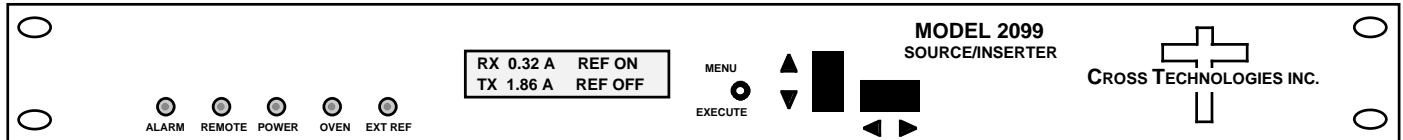


2099-17 10MHz Source/Inserter

The 2099-17 10 MHz Source/Inserter is a 10 MHz, ± 0.01 ppm oven controlled crystal oscillator (OCXO) with circuitry to insert the 10MHz signal and DC voltage on L-band lines for an LNB and SSPB. Multi-function push button switches select internal or external 10 MHz and insertion of 10 MHz on the L-band lines. LEDs indicate DC power (green), alarm (red), remote operation (yellow), and OCXO oven warm-up (yellow). Remote control allows remote configuration of front panel commands and monitoring LNB and SSPB current. Parameter selection and LNB and SSPB current appear on the LCD display. Connectors are BNC female for RF and 10 MHz external input and output signals. LNB or SSPB +24 VDC can be inserted on the RF lines by installing the fuses. AC power is 100-240 $\pm 10\%$ VAC, 47-63 Hz. The chassis is 1 RU, 16" deep.



Front Panel

EQUIPMENT SPECIFICATIONS*

-----10 MHz Reference-----

Output Characteristics (on L-band RF)

| | |
|-------------------------|------------------------|
| Level | +2 dBm ± 2 dB |
| Harmonics | <-30 dBC, <-40 dBC typ |
| Level to non-insert end | <-20 dBm, <-30 dBm typ |

Input/Output Characteristics (on BNC connectors)

| | |
|------------------------|----------------------------------|
| Impedance, Return Loss | 50 Ω /75 Ω , 18 dB |
| Level | +3 dBm ± 3 dB |
| Harmonics (Output) | < -30 dBC, < -40 dBC typ. |

Oscillator

| | |
|--------------------|--------------------------------------|
| Stability | ± 0.01 ppm max over temp |
| Aging, per day | ± 0.001 ppm |
| Aging, per year | ± 0.1 ppm |
| Warm up, 4 minutes | ± 0.1 ppm |
| Warm up, 1 hour | ± 0.01 ppm |
| Tuning Adjust | ± 0.5 ppm |
| Phase Noise | @ Freq 10Hz 100Hz 1kHz 10kHz |
| | dBc/Hz < -110 < -140 < -149 < -149 |

-----Chassis / Other-----

Controls, Indicators

| | |
|-----------------------|--|
| INT/EXT 10 MHz Select | direct readout LCD; manual or remote selection |
| 10 MHz Insert Select | direct readout LCD; manual or remote selection |
| LNB, SSPB Current | direct readout, remote monitor |
| Power, Alarm, Remote | Green LED; Red LED; Yellow LED; |
| Oven Warm-up, Ext Ref | Yellow LED; Yellow LED |
| Remote | RS232C, 9600 baud (RS485, option Q) |

Other

| | |
|------------------------|--|
| RF Connectors | BNC, 50 Ω (female) |
| 10 MHz Connectors | BNC, 75 / 50 (female) |
| Alarm/Remote Connector | DB9 (female) - NO or NC closure on Alarm |
| Size | 19 inch, 1RU chassis 1.75"H X 16.0"D |
| Power | 100-240 $\pm 10\%$ VAC, 47-63 Hz, 90 watts max |

Available Options

| |
|----------------------------------|
| Q - RS485/RS422 Remote Interface |
| Connectors/Impedance |
| B – 75 Ω BNC (RF) |
| F – 75 Ω Type F (RF) |

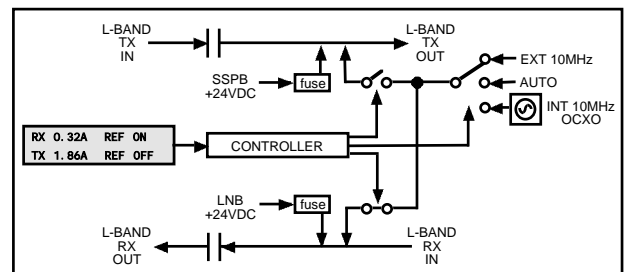
-----RX and TX L-band Insertion-----

RF Input/Output Characteristics

| | |
|--------------------|-------------------------------|
| Frequency | 950 - 2150 MHz |
| Impedance | 50 Ω |
| Return Loss | >12 dB, 0.95-1.5 GHz |
| | >10 dB, 1.5-2.15 GHz |
| Insertion Loss | < 1 dB, 0.95-1.5 GHz |
| | < 2 dB, 1.5-2.15 GHz |
| Frequency Response | ± 1.0 dB, 950 - 2150 MHz; |
| | ± 0.5 dB, 36 MHz BW |

LNB, SSPB DC Power Characteristics

| | |
|-----------------|---|
| Voltage/Current | LNB +24 VDC, 0.5 A, max. SSPB +24 VDC, 2.5 A, max. |
| Load Regulation | Call for other voltages $\pm 5\%$ |



Block Diagram

*10°C to 40°C; Specifications subject to change without notice