The 3016-2830 Downconverter converts 28 to 30 GHz to 70 ± 18 MHz in 125 kHz steps (1 kHz opt- X1008). This unit combines an agile block downconverter with a 2.8 GHz to 70 MHz downconverter to obtain the wide tuning range. Synthesized local oscillators (LO) provide frequency selection. Multi-function 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 (MGC) over a +10 to +30 dB range. The frequency and gain are remotely selectable. Parameter selection and frequency and gain settings appear on the LCD display. Connectors are 2.92 mm female for the RF, and BNC female for the IF and external 10 MHz reference input and output. Other connector options are available. It is powered by a 100-240 ±10%VAC power supply, and is in a 1 3/4" X 19" X 18" rack mount chassis.

Front and Rear Panels (Shown with optional Ethernet)

**EQUIPMENT SPECIFICATIONS***

**Input Characteristics (RF)**
- Impedance/Return Loss: 50Ω/18 dB typ., 14dB min.
- Frequency: 28 to 30 GHz
- Noise Figure, max.: 20 dB (max gain)
- Input Level Range: -50 to -30 dBm

**Output Characteristics (IF)**
- Impedance/Return Loss: 75Ω/18 dB
- Frequency: 70 ± 18 MHz
- Output level Range: -20 to 0 dBm
- Output 1 dB compression: +10 dBm

**Gain Characteristics**
- Gain Max/range (adj.): 30 ± 3 dB Max./ +10.0 to +30.0 dB range. 0.5dB ± 0.5 dB steps
- Image Rejection: > 50 dB, min.
- Frequency Response: +30 dB, 28-30 GHz; ±1.5 dB, any 1 GHz band; ± 1.0 dB, 36 MHz BW
- Spurious Response: < -50 dBc, in band, 28 to 30 GHz
- Intermod: < -50 dBc for two carriers each at -5 dBm out
- Group Delay, max: 0.02 ns/MHz² parabolic; 0.05ns/MHz linear; 1 ns ripple, 36 MHz BW
- Frequency Sense: Inverting or Non-inverting (user selectable)

**Synthesizer Characteristics**
- Frequency Accuracy: ± 0.01 ppm max over temp internal ref; ext ref. input
- Frequency Step: 125 kHz minimum, (1 kHz opt- X1008)
- 10 MHz In/Out Level: 3 dBm ± 3 dB

**Phase Noise @ Freq**
<table>
<thead>
<tr>
<th>Freq (kHz)</th>
<th>100 Hz</th>
<th>1kHz</th>
<th>10kHz</th>
<th>100kHz</th>
<th>1 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>dBC/Hz</td>
<td>60</td>
<td>70</td>
<td>80</td>
<td>90</td>
<td>100</td>
</tr>
</tbody>
</table>

**Controls, Indicators**
- Freq/Gain Selection: direct readout LCD; manual or remote selection
- Power; Alarm; Remote: Green LED; Red LED; Yellow LED
- Remote: RS232C, 9600 baud (RS422/485/ opt.-Q, Ethernet/ opt-W8,18,28)

**Other**
- RF, IF Connectors: 2.92 mm (female), BNC,75Ω (female), (50Ω IF opt- S29)
- 10MHz Connectors: BNC (female) 50Ω, works for 50 or 75 ohms
- Alarm/Remote Conn.: DB9 (female) - NO or NC contact closure on Alarm
- Size: 19 inch, 1RU standard chassis 1.75” high X 18.0” deep
- Power: 100-240 ±10% VAC, 47-63 Hz, 60 watts max

**Available Options**
- W16 - Test Data
- W71 - IF Mon., - 20dB, 50 ohm
- W73 - RF Mon., - 3±3dB, 50 ohm
- X1008 - 1 kHz steps

**Remote M&C Interfaces:**
- Q - RS485/422
- W8 - Ethernet; w/Web Browser (WB)
- W18 - Ethernet; w/WB & SNMP
- W28 - Ethernet; w/TCP/IP, Telnet

**Connectors/Impedance**
- S29 - 2.92mm (RF), 50Ω BNC (IF)
- SS29- 2.92mm (RF), SMA (IF)

Contact Cross for other options

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