

Pioneering Precision for High-Speed Networking Using AKER's TCXOs and Differential Oscillators

Wireless networks such as 5G and industrial automation have completely changed the way people communicate, connecting people all around the world with just the press of a button. This new era of digital transformation is marked by high speed, low latency, and multiple connections. As networks require an increase in data transmission speed, as high as 800 Gb/s, precise frequency stability is needed to maintain performance.



To help meet these requirements, AKER has developed a family of frequency control solutions for 5G, networking and industrial automation applications. Our TCXO (Temperature-Compensated Crystal Oscillator) and differential products create significantly faster data speeds, lower latency and increased capacity needed in today's world. Their high-frequency stability, low jitter and lower power consumption, make them ideal for meeting the needs of the high-speed data exchange required in today's wireless networks. These innovative technologies not only deliver highly stable signal synchronization, but also ensure unparalleled reliability in complex environments.

Here's how AKER's TCXO and differential products provide significant advantages for these wireless systems.

TCXOs: Stable, Reliable Frequency Control

Designed to provide stable oscillation frequencies at high temperatures, by effectively eliminating frequency changes due to temperature fluctuations, AKER's TCXO series improves product reliability and accuracy.

Key advantages include:

- Suitable for diverse application requirements with a wide frequency range from 10 MHz to 52 MHz
- Temperature dependence as low as ± 0.5 ppm that enables high frequency stability and accuracy
- Ideal for use in harsh environments with an operational temperature range from -40°C to $+105^{\circ}\text{C}$
- Ultra-low phase noise that meets the precise timing needs of industrial process control systems

By delivering the performance and reliability needed for today's complex industrial equipment demands, AKER's TCXOs enable efficient data processing and communication that is critical in connected devices, including industrial PCs, servers, Ethernet switches and 5G infrastructure.

AKER Differential Oscillators: Noise-resistant Frequency Control

AKER offers differential output solutions, including LVPECL, HCSL and LVDS oscillators. These components deliver high noise immunity and differential transmission techniques, making them ideal for use in a variety of critical communications equipment, including network equipment, data centers and high-speed converters.



Our oscillators deliver:

- Industry-leading RMS jitter (46 fs at 156.25 MHz)
- Ultra-low power consumption
- Superior phase noise performance
- Enhanced signal integrity
- Reduced electromagnetic interference
- Improved timing precision
- Fast delivery

Diverse Solutions Tailored to Your Requirements


AKER’s TCXO and differential oscillators are beneficial for large-scale device connections in AI-driven, next-generation high-speed transmission and communication that contribute to building multi-connected network environments, including 5G communication equipment, optical fiber communication modules, 10G Ethernet switches, SDH/SONET, PCI-Express and high-end servers.

Our unique oscillators rely on high-precision and highly stable frequency control to meet the demands of high-speed data transmission, as well as ensure the maintenance of high signal quality in wireless transmission designs.


AKER’s TCXO and differential products offer technological excellence in precision and reliability. Choose AKER to be at the forefront of technology driven innovation in both the 5G and industrial sectors.

Where AKER’s Crystals Oscillators Can Be Used


TCXO

Outline	Model	Dimension (mm)	Application	Frequency
	TXON-321	3.2×2.5×1.2,	IPC, Industrial servers,	19.2 MHz, 26 MHz,
	TXON-221	2.5×2.0×0.95,	Ethernet switches,	38.4 MHz, 40 MHz
	TXON-211	2.0×1.6×0.8	5G industrial base stations	


LVPECL

Outline	Model	Dimension (mm)	Application	Frequency
	SMEN-751	7.0×5.0×1.4,	IPC, FB-DIMM, PCI, Express interface, Ethernet switch, SDH/SONET industrial, Data center server and storage device	122.88 MHz,
	SMEN-531	5.0×3.2×1.3,		125 MHz,
	SMEN-321	3.2×2.5×1.2,		156.25 MHz,
	SMEN-221	2.5×2.0×0.95,		211.5 MHz

LVDS

Outline	Model	Dimension (mm)	Application	Frequency
	SMDN-751	7.0×5.0×1.4,	IPC, FB-DIMM, PCI, Express interface, Ethernet switch, SDH/SONET industrial, Data center server and storage device	122.88 MHz,
	SMDN-531	5.0×3.2×1.3,		125 MHz,
	SMDN-321	3.2×2.5×1.2,		156.25 MHz,
	SMDN-221	2.5×2.0×0.95,		211.5 MHz

HCSL

Outline	Model	Dimension (mm)	Application	Frequency
	SMLN-751	7.0×5.0×1.4,	GPS-Navigation (PCIe), PCI Entertainment (PCIe), Camera, Ethernet	100 MHz,
	SMLN-531	5.0×3.2×1.3,		125 MHz,
	SMLN-321	3.2×2.5×1.2,		148.5 MHz,
	SMLN-221	2.5×2.0×0.95,		156.25 MHz