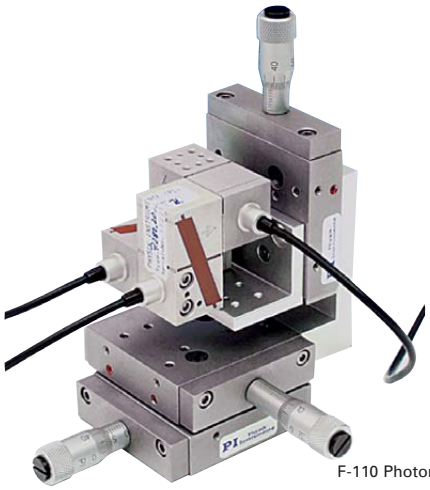
F-110 Fiber Positioner, Motorized Upgrades

XYZ Hybrid Manual/Piezoelectric Photonics Alignment System



F-110 Photonics Alignment System

- **PZT Drives with Sub-Nanometer Resolution**
- **Precision Mechanics with Crossed Roller Bearings**
- **18 x 18 x 18 mm Travel Range**
- **50 x 50 x 50 µm PZT Fine-Travel Range**
- **Optional Motor Drives**

The F-110 photonics alignment system is an ideal solution for applications where a coarse operating position can be set manually and an ultra-high-resolution alignment process (tracking, scanning etc. with sub-nm resolution) is started from that position.

High-Resolution Piezo Drives

The F-110 is based on the M-105.30 XYZ translation stage, (see page 7-24) and the P-282.20 XYZ piezo Nano-Positioner (see page 2-25). The advantage of the piezoelectric fine adjustment is based on its extremely high resolution, responsiveness and electrical controllability. If used with an external optical power meter and control software, the F-110 can be used as automatic aligner or scanner with a range of 50 x 50 x 50 µm.

The E-463 piezo amplifier (see page 6-40) is recommended as driving system. It comes with an analog high-speed interface (0 to 10 V). For digital control with a computer, the E-500 modular PZT control system with E-507 amplifier modules (see page 6-23) and optional E-516.i3 computer interface (see page 6-27) is available.

Optional Motor Drives

Motordrive upgrades for the F-110 are also available, (M-231 and M-232 Mike drives, see page 7-80 *ff.*). For fully automated alignment tasks, the new F-130, integrated motorized/piezoelectric alignment system featuring closed-loop piezo drives is recommended (see page 8-20).

Application Examples

- Photonics packaging
- Optical device testing
- Fiber alignment
- Micro-manipulation (life sciences)

Related Products

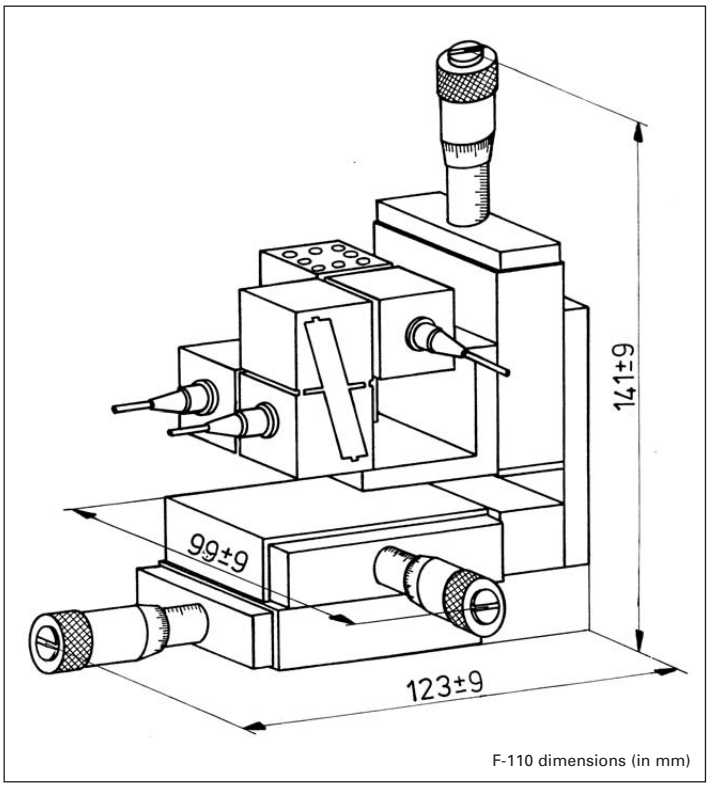
The M-105.3P XYZ stage with PiezoMike drives (replacing the manual micrometers). It is modular and can also be configured with only one or two PiezoMike high-resolution drives. The M-105.3BA translation stage, basic unit without drives (see page 7-24).

Ordering Information

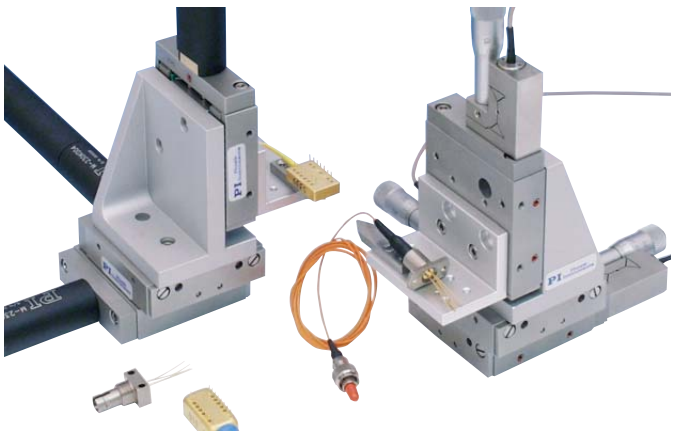
F-110.00
XYZ Piezoelectric Photonics Alignment System, 18 mm, 50 µm

F-010.00
Fiber Holder with Magnet

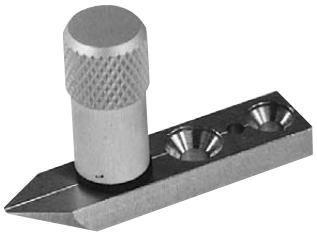
Ask about custom designs!



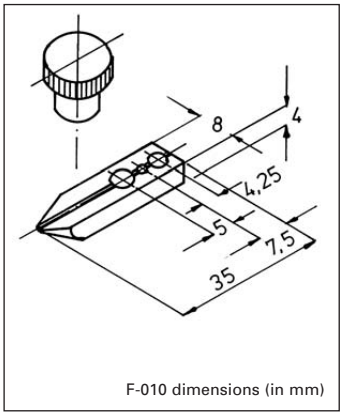
F-110 dimensions (in mm)



Example of F-110-related photonics alignment systems. XYZ unit on left consists of an M-105.3BA XYZ translation stage with three M-231 DC Mike Drive upgrades and M-009.20 mounting bracket with F-010 V-groove fiber holder. XYZ unit on right consists of an M-105.3BA XYZ translation stage with three P-854 PiezoMike™ upgrades and M-009.20 mounting bracket with F-010 V-groove fiber holder.



F-010 V-groove fiber holder with magnetic clamp



F-010 dimensions (in mm)

Technical Data

Models	F-110.00	Units
Axes	X, Y, Z	
Travel range (manual)	18	mm
Piezo fine-travel range	50	µm
Resolution (piezoelectric)	0.5	nm
Resolution (micrometer drive)	1	µm
Max. load (Z-axis)	20	N
Mechanical positioning system	M-105.30, see page 7-24	
Piezoelectric positioning system	P-282.20, see page 2-25	
Weight	1.1	kg
Recommended amplifier/controller	E-463, E-500 w/ 3 x E-507	