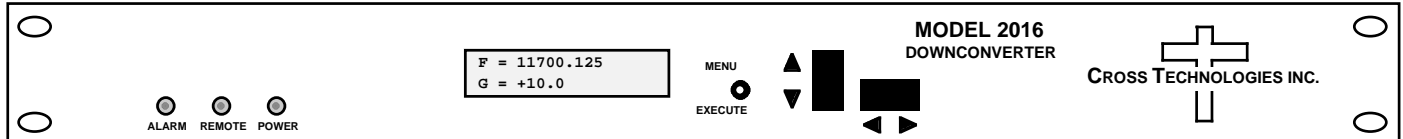


2016-109 Downconverter, 10.95 - 11.7 GHz

The 2016-109 Downconverter converts 10.95 to 11.7 GHz in 125 kHz steps to 70 ± 18 MHz with low group delay and flat frequency response. Synthesized local oscillators (LO) provide low phase noise and ± 0.01 ppm stability 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 +30 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 external reference input and output, and SMA female for the RF input. External 10 MHz is standard. A 10 MHz output connector contains either the internal or external 10 MHz reference signal. The unit is powered by a 100-240 $\pm 10\%$ VAC power supply, and housed in a 1 3/4" X 19" X 16" rack mount chassis.



Front Panel

EQUIPMENT SPECIFICATIONS*

Input Characteristics (RF)

| | |
|-----------------------|-----------------------|
| Impedance/Return Loss | 50 Ω /14 dB |
| Frequency | 10.95 to 11.7 GHz |
| Level | -70 to -40 dBm |
| 1dB Compression | -30 dBm @ +30 dB gain |

Output Characteristics (IF)

| | |
|-----------------------|--------------------|
| Impedance/Return Loss | 75 Ω /18 dB |
| Frequency | 70 ± 18 MHz |
| Level | -25 to -5 dBm |
| 1dB Compression | +5 dBm |

Channel Characteristics

| | |
|-------------------------|---|
| Gain range (adjustable) | +30 to +50 dB, 1dB steps |
| Spurious Response | <-50 dBC, in band |
| Image Rejection | > 50 dB, min. |
| Frequency Response | ± 1.5 dB, 10.95-11.7 GHz ; ± 0.6 dB, 36 MHz BW |
| Group Delay, max | 0.01 ns/MHz ² parabolic; 0.03 ns/MHz linear, 1 ns ripple |
| Frequency Sense | Non-inverting |

Synthesizer Characteristics

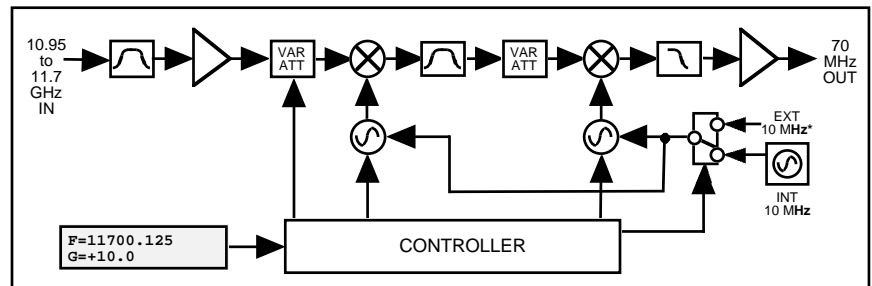
| | | | | | | |
|---------------------|---|-------|-------|-------|--------|--------|
| Frequency Accuracy | ± 0.01 ppm internal reference; external reference input | | | | | |
| Frequency Step | 125 kHz minimum | | | | | |
| 10 MHz In/Out Level | 3 dBm \pm 3 dB | | | | | |
| Phase Noise | @ Freq | 100Hz | 1kHz | 10kHz | 100kHz | 1MHz |
| | dBc/Hz | < -60 | < -70 | < -80 | < -90 | < -100 |

Controls, Indicators

| | |
|------------------------|---|
| Freq/Gain Selection | direct readout LCD; pushbutton switches or remote selection |
| Pwr; Alm; Remote; Mute | Green LED; Red LED; Yellow LED; Yellow LED |
| Remote | RS232C, 9600 baud |

Other

| | |
|------------------------|--|
| RF Connector | SMA (female) |
| IF Connector | BNC (female) |
| 10 MHz Connectors | BNC (female), 50 Ω /75 Ω |
| Alarm/Remote Connector | DB9 - NO or NC contact closure on Alarm |
| Size | 19 inch, 1RU standard chassis 1.75"high X 16.0" deep |
| Power | 100-240 $\pm 10\%$ VAC, 47-63 Hz, 45 watts max |



Block Diagram

Available Options

- Q - RS485 Remote Interface
- Z - Attenuator 0.1 dB on Upconverter
- Connectors/Impedance
- M - 50 Ω N-type (RF), 50 Ω BNC (IF)
- N - 50 Ω N-type (RF), 75 Ω BNC (IF)
- S - 50 Ω SMA (RF), 50 Ω BNC (IF)

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