2005-20P Downconverter

The 2005-20 Downconverter converts a 2000 to 2500 MHz signal to 70 MHz or 140 MHz IF in 1 MHz steps with selection of high side LO (C = inverted) or low side LO (Ku = non-inverted) and 70 or 140 MHz output over the 2.0 - 2.5 GHz range for loop-back applications.

Featuring low phase noise, these units are used to loop 2.0 - 2.5 GHz receivers to 70 or 140 MHz modulators for test purposes. The input frequency is selected with four BCD switches which control the synthesized local oscillator (LO) signal. The 2.0 - 2.5 GHz input is mixed with this synthesized LO to the 70 or 140 MHz IF signal. Front panel LEDs light when DC power is applied (green) and when a PLL alarm occurs (red). The mixer output is applied to the output attenuator providing a nominal gain of +5 dB (high gain) or -15 dB (low gain). Connectors are 500 BNC (female) for the IF input and for the RF output (other connector options are available). Powered by a 120VAC wall power supply (100-240 ±10%VAC, option -P4). The 2005 can be mounted on a 1 3/4” X 19” rack mount panel (option -R).

### Equipment Specifications*

#### Input Characteristics
- Impedance: 50Ω
- Return Loss: 12 dB
- Frequency: 2.0 to 2.5 GHz
- Level: -10 to -30 dBm
- 1dB compression: -5 dBm

#### Output Characteristics
- Impedance: 50Ω
- Return Loss: 15 dB
- Frequency Range: 70 or 140 MHz center, ± 20 MHz

#### Channel Characteristics
- Gain: -15 dB ± 3 dB (LOW GAIN)
- +5 dB ± 3 dB (HI GAIN)
- Spurious Response: < -40dBc max, < -45dBc typ; OUTPUT NOT FILTERED
- Frequency Response: ± 2 dB, 2.0 - 2.5 GHz; ± 0.5 dB, any 10MHz increment

#### Synthesizer Characteristics
- Frequency Accuracy: ± 25 kHz max
- Frequency Step: 1.0 MHz minimum

#### Phase Noise @ Freq

<table>
<thead>
<tr>
<th>Frequency</th>
<th>100 Hz</th>
<th>1kHz</th>
<th>10kHz</th>
<th>100kHz</th>
<th>1 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>dBc/Hz</td>
<td>-70</td>
<td>-70</td>
<td>-80</td>
<td>-90</td>
<td>-100</td>
</tr>
</tbody>
</table>

#### Indicators
- Frequency Selection: BCD switches
- DC Power: Green LED
- PLL Alarm: Red LED

#### Other
- RF, IF Connectors: BNC (female)
- Size, Bench Top: 4.7” wide x 1.75” high x 6.5” deep
- Size, Rack Mount: 19 inch standard chassis 1.75”high x 7.0” deep (option -R)
- Power: 120 ± 10% VAC, 60 Hz, 10W max wall mount power supply
- Power (option -P4): 100-240 ±10% VAC, 47-63 Hz wall mount power supply (option -P4)

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