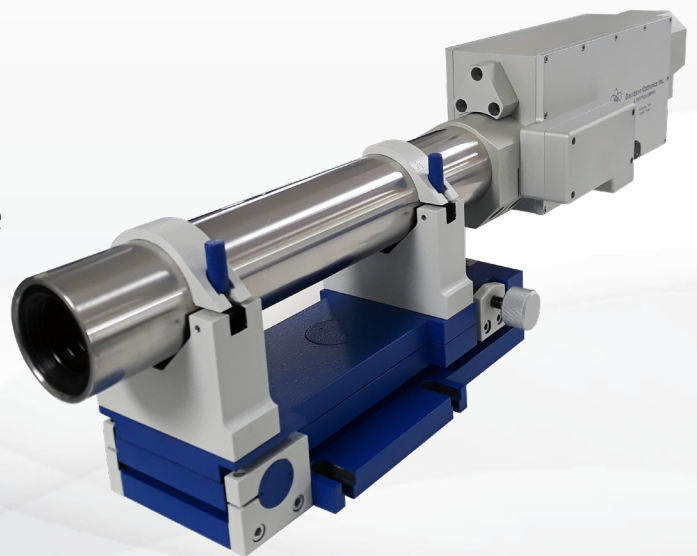




D-275 Automatic Alignment Telescope

Alignment and measurement in one



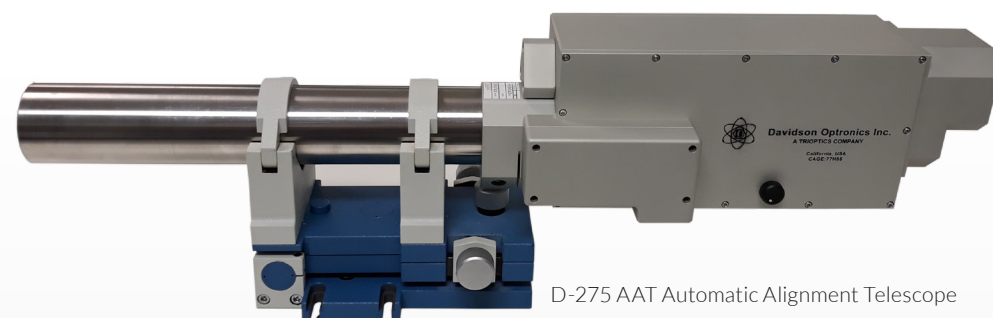
D-275 Automatic Alignment Telescope (AAT)

Infinite and finite measurement

The AAT D-275 is a unique instrument that offers an autocollimator and a finite imaging system in one package. The instrument can be used to address many 5-DOF alignment or measurement applications, such as precise placement of optical components along the imaging axis. When the AAT is used as an autocollimator, it can measure the angular pose of incoming or reflected beams. Alternatively, when the instrument is used in finite imaging mode, the precise positional relationship of visible objects/features in the field of view can be measured.

The AAT D-275 uses a precise, motorized focusing mechanism that is controlled by the instrument's application software. Thus, users can rapidly select between finite and infinite imaging modalities to come up with sophisticated alignment processes. The instrument can measure angular deviations of reflective surfaces to within an arcsecond, and it can boresight to provide positional data in the object space to a few microns. The mechanical axis of the instrument and its optical axis are concentric to within 3 arcseconds.

Depending on the application, the instrument can be configured to operate in the visible, NIR, and SWIR spectrums. Additionally, the illumination intensity can be adjusted manually or remotely by the host computer. Moreover, in finite imaging mode, the application software can autofocus onto the details in the scene over the calibrated working range.



Imaging Mode	Description
Infinite (collimated)	▪ Tilt angle of a reflective surface relative to the optical axis
	▪ Tilt angle of a reflective surface relative to a user-defined reference
	▪ Tilt angle of incoming collimated beam relative to the optical axis
	▪ Tilt angle of incoming collimated beam relative to a user-defined reference
Finite	▪ Lateral position (x/y) of a visible feature in the object space relative to the optical axis
	▪ Lateral position (x/y) of a visible feature in the object space relative to a user-defined reference
	▪ Roll angle of a visible feature in the object space about the optical axis

Note: One additional measurement is possible through customized software. Please consult the factory for more details.

Specifications

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Imaging	Calibrated focusing range	400 to 5000 mm from the front of the lens
	Finite mode field-of-view	12.8 mm x 9.6 mm @ 400 mm, 128 mm x 96 mm @ 5000 mm
	Finite mode imaging resolution	10 μm @ 400 mm, 100 μm @ 5000 mm (in object space)
	Angular measurement resolution	0.1 arcseconds
Operating Spectrum	Single band illuminator	Visible: 530 nm (green) NIR: 850 nm or 940 nm (factory set) SWIR: 1550 nm (contact factory for other wavelengths)
	Multi-band illuminator	Visible: 460 nm (blue), 525 nm (green), and 625 nm (red) Each band is selectable by the application software
Electrical	Operational voltage	110-240 AC; 50/60 Hz
Mechanical	Instrument weight	17.6 (lb)/7.98 (Kg)
	Dimension of the instrument	26.2 (l) x 4.5 (w) x 4.6 (h) inches/666 (l) x 115 (w) x 117 (h) mm approx
	Total weight of the kit	80 (lbs)/36.3 (kg)
	Dimension of the case	27 (l) x 15 (w) x 8.4 (h) inches / 685.5 (l) x 381 (w) x 213.4 (h) mm

The specifications are subject to change

The instrument is shipped in a customized case that is designed and constructed in such way that facilitates safe and easy transportation. All components that are needed to setup and operate the AAT are included in the case.

The application software can run on any suitable Windows™ 10/11 computer. With the standard configuration, a laptop computer is provided. Alternatively, an industrial PC which is integrated into the instrument's controller is available as an extra-cost upgrade (contact the factory for the specifications of the industrial PC).

A software development kit (SDK) is available for developing customized applications. The SDK consists of a number of DLLs that can be integrated into the user's application.



D-275 AAT Shipping Case complete with telescope



AAT Controller with optional integrated industrial PC



TRIOPTICS USA

9087 Arrow Route Unit 180
Rancho Cucamonga, CA
91730 USA

P +1 626 962 5181
F +1 626 962 5188
sales.usa@trioptics.com
www.trioptics.com

