The 2017-25 Up/Downconverter converts 70 MHz to 2000-2500 MHz (Up) and 2000-2500 MHz to 70 MHz (Down) in 1 MHz steps (500 kHz, option -5) with low group delay and flat frequency response. Synthesized local oscillators (LO) provide frequency selection. Multi-function push button switches select the RF frequency, gain, and other parameters. Front panel LEDs provide indication of DC power (green), PLL alarm for up and downconverters (red), remote operation (yellow), and upconverter mute (yellow). Gain is manually controlled over a –10 to +30 dB range for the upconverter and over a 0 to +50 dB range for the downconverter as adjusted by the front panel multi-function push-button switches. Remote operation allows selection of frequency and gain. Parameter selection and frequency and gain settings appear on the LCD display. Connectors are BNC female (75Ω) for IF and the optional external reference input and output, and BNC female (50Ω) for RF. A high stability (±0.01ppm) option is also available. The unit is powered by a 100-240 ±10% VAC power supply and housed in a 1.75” X 19” X 16” rack mount chassis.

### Front Panel

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>Green LED</td>
</tr>
<tr>
<td>Alarm</td>
<td>Red LED, Yellow LED</td>
</tr>
<tr>
<td>Remote</td>
<td>Yellow LED, RS232C, 9600 baud (RS485, option Q)</td>
</tr>
<tr>
<td>Mute</td>
<td></td>
</tr>
<tr>
<td>ALARM</td>
<td></td>
</tr>
<tr>
<td>REMOTE</td>
<td></td>
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<tr>
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<tr>
<td>MUTE</td>
<td></td>
</tr>
<tr>
<td>ALARM</td>
<td></td>
</tr>
</tbody>
</table>

### Equipment Specifications*

#### Upconverter

**Input Characteristics (IF)**
- Impedance/Return Loss: 75Ω/18 dB
- Frequency: 70 ± 18 MHz
- Input Level Range: -40 to -10 dBm

**Output Characteristics (RF)**
- Impedance/Return Loss: 50Ω/10 dB
- Frequency: 2.0 to 2.5 GHz
- Output level: -20 to 0 dBm
- Output 1 dB compression: +5 dBm

**Channel Characteristics**
- Gain range (adjustable): -10 to +30 dB
- Frequency Sense: Non-inverting

#### Downconverter

**Input Characteristics (RF)**
- Impedance/Return Loss: 50Ω/10 dB
- Frequency: 2.0 to 2.5 GHz
- Noise Figure, max.: 15 dB (max gain)
- Input Level Range: -70 to -20 dBm
- Input 1 dB compression: -15 dBm

**Output Characteristics (IF)**
- Impedance/Return Loss: 75Ω/18 dB
- Frequency: 70 ± 18 MHz
- Output level/max linear: -20 dBm / -10 dBm
- Output 1 dB compression: -5 dBm

**Channel Characteristics**
- Gain range (adjustable): 0.0 to +50.0 dB, 1dB step
- Frequency Sense: Inverting or Non-inverting (selectable)

#### Up and Downconverter

**Channel Characteristics**
- Frequency Response: ±1.5 dB, in band; ±0.5 dB, 36 MHz BW
- Spurious Response: < -50 dBc, in band
- Group Delay, max.: 0.01 ns/MHz² parabolic; 0.03 ns/MHz linear; 1 ns ripple

**Synthesizer Characteristics**
- Frequency Accuracy: ± 1.0 ppm internal reference (±.01 ppm, option H)
- Frequency Step: 1.0 MHz (500 kHz, option -5, 125 kHz, option X)
- 10 MHz In/Out Level: 3 dBm ± 3 dB (option E only)

**Phase Noise @ F (Hz) > dBC/Hz**

<table>
<thead>
<tr>
<th>Frequency (Hz)</th>
<th>-100</th>
<th>-10K</th>
<th>-100K</th>
<th>-1M</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-70</td>
<td>-70</td>
<td>-80</td>
<td>-95</td>
</tr>
</tbody>
</table>

**Controls, Indicators**
- Freq/Gain Selection: direct readout LCD; manual or remote selection
- Power; Alarm; Up Mute: Green LED; Red LED; Yellow LED
- Remote: Yellow LED, RS232C, 9600 baud (RS485, option Q)

**Available Options**
- E - External 10 MHz ref input 7 output
- H - Stability internal reference (±0.01 ppm)
- L - LNB +24VDC,0.4 Amps, current readout
- Q - RS-422/RS-485 Remote capability
- T - Temperature Sensor
- V - SSPB +24 VDC, 2.5 Amps max, with readout of current
- X - 125 kHz step size
- W1 - Output Level Detector
- W8 - Ethernet M&C Remote Interface
- Z - Attenuator 0.1 dB step size
- -5 - 500 kHz frequency steps

**Connectors/Impedance**
- B - 75Ω BNC (RF), 75Ω BNC (IF)
- D - 50Ω BNC (RF), 50Ω BNC (IF)
- N - 50Ω N-type (RF), 75Ω BNC (IF)
- M - 50Ω N-type (RF), 50Ω BNC (IF)

**Other**
- RF, IF Connectors: BNC (female), BNC (female)
- 10MHz Connectors: BNC (female), 50Ω/75Ω (option E)
- Alarm/Remote Connector: DB9 (female) - NO or NC contact closure on Alarm
- Size: 19 inch, 1RU standard chassis 1.75”high X 16.0” deep
- Power: 100-240 ±10% VAC, 47-63 Hz, 45 W max

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