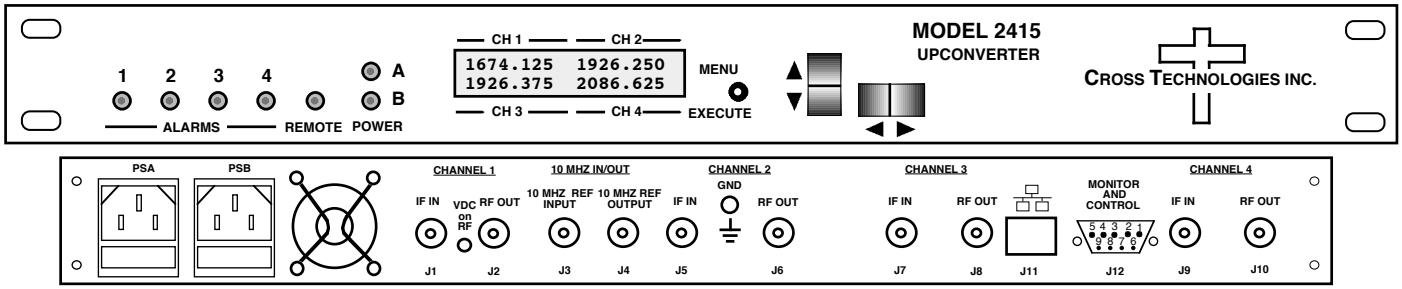
CROSS TECHNOLOGIES, INC.

DATA SHEET
REV. G 9/27/23

2415-402 Upconverter, 0.95 - 2.15 GHz, Four Channel

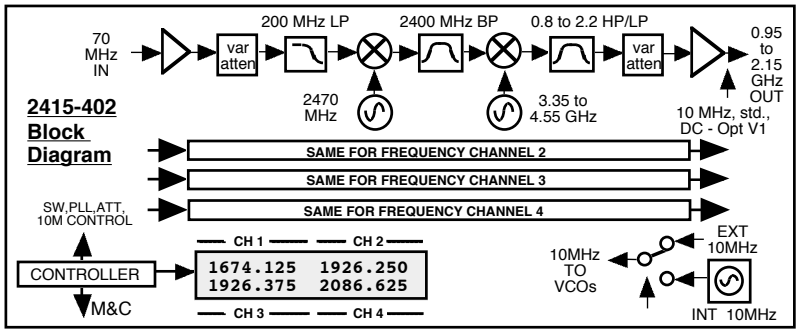
2415-302 Three Channel • 2415-202 Two Channel • 2415-102 One Channel

The 2415-402 Upconverter has four individual channels, each one converts 70 MHz to 950 to 2150 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. Push button switches select the output 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 **in 0.5 ± 0.5 dB steps**. 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, 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. SSPB +24 VDC option V1, can be inserted only on the channel 1 RF line. The** unit 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 2415-402 Four Channel (Shown with V1, R, W113 and Ethernet Options)

EQUIPMENT SPECIFICATIONS*



Input Characteristics

Impedance/Return Loss	75Ω/18 dB
Frequency	70 ± 18 MHZ
Noise Figure, max.	20dB **(set to min input, max gain)**
Input Level range	**-35 to -10 dBm**

Output Characteristics

Impedance/Return Loss	75 Ω /12 dB
Frequency	950 to 2150 MHz
Output Level range	**-20 to 0 dBm**
Output 1 dB compression	**+10 dBm, max. gain**

Channel Characteristics

Gain range (adjustable)	**0 to +30 dB in 0.5 ± 0.5 dB steps**
Frequency Response	±1.5 dB, 950 - 2150 MHz; ± 0.5 dB, 36 MHz BW; **±1.0 dB, 40 MHz BW**
Spurious	< **-50** dBc, in band;**< -45 dBc, out of band (0.2-0.94 GHz and 2.16-3.0 GHz)**
Intermodulation	**<-50 dBc for two carriers at 4 MHz spacing, each at -5 dBm out (set to -30 dB input, 30dB gain)**
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	Non-inverting

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

Freq/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), 75Ω BNC (female) **works with 50 & 75 Ω**
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

10˚C to 40˚C; Specifications subject to change without notice

Available Options

H - High Stability (±0.01ppm) Int Ref
V1-SSPB DC, CH1(ONLY), +24VDC, 2.5 A
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 Frequency Step Size

Connectors/Impedance

STD - 75Ω Type F (RF), 75Ω BNC (IF)
Bx - 75Ω BNC (RF), 75Ω BNC (IF)
Cx - 50Ω BNC (RF), 75Ω BNC (IF)
Dx - 50Ω BNC (RF), 50Ω BNC (IF)
Jx - 75Ω Type F (RF), 50Ω BNC (IF)
Kx - 75Ω BNC (RF), 50Ω BNC (IF)
x = # of Channels
Contact Cross for other options

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