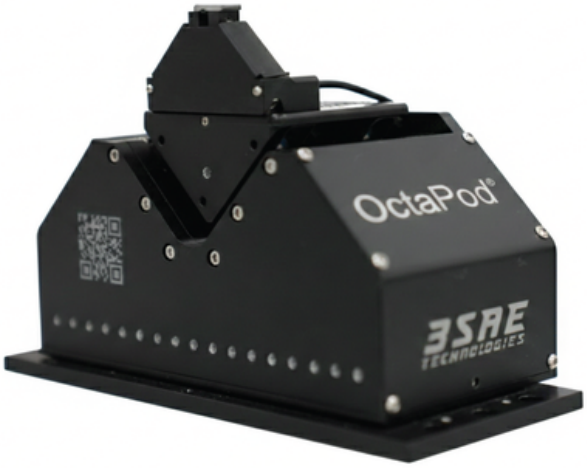
3SAE OCTAPOD™ MICROROBOTIC PLATFORM



3SAE's OctaPod™ addresses key pain-points in silicon photonics test and assembly processes. Building on the proven PentaPod® platform, this six-degree of freedom positioner adds a novel dither module that drives its fast alignment algorithms, turning it into a fully fab-worthy microrobot for integration into multiple production tools. Its patented design provides unprecedented stiffness for fast settling and ambient vibration rejection, and its integrated controller and lack of motion cables makes integration a breeze. With 0.02dB coupling reproducibility, sub-2-second optimization, real-time tracking, cleanliness suitable for ISO-5 deployment and the PentaPod®'s field-proven 20,000 hr MTBF, OctaPod™ is a breakthrough solution for rapid scaling.

Key Features: OctaPod™

- High resolution, 6DOF positioner with novel, patented design principle yielding sub-micron resolution and unmatched rigidity.
- Compact yet fully self-contained with built-in, fanless controller. Quick integration: USB or optional Ethernet and analog connectivity. No moving cables, no big controller box.
- Parallel kinematic design eliminates the 24 complex rotary bearings of traditional Stewart Platform hexapods for superior stiffness, settling, ambient vibration rejection, reliability, cleanliness and cost.
- Software-settable rotational pivot point facilitates optical and photonic processing.
- Small size and low profile without compromising on stroke, precision, or crosstalk.
- Tuning-free technology and high inherent stiffness mean robust, stable operation in mission-critical applications even with varying loads. 20,000 hr MTBF and 20 min MTTR beat any hexapod in cost of ownership.
- High-speed piezo dither module powers new, hyper-efficient optimization and tracking functionality: typ. <2 second, better than 0.02dB repeatability, with real-time drift tracking.

Standard Package

Part Number	Product	Includes
PPD-01-0150	OctaPod™ – USB & Ethernet	PentaPod with a 2-axes piezo Dither stage, carriage platform with M3 threaded grid pattern, executable control software, USB Type A/C cable, Dither cable, Integrated Ethernet & POE communication interface, Dual Channel Analog inputs, power supply, electronic user's manual, manufacturer's 1-year parts and labor warranty

Technical Specifications

Feature	Specification
Dimensions (mm)	215.0 (W) x 91.7 (D) x 149.3 (H)
Weight:	~4.6lbs (2.1kg)
Power Source	(1) 18VDC, 4A
Control / Operation	Executable Control Software
Actuator Type	Stepper/Piezo
Stiffness (N/µm)	24
Stage Footprint (cm²)	197
Maximum Velocity X, Z (mm/sec)	3.6
Maximum Velocity Y (mm/sec)	2.4
Maximum Velocity θX, θZ (mrad/sec)	78
Maximum Velocity θY (mrad/sec)	117
Load Capacity Dither Stage (g)	100
Alignment Time for Random 50µm Window (sec)	2.5
Alignment Time for Random 100µm Window (sec)	4.6

Feature	Specification
Optical Signal Lock Capability	Yes
Independent Travel Range X (mm)	+3.0/-6.0
Independent Travel Range Y, Z (mm)	±6.0
Independent Travel Range θX, θY, θZ (mrad)	±100
Minimum Incremental Motion X, Y, Z (µm)	0.05
Minimum Incremental Motion θX, θZ (µrad)	1.7
Minimum Incremental Motion θY (µrad)	3.4
Unidirectional Repeatability X, Y (µm)	0.2
Unidirectional Repeatability Z (µm)	0.3
Unidirectional Repeatability θX, θY, θZ (µrad)	10
Bidirectional Repeatability X, Z (µm)	0.5
Bidirectional Repeatability Y (µm)	1
Bidirectional Repeatability θX, θZ (µrad)	20
Bidirectional Repeatability θY (µrad)	40

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Specifications are subject to change without notice.

Made in the USA

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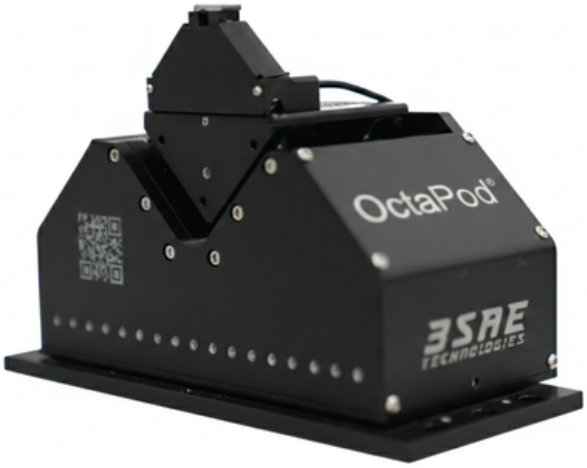
3SAE TECHNOLOGIES

PENTAPOD®/OCTAPOD™ VS. HEXAPOD



Features	PentaPod®	OctaPod™	Hexapods (Stewart Platform)
Motion Capability			
Axes	6	6	6
Scanning & Alignment functionality	Yes	Yes (high speed)	Varies
Long-term alignment lock-on	No	Yes	No
Virtual pivot point	Yes	Yes	Yes
Stiffness	Best	Best	Offset Cardanic joint designs: Good
			Ball joint designs: Fair
			Flexure designs: Poor
Robustness			
Stability	Best	Best	Good
Vibration resistance	Best	Best	Good
Inverted mounting	Yes	Yes	Yes (some models)
Cleanliness	Best	Best	Varies
Tuning	Not required	Not required	On application or load change
Oscillation & runaway	Not possible	Not possible	Possible
Integration & Support			
Field Serviceability	Yes	Yes	Generally No
MTBF	>20000 hr	>20000 hr	Rarely stated
Installed Industrial Base	Large	Large	Moderate
Controller	Integrated	Integrated	Separate, rack- or panel-mount
Cabling	Small USB-C or Ethernet	Small USB-C or Ethernet	Thick, costly, proprietary
Fan	None	None	Yes (causes vibration, noise)
Communications & Programming			
Interfacing	High-speed USB-C	High-speed USB-C	Varies
	Ethernet	Ethernet	
	Power-Over-Ethernet (POE)	Power-Over-Ethernet (POE)	
	EtherCAT (optional)	EtherCAT (optional)	
	2-Channels Analog Inputs	2-Channels Analog Inputs	
Software	Platform-independent, mnemonic ASCII command set	Platform-independent, mnemonic ASCII command set	Varies
	Libraries included but not necessary.	Libraries included but not necessary.	
	User-friendly GUI included.	User-friendly GUI included.	
	LabView source code available	LabView source code available	

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