2.92 mm for the RF in, Super SMA for the RF out and BNC female for the external reference input and reference output. In AUTO, the internal 100 MHz reference remains locked to the external 10 MHz at a +0 to +6 dBm level. Selected input channel, LO frequency (9.800 or 9.7904 GHz), and internal/external/Auto reference frequency selection are controlled by front panel push-button switches or remote selection (via RS 232C, standard; Ethernet Optional). The 3116-T291 is powered by a 100-240 ±10% VAC power supply and is in a 1.75" X 19" X 13" rack mount chassis.



**3116-T291 FRONT AND REAR PANELS**

### EQUIPMENT SPECIFICATIONS\*

#### Input Characteristics

Impedance/Return Loss **50Ω/10 dB, min. 12 dB typ**  
 Frequency 27.6 - 29.1 GHz  
 Noise Figure, Max. **38 dB max gain**  
 Input Level range **-3 to +7 dBm**  
 Input Level, no damage **+11 dBm**

#### Output Characteristics

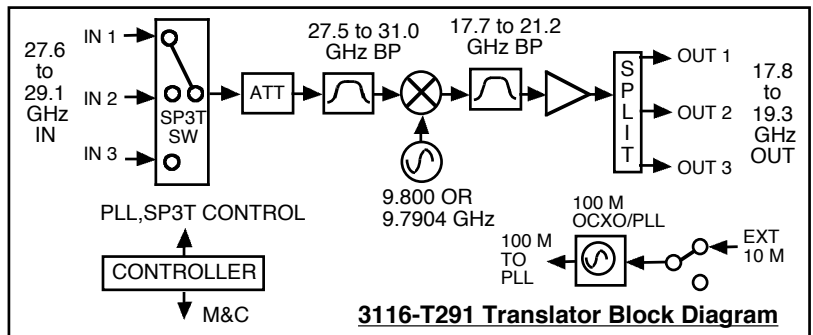
Impedance/Return Loss 50 Ω /14 dB  
 Frequency (GHz) 17.8 - 19.3 GHz  
 Output Level Range **-32 to -22 dBm**  
 Output 1 dB compression **-17 dBm**

#### Channel Characteristics

Gain; Variation over temp **-29 ±3 dB; ±0.05 dB/deg C**  
 Input to output isolation > 50 dB, min  
 Spurious, Inband SIGNAL RELATED<-50 dBC,typ., **-40 dBC max, -1 dBm IN; Spur >200 MHz from carrier**  
 Spurious, Inband SIGNAL INDEPENDENT<-80 dBm;  
 Spurious, Out of band,2XLO **<-45 dBm, at 19.6 GHz at the output**  
 Intermodulation <-50 dBC for two carriers each at **-3 dBm IN**  
 Frequency Response ±2 dB, over RF band; ± 1.0 dB, 250 MHz BW  
 Frequency Sense Non-inverting

#### LO Characteristics

LO Frequency 9.800 or 9.7904 GHz  
 Frequency Accuracy ± 0.05 ppm max over temp, ± 0.02 ppm /day; internal reference; ext. ref. = input specifications  
 10 MHz level In/Mon **Remains locked to Ext. for +0 to +6 dBm in;** Internal 100 MHz reference Output = +3 ± 3 dB, 50 ohms



**3116-T291 Translator Block Diagram**

Phase Noise @ F (Hz) >	10	100	1K	10K	100K	1M	10M	100M
9.800 GHz dBC/Hz	-45	-70	-85	-100	-100	-110	-130	-130
9.7904 GHz dBC/Hz	-45	-67	-82	-95	-95	-110	-130	-130
Ext 10 MHz Ref.	-127	-145	-150	-153	-153	-153	-153	-153

#### Controls, Indicators

IN Ch, LO, INT/EXT REF Direct readout LCD; push-button switches or remote selection Ethernet or RS 232C (standard)  
 PLL Alarm Red LED, External contact closure  
 Power;Remote;Oven Green LED, Yellow LED, Yellow LED

#### Other

RF In / RF Out Con. 2.92 mm / Super SMA  
 10 M In/ 100 M Out Conn BNC (female), 50Ω  
 Size 19 inch standard chassis 1.75" high X 13.0" deep  
 Power 100-240 ±10% VAC, 47 - 63 Hz, 30 watts max

#### Available Options

**W41** - 20 to +50 degrees C operation  
**M&C Interface** RS232 Std.  
**Q** - RS485 Remote Interface  
**W8** - Ethernet - Web Browser Interface  
**W18** - Ethernet - Web Browser & w/SNMP  
**W28** - Ethernet - direct TCP/IP and/or Telnet addressability

\* +10 to +40 degrees C Operating; -30 to +60 degrees C Non-operating; 95% relative humidity, non-condensing; (OPTION -W41 for -20 to +50 degrees C Operating) -Specifications subject to change without notice