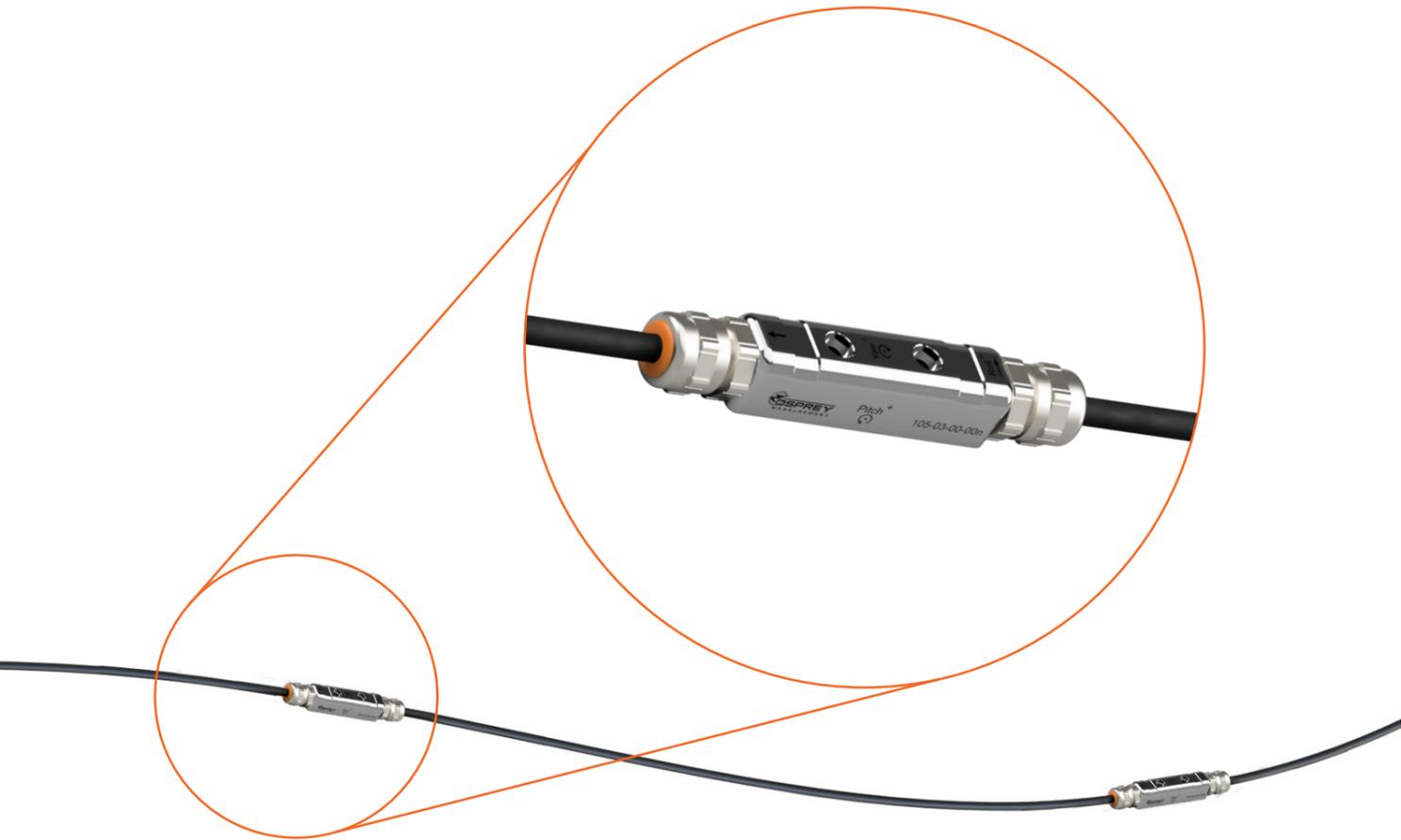




The Osprey Tilt String (OTS) Product Data Sheet

Distributed tilt sensing array designed for versatility and ease of use.



The Osprey Tilt String (OTS)

DESCRIPTION

The Osprey Tilt String (OTS) is a distributed tilt sensing array designed for versatility and ease of use. The system comprises a series of tilt sensors, regularly spaced along a single cable bus.

Each tilt sensor utilises a high precision triaxial accelerometer to provide rotational measurement in any orientation to a high degree of accuracy.

The system is designed to be well suited to a broad range of structural and geotechnical applications, either surface mounted on steel, concrete, wood, or masonry, or directly embedded in concrete, grout, or soil.

A variety of mounting options enables rapid deployment in any application, and the system's single cable bus and low power consumption allows simple connection of large numbers of sensors with a single battery powered digital datalogger. This minimises maintenance requirements and simplifies data management.

FEATURES

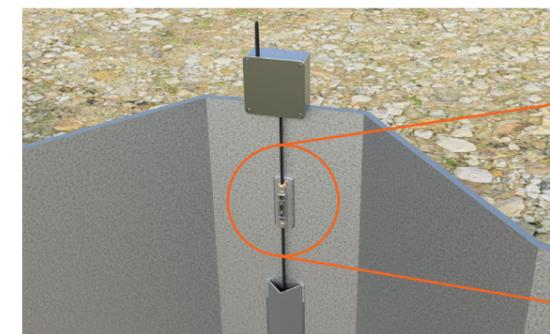
- Full 360 degree range on all axes.
- Miniature design for low profile installations.
- Reinforced thru-holes for bolting direct to structures or secondary mounting brackets.
- Banding strap recesses for secure fixing to reinforcement bars, support rods or inclinometer casing/access pipe.
- Rugged stainless steel housing fit for the construction environment.
- Corrosion resistant and ingress protected to 12 Bar.
- Option for Kevlar reinforced cable or flexible steel conduit for ultimate cable protection.
- Available at 0.5m, 1m, 2m, 3m or 5m intervals.
- Wide range of mounting bracket options available.

APPLICATIONS



Rail

- Track mounted for longitudinal settlement profile.
- Sleeper mounted for transverse rotation (cant/ twist).



Deep Excavation

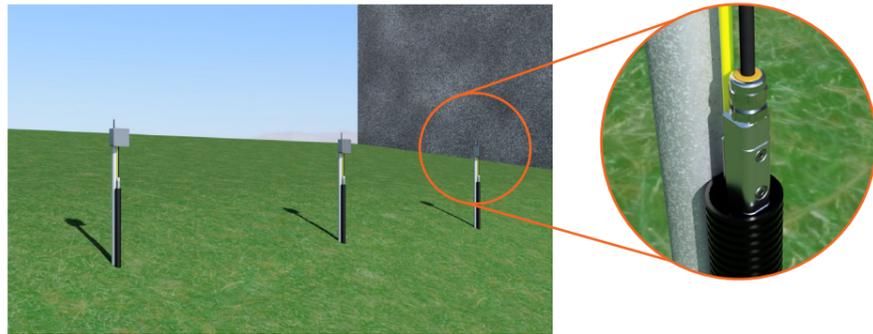
- Embedded within diaphragm walls or floor slabs.
- Welded to sheet pile walls for drill-free deformation monitoring.
- Magnetically mounted on props for rapid deployment and damage-free removal.



Pipelines

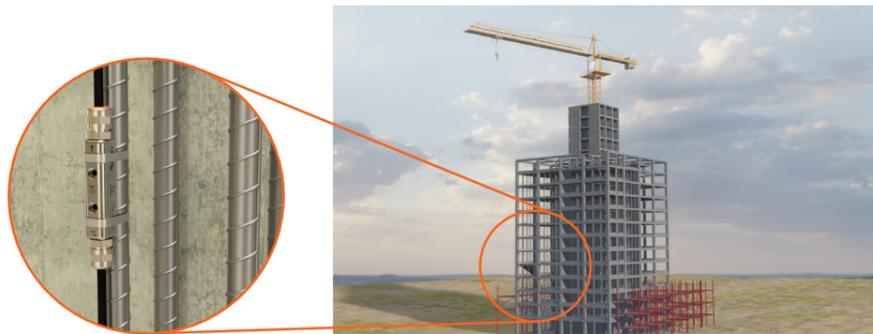
- Affixed with magnets or welding plates.
- Suitable for either above or below ground applications.

APPLICATIONS



Slopes

- Installed within a trench or by CPT for wide area coverage and early failure detection.
- Mounted on inclinometer casing for automated alerts with optional manual surveys.

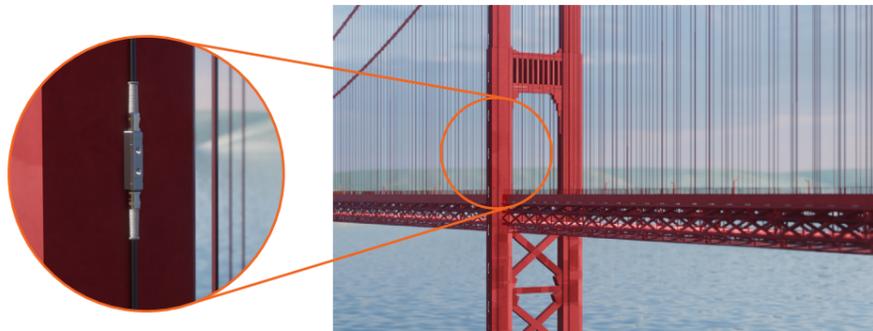


High Rise Towers

- Embedded within lift cores, columns or floor slabs during construction.
- Surface mounted on existing columns, facades or tower core.

Tunnels

- Longitudinal settlement profile or convergence.
- Mounting options include wall anchors or adhesives for concrete or masonry, magnets for steel supports, or direct embedment within shotcrete lining.



Bridges

- Capture full profile of bridge piers, towers, or decks.
- Synchronous setting allows simultaneous measurement at all points to capture a complete snapshot of dynamic structures.

MOUNTING OPTIONS



Rail Clip

For low profile longitudinal settlement profile of rails. Mounted in the web of the rail, safe from rail maintenance operations.



Mounting Plate

For concrete, masonry, steel or wood using anchors, screws or adhesives. Arc weldable for robust mounting option for steel, while allowing easy retrieval of the devices.



Fixing Straps

For fixing to reinforcement cages, inclinometer casing, access tube etc. for direct embedment applications.



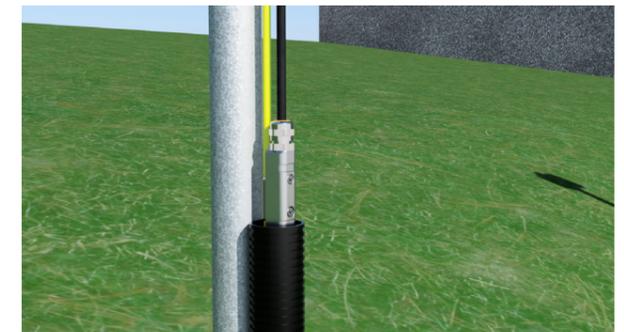
Magnets

For rapid deployment on steel: rail, pipelines, gantries, bridges, tunnels, struts, girders etc.



Welding Plate

For robust fixture directly to steel structures in high stress environments such as sheet piles, props, rail track and wind turbines.



Rod Supports

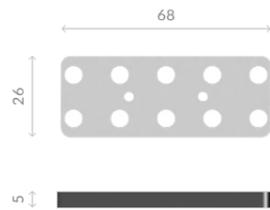
For mounting OTS to GRP rod, used in borehole or trench applications to provide reliable spacing.

COMPONENTS

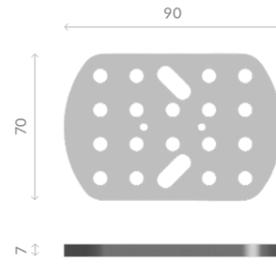


Osprey Tilt String Sensor Node - OTS-SN

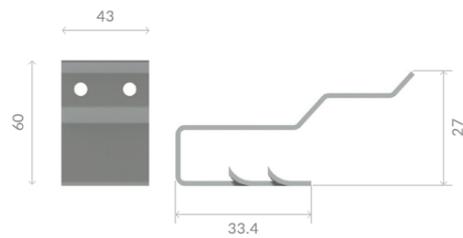
ACCESSORIES



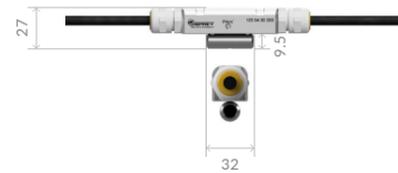
Glue Plate - OTS-A-SP



Mounting Plate - OTS-A-MP



Track Clip - OTS-A-RSC



Rod Clamp - OTS-A-ROD



Magnets - OTS-A-MM



Welding Plate - OTS-A-WP

SPECIFICATIONS - PERFORMANCE

Range	360°		
Resolution	±0.001mrad		
Repeatability	0.02mrad		
Measured Rotation	±2.5°	±15°	±45°
Accuracy ¹	0.05mRad	0.2mRad	0.3mRad
Power Supply	4-24VDC		
Power Consumption (12V) ²	Boot	Idle	Measure
	210ms@30mA	0.5mA	200mS@20mA
Communication	RS485, Modbus RTU Compatible		

¹ Stated to 2 sigma

² Boot and measure are user configurable to be parallel or sequential

SPECIFICATIONS - PHYSICAL

Node Body Material	Stainless steel
Node Dimensions	110 x 19 x 19mm
Node Weight	123g
Jumper Cables - 0.5, 1, 2, 3 & 5m	4x0.34mm ² , Foil screen with drain wire. PUR LSZH 6.6mm jacket

SPECIFICATIONS - ACCESSORIES

	Dimensions	Weight	Materials
Rail Clips	43 x 60 x 27mm	45g per clip	Passivated spring steel
Glue Mounting Plate	68 x 26 x 5mm	55g	Stainless steel
Mounting Plate	90 x 70 x 7mm	276g	Stainless steel
Weld Plate	120 x 38 x 8mm	228g	Mild steel
Magnets	20 x 20 x 24.5mm	15g ea., 15kg total pull force	Stainless steel
Rod Clamp	32 x 10mm	5g	Stainless steel
Mounting Straps	5 x 150 or 390mm	25g/m	Stainless steel



Osprey Tilt String (OTS)
Product Data Sheet

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