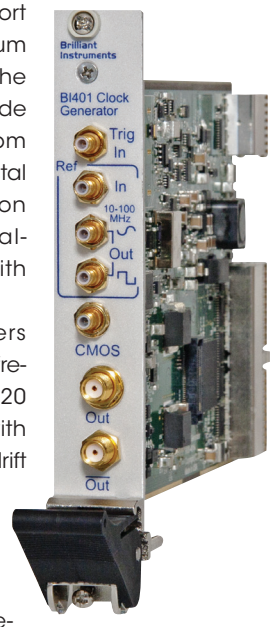
PXI SYNTHESIZERS RUN TO 4.1 GHz

CLOCK GENERATORS are now available in the modular PXI format, for applications through 4.1 GHz with low phase noise. Model BI401 is a frequency-synthesized square-wave clock generator module from Brilliant Instruments (www.b-i-inc.com) that fits within a single PXI instrument slot. It is available in two basic models, with frequency ranges of 1 µHz to 2.1 GHz (model BI401-2G) and 1z to 4.1 GHz (model BI401-4G), with both models capable of producing DC outputs. The phase noise is only –102 dBc/Hz offset 10 kHz from a 1-GHz carrier with outstanding performance in the time domain, with less than 0.5 ps jitter. The square-wave synthesizer achieves frequency switching speed of better than 250 µs.

The model BI401 square-wave synthesizer provides single-ended and differential output ports. The single-ended port is capable of 6-V peak-to-peak output amplitude; the differential port offers 1-V peak-to-peak maximum amplitude with 65-ps risetime. The PXI frequency synthesizers include a standard timebase of a 2-ppm temperature-compensated crystal oscillator (TCXO), with an option for an oven-controlled-crystal-oscillator (OCXO) timebase with 0.02-ppm accuracy.



Model BI401 is a synthesized square-wave clock generator that fits within a single 32-b PXI slot.

These frequency synthesizers incorporate Practically Perfect frequency resolution to provide 20 digits of frequency resolution with less than 1 ps of accumulated drift per year. At 4 GHz, the frequency resolution is 0.1 nHz. The frequency synthesizers, which are ideal for a variety of applications in both test and measurement and radar systems, consume only 14 W power. They are shipped with operating software that is compatible with MS Windows and Linux operating systems and written in plain C++ language for ease of porting to other software environments. Each model BI401 frequency synthesizer is supplied in a 3U PXI module measuring 5.1 × 7.3 in. and weighing 6.4 oz. (180 g).

BRILLIANT INSTRUMENTS, INC., 1600 West Campbell Ave., Ste. 206, Campbell, CA 95008; (408) 866-0426, FAX: (408) 866-0431, e-mail: sales_inquiry@b-i-inc.com, *www.b-i-inc.com*

AMPS TRIM NOISE FROM 9 kHz TO 18 GHz

LOW-NOISE AMPLIFIERS (LNAs) that maintain spectral purity under a wide range of conditions will usually find a place in many different systems, and a new family of LNAs from Pasternack Enterprises (www.pasternack.com) promises excellent performance from 9 kHz to 18 GHz. Based on GaAs pseudomorphic-high-electron-mobility-transistor (pHEMT) device technology, the amplifiers are supplied in compact modules with SMA coaxial connectors. They are available with noise figures from 0.8 to 3.0 dB and gain levels from 25 to 50 dB, depending upon model and frequency range. The output-power levels extend from +10 to +18 dBm.

A line of packaged LNAs with coaxial connectors covers a total frequency range of 9 kHz to 18 GHz.

As an example, model PE15A1001 offers a noise figure of 2 dB from 2 to 4 GHz with 38-dB small-signal gain and ±1-dB gain flatness. It provides minimum saturated output power of +13 dBm across its octave bandwidth and draws 200 mA supply current from a +12-VDC supply.

At higher frequencies, model PE15A1004 operates from 12 to 18 GHz with noise figure of 3 dB and 38-dB small-signal gain with ±1 dB gain flatness. It also offers +13-dBm saturated output power across its frequency range. For lower noise figure, model PE15A1010 works from 2 to 6 GHz with 0.9-dB noise figure and small-signal gain of 40 dB with ±1-dB gain flatness. It delivers +14-dBm output power at 1-dB compression and draws 90 mA current from a +12-VDC supply.

Hermetic and nonhermetic versions are available; all of the amplifiers are unconditionally stable with built-in voltage regulation, automatic bias sequencing, and reverse-bias protection. for ease of installation in a wide range of circuits and systems They are fully internally impedance matched for use at 50 Ω, eliminating the need for external impedance-tuning components. The amplifiers are designed for a broad operating temperature range of –40 to +85°C. The new LNA family features a total of 14 amplifiers ready for shipment from stock.

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