

Displacement sensors



including **myLVDT** A special kind of service

World leaders in linear measurement...

Solartron Metrology is a world leader in the innovation and manufacture of precision digital and analogue displacement sensors, dimensional gauging probes, optical linear encoders and associated instrumentation.



Over 60 years service to industry

Solartron Metrology's origins go back to 1946 with a UK company, Farrol Research and through successive acquisitions by Sangamo Weston, Schlumberger, management, Roxboro Group and AMETEK. We have been known as Sangamo Weston Controls, Sangamo Transducers, Schlumberger Industries Transducer Division and ultimately, Solartron Metrology.

Global strength. Local support.

With sales offices in Europe, the Americas, and Asia, and distributors in over 30 countries worldwide, our global network ensures that wherever you are a Solartron Metrology specialist is at hand to provide local service and support. Headquartered in the UK, around 90% of our production is exported.



Quality to the core.

The inherent reliability of Solartron Metrology precision technologies provides consistently accurate performance whilst reducing the cost of ownership. Continuous investment in design and manufacturing ensures that Solartron sensors continue to match and often exceed the expectations of users in industry, research and aerospace.

Where specials come as standard.


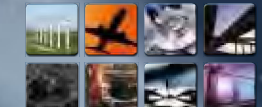



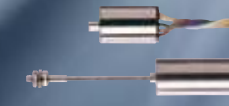



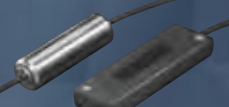


Solartron Metrology offer a broad range of both analogue and digital measurement solutions and associated electronics, some capable of withstanding the most extreme environments. Our plug and go Orbit3 digital network is astonishingly simple to configure and use and with the introduction of our MyLVDT specials service, our commitment to customer support extends further than any other manufacturer.

Rest assured that wherever you are, whatever your application, we have the technology, the commitment and the resources to help you make it better.



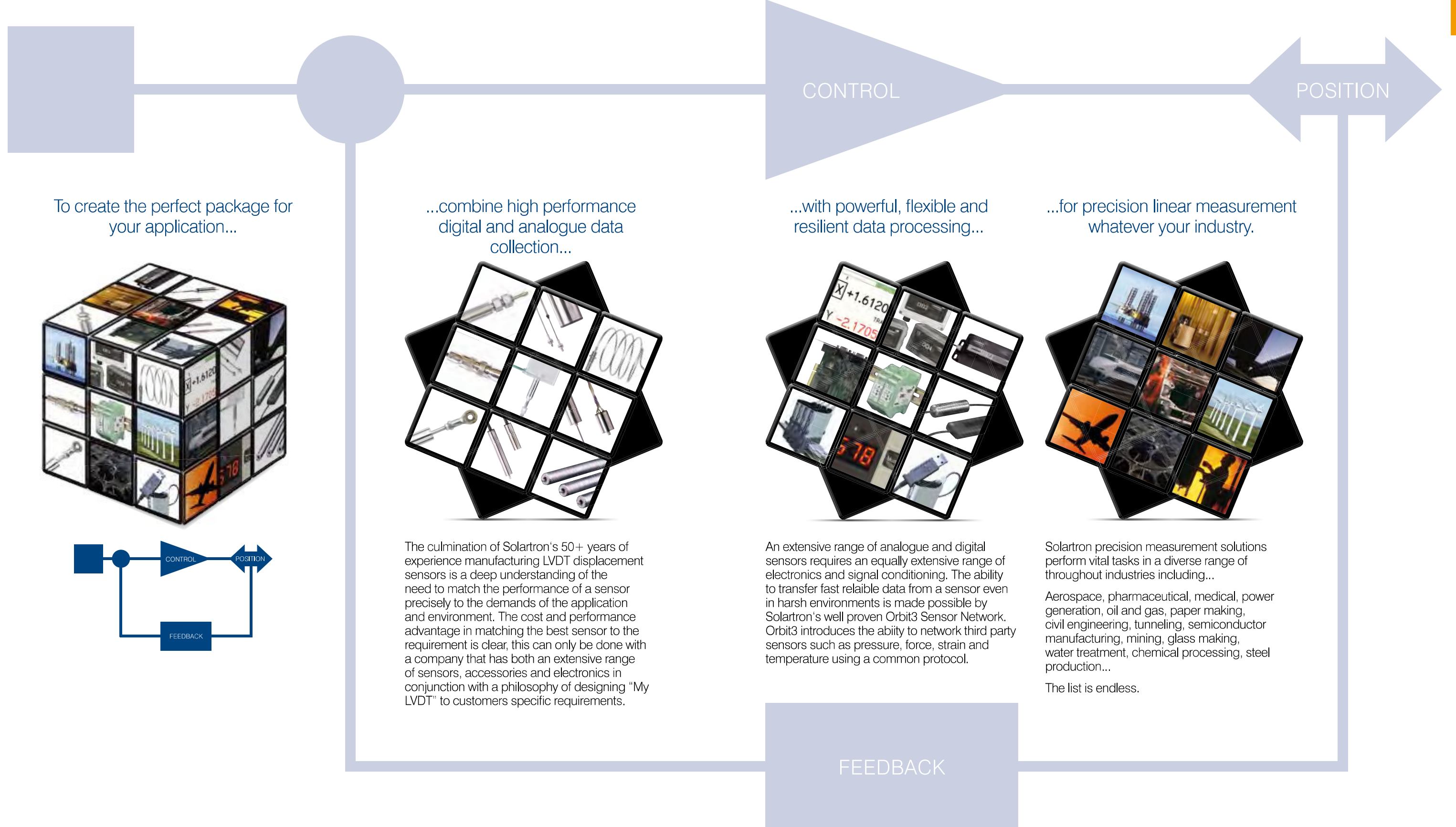
Solartron Metrology is part of AMETEK, a leading global manufacturer of electronic instruments and electric motors.

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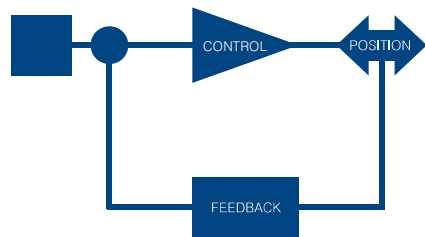
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Performance products with a twist...

Configure our standard range to create the optimum measurement solution for your application



To create the perfect package for your application...



...combine high performance digital and analogue data collection...



The culmination of Solartron's 50+ years of experience manufacturing LVDT displacement sensors is a deep understanding of the need to match the performance of a sensor precisely to the demands of the application and environment. The cost and performance advantage in matching the best sensor to the requirement is clear, this can only be done with a company that has both an extensive range of sensors, accessories and electronics in conjunction with a philosophy of designing "My LVDT" to customers specific requirements.

...with powerful, flexible and resilient data processing...



An extensive range of analogue and digital sensors requires an equally extensive range of electronics and signal conditioning. The ability to transfer fast reliable data from a sensor even in harsh environments is made possible by Solartron's well proven Orbit3 Sensor Network. Orbit3 introduces the ability to network third party sensors such as pressure, force, strain and temperature using a common protocol.

...for precision linear measurement whatever your industry.



Solartron precision measurement solutions perform vital tasks in a diverse range of throughout industries including...

Aerospace, pharmaceutical, medical, power generation, oil and gas, paper making, civil engineering, tunneling, semiconductor manufacturing, mining, glass making, water treatment, chemical processing, steel production...

The list is endless.

A special kind of service

At Solartron Metrology our vastly experienced design team has for many years, collaborated with customers' design teams to produce successful and cost effective bespoke measurement solutions.

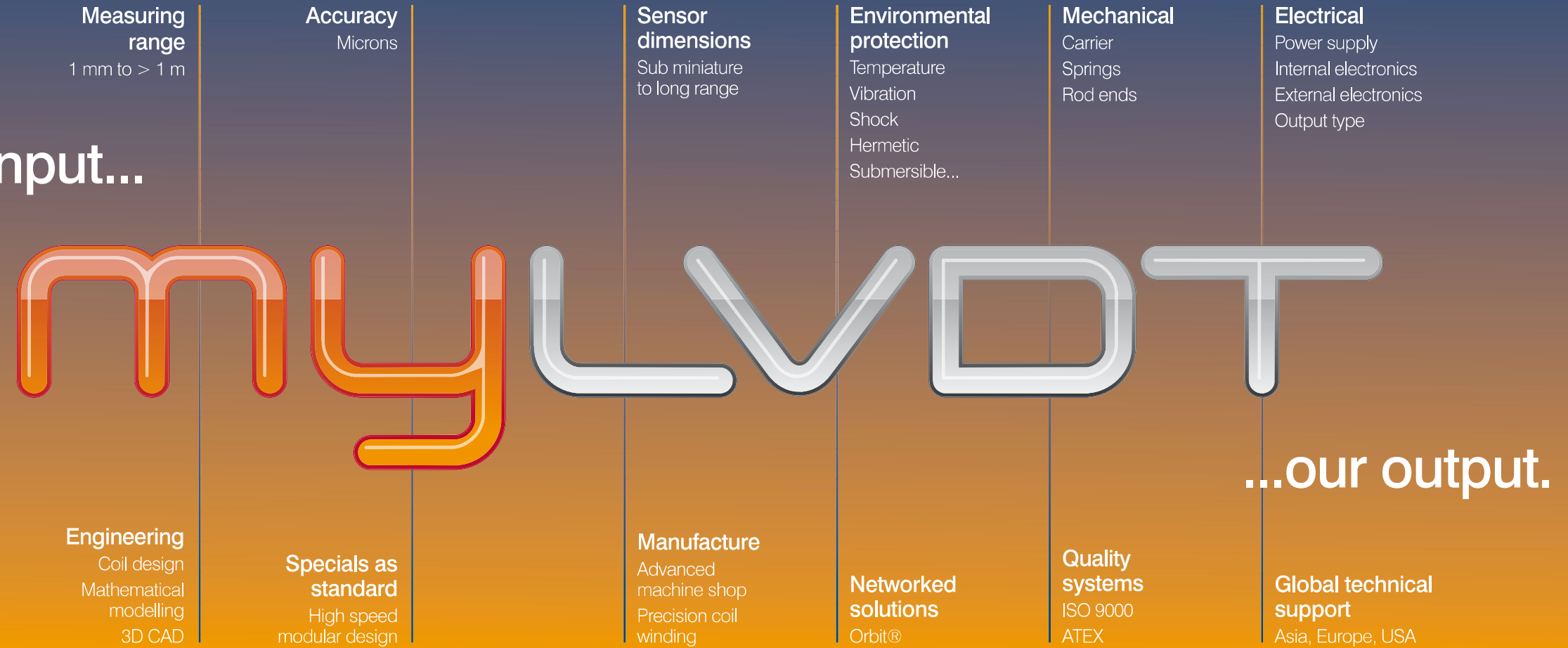
Drawing on this experience MyLVDT formalises this approach and puts our expertise in the spotlight.

With a knowledge base of sensor, electronics and software design spanning decades, we can work with you to identify, design, prototype and manufacture a novel solution to fit your application and your budget.

If you have a seemingly intractable linear measurement problem we need to talk.

MyLVDT: a special kind of service

Your input...



The path to measurement perfection



Consultation



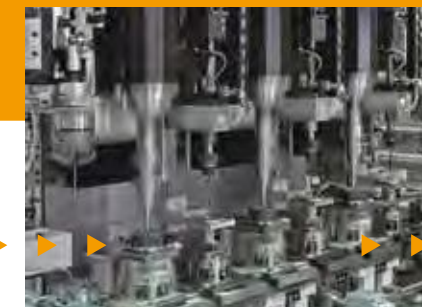
Specification agreement



3D modelling



Prototyping



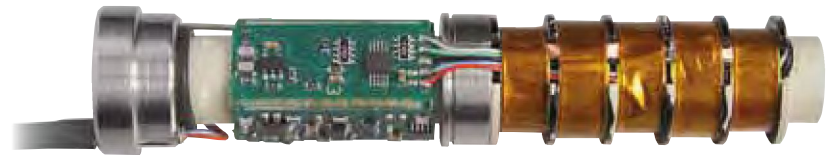
Manufacture



Result: the precise position sensing package for your exact application

Quality to the core

Simplicity of operation is the main strength of an LVDT, but to produce a reliable and stable sensor requires meticulous attention to detail in its design and manufacture.



Highly stable and clean signal conditioning is essential to get the best performance from an LVDT sensor.

Precision wound coils on highly stable bobbins provide excellent linearity and temperature coefficients.



Mu metal screening gives improved protection against electromagnetic fields on some models.



Electron beam welding on all submersible sensors ensures that there is no contamination within the weld that can lead to corrosion.

Solartron's sensor bodies, core carriers and end caps are made from high grade stainless steel.

A universal truth: data is only of true value when it is processed from a reliable source...

Integral electronics, high performance external electronics, single or multichannel digital communication from absolute displacement sensors provide the ultimate in system performance.



Tried, tested and approved...



Core technology

Principle of operation

An LVDT Displacement Sensor works by moving the core through the body. The position of the core within the body is detected by coils wound on the bobbin.

The coils are supplied with an ac signal and return an ac signal. This signal is then processed by conditioning electronics to provide a measure of the core position.

The body is normally mounted on the static part of an element and the core attached to the moving part.

Core benefits

Absolute positioning

Does not lose position during a power down and does not suffer from over speeding like incremental sensors making it ideal for closed loop control.

Ruggedness

With good choice of materials and design the Displacement Sensor is perfect for harsh environments.

Infinite resolution

Ideal for detecting very small changes of position when used with Solartron's precision signal conditioning.

Repeatable

Sub micron repeatability provides perfect limit or close loop control.

Dynamic response

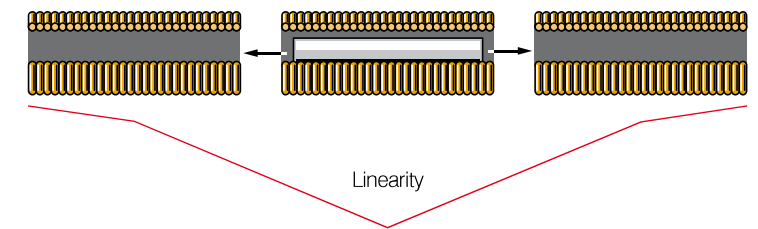
Free core sensors, fitted with low mass cores provide excellent dynamic response up to several kHz when used with Solartron's precision signal conditioning.

Flexibility

Solartron's design engineers can design sensors to fit your application. (MyLVDT).

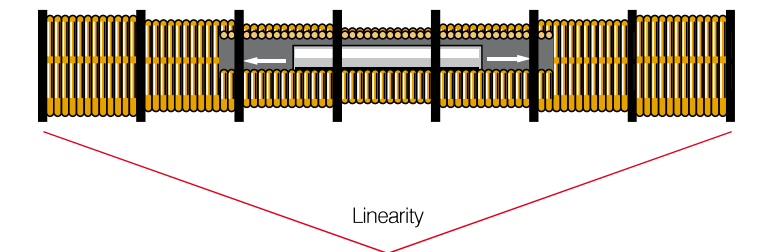
Conventional LVDT

When the core is in a central position, the coupling from the primary (V_{EXC}) to each secondary is equal, so $V_A = V_B$ and the output $V_{OUT} = 0$. As the core is displaced V_A differs from V_B , and the output V_{OUT} changes in magnitude and phase in proportion to the movement.



Solartron LVDT

Solartron Metrology's continuous development of precision bobbin mouldings and multi chambered coil windings ensure excellent linearity and thermal stability throughout the range.



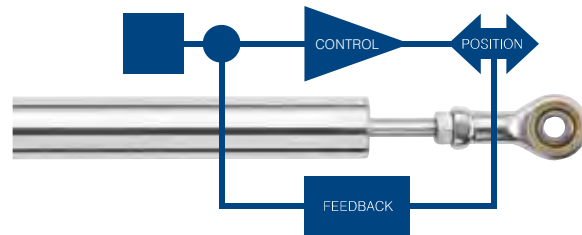
Solartron Orbit3 digital sensors

Solartron Metrology digital sensors are calibrated using a traceable interferometer and are issued with a calibration certificate. All digital sensors are fitted with integrated electronics, which store information such as probe ID, range, calibration error, etc. Digital sensors provide superior performance compared to traditional analogue sensors. Performance figures quoted in this catalogue include all mechanical errors within the probe head together with any errors in the electronics interface modules.



Applications in industry

Position feedback



Energy

Power generation
Wind turbine
Oil and gas



Transport

Aerospace
Rail
Off-highway
Automotive
Drones



Examples

- ▶ Position feedback
- ▶ Level measurement
- ▶ Machine alignment
- ▶ Assembly checking
- ▶ Injection monitoring
- ▶ Close loop control
- ▶ Tool positioning
- ▶ Movement control
- ▶ Lift position control
- ▶ Distance control



Fluid power

Hydraulics
Servo valves
Pneumatics
Solenoids

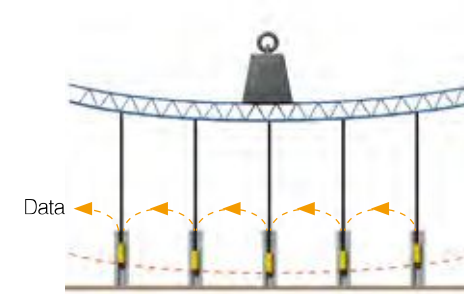


Automation

Assembly
Robotics
Electronics
Mechatronics
Metal forming

Applications in laboratory and test

Displacement measurement



Examples

- ▶ Cracks monitoring
- ▶ Structure monitoring
- ▶ Alignment measurement
- ▶ Deformation measurement
- ▶ Expansion displacement
- ▶ Contraction displacement
- ▶ Crush displacement
- ▶ Deflection measurement
- ▶ Research

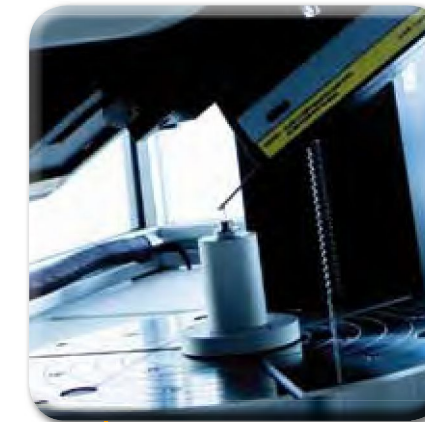
Test machines

Traction
Compression
Creep & Stress
Flexion
Fatigue



Structures

Building
Bridge
Barrage
Cracks
Soil



Metrology

Hardness
CMM
Calibrators
Dimension



Bench test

Wood
Metal
Aerospace
Agronomy
Automotive