

Orbit 3 built on proven performance and reliability



Orbit 1

Solartron Metrology Digital Sensors and the Orbit Network have been continually developed for 26 years to keep pace with developments in digital technologies, computer software and the demands of modern manufacturing and quality systems.



Orbit 2

Analogue or Digital ?

- Analogue technologies have worked well in electronic gauging applications for many years.
- Solartron Metrology is the worlds leading producer of analogue gauging probes.
- The designs are stable and the manufacturing plant is paid for.
- So why go to all the trouble of developing digital sensors when at first sight they seem to do the same thing?

Analogue Gauging is close to the limit of its performance, which is generally limiting development of new flexible and more cost effective gauging systems. It is also becoming less acceptable with regard to the demands from modern quality systems where full traceability is required.

Calibration is in mV. The calibration of an Analogue probe can change depending on the receiving instrumentation. This is becoming less acceptable to many precision industries and research facilities. Analogue probes with calibration certificates quoted in mm are valid only when used with the original calibration equipment.

The design of novel and cost effective sensors is limited by the performance restrictions of analogue technologies.

Digital Gauging

Digital communication systems have become less expensive, more reliable and much more versatile than Analogue.

- **Improved reliability of data transmission through cleaner signals.**

Electrical noise in the transmission of data can be a significant contributor to poor gauge R&R.

Orbit 3 conforms to EN 61000-6-2 for immunity to electrical interference.

- **Fast reliable data from each sensor. (Dynamic)**

Filters in analogue signal conditioning can slow data processing. Reducing filtering to increase speed also increases noise and can result in poor R&R.

Multiplexing analogue sensors usually means that more sensors = slower data speed from each sensor.

Orbit 3 will transmit data at up to 4000 readings per second per probe.

- **High resolution from long gauge probes through cleaner signals.**

Gauges are often compromised by designing around the limitations of +/- 1mm Analogue Probes.

Digital Gauge Probes with a longer linear travel can increase flexibility in design without sacrificing resolution or speed.

Increasing the gain on analogue systems to improve resolution usually increases noise, especially on longer sensors, most of the increased resolution is then lost in the noise.

Orbit 3 will resolve to <0.1µm on 10mm probes even at high data speeds.

- **Sensor Hot Swap capability for easier maintenance.**

Digital Probe calibration is in mm, not mV, so any probe can be replaced without having to access computer software or, as with Analogue systems, change sensitivity settings in software or relate to the 'null' position.

Orbit 3 reduces system down time in the event of sensor damage.

- **Improved Linearity**

Analogue probes give their best performance close to the centre of travel with linearity falling off when away from the 'Null' position, errors can occur when using more than one sensor to gauge dimensions of a component taken in free space e.g. Turbine fan blade gauging.

Orbit 3 sensors have fully traceable Laser Calibration in mm.

- **Store up to 3000 readings in a probe, standard facility with Orbit 3.**

This is particularly useful where fast data acquisition is required but the data processing system is relatively slow.

Buffered probes have proven to be very successful when used with PLC's.

Flexibility and system costs

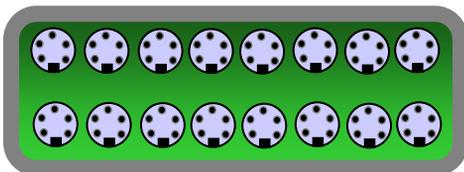
Orbit is not sensor technology dependant.

The high cost of sundries, such as cables, multi channel junction boxes etc. is often overlooked when choosing a gauging system. Significant cost savings can be made with one protocol for any type of sensor and one cable route.

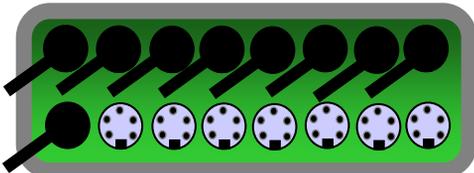
By accepting a variety of sensor technologies into a single protocol, problems of compatibility between different electronics and software is largely eliminated thus saving time and money in design and post installation servicing costs.

The ability to use the best sensor for the job is usually more cost effective than adapting a system to work around the limitations of a particular sensor technology.

Flexibility is the key to true cost savings and performance.

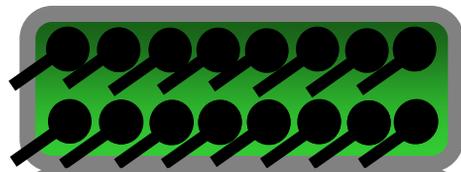


Multi channel connector boxes have been around for many years. They have served analogue systems well but Digital multi drop bus systems are proving to be more flexible in layout, the footprint is often smaller and overall installation costs are usually lower.



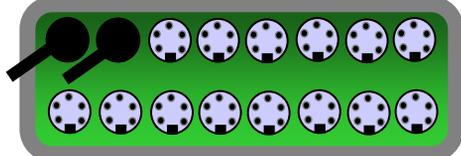
If, for example, only 9 channels are required, 7 channels have been paid for but not used.

Where more than one sensor technology is required, such as rotary, another connection box is usually required or a second PC card.



In a system using 16 channel connector boxes, a gauge fitted with 18 probes, the system can become yet more expensive.

Routing all cables from a fixture back to fixed connector boxes can be inconvenient and expensive.



Running multiple cables from Analogue sensors to a fixed box increases the risk of cross talk and can affect Gauge R&R.

Orbit 3

wide range of sensors and sensor technologies



wide range of communication options

improvements to proven Orbit Network Hardware



- small PSU Module
- Ethernet Module
- 100 channels into single PCI Card
- DIN rail mount option
- probe fault indication
- low supply Voltage indication
- hot swap capability
- data transmission indication
- light weight body
- IP 65 option
- quick and firm clamping

The decision on what system to install today will have implications on performance, upgrades, servicing and costs for years to come.



SENSORS AND COMPONENTS

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