

Origen Engineering Solutions

Origen is a dynamic, service-orientated company specialising in:

- Failure analysis.
- Fatigue and fracture mechanics services.
- Dynamic and residual stress measurement.
- Vibration analysis.
- VSR component stabilisation.
- Short courses in fracture mechanics, failure analysis and residual stress.

For further details visit www.origen.co.za or contact either John or Craig on 082 679 1578/9 respectively.

The people behind the company

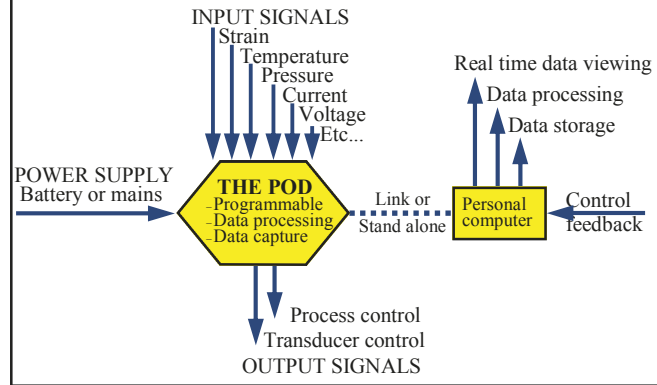
The team of members combine experience with enthusiasm in the day to day running of the company to ensure Origen Engineering Solutions cc offers a dynamic yet highly professional service. Origen is run by John Press and Craig Emslie with technical support from Bob Tait.

John Press (MSc Eng.) has substantial work experience in the field of failure analysis and practical applications of fracture mechanics to industrial problems. He also has significant experience in the local electrical, marine and offshore mining industries and has been involved in research investigating the role of residual stress in the failure of boiler welds from both numerical modelling and experimental perspectives.

Craig Emslie (BSc Eng.) has a number of years of experience in the waste management and mass production fields. He also has substantial experience in the maintenance of formal quality assurance programmes (ISO 9002), project management as well as plant and process design and implementation.

Dr Bob Tait (Pr Eng, BSc Eng, PhD, MA, MSAIMechE) is a specialist in fracture mechanics, fatigue and residual stress and their application to the solution of industrial problems. These include 'fitness for purpose' investigations, engineering critical analysis, failure analysis and aspects of NDT. Bob is the author of over sixty technical papers as well as a book on fracture mechanics.

The system in brief



Benefits and features

- **Intelligent measurement** of strain, temperature, pressure etc - Up to 64 analogue inputs per unit.
- **Effective control** of production process - Up to 64 digital input/output control channels per unit.
- **Any number of measurement and control signals** can be undertaken at different parts of your plant - interconnecting/chaining of multiple units allows a virtually limitless number of inputs.
- Dynamic measurement possible with **both high and low sampling rates** – up to 400 kHz per channels.
- **Trouble free connection** to existing computer systems - Computer connection by fixed wire, radio or Ethernet network.
- Effective **management of current trends** - Real time data viewing and processing.
- **Independent operation** improves reliability when other systems have failed - Stand alone operation with programmable data processing and control functions.
- **Versatile power requirements** further increases flexibility - Powered by mains or 12V battery for stand alone applications.
- **Remote control, data retrieval and alarm signalling** means that you can remain in control from anywhere in the world - connection and control through Internet/GSM
- **Ease of assembly** - The modular system allows ease of assembly while still maintaining flexibility.

ORIGEN ENGINEERING SOLUTIONS

Process Optimisation Device (POD)

Real time measurement and control of rapidly changing systems in a flexible networked environment.



Remote asset management



Process control



Intelligent measurement



Allowing you to do what's important!

ORIGEN ENGINEERING SOLUTIONS

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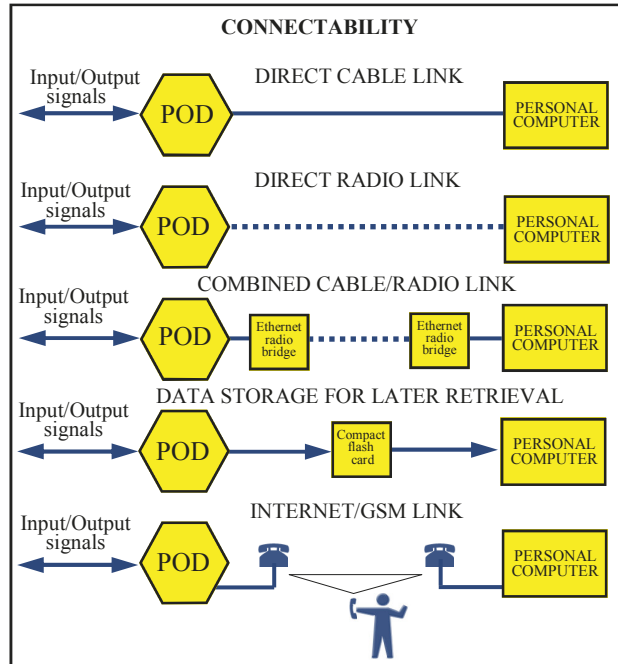
Process Optimisation Device (POD)

Real time measurement and control of rapidly changing systems in a flexible networked environment.

From the experience gained in offering a comprehensive on site measurement service, Origen Engineering Solutions has developed a measurement system that is both accurate and versatile. The **Process Optimisation Device (POD)** can measure any transducer element for example stress, vibration, pressure and most electrical signals simultaneously at high sample rates and display these dynamic results, in real time, on a computer-based system.

Connectability

Because the measured signal is digitised at the source, the signals are less susceptible to environmental noise and can be transmitted by fixed wire, radio link, underwater transmission, the Internet or stored on compact flash for later retrieval. Remote stand alone operation of each unit as well as any combination of the network options are possible.



Data processing and feedback control

The POD is capable of real time data processing, which can be used to control the measured system by generating a control signal. This processing can either be done by the individual units or on a networked computer.

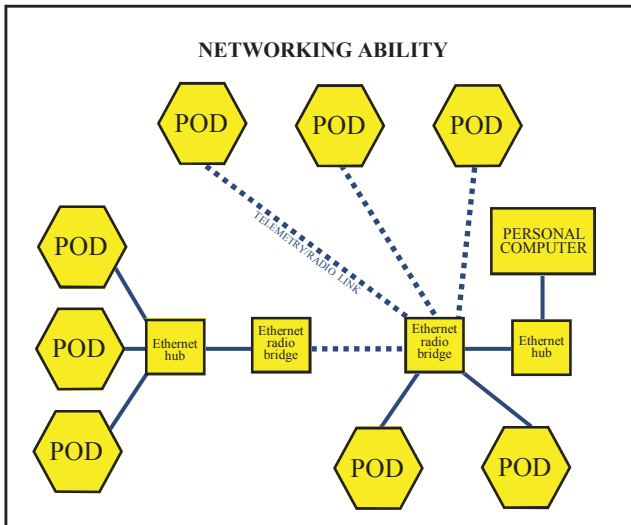
Condition monitoring

The POD can also be used as part of an ongoing conditioning monitoring installation, including effective monitoring of equipment on a large site, or a combination of sites across the globe, with status reports being sent to both centralized and/or local control centers either by a direct link or through the GSM network.

Tried and tested

This POD and its prototypes have already been proven on waste containers, earth-moving equipment, cardan drive shafts, steel processing plants, sewage works and even under sea up to depth of 120 meters on a rotating drill string!

The POD also comes with the experience gained by the personnel at Origen, allowing us to implement the best system for the particular application. We are prepared to go the extra mile to ensure system reliability.



System specification

Parameter	Specification
Number of analog input channels	4 to 64
Number of digital input/output channels	16, 32, 48, 64
Input ranges	
Voltage mode	0 to 10V, -10 to +10V, -5 to +5V, -2.5 to +2.5V
Current mode	4 to 20 mA, 0 to 20mA
Additional input signals are possible	
Sample rate of the analog input channels	
Continuous (Divided between the active channels)	80 kHz
Maximum (For short periods on each channel)	400 kHz
Resolution	14 bits or 0.006%
Simultaneous sampling of all channels	Yes, dedicated A to D for each channel
Input impedance	
Current input mode	0.15 Ω
Voltage input mode	100 kΩ
Both current and input mode	10 nF
Accuracy	
Linearity	+2 bits or 0.048%
Offset and gain	+2 bits or 0.048%
Noise	+2 bits or 0.048%
Over voltage protection	1000 V
Input power required	
Standard	220 V or 12 V, 2 A
Additional current may be required for input modules	
Output power for sensor modules	
Standard	5 V, 0.5 A
Additional output voltages and currents can be supplied	
Capacity of free memory for storage of data for later retrieval	16, 32, 48, 112, 496 Mb
	8E6, 16E6, 24E6, 56E6, 248E6 Samples
	Hard drive
Networking capabilities	
Note: All networking options allow real time viewing of measured data and linking of modules	
Hard wire to computer	Yes RS232/RS485/Ethernet
Hard wire to network	Yes Ethernet
Telemetry to computer	Yes Wireless LAN
Telemetry to network	Yes Wireless LAN
Chaining of units	Yes
Modem	Yes