

P-611.30F
P-611.3SF*

NanoCube™ XYZ Rapid Photonics NanoAlignment System

Application Examples

- Photonics packaging
- Optical device testing
- MEMS positioning/alignment
- Fiber alignment
- Micromachining
- Micromanipulation (life sciences)
- Semiconductor test systems

Ordering Information

P-611.3SF

NanoCube™ XYZ NanoAlignment Stage, 100 x 100 x 100 μm, Closed-Loop, Fiber Adapter Interface

P-611.30F

NanoCube™ XYZ NanoAlignment Stage, 100 x 100 x 100 μm, Open-Loop, Fiber Adapter Interface

Recommended Controllers

E-760, E-664

Custom Designs

for Volume Buyers

- **Ideal for Fiber Alignment and Photonics Packaging Applications**
- **Optional E-760 Controller Card with Built-In Optical Metrology**
- **100 x 100 x 100 μm Travel Range, Ultra-Compact Package!**
- **1 nm Resolution**
- **Closed- and Open-Loop Versions**
- **Precision Trajectory Control**
- **Fast Scanning and Settling**
- **Large Variety of Controllers**

The P-611.30F and P-611.3SF NanoCube™ NanoAlignment systems are based on PI's vast experience with ultra-high-precision piezo scanning systems (see section PZT flexure NanoPositioners) and photonics packaging applications. They combine a 100 x 100 x 100 μm XYZ positioning and scanning range with a zero stiction/friction wire-EDM-cut guiding system in an extremely compact package. NanoCube™ systems provide motion with nanometer-scale resolution and settling times of only a few milliseconds.

Open- & Closed-Loop Models

Open- and closed-loop versions are offered to suit your application. Several fiber, waveguide and optics adapters are available for mounting on the NanoCube™ (e.g. model F-603.60, see "Fiber, Objective and Waveguide Holders" page 8-26). NanoCubes™ are also available in a slightly different package without the fiber

adapter interface, see the P-611 article on page 2-36 in the "Flexure NanoPositioners" section.

Automatic Alignment

NanoCube™ can be operated with a special controller card (model E-760, p. 6-14) featuring built-in optical metrology and search functionality for automatic alignment tasks. A variety of other rackmount and bench-top controllers is also available.

NanoCubes™ can be easily combined with a number of automated or manual PI MicroPositioning systems, from single axis stages to 6-degree-of-freedom micromanipulators.

Working Principle

P-611 NanoPositioners are equipped with low-voltage piezoelectric drives (0 to 100 V) integrated into a sophisticated flexure guiding system. The force exerted by the piezo drive pushes a multi-flexure parallelogram via an integrated motion amplifier. The wire-EDM-cut flexures are FEA modeled (finite element analysis) for zero stiction and friction, ultra-high resolution and exceptional guiding precision. Integrated position feedback sensors provide nanometer-scale resolution and stability in closed-loop operation (with PI control electronics).



P-611 NanoCube™, XYZ Compact NanoAlignment System, 100 x 100 x 100 μm travel range, 1 nm resolution, shown with optional F-603.22 ferrule holder.

Notes

*For versions without the fiber adapter interface see the P-611 article on page 2-36 in the "Flexure NanoPositioners" section.

