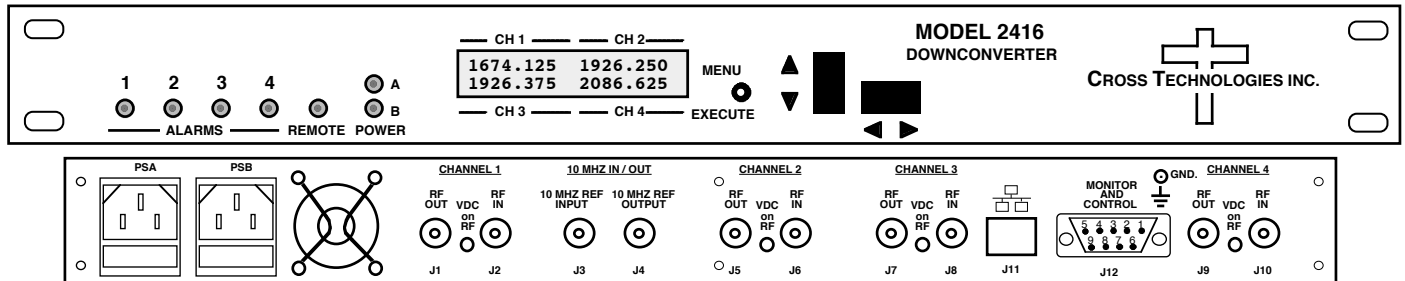


2416-402I Downconverter, 0.95 - 2.15 GHz, Four Channel (Integer mode)
2416-302I Three Channel • 2416-202I Two Channel • 2416-102I One Channel

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



Front and Rear Panels 2416-402 Four Channel (shown with options L1, R, W113 and Ethernet option)

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, -40 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)	10	100	1k	10k	100k	1M
Specification dBc/Hz	-60	-65	-75	-80	-90	-110
Typical dBc/Hz	-67	-69	-77	-83	-97	-117

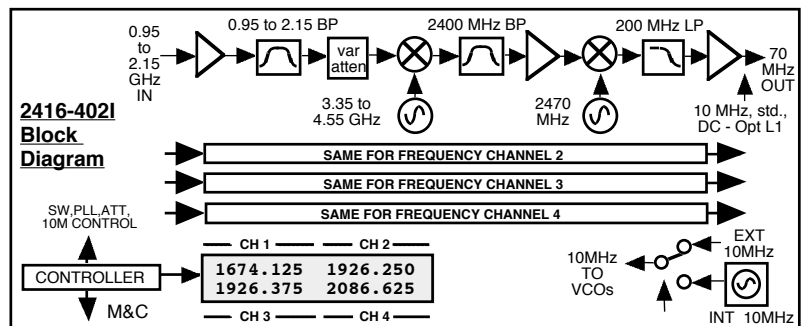
10 MHz Level (In or Out) 3 dBm, ± 3 dB, 75 ohms

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 IN Connector Type F (female)
RF OUT, 10 MHz Con. 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 16.0" deep
Power 100-240 ± 10% VAC, 47-63 Hz, 45 watts max



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
- W18-v3 - Ethernet; w/WB & SNMPv3
- W28 - Ethernet; w/TCP/IP, Telnet
- W828 - W8 + W18 + W28
- W113- Rear Mounted Fan
- 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 IN), 75Ω BNC (RF OUT)
- Bx - 75Ω BNC (RF IN), 75Ω BNC (RF OUT)
- Cx - 50Ω BNC (RF IN), 75Ω BNC (RF OUT)
- Dx - 50Ω BNC (RF IN), 50Ω BNC (RF OUT)
- Jx - 75Ω Type F (RF IN), 50Ω BNC (RF OUT)
- Kx - 75Ω BNC (RF IN), 50Ω BNC (RF OUT)
- x = # of Channels**
- Contact Cross for other options**

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