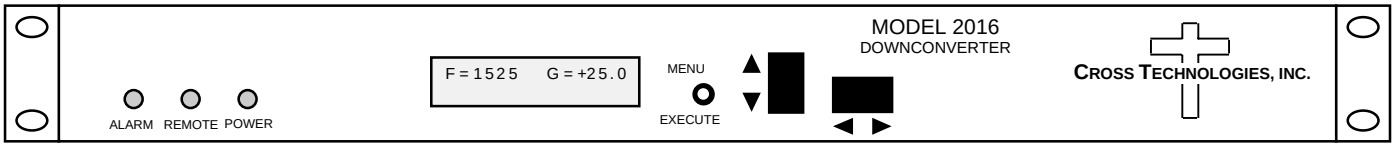
**CROSS TECHNOLOGIES, INC.**

**DATA SHEET**
05/09/2005

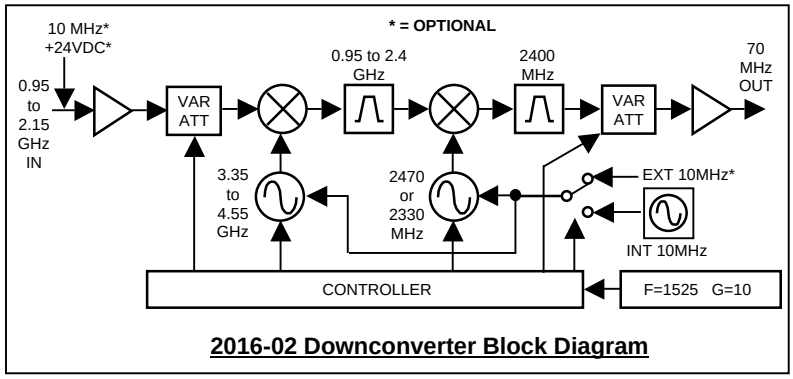
# 2016-02 L-Band Downconverter

The 2016-02 L-band Downconverter converts 950 to 2150 MHz in 1 MHz steps to 70 ± 18 MHz 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 (red), and remote operation (yellow). Gain is adjustable manually over a 0 to +50 dB range 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 for IF output and the optional external reference input and output, and Type F female for the RF input. LNB +24 VDC, 0.5 Amps and 10 MHz reference can be inserted on the RF line as added options. The 10 MHz option also includes a 10 MHz output connector, which contains either the internal or external 10 MHz reference signal. A high stability (±0.01ppm) option is also available. The unit is powered by a 90-260 VAC power supply, and housed in a 1 3/4" X 19 " X 16" rack mount chassis.




**2016-02 Downconverter Front Panel**

## EQUIPMENT SPECIFICATIONS*




**2016-02 Downconverter Block Diagram**

### Input Characteristics (RF)

| | |
|---|---|
| Impedance/Return Loss | 75 Ω /12 dB |
| Frequency | 950 to 2150 MHz |
| Noise Figure, max. | 15 dB (max gain) |
| Input Level Range | -20 to -70 dBm |
| Input 1dB compression | -15 dBm |

### Output Characteristics (IF)

| | |
|---|---|
| Impedance/Return Loss | 75 Ω/18 dB |
| Frequency | 70 ± 18 MHz |
| Output level/max linear | -20dBm / -10dBm |
| Output 1 dB comp. | -5 dBm |

### Channel Characteristics

| | |
|---|---|
| Gain range (adjustable) | 0.0 to +50.0 dB |
| Image Rejection | > 50 dB, min. |
| Frequency Response | ±1.5 dB, 950 to 2150 MHz ; ± 0.5 dB, 36 MHz BW |
| Spurious Response | < -50 dBc, in band |
| Group Delay, max | 0.01 ns/MHz$^2$ parabolic; 0.03 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 | 1.0 MHz (as low as 1 kHz steps available) |
| Phase Noise (dBc/Hz) | < -70 @ 100Hz, 1kHz; < -80 @ 10kHz; < -90 @ 100kHz; < -100 @ 1 MHz |
| 10 MHz Level (In or Out) | 3 dBm, ± 3 dB, 75 ohms (option E) |

### Controls, Indicators

| | |
|---|---|
| Frequency Selection | direct readout LCD; manual or remote selection |
| Gain Selection | direct readout LCD; manual or remote selection |
| Power; Alarm; Remote | Green LED; Red LED; Yellow LED |
| Remote | RS232C, 9600 baud (RS485, option Q) |

### Other

| | |
|---|---|
| RF Connector | Type F (female) |
| IF, 10 MHz Connectors | 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 | 90-260 VAC, 47-63 Hz, 45 watts max |

### Available Options

E – External 10 MHz ref input & output w/ RF insertion
H – High Stability (±0.01ppm) internal reference
L – LNB Voltage, +24VDC, 0.4 amps
Q – RS485 Remote Interface
T – Temperature Sensor

Connectors/Impedance

B – 75Ω BNC (RF), 75Ω BNC (IF)
C – 50Ω 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)

*+10˚C to +40˚C; Specifications subject to change without notice.