

## Lincoln POLYtek™ Series Polygonal Scan Heads

### Product Highlights

Designed for ultra-high-speed, single-axis scanning on moving targets, the Lincoln POLYtek scan head incorporates a precision polygonal mirror, a DC brushless drive motor assembly, and a “Start of Scan” laser synchronization system that delivers advanced line-scanning capabilities. Coupled with a commercially available controller and software interface, the POLYtek scan head eases system integration cost and complexity.

The POLYtek is ideally suited for use with ultra-short-pulse picosecond and femtosecond lasers and continuous wave lasers used in high-throughput and high-percentage-fill raster applications. The scan head is available in a variety of configurations providing scanning speeds of hundreds of meters per second.

### Polygonal Scan Head for Ultra-High Speed Applications

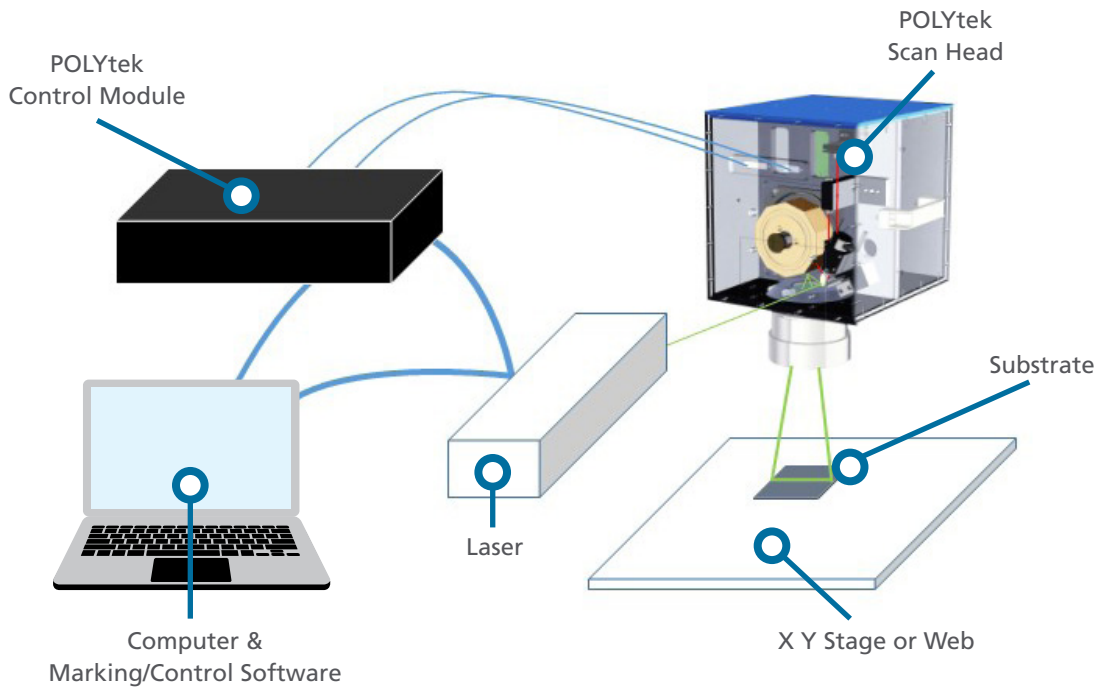
- Scan rates up to 512 m/s (1600 lines/s) enable leading edge scanning applications
- Y-axis galvanometer provides geometric polygonal mirror error correction and Y-axis indexing
- Industry-standard, raster-based controls format reduces set-up time and effort
- Available for 355 nm, 532 nm, 1064 nm, and 10.6 micron wavelength lasers

# POLYtek™ Series

## Polygonal Scan Heads

### Product Specifications

Wavelength Options	355 nm, 532 nm, 1064 nm, 10.6 $\mu$ m
Scan Rate	150 – 800 lines/s (Standard) 0 – 1600 lines/s (Optional)
Scan Speed <sup>1</sup>	48 – 256 m/s (Standard) 0 – 512 m/s (Optional)
Input Beam Size	15 mm (Max.)
Line Placement Repeatability – Y-Axis	$\pm 16$ $\mu$ rad
Optimal Laser Pixel Placement Repeatability X-Axis	$\pm 48$ $\mu$ rad
Output Scan Angle <sup>3</sup>	$\pm 16^\circ$ (Typical)
Operating Temperature	15°C $\pm 10^\circ$ C
Start of Scan Sensor	Yes
CDA Purge Port	Yes
Input Power <sup>4</sup>	120 VAC, to controller
Control Card	Included, with software interface
Data Cable Length	25 ft. (7.62m) Max
Y-Axis Galvanometer	Optional
Galvanometer Analog Communication	$\pm 10$ V
Dimensions (excluding handles and scan lens)	10 in x 10.88 in x 11.43 in (254 mm x 276 mm x 290 mm)



#### Notes:

All angles are in optical degrees, unless otherwise noted. All specifications subject to change without notice.

#### References:

1. Calculated based on the scan rate and the use of an f-theta lens of 255 mm EFL.
2. Larger scan angle with input beam diameter less than 15 mm.
3. Requires  $\pm 15$  VDC (7 Amps. Max), 5 VDC, and 24 VDC input power to the scan head.



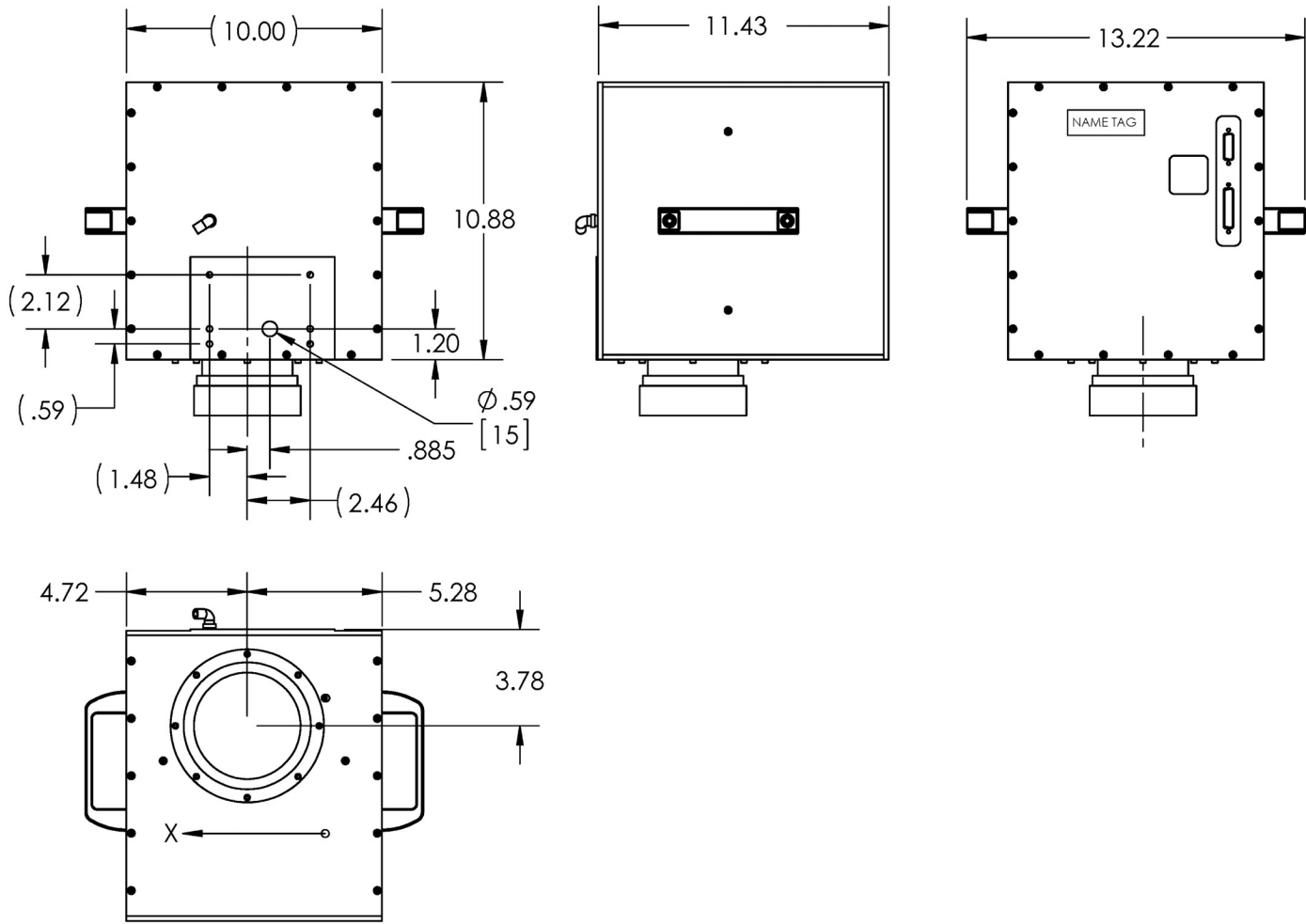
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# POLYtek™ Series

## Polygonal Scan Heads



**Notes:**  
All dimensions are in inches, unless otherwise noted. All specifications are subject to change without notice.

## About Cambridge Technology

With close to 50 years of expertise, Cambridge Technology designs, develops, and manufactures innovative beam steering solutions including polygon- and galvanometer-based optical scanning components, 2-axis and 3-axis scan heads, scanning subsystems, high power scanning heads, and controlling hardware and software. We excel in collaborating with our key OEM partners to engineer products that meet their needs from the largest engineering solution to the smallest component. Key market applications include advanced industrial processes like additive manufacturing, laser converting, laser marking, and via-hole drilling, and medical applications such as laser treatment and optical coherence tomography. Cambridge Technology is a Novanta company.

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