

Quantum Communication

Enabling Quantum Comms with unmatched accuracy and precision

What is Quantum Communication?



Quantum communication takes advantage of the quantum properties of photons to transmit and receive data. Two applications of quantum communication include Quantum Key Distribution (QKD) and Quantum Networking.




QKD systems use quantum principles to encode and send classical data. This encoding leaves irrevocable evidence if the data is intercepted by an eavesdropper. It allows parties to send cryptographic keys that they know haven't been recorded by a third party.

While QKD uses quantum properties to create an encryption key to encode classical bits of data, Quantum Networking is the field of sending quantum bits (qubits) from one location to another. This can allow small quantum systems to meaningfully interact and behave as a larger quantum system. This will one day allow quantum computers to communicate with each other through a "quantum internet".

Both QKD and Quantum Networking leverage existing telecommunication technologies such as lasers and optical fibers. The table below lists Keysight products that are used in this space. It includes descriptions of how they can help you drive your success in the quantum communication space.

Drive your Quantum Comms to success with Keysight

Model	Product	Description
UXR-Series real-time oscilloscopes	UXRxxxxA 	Keysight's real-time oscilloscopes are equipped with superior hardware technology. They feature the lowest noise floor, highest effective number of bits (ENOB), and widest bandwidth.
Tunable laser sources	N771xA, N777xC 	Keysight tunable laser sources can be attenuated for use as photon sources in many QKD architectures.
High-speed Arbitrary Waveform Generators (AWG)	M819xA 	Fast sampling rates are crucial in the communication space. AWGs can be used to modulate optical signals in QKD applications.

Model	Product	Description
Polarization controller	N7786C 	Polarization represents one important degree of freedom that can be used to encode information in a QKD or Quantum Networking system. Keysight's polarization controllers allow for precise and robust manipulation of photon polarization and can be quickly switched for fast data bandwidths.
Optical attenuator	N7764C 	Quantum communication requires light levels at the single photon level, while lasers must operate at much higher power levels for stability. Keysight's optical attenuators provide a professional solution to bridge this gap.
Lightwave detector & optical power meters	N4377A, N774xC, 8162xC 	Key component for the receive side of QKD applications.

It is essential for your quantum communication system to run in a stable and accurate manner. Visit <http://www.keysight.com/find/quantum> to learn more about the different quantum applications and solutions.

Keysight enables innovators to push the boundaries of engineering by quickly solving design, emulation, and test challenges to create the best product experiences. Start your innovation journey at www.keysight.com.



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