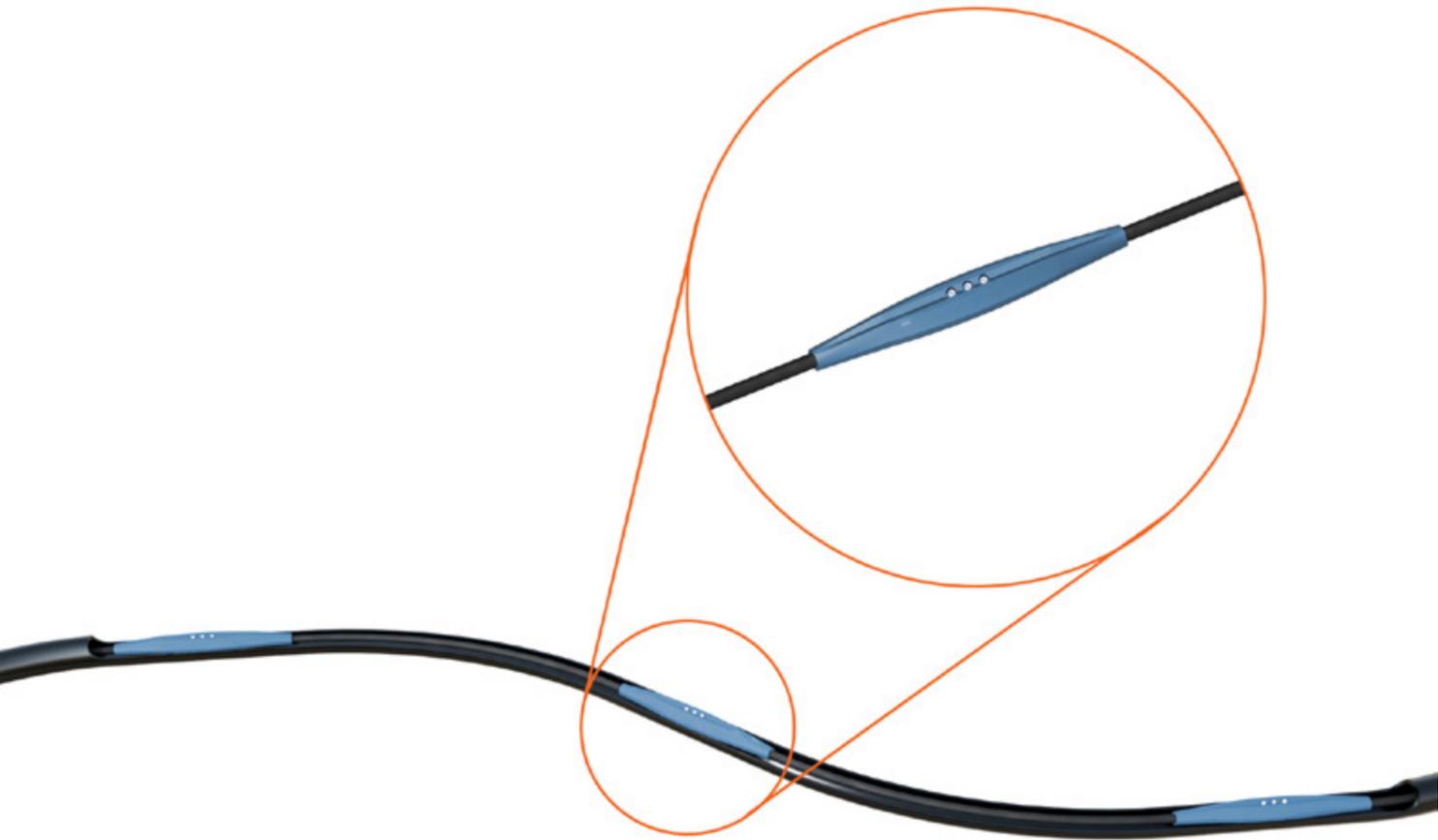




## Automatic Settlement Profiler (ASP) Product Data Sheet

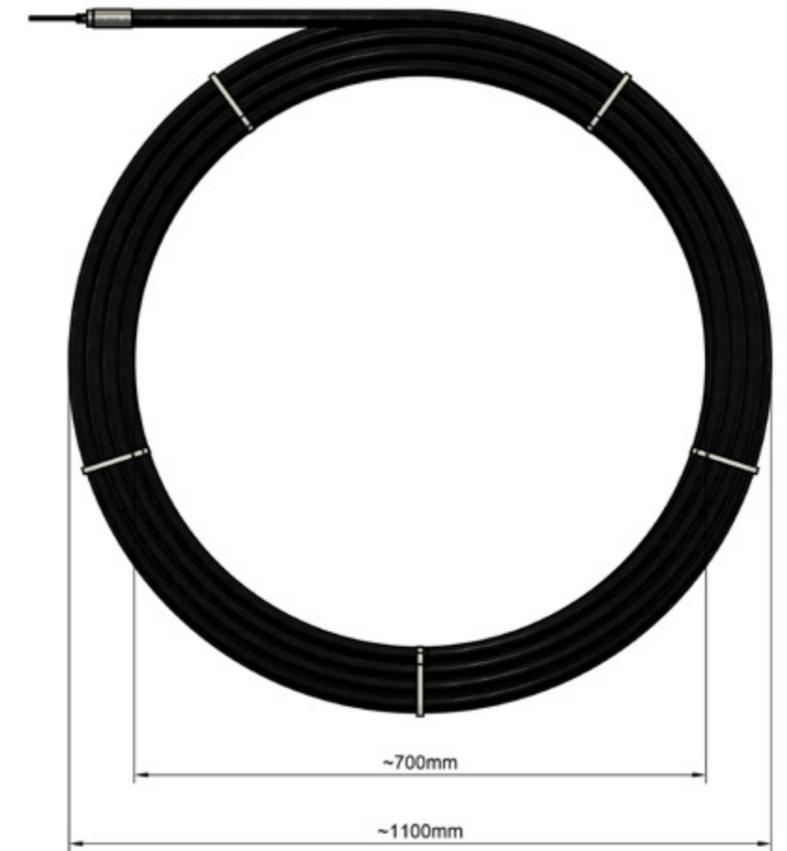
In-place hydrostatic settlement profiler for automated construction monitoring

- High precision settlement monitoring for **structural and geotechnical applications**
- **Robust and versatile** – designed for the toughest site conditions
- Discrete measurements to **replace settlement plates** – no more obstacles!



## FEATURES

- Robust design well suited to the construction environment
- Self-contained – no flushing, deairing or external reservoir required
- Digital Output – reports elevation change in millimetres
- Sensor spacing options to suit your ground conditions and budget
- Easy installation – direct burial or install within conduit
- Large measurement range well suited to soft soils, while precise enough for stiff soils and structures
- Use for cross section or long section – or both!
- Low power, single cable bus allows up to 100 sensors to be monitored from a single digital data logger
- Measures change in elevation, not rotation – ideal for uneven ground
- Discrete measurements – no accumulation of errors



# Automatic Settlement Profiler (ASP)

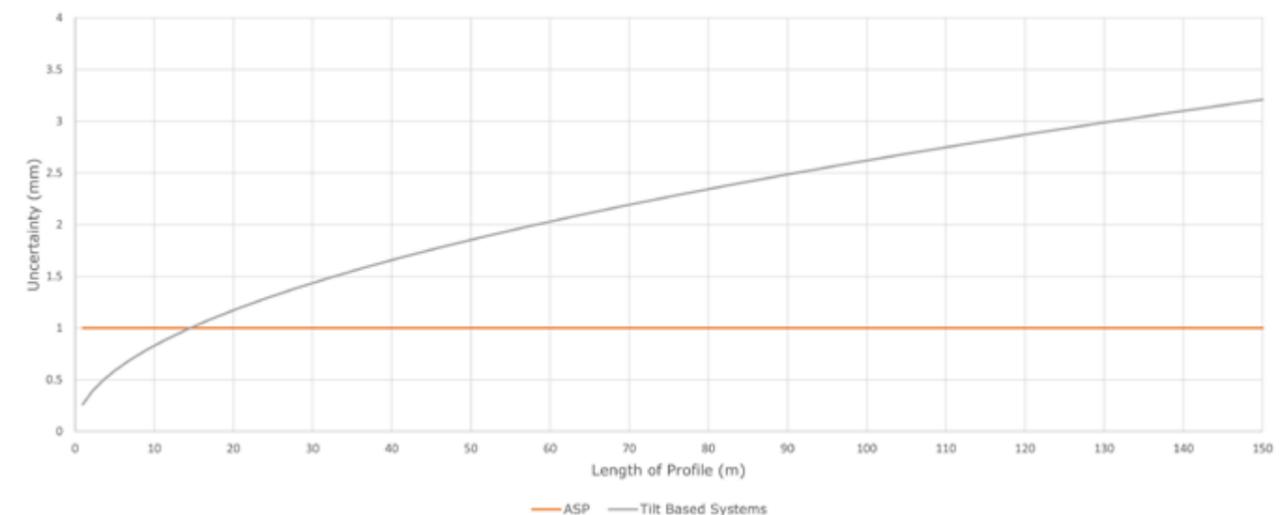
## DESCRIPTION

Osprey Measurement Systems patented Automatic Settlement Profiler (ASP) uses the hydrostatic principle to provide high precision, near real-time **distributed settlement monitoring**. The system comprises a series of pressure sensors sealed within a fluid filled tube. Differential pressures measured across the system translate to change in elevation, which over time indicate settlement or heave of soil structures.

As the system is sealed, it is unaffected by barometric pressure changes and **does not require an external reservoir**. The ASP is installed within a conduit or directly buried within a sand-filled trench running from outside the zone of influence into the monitored area. Due to its operating principle, the ASP's performance is **unaffected by steep slopes or uneven ground**, and the system can be routed to monitor long sections or cover multiple sections with the same instrument.

The ASP can be retrofit into existing profilometer access tube to automate manually monitored hydrostatic settlement profiles and offers a **cost effective and practical alternative to settlement plates**.

## COMPARISON - CUMULATIVE ERROR



## APPLICATIONS



Road / Rail Embankments



Landfill



Bridge Abutments



Slope Stability

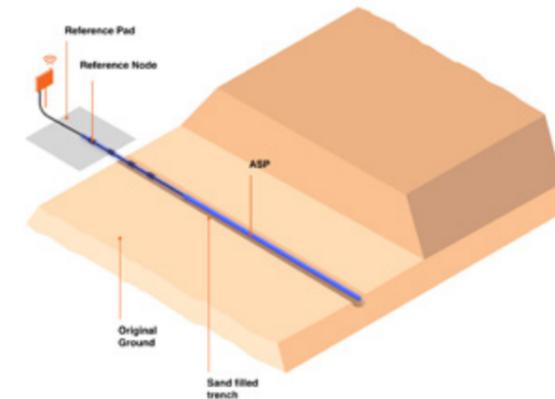


Tailings Dams



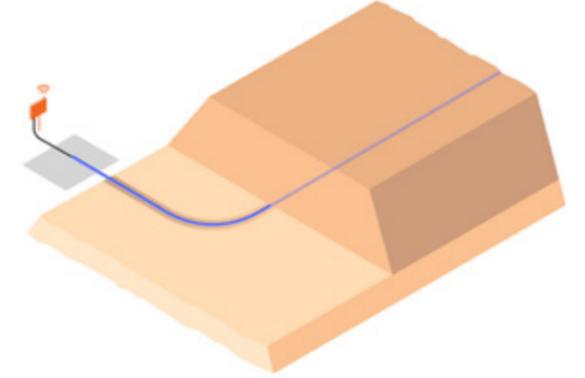
Stockpiles

## INSTALLATION CONFIGURATIONS



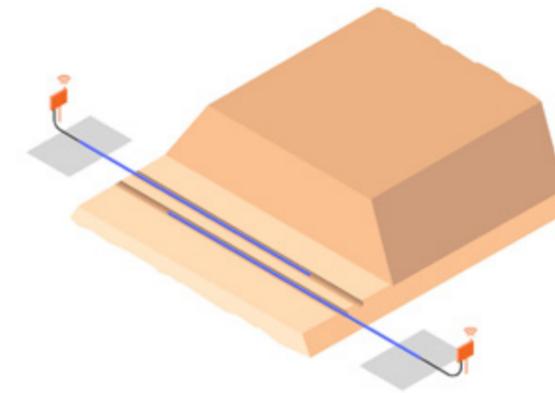
### Standard installation

- The ASP can be simply installed in a sand filled trench, directly buried, or installed within a conduit – allowing easy automation of existing manual profilometers and instrument recovery at the end of the project.



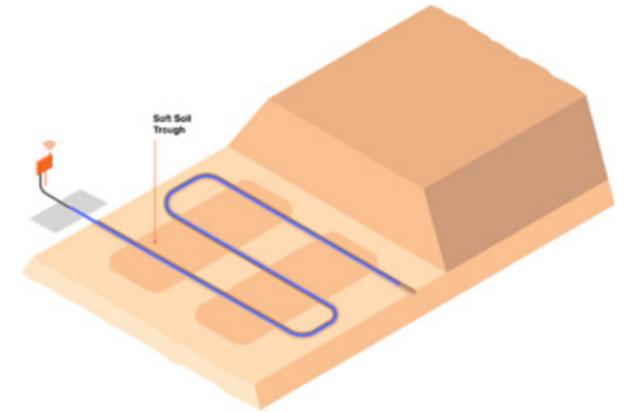
### Embankment Long Section

- For monitoring long sections, the ASP can be routed with reference sensors placed outside the zone of influence. Alternatively, control can be transferred from an In-Place Extensometer.



### Extended Profiles

- Monitor longer profiles by overlapping ASP systems. Control can be transferred from one system to the next, allowing chains of multiple ASPs. A secondary reference pad can be installed on the other side of the earthworks to close out the control.



### Area Profiling

- The ASP can be routed to target specific areas of concern, match settlement plate positioning or cover multiple cross sections with a single system. Measurement performance is not affected by the routing of the system or uneven terrain.

The patented Automatic Settlement Profiler was developed in collaboration with University College London. Osprey Measurement Systems products are manufactured in the UK under our ISO 9001:2015 accredited quality management system.

## SPECIFICATIONS - PERFORMANCE

Range	5m max differential		
Resolution	0.01mm		
12 Month Stability <sup>1</sup>	<1mm		
Precision <sup>1</sup>	±1mm (0.0125% FS)		
Power Consumption (12V) <sup>2</sup>	Per sensor	Active: 500ms @ 4.6mA	Idle: 400µA
	50 sensor ASP	Max: 150mA	Average: 25s @ 7mA
50 sensor ASP	Typical for 50 sensor ASP: 25s @ 7mA		
Power Supply	5-18V		
Communication	RS485, Modbus RTU		

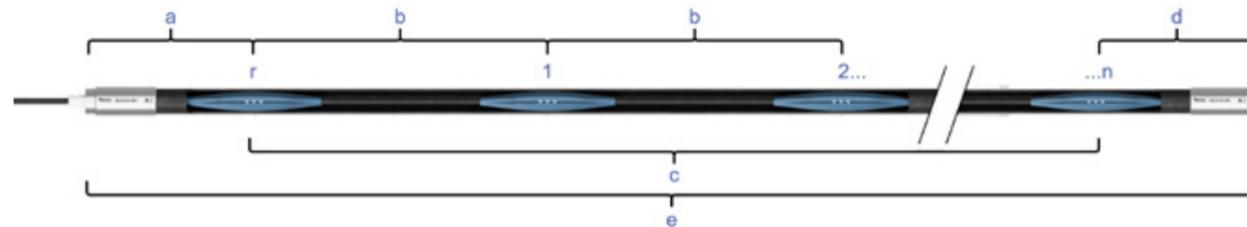
<sup>1</sup>3σ - 99.7% confidence level

<sup>2</sup>Per node.

## SPECIFICATIONS - PHYSICAL

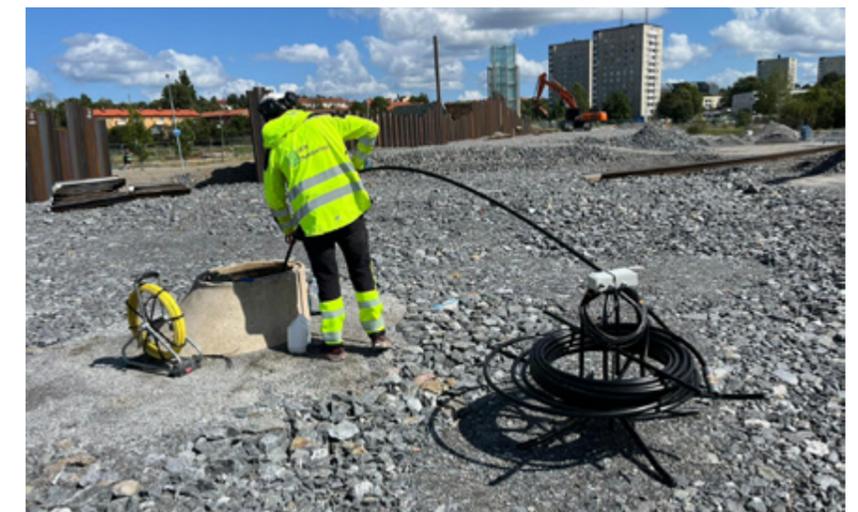
Hydraulic Hose	Ø25mm MDPE
Hydraulic Fluid	Environmentally Safe Aqueous Glycerol Solution
End Caps	Ø25mm Stainless Steel 316
Shipping Temperature	-25 to +50°C
Nominal Operating Temp Range	-10°C to +35°C
Extended Operating Temp Range	-20°C to +45°C
System Weight	420g/m
Comms Cable	4 core 22AWG, PU LSZH 6.4mm jacket

## ORDERING INFORMATION



The ASP is available with a measurement span up to 145m. Standard *Automatic Settlement Profilers* comprise a standard termination ASP-ST, plus a quantity of sensors at *either* 1m, 2.5m, 5m, or 10m spacing, or contact us for a bespoke build.

	ASP-10	ASP-25	ASP-50	Custom ASP-CB
Max n	99	58	29	99
a	200mm			
b	1m	2.5m	5m	User defined
c	n x 1m	n x 2.5m	n x 5m	User defined
d	(n x 0.02) + 0.5m	(n x 0.05) + 0.5m	(n x 0.1) + 0.5m	(c * 2%) + 0.5m
e	a + c + d			





Automatic Settlement Profiler (ASP)  
Product Data Sheet

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