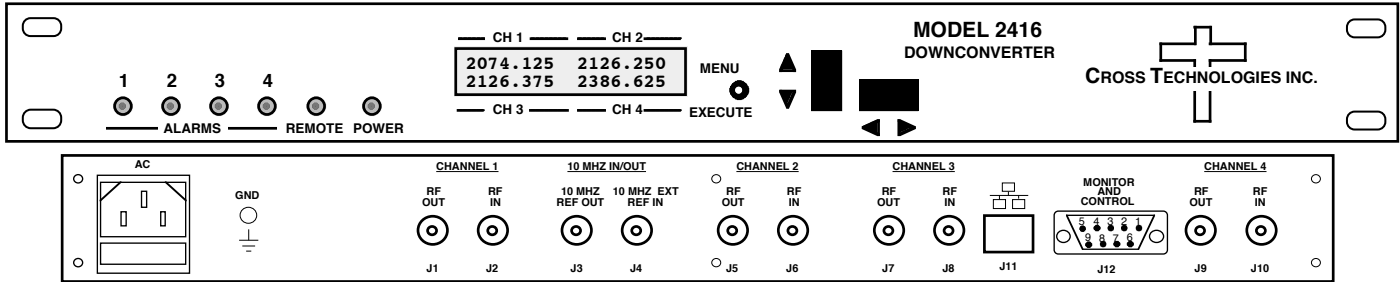


**2416-425 Downconverter, 2.0 - 2.5 GHz to 70 MHz, Four Channel**  
2416-325 Three Channel • 2416-225 Two Channel • 2416-125 One Channel

The 2416-425 Downconverter has four individual channels, each one converts 2.0 to 2.5 GHz 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. Front panel 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 BNC female for the RF IN, RF OUT and **external 10 MHz reference input and output**. **The table below shows available options.** It is powered by a 100-240 ±10% VAC, 47-63 Hz power supply, and is in a 1 3/4" X 19" X 16" rack mount chassis.



**Front and Rear Panels (2416-425 Four Channel shown with optional Ethernet)**

**EQUIPMENT SPECIFICATIONS\***

**Input Characteristics**

Impedance/Return Loss 50Ω/10 dB  
Frequency 2.0 to 2.5 GHz  
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, 2.0 to 2.5 GHz ; ± 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/MHz<sup>2</sup> 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
dBc	-60	-65	-75	-80	-90	-110
<b>dBc</b>	<b>-67</b>	<b>-69</b>	<b>-77</b>	<b>-83</b>	<b>-97</b>	<b>-117</b>

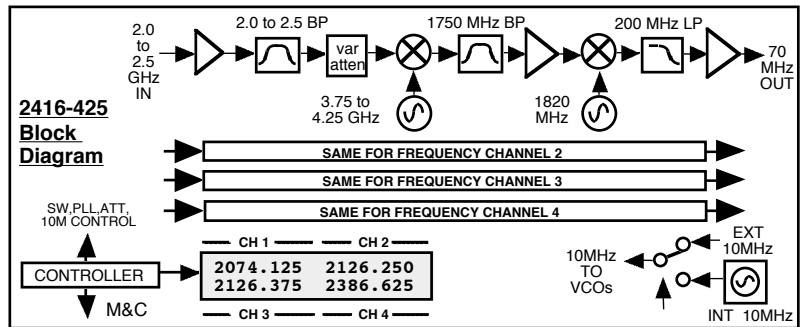
10 MHz Level (In or Out) 3 dBm, ± 3 dB, 75 ohms

**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 50Ω BNC (female)  
RF OUT, 10 MHz Con. 75Ω BNC (female), **75Ω BNC (female) works with 50Ω**  
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  
R- Redundant Power Supply  
W8 - Ethernet; w/Web Browser (WB)  
W18 - Ethernet; w/WB & SNMP  
W28 - Ethernet; w/TCP/IP, Telnet  
**W828 - W8 + W18 + W28**  
W140-x- 140±36 MHz  
W140/70-x- 140±36/70±18 MHz Selectable  
**X1002-x - 1 kHz Freq Step Size**  
**Connectors/Impedance**  
STD - 50Ω BNC (RF IN), 75Ω BNC (RF OUT)  
Bx - 75Ω BNC (RF IN), 75Ω BNC (RF OUT)  
Dx - 50Ω BNC (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