**CROSS TECHNOLOGIES, INC.**

**DATA SHEET**
**REV. D**
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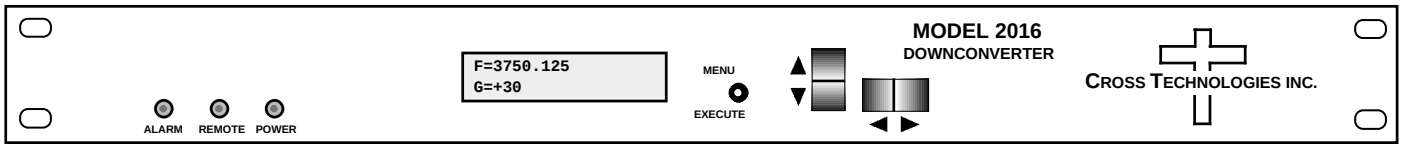
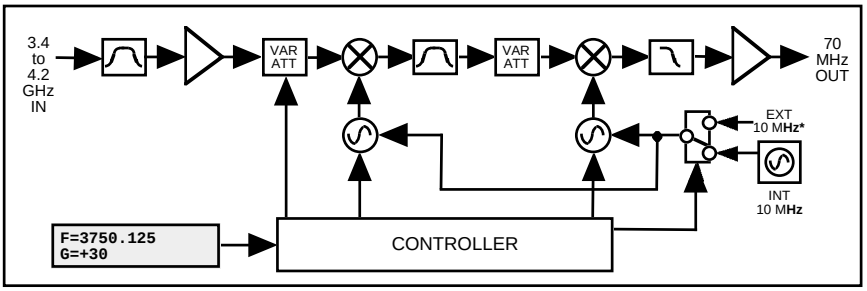
# 2016-34 Downconverter, 3.4 - 4.2 GHz to 70 MHz IF

The 2016-34 Downconverter converts 3.4 to 4.2 GHz in 1 kHz steps to 70 ± 18 MHz with low group delay and flat frequency response. Synthesized local oscillators (LO) provide very 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 +20 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 external reference input and output and Type N 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 ± 10% VAC power supply, and housed in a 1 3/4" X 19" X 16" rack mount chassis.




**Front Panel**

## EQUIPMENT SPECIFICATIONS*




**Block Diagram**

### Input Characteristics (RF)

| | |
|---|---|
| Impedance/Return Loss | 50Ω /14 dB |
| Frequency | 3.4 to 4.2 GHz |
| Noise Figure, max. | 12 dB (max. gain) |
| Level | -70 to -30 dBm |
| 1dB compression | -15 dBm |

### Output Characteristics (IF)

| | |
|---|---|
| Impedance/Return Loss | 75Ω/18 dB |
| Frequency | 70 ± 18 MHz |
| Level | -25 to -5 dBm |
| 1dB compression | +5 dBm |
| Intermodulation | <-55 dBC; -60 dBC typ. (2 carriers @ -10 dBm input) |

### Channel Characteristics

| | |
|---|---|
| Gain range (adjustable) | +30 to +50 dB |
| Image Rejection | > 50 dB, min |
| Spurious Response | <-50 dBC, in band |
| Frequency Response | ±1.5 dB, 3.4-4.2 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 | 1, 10, 100, or 125 kHz (user selectable) |
| 10 MHz In/Out Level | 3 dBm ± 3 dB |

| *Phase Noise @ Freq* | *100 Hz* | *1kHz* | *10kHz* | *100kHz* | *1 MHz* |
|---|---|---|---|---|---|
| *dBC/Hz* | *-70* | *-80* | *-88* | *-100* | *-120* |

### Controls, Indicators

| | |
|---|---|
| Freq/Gain Selection | Direct readout LCD; pushbutton switches or remote selection |
| Power; Alarm; Remote | Green LED; Red LED; Yellow LED |
| Remote | RS232C, 9600 baud |

### Other

| | |
|---|---|
| RF Connector | Type N (female) |
| IF Connector | BNC (female) |
| 10 MHz Connectors | BNC (female), 50Ω/75Ω |
| 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 ± 10% VAC, 47-63 Hz, 45 watts max |

### Available Options

Q - RS485/RS422 Remote Interface

**Connectors/Impedance**

M - 50Ω Type N (RF), 50Ω BNC (IF)

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

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