**2099-10XX Frequency Source**

The Model 2099-10XX Frequency Source provides four (xx=04), eight (xx=08) or twelve (xx=12) 10MHz reference outputs from a 0.01 ppm high stability oven controlled crystal oscillator (OCXO). Front panel LEDs indicate alarm (red), oven warm-up (yellow), remote (yellow), and power from the two redundant power supplies (green). The output level is +13 dBm (max), and the 2099-10XX works into either a 75Ω or 50Ω load. An available External Reference option (Option E) provides an external reference input which can be used to lock the internal 10 MHz source to a high stability external frequency reference or it may be redistributed with an adjustable pass-through gain of -10 to +10 dB. An LCD display shows the 10MHz output level (or pass-through gain, mode setting, lock reference frequency, and AUTO fault (Option E only). Connectors are BNC female. A relay contact closure or open indicates when an alarm occurs. The 2099-10XX is mounted in a 1RU rack mountable chassis, and is powered by redundant power supplies fed by separate fused 100-240 ±10% VAC AC input connectors. An RS232/422/485 (selectable) M&C interface provides remote control of the unit.

### Equipment Specifications*

**Output Characteristics**
- Number of outputs: 5, 9, or 13 (including monitor)
- Impedance: 50Ω/75Ω
- Return Loss: >18dB
- Frequency: 10.0000 MHz
- Level, adjustable (int ref): -7 dBm to +13 dBm
- Spurious: < -75 dBC

**External Reference Input Characteristics**
- Impedance: 50Ω/75Ω
- Return Loss: >18dB
- Level: +3 dBm ± 3 dB

**Oscillator Characteristics**
- Frequency Stability: ± 0.01 ppm max 0°C to +50°C
- Aging: ± 0.001 ppm per day; ±0.1 ppm per year
- Warm up: ± 0.1 ppm in 4 minutes; ±0.01 ppm in 1 hour
- Tuning Adjustment: ± 1 ppm

<table>
<thead>
<tr>
<th>Phase Noise @ Freq</th>
<th>10Hz</th>
<th>100Hz</th>
<th>1kHz</th>
<th>10 kHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>dBC/Hz</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>-110</td>
<td>-140</td>
<td>-155</td>
<td>-160</td>
</tr>
</tbody>
</table>

**Controls, Indicators**
- Output Level Adjust: Direct readout LCD; push-button switches or remote selection
- Power: Green LEDs
- Remote: Yellow LED, RS232C/422/485
- Oven Warm-Up: Yellow LED
- Alarm: Red LED, External contact closure

**Other**
- 10 MHz Connectors: BNC (female), 50Ω/75Ω impedance
- Alarm/Remote Connector: DB9 (female) - NO or NC contact closure on Alarm
- Size: 19 inch standard chassis 1.75” high X 12.0” deep
- Power: Redundant 100-240 ±10% VAC, 47 - 63 Hz, 20 W max. power supplies

**Options**
- E: External Reference Input (includes INTERNAL, EXT LOCK, and EXT LOCK AUTO modes)
- W8: Ethernet; with Web Browser
- W18: Ethernet with Web Browser and SNMP

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

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