

PERFORMANCE CHARACTERISTICS

Resolution	10 µm
Scale Error	≤ 8 ppm
Non-Linearity	≤ ±1 nm
Noise ⁽¹⁾	5 pm/√Hz (0 to 100 µm)
	10 pm/√Hz (100 to 400 µm)
	20 pm/√Hz (400 to 600 µm)
Drift	1.0 nm/day
Absolute Position Repeatability	0.5 nm 3σ
Thermal Drift ⁽²⁾	0.1 nm/K

TARGET REQUIREMENTS⁽³⁾

Nominal Standoff	3.5 mm
Measurement Range ⁽⁴⁾	±600 µm
Angular Range ⁽⁴⁾	1 mrad
Max. Precision Velocity	30 mm/s
Target Reflectivity	3% - 8% @ 1525 - 1570 nm

PHYSICAL CHARACTERISTICS

Dimensions (H x W x D)	311 x 483 x 578 mm 19" Rack Mountable, 7U
Mass ⁽⁵⁾	30 kg
Max. No. of Channels	64

OPTICAL CHARACTERISTICS

Operating Wavelength	1525 - 1570 nm
Max. Sensor Output	< 1 mW
Laser Safety Rating	1M

CLOCKING & COMMUNICATIONS

Interface	sRIO and Ethernet
Reference Signal	20 MHz
Digital Filter	24 Hz to 104 kHz, programmable
Base Sample Period	4.8 µs
Data Age	16 µs (typical)
Data Age Uncertainty	< 100 ns

SENSOR SPECIFICATIONS

Dimensions (Dia. x L)	2.8 x 27 mm
Mass	6 g

REFRACTOMETER SPECIFICATIONS

Dimensions (H x W x D)	8 x 15 x 24 mm
Mass	14 g

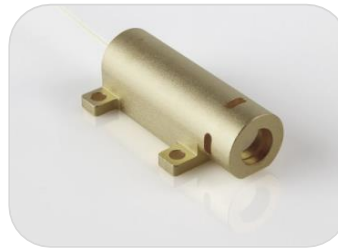
OPERATING CONDITIONS

Temperature	0° to 50°C
Max. Temp. Variation	±1°C
Pressure	700 to 1150 hPa
Humidity	0% to 70% (non-condensing)

ZPS is a high performance absolute position sensor system that delivers sub-nanometer accuracy to meet the needs of the most demanding metrology applications. The non-contact optical measurement method ensures no EMI sensitivity or heat dissipation in the critical metrology area.



Ultra-compact sensors easily integrate into space constrained applications



Real-time environmental compensation is available with use of refractometers

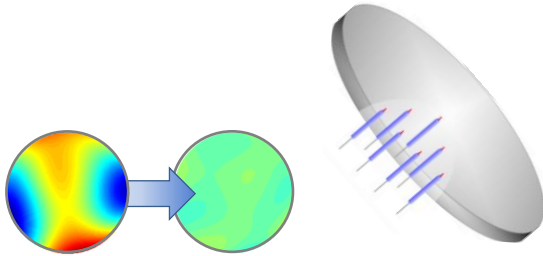


With up to 64 axes of measurement, ZPS is ready to support all of your applications simultaneously

Notes

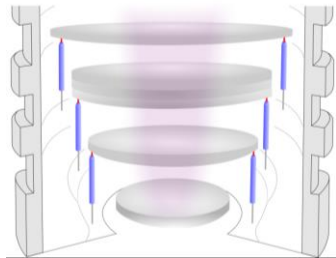
- (1) From nominal standoff.
- (2) With use of refractometer for environmental compensation.
- (3) See manual for complete description of setup and target considerations.
- (4) From perpendicular target at nominal standoff.
- (5) Assumes a 64 channel system.

Specifications subject to change without prior notice.

Deformable Optics*for precise wavefront correction*

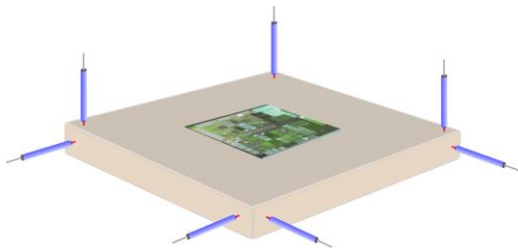
ZPS can be used in deformable optics systems to:

- Hold a mirror deformation at a calibrated state
- Provide feedback to deform a mirror to a desired surface figure
- Re-initialize a system back into a calibrated state after a cold start

Lens Positioning*for aberration and focus correction*

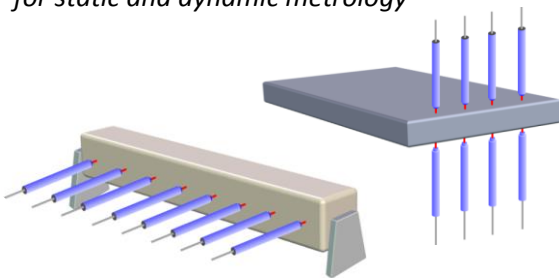
ZPS can be used in optical lens systems to:

- Hold lens position values
- Provide position feedback to actuate lens to achieve desired focus and aberration control
- Re-initialize a system back into a calibrated state after a cold start

Precision Stage Control*for servo control in multiple degrees of freedom*

ZPS can be used in precision stage control systems to:

- Provide high accuracy position data
- Provide servo control feedback for multiple degrees of freedom
- Measure and compensate for actuator drift

Mechanical Measurements*for static and dynamic metrology*

ZPS can be used in RD&E and manufacturing environments for measurements of:

- Modes of vibration along a mounted object
- Deflection under load or stress
- Material thermal growth and deformation
- Form and thickness using opposing sensors
- Dimensions to high precision