PRELIMINARY

3SAE OctaPod™ Photonic Alignment Microrobot – Datasheet

Overview: The 3SAE OctaPod™ is a task-oriented microrobot developed to eliminate alignment bottlenecks in high-volume silicon photonics manufacturing. It integrates embedded control electronics and a high-frequency dither module to provide real-time optimization in a compact footprint.

Key Features: Embedded electronics allow full integration without external controllers. Real-time tracking maintains peak optical power through continuous adjustment. Multichannel optimization enables rapid alignment of fiber arrays and photonic integrated circuits.

Performance: The system achieves sub-micron multi-axis optimization and alignment reproducibility of approximately 0.02 dB for typical silicon photonic devices. It is designed for continuous industrial use with a mean time between failure (MTBF) of approximately 20,000 hours.

Functions: The OctaPod supports simplified command execution via mnemonic commands, allowing automated alignment tasks such as scan-and-return mode or gradient-based optimization without manual search procedures.

Design: The compact, fanless design ensures cleanroom compatibility by eliminating airflow disturbances. Modular construction allows quick field servicing of actuators.

Applications: Typical use cases include wafer probing, chip testing, and assembly of photonic integrated circuits. The system is optimized for high-throughput manufacturing environments.

Advantages: Compared to traditional alignment solutions, the OctaPod offers higher speed, improved robustness, reduced footprint, and better integration into automated production systems.

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