



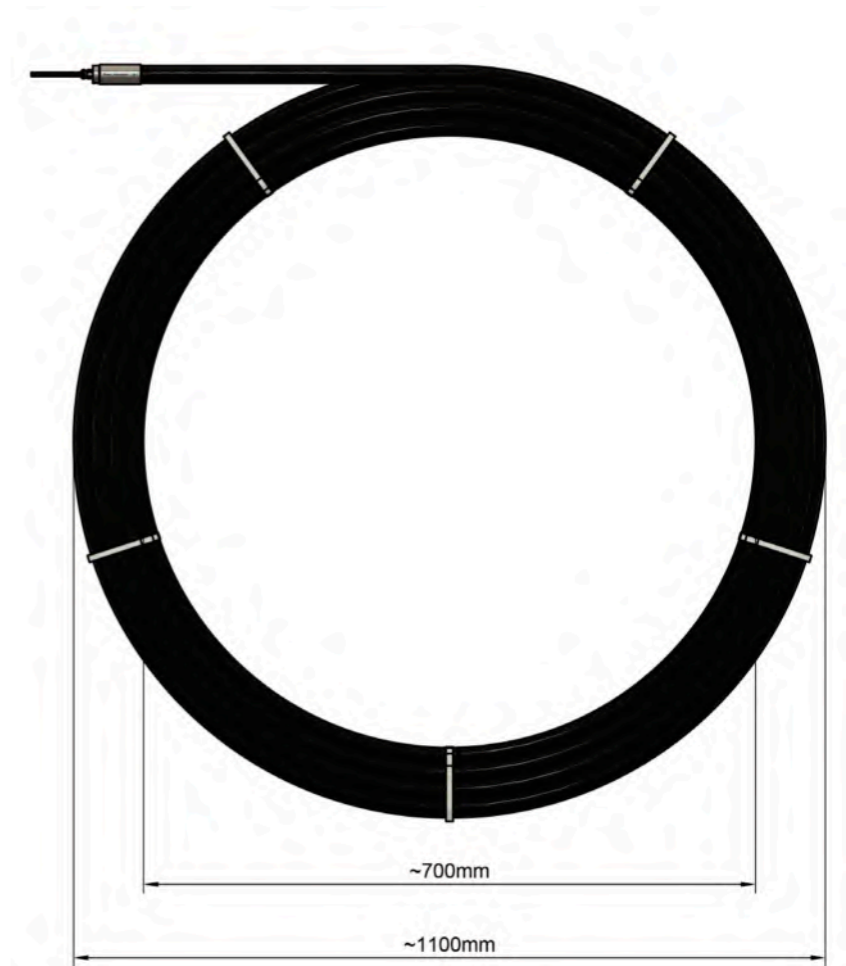
Automatic Settlement Profiler (ASP) Product Data Sheet

In-place hydrostatic settlement profiler for automated embankment monitoring



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 bury or install within conduit
- Large measurement range well suited to soft soils, but precise enough for stiff soils
- Use for cross section or long section – or both!
- Low power, single cable bus allows up to 50 nodes 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)

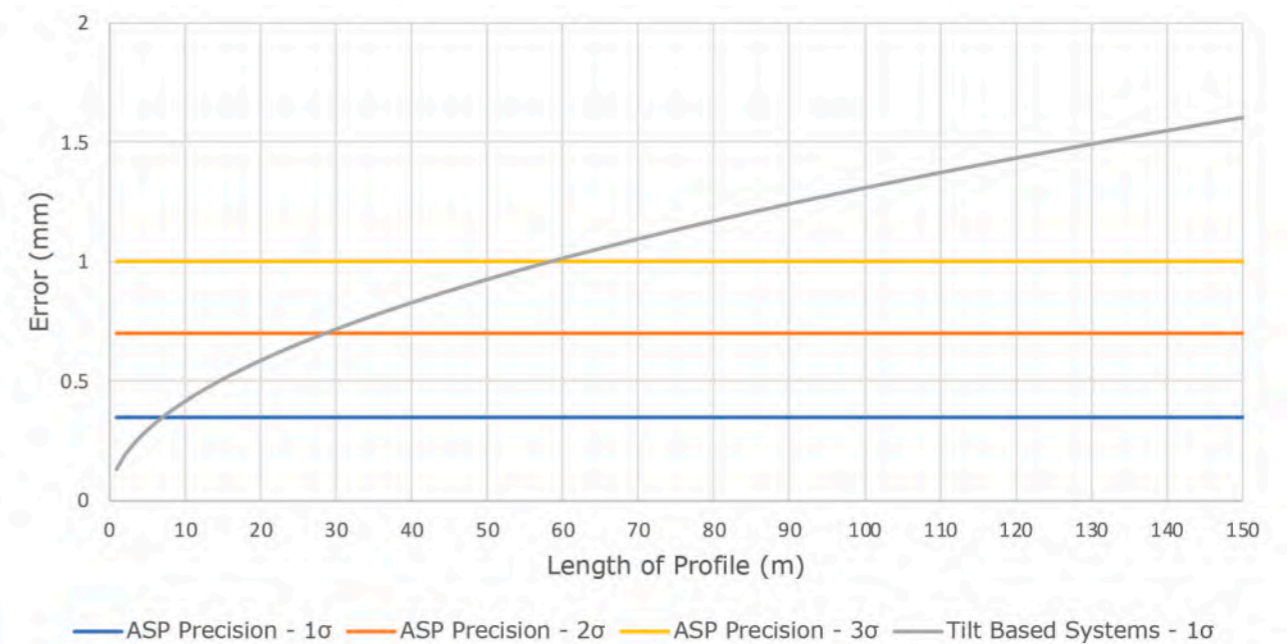
DESCRIPTION

Osprey Measurement Systems patented Automatic Settlement Profiler (ASP) uses the hydrostatic principle to provide high precision, near real-time distributed settlement monitoring beneath structures or fill. The system comprises a series of pressure transducers sealed within a fluid filled hose. 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 not affected by barometric pressure changes, nor does it 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



Tailings Storage Facilities



Bridge Abutments



Landfill



Slope Stability



Stockpiles

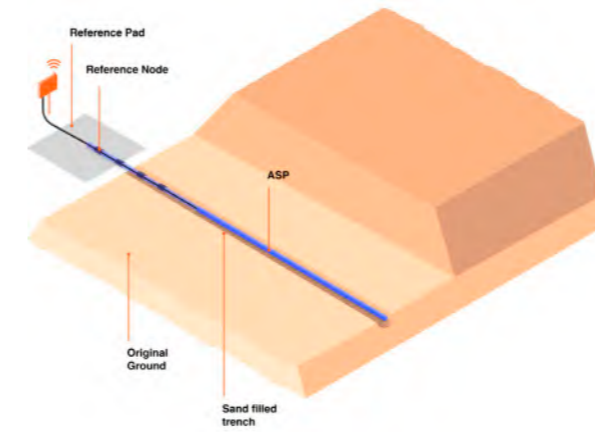


Ports



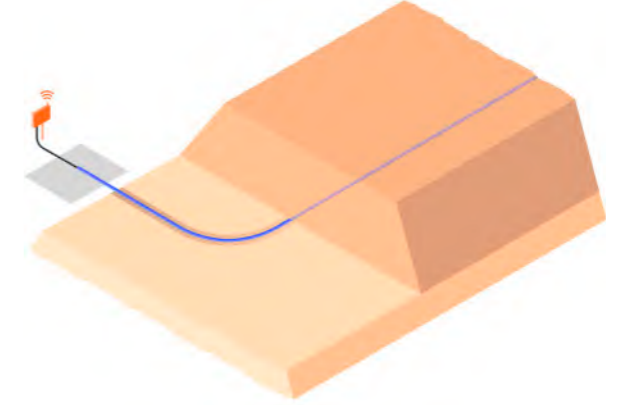
Storage Tanks

INSTALLATION CONFIGURATIONS



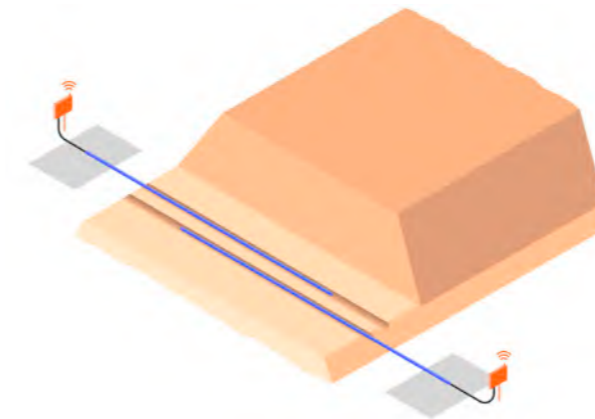
Standard installation

- Depending on site conditions, 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.



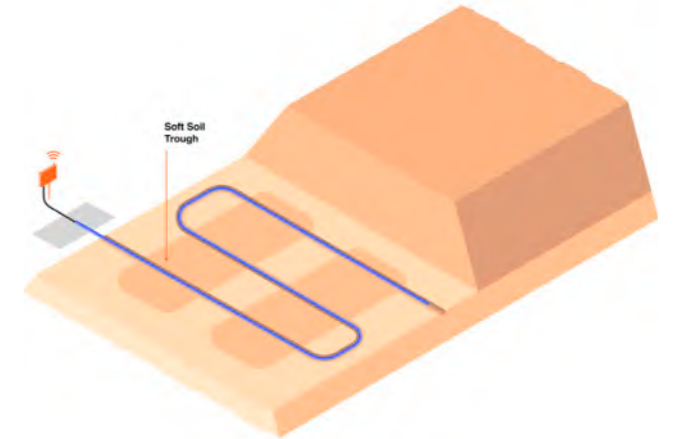
Embankment Long Section

- 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 IPX or settlement plate.



Overlap

- 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.



Cover more ground

- The ASP can be routed to target multiple areas of concern or cover multiple cross sections with a single system. Since each measurement point is independent, 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.

PERFORMANCE SPECIFICATIONS

Range	8m max differential		
Resolution	0.01mm		
12 Month Stability ¹	<1mm		
Precision ¹	±1mm (0.0125% FS)		
Power Consumption (12V) ²	Boot 300ms @ 6mA	Idle 100µA	Measure 800ms @ 4mA
Power Supply	5-18V		
Communication	RS485, Modbus RTU		

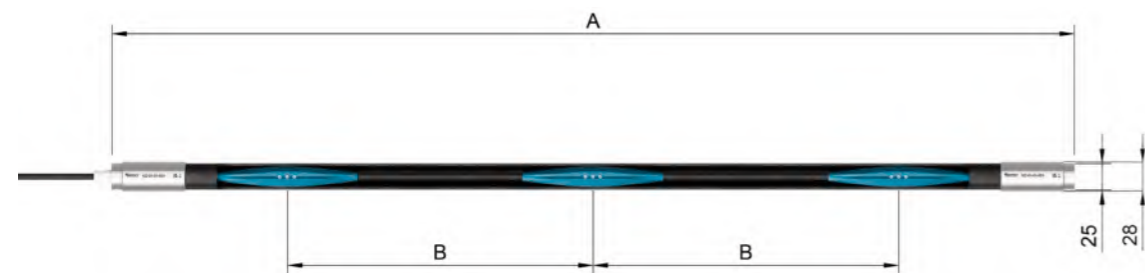
¹3σ - 99.7% confidence level

²Per node. Nodes are powered sequentially. Typical max system consumption 10.9mA @ 12V

SPECIFICATIONS - PHYSICAL

Hydraulic Hose	Ø25mm MDPE
Hydraulic Fluid	Environmentally Safe Aqueous Glycerol Solution
End Caps	Ø28mm Stainless Steel 316
Shipping Temperature	-20 to 60°C
Operating Temperature	0°C to 30°C
System Weight	420g/m
Comms Cable	4 core 22AWG, PU LSZH 6.4mm jacket

ORDERING INFORMATION



The ASP is available up to 125m in the following standardised configurations, with part number ASP-[A]-[B]

System Length (A)	Sensor Spacing (B)		
	1m (10)	2.5m (25)	5m (50)
25m (02)	ASP-02-10	ASP-02-25	ASP-02-50
50m (05)	ASP-05-10	ASP-05-25	ASP-05-50
75m (07)	ASP-07-10	ASP-07-25	ASP-07-50
100m (10)	ASP-10-10	ASP-10-25	ASP-10-50
125m (12)	ASP-12-10	ASP-12-25	ASP-12-50

The ASP can be built to customer specifications – contact us for more information





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Product Data Sheet

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