

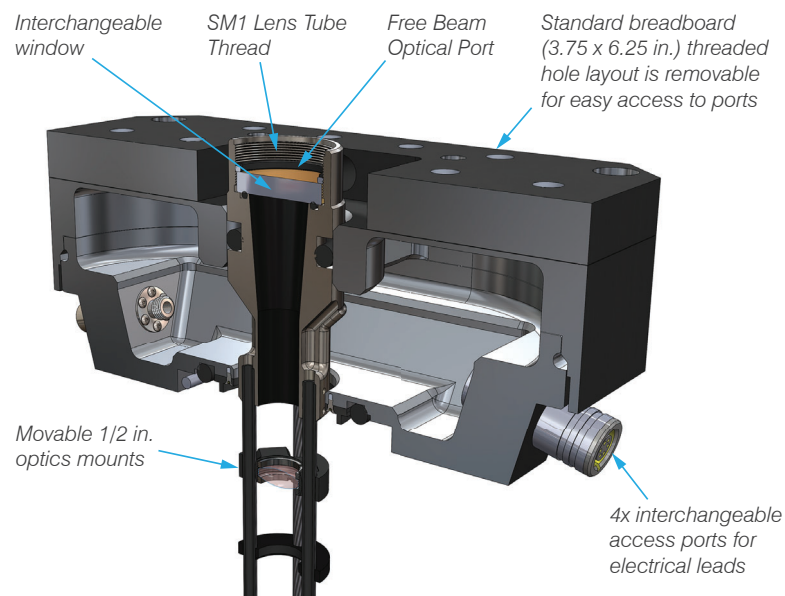
Optical Multi-Function Probe (OMFP)

DynaCool (D725A/B) / PPMS (P725A/B) / VersaLab (V725A/B)

The Optical Multi-Function Probe (OMFP) offers unprecedented versatility in affording the user optical access to experiments within the variable temperature and magnetic field environment of the PPMS® family of instruments. At the top of the OMFP, a wired access port (WAP) features an axial optical port window for free-beam experiments in the cryostat. The WAP also features modular feedthrough connectors that can be configured to allow electrical signals or fiber access to the sample space. Adjustable optical mounts can be placed along the length of the probe to position filters, relay lenses, objectives, or other elements. The capsule at the bottom contains a three-axis piezo stack allowing the in-plane position to be adjusted, and for the sample to be moved into the proper focal plane. Integrated thermometry supplies temperature readings as close to the sample as possible for accurate mapping of temperature-dependent phenomena.

Key Features:

- Customizable 1" (SM1) free-beam access port and internal 1/2" (SM05) mounts along the optical path
- Eight contacts (2 sets of 4) available on a removable PCB sample platform for electrical measurements using existing QD transport options or external electronics
- Optional variation (725B) includes eight additional electrical feedthroughs at the sample location, accessible externally via the WAP
- Optical camera allows for fine alignment and focus *in situ*
- XYZ piezo-positioning system enables multiple samples or regions of interest to be investigated
- Complete integration of imaging and positioning with MultiVu software sequence commands



Optical Multi-Function Probe Specifications

Temperature [T]

Range*: 350 to 5 K (DynaCool, PPMS)
350 to 50 K (VersaLab)

Axial Optical Window

Coupling Type: SM1 (1" diameter)
Included Coatings: 350 to 700 nm, and 650 to 1050 nm

Camera Resolution: < 5 μm^{**}

Piezo-Positioner Stack

Maximum Travel: 3 mm (all axes)
Step Size***: 1 μm to 1 mm (approx.; user-controlled)
Control Mode***: Open Loop

Operational Range: 0 to 16 T

*Base temperature of 5 K represents the minimum achievable stable temperature under 10 mW of radiant flux.

**Based on resolving individual lines within group 6, element 6 of the 1951 USAF resolution test chart.

***Due to hysteretic effects intrinsic to the piezo-resistive drive elements and open loop operation, precise step sizes may not be repeatable between different temperatures, upon changing drive direction, or at the extreme points of the available range.

Specifications are subject to change without notice.