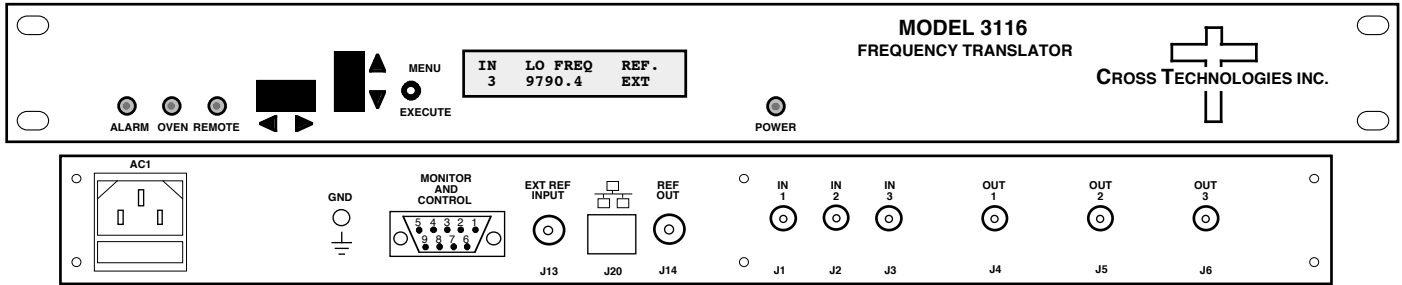


## 3116-T291 Block Translator

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

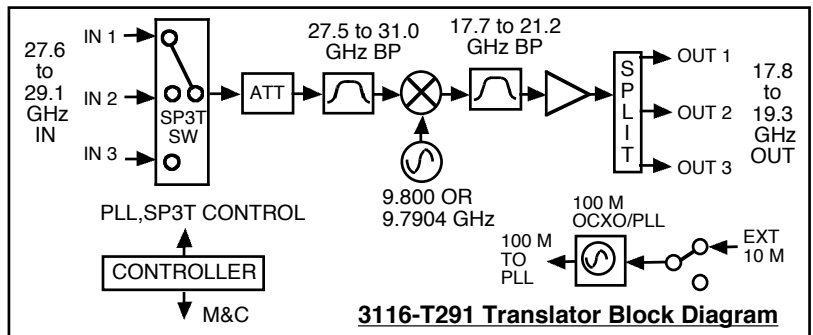
Impedance/Return Loss	50 Ω /14 dB
Frequency (GHz)	17.8 - 19.3 GHz
Output Level Range	-32 to -22 dBm
Output 1 dB compression	-17 dBm

#### 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	<b>Remains locked to Ext. for +0 to +6 dBm in;</b> 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

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