

REF6301

Eclipse SIGINT Products



The **REF6301** is a versatile 3U VPX module consisting of an integrated GPS receiver, an oven controlled crystal oscillator, and an optional RF distribution module, providing commutation of 8 VHF and 4 UHF antenna elements against an array reference.

The REF6301 is a member of the sixth generation of system components for BAE Systems' Eclipse SIGINT products. It is designed to provide time and frequency reference signals to digital receivers, such as the RXR6322 and RXR6422.

Key features and benefits

- Built-in GPS receiver assesses satellite network and provides system-wide time and frequency standard signals
- Oven Controlled Crystal Oscillator (OCXO) integrates with GPS to offer excellent short-term phase stability
- Embedded miniaturized RF distribution module provides eight VHF and four UHF RF inputs and eliminates the need for an external commutator
- 3U VPX form factor complies with VITA 46, 48, and 67 standards for simple integration
- Optional CSAC Cesium source module may be used in place of distribution module and enables extremely stable frequency reference during loss of GPS signal

REF630I specifications

10 MHz input level	+3 dBm +/- 3 dB
10 MHz tracking range	+/-1 Hz (offset)
10 MHz output (6 standard coax)	+7 dBm +/- 2 dB
Acceptable GPS RF input level	L1: -122 to -87 (signal) dBm, -161 to -141 (noise) dBm/Hz L2: -126 to -93 (signal) dBm, -161 to -141 (noise) dBm/Hz
1 pulse per second input or output (1 standard coax)	+4.25 +/-0.75 V (1K ohms) or +3.7 +/-0.4 V (50 ohms)
1 pulse per second input duration	15 uS minimum
1 pulse per second via backplane	LVDS standard (6 standard LVDS)
1 PPS to 10 MHz synchronization	+/- 15 nanoseconds
1 PPS jitter (1 sigma)	20 picoseconds
1 PPS timing accuracy (after 10 min. warm-up)	+/- 20 nanoseconds RMS
Ephemeris data update rate	10 per second
10 MHz accuracy	1 part in 1 X 10 ⁻¹⁰ (typical instantaneous) 0.5 parts in 1 X 10 ⁻¹⁰ (100 second average) 1 part in 1 X 10 ⁻¹² (24 hour average)
10 MHz output (channel to channel isolation)	35 dB minimum
1 PPS output (channel to channel isolation)	50 dB minimum
10 MHz harmonics	-30 dBc maximum
Non-harmonic spurious	-80 dBc maximum
Steady state power	35 watts
Peak warm-up power	39 watts

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