

E1715A 3-Axis Compact Interferometer with Low Non-Linearity

The Keysight E1715A 3-Axis Compact Interferometer employs Keysight's advanced monolithic optics design technology to meet the pointing stability requirements of modern laser metrology systems. The Keysight E1715A incorporates integral remote sensors with ST connectors, eliminating the need for separately mounted remote sensors. Plastic or glass optical fiber with mating ST connectors are available from Keysight in a variety of fiber lengths.

In addition to the standard configuration, the Keysight E1715A is available in three optional versions—one excluding the remote sensors for customers who wish to provide their own sensors, one version that includes an input bending mirror, and a third version that combines both of these options.

Key Features:

- Two mounting configurations, hardware included
- 416 stainless steel housing for low thermal expansion
- Outputs are coupled to a 400-micron fiber with NA of 0.39
- Excellent beam angle accuracy relative to machined datums



Keysight Technologies E1715A 3 Axis Compact Interferometer - Specifications

Product Configuration

E1715A standard E1715A option 030 E1715A option 040	Interferometer, 3-axis, Compact, Low Non-Linearity Exclude Remote Fiber Optic Sensors Input Bending Mirror, 3-positions
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Optical Specifications

Beam Diameter	f 4 mm, maximum (visible)
Optical Resolution	$\lambda/4$ with plane mirror
Non-linearity Error	± 0.5 nm
Output Efficiency	
Typical of all axes	18%
Worst case for all axes	12%
Measure Point Tolerance Absolute	± 0.5 mm
Input Beam Cone Angle (IBCA)	
Straight thru beam without input bending mirror (standard)	< 1 mrad
Turned input beam with input bending mirror (option 040)	< 10 mrad
Beam Parallelism	
Axis #1 - Axis #2	< 25 μ rad
Axis #1 - Axis #3	< 25 μ rad
Measurement Mirror Recommendations	
Reflectivity	>92%
Flatness	$\lambda/20$ (over beams)

Environmental Specifications

Operating Temperature Range	18°C to 26°C
Thermal Drift due to Glass Path Imbalance	< 10 nm/°C

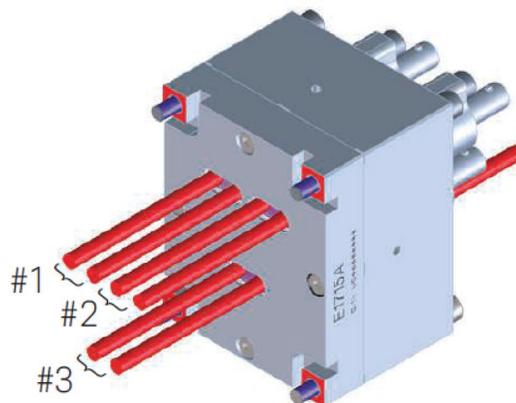
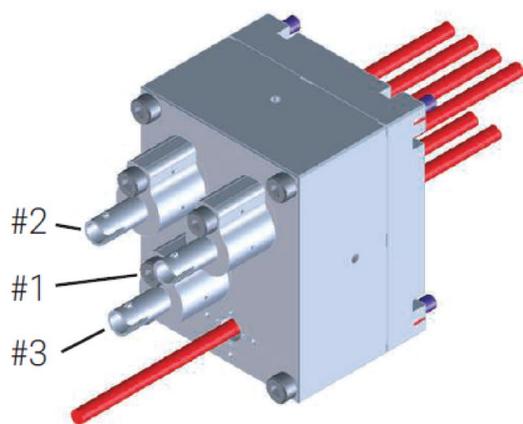
Mechanical Specifications

Weight	~0.4 kg
Materials:	
Housing	416 Stainless Steel (CTE: 9.9×10^{-6} mm/mm/°C)
Optics	NBK-7 Optical Grade Glass (CTE: 7.1×10^{-6} mm/mm/°C)
	*CTE: Coefficient of Thermal Expansion
Adhesives	Low Volatility (Vacuum Grade)

Fasteners	Qty 4, M4 x 0.7 mm socket head screws, captive, included
Resonance Frequency	≥ 5 KHz
Dimensions Standard model	see drawings below 75 mm x 55 mm x 65 mm (LxWxH)
Recommended customer frame	
Surface Profile	0.02 mm
Surface Finish	0.40 μm
Mount torque	2.37 N-m (Avoid damage on the surface of the datums.)

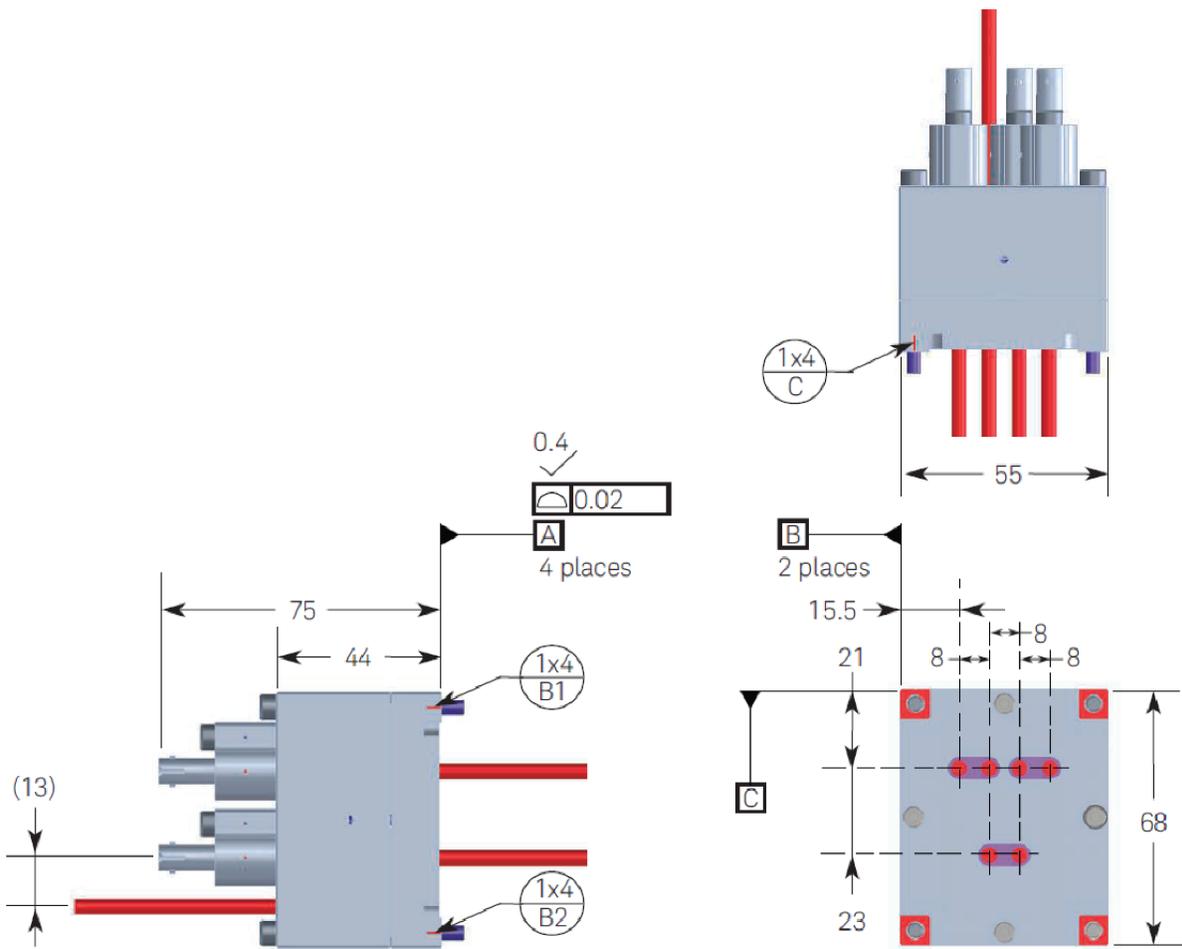
E1715A Standard Configuration

Standard Configuration: Axis Numbering



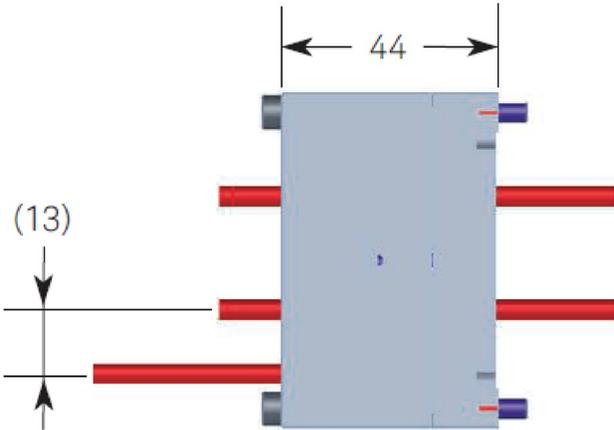
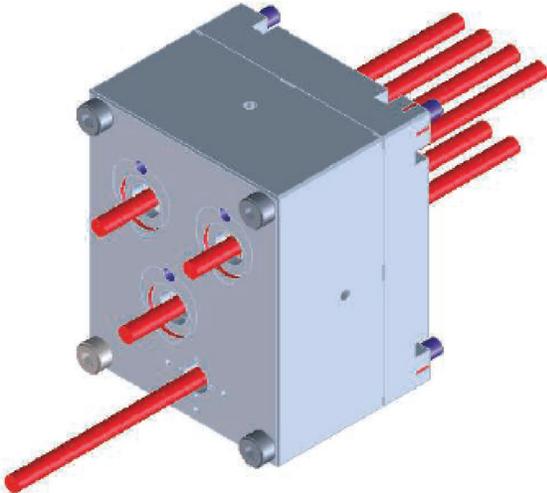
Standard Configuration Dimensions and Beam Pattern

All dimensions in mm



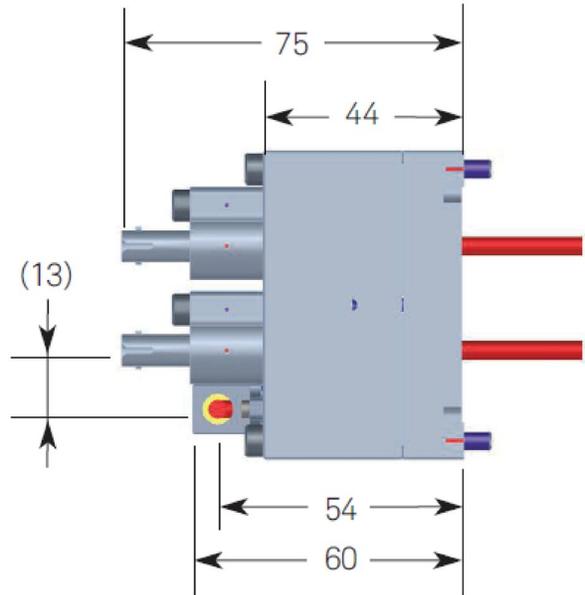
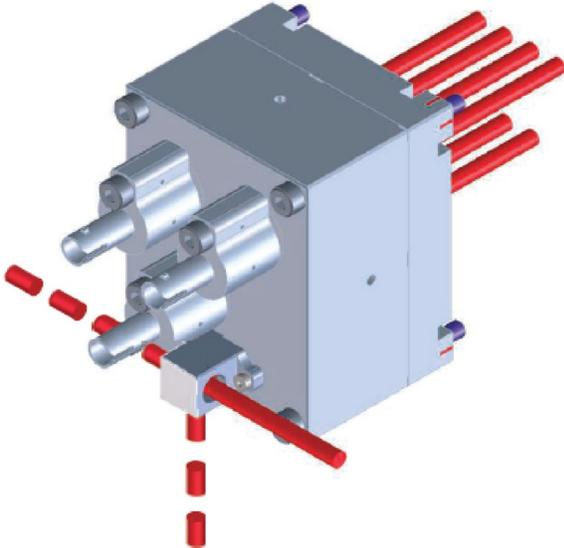
E1715A Optional Configurations

Option 030 - Exclude Remote Fiber Optic Sensors Option 030 Dimensions

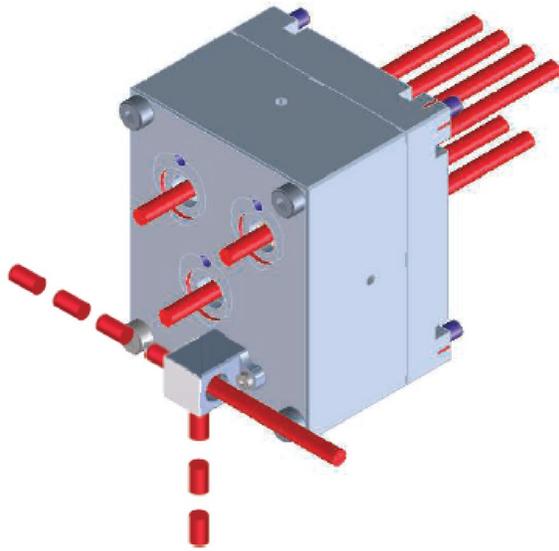


Option 040 - Include Input Bending Mirror, 3 Positions

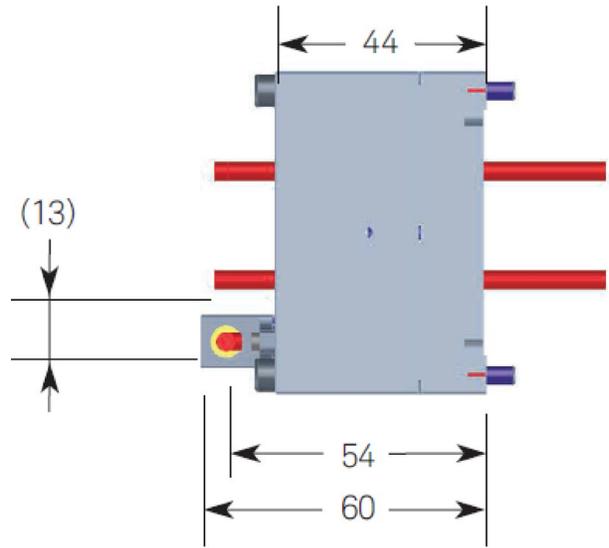
Option 040 Dimensions



Option 030 + Option 040



Option 030+040 Dimensions



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