The 2416-402I Downconverter has four individual channels, each one converts 950 to 2150 MHz to 70 MHz in 125 kHz steps using PLL in “exact frequency mode” with low group delay and flat frequency response. Synthesized local oscillators (LO) provide frequency selection. Multi-function push button switches select the input frequency, gain, and other parameters. Front panel LEDs provide indication of DC power, PLL alarm or Remote operation. Gain is adjustable manually over a 0 to +30 dB range. The frequency and gain of each channel are also remotely selectable. Parameter selection and button switches select the input frequency, gain, and other parameters. Front panel LEDs provide indication of DC power, PLL alarm or Remote operation.

Connectors are Type F female for the RF, and BNC female for the IF and external 10 MHz reference input and output. The 10 MHz reference can be inserted on all RF lines. The table below shows available options. LNB +24 VDC option L1, can be inserted only on the channel 1 RF line. The 2416-402I is powered by a 100-240 ±10% VAC, 47-63 Hz power supply, and is contained in a 1.75” high X 16.0” deep, 1RU, 3/4” X 19” X 16” rack mount chassis.

### EQUIPMENT SPECIFICATIONS*

**Input Characteristics**
- Impedance/Return Loss: 75Ω/10 dB
- Frequency: 950 to 2150 MHz
- Noise Figure, Max.: 15 dB max gain
- Input Level range: -50 to -20 dBm

**Output Characteristics**
- Impedance/Return Loss: 75 Ω/18 dB
- Frequency: 70 ± 18 MHz
- Output Level range: -20 to -10 dBm
- Output 1 dB compression: 0 dBm

**Channel Characteristics**
- Gain range (adjustable): 0.0 to +30.0 dB, 1±1 dB steps
- Image Rejection: > 50 dB, min.
- Frequency Response: ±1.5 dB, 950 to 2150 MHz ; ± 0.5 dB, 36 MHz BW; ±1.0 dB, 40 MHz BW
- Spurious Response: < -50 dBc, in band
- Ch to Ch isolation: < -60 dB typ., < -50 dB min. ; G=30, -30 dBm input level
- Group Delay, max: 0.015 ns/MHz2 parabolic; 0.05 ns/MHz linear; 1 ns ripple
- Frequency Sense: Inverting or Non-inverting, selectable

**Synthesizer Characteristics**
- Frequency Accuracy: ± 1.0 ppm max over temp (± 0.01 ppm, option H)
- Frequency Step: 125 kHz (as low as 1 kHz steps available)

**Phase Noise @ Freq (Hz)**

<table>
<thead>
<tr>
<th>Specification</th>
<th>10</th>
<th>100</th>
<th>1k</th>
<th>10k</th>
<th>100k</th>
<th>1M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical dB/Hz</td>
<td>-67</td>
<td>-69</td>
<td>-77</td>
<td>-83</td>
<td>-97</td>
<td>-117</td>
</tr>
</tbody>
</table>

**Available Options**
- H: High Stability (+0.01ppm) Internal Ref
- L1: LNB Voltage, +24VDC, 0.4 amps
- R: Redundant Power Supply
- W8: Ethernet; w/Web Browser (WB)
- W18: Ethernet; w/WB & SNMP
- W28: Ethernet; w/TCP/IP, Telnet
- W140-x: 140±36 MHz
- W140/70-x: 140±36/70±18 MHz Selectable
- X1002-x: 1 kHz Freq Step Size

**Connectors/Impedance**
- STD - 75Ω Type F (RF), 75Ω BNC (IF)
- Bx - 750 BNC (RF), 750 BNC (IF)
- Cx - 500 BNC (RF), 500 BNC (IF)
- Dx - 500 BNC (RF), 500 BNC (IF)
- Jx - 750 Type F (RF), 500 BNC (IF)
- Kx - 750 BNC (RF), 500 BNC (IF)

**Equipment Specifications**

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- 10 MHz Level (In or Out): 3 dBm, ± 3 dB, 75 ohms
- Controls, Indicators
  - Frequency/Gain Selection direct readout LCD; manual or remote selection
  - Power; Alarm; Remote: Green LED; Red LED; Yellow LED
  - Remote: RS232C/RS485 selectable, (Ethernet optional)
- Other
  - RF Connector: Type F (female)
  - IF, 10 MHz Connectors: 75Ω BNC (female), 50/75Ω BNC (female)
  - Alarm/Remote Connector: DB9 (female) - NO or NC contact closure on Alarm
  - Size: 19 inch, 1RU standard chassis 1.75” high X 18.0” deep
  - Power: 100-240 ±10% VAC, 47-63 Hz, 45 watts max

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

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**Cross Technologies, Inc.**

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