

Quantum Key Distribution Source

The JADE (Joint Alignment, Diode, and Emitter) quantum source module delivers a Quantum Key Distribution (QKD) solution for reference frame independent protocols. Designed for low size, weight, and power applications, it can be deployed on platforms such as CubeSats, Smallsats or High-Altitude Pseudo Satellites. JADE supports secure communications over both space-to-ground and space-to-space communications links. Integrable into existing optical communications systems to provide new QKD protocols or with optical communications systems for improved security.

FEATURES

- Quantum source supporting protocols such as BB84 or others based on Weak Coherent Pulses.
- Self monitoring for common QKD attack vectors.
- Alignment system ensuring performance is maintained after the launch event.
- Security considered through the full design process.
- Available as self-driven or driven from a customer's external controller.
- Decoy state capability provided as standard.

BENEFITS

- High performance - Low size, weight and power.
- Multiple wavelength options – fully customisable.
- Stable operation and optical output across the thermal environment noted in Low Earth Orbit

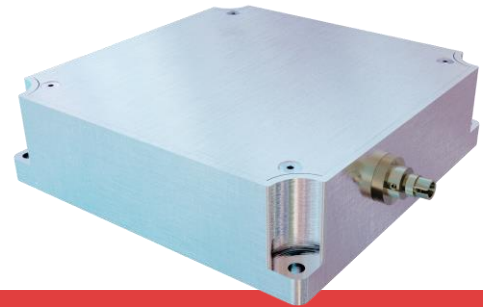
TYPICAL SPECIFICATION

SYSTEM

Pulse width	: 1ns with < 0.1ns jitter
Wavelength	: 785nm / 852nm / as required
Repetition rate	: 100MHz (WCP source)
Alignment laser	: 830nm
Polarisation	: 4 LVDS lines (H, V, D, A)
Decoy state	: Standard

PHYSICAL

Active power	: 7W (5V or 6V input)
Communications	: LVDS, RS422, CAN, SPI
Operating temp.	: -10 to 50°C
Mass	: < 560 g
Dimensions	: 100mm x 100mm x 45mm



USE CASES

- Weak Coherent Pulse source for space based QKD missions.
- Suitable for securing intersatellite links.
- Deployment on High Altitude Pseudo Satellite or other Unmanned Aerial Vehicles.

