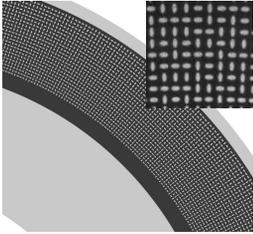


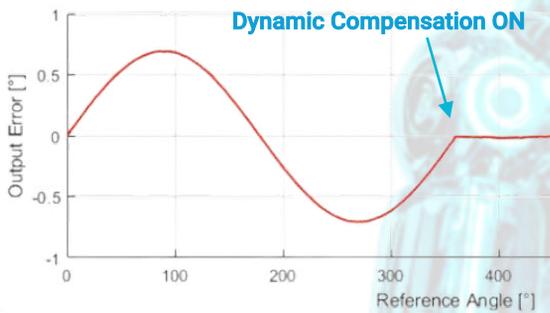
Sub-Micron Precision with Zero Factory Calibration

PATENTED 2D ABSOLUTE ENCODING



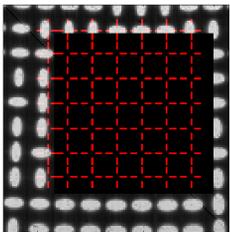
- **A fundamentally new encoding principle:** Simultaneously captures absolute X and Y positions in 2D, enabling capabilities impossible with traditional 1D encoders.
- **Sub-Micron Precision:** Delivers > 24bit resolution with sub-micron accuracy at exceptionally high sampling rates, enabling real-time robotic control with unmatched fidelity.

ZERO FACTORY CALIBRATION VIA DYNAMIC COMPENSATION



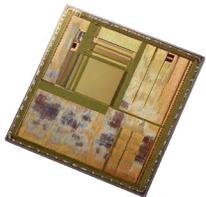
- **Real-time eccentricity compensation:** The sensor automatically calculates corrections directly from 2D (X, Y) position data.
- **Eliminates static and dynamic errors:** Reduces residual error to < 0.04° peak-to-peak without factory calibration or external reference.

EXTREME OPTICAL ROBUSTNESS



- **Inherent Error Resilience:** Built-in redundancy and error correction within the patented 2D code structure to ensure the highest safety integrity levels.
- **Massive Obstruction Tolerance:** Engineered to withstand oil, dust, scratches, and aging, maintaining full functionality even with up to 60% of the field of view obstructed.

MINIMUM BOM & HIGH FLEXIBILITY



- **PreciSen™ Firmware-Programmable SoC:** A highly optimized encoder system-on-chip configurable to different robotics applications.
- **Optical & Mechanical Versatility:** Supports both transmissive and reflective configurations, with tolerance up to $\pm 2\text{mm}$ in linear displacement (XYZ) and $\pm 2.5^\circ$ in angular tilt or twist.

Feature	Operational Benefit
Dynamic 2D Compensation	Automatically corrects mechanical wobble, eliminating factory calibration
> 24-bit Resolution	Enables ultra-smooth, zero-ripple joint control for precision motion
Extreme Robustness	Ensures safe, uninterrupted operations even with oil, dust, or scratches

Target Applications
Humanoid Robot Actuators
Collaborative Robots (cobots)
Hexapods / Parallel Robots