2099-2424 10MHz, 24V Source/Inserter

The 2099-2424 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 switches select LNB and SSPB DC Power, internal or External 10 MHz, and insertion of 10 MHz on the L-band lines. LEDs indicate DC power (green), Reference insertion (green), alarm (red), remote operation (yellow), and OCXO oven warm-up (yellow). An external 10 MHz reference can be selected to be inserted directly into the L-Band lines. Option E6 also allows the internal 10 MHz source to be locked to a high stability external 10 MHz reference. Remote control allows remote configuration of front panel commands and monitoring LNB and SSPB voltage and current. Parameter selection and LNB and SSPB voltage and current appear on the LCD display. Connectors are BNC female for RF and 10 MHz Connectors.

Front and Rear Panels  (Shown with optional Ethernet)

--- 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 dB, -30 dBm typ

**Input/Output Characteristics (on BNC connectors)**
- **Impedance, Return Loss**: 50Ω/75Ω, 14 dB
- **Level**: +3 dBm ± 3 dB
- **Harmonics (Output)**: < 0 dBc, < 0 dBc typical

**Oscillator**
- **Stability**: ± 0.001 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**: ± 0.1 ppm
- **Tuning Adjust**: ± 0.5 ppm

<table>
<thead>
<tr>
<th>Phase Noise @ Freq</th>
<th>10 Hz</th>
<th>100 Hz</th>
<th>1 kHz</th>
<th>10 kHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>dBC/Hz</td>
<td>110</td>
<td>140</td>
<td>149</td>
<td>149</td>
</tr>
</tbody>
</table>

--- Chassis / Other ---

**Controls, Indicators**
- **INT/EXT 10 MHz Select**: FP Switch or M&C select; Ext. Yellow LED
- **10 MHz Insert Select**: FP Switch or M&C select; Green LED
- **SSPB, LNB Insert**: FP Switch or M&C select; Green, rear Yellow LED
- **SSPB, LNB Volts & Amps**: Front panel display and M&C
- **Power, Alarm, Ref.**: Green LED; Red LED; Green LED
- **Oven, Ext Ref, Remote**: Yellow LED; Yellow LED; Yellow LED

**Other**
- **RF Connectors**: BNC, 50Ω (female)
- **10 MHz Connectors**: BNC, 50Ω (female) (WORKS FOR 50Ω OR 75Ω)
- **Alarm/Remote Connector**: DB9 (female) - NO or NC closure on Alarm
- **Size**: 19 inch, 1RU chassis 1.75”H X 12.0”D
- **Power**: 100-240 ± 10% VAC, 47-63 Hz, 100 watts max

**SSPB, LNB DC Power Characteristics**
- **Voltage/Current**: LNB +24 ± 2 VDC, 0.5 A, max.
- **Load Regulation**: ± 5 %

--- L-band Insertion ---

**RF Input/Output Characteristics**
- **Frequency**: 950 - 2150 MHz and 10 MHz
- **Impedance**: 50Ω
- **Return Loss**: > 12 dB, 0.9-1.5 GHz
- **Insertion Loss**: < 1 dB, 0.9-1.5 GHz
- **Frequency Response**: ± 1.0 dB, 950 - 2150 MHz; ± 0.5 dB, 36 MHz BW

**Phase Noise**
- **Phase Noise @ Freq**: 10 Hz, 100 Hz, 1 kHz, 10 kHz
- **Phase Noise @ Freq (dBc/Hz)**: 110, 140, 149, 149

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