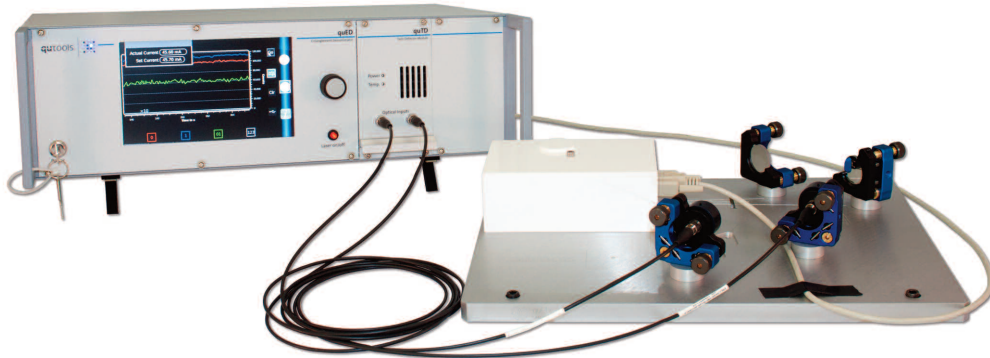




# quED

## The Entanglement Demonstrator



### Hardware

The quED is **qu**tools' **E**ntanglement **D**emonstrator. A state-of-the-art physics experiment for the generation and analysis of polarization-entangled photon pairs.

The setup is perfectly suited to practically demonstrate the physics of entanglement in student lab courses at colleges and universities.

### quED Specifications

	Basic model	High rate option
Single-count rate	> 10 kHz	> 50 kHz
Coincidence-count rate	> 1 kHz	> 5 kHz
Violation of Bell's Inequality (CHSH) S	> 2.3	> 2.3
Operating wavelength	810 nm ( $\pm$ 10 nm)	810 nm ( $\pm$ 10 nm)
Pump laser power	15 mW	up to 100 mW
Phase-matching	Type I	
SPDC type	Degenerate; Non-collinear	
Coincidence window length	approx. 40 ns	
Dimensions	Optical Unit: < 450 x 600 x 100 Electronic Unit: 480 x 300 x 150	
Counting rate interface	Graphical Touch Display USB, Ethernet	

### Key features

- Generation/analysis of true polarization-entangled photon pairs
- Complete system: Ready to violate Bell's inequality (CHSH)
- Hands-on study of quantum phenomena
- Easy-to-use
- Custom configuration

### System includes

- Two Silicon avalanche photodiodes
- Alignment help utilities including auxiliary visible laser module
- Four-channel counter with integrated coincidence logic unit
- Two polarizers in rotation optic mounts
- Control and read-out unit

### Optional accessories

- Additional polarization-control and polarization-analysis optics
- Laser safety protection
- Motorized rotation mounts
- Connection to a PC (Windows or Linux)

### Simple, yet efficient:

The design of our quED combines recent achievements of quantum optics technology into an easy-to-use system for academic, research and applied purposes. Advanced models for scientific or commercial purposes are available as well, with a high performance meeting the requirements of state-of-the-art physics experiments. The properties of each quED system can be custom-configured to match the customer's exact needs and applications.

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