pulsar MEASUREMENT

PULSARGUARD 2001 SAND SENSOR

Robust, dependable measurement of solids within production streams

Fixed & Portable Sand Monitoring

Oil and gas well operators know how important it is to maintain production at optimum levels, and an important part of that optimization is a clear and accurate measurement of solids production. The iSensys SandAlert provides a robust, dependable measurement of solids within the production stream so plant operators can be confident they are operating as efficiently as possible.

SandAlert consists of two parts, The PulsarGuard 2001 sensor, a small robust clamp-on acoustic monitor, and the SandAlert controller.

SandAlert is ideal wherever you need to keep wells producing efficiently at the highest rate possible; whenever you need a quantitative, real-time, and accurate measurement of produced solids / sand particles.

For years, the market has demanded the capability of measuring particles without needing flow data. The unique PulsarGuard sensor is installed after a suitable pipe bend where the turbulent flow profile is fully developed. The sensor measures solids production directly, without the need for an external or additional flow measurement.

THE RIGHT METER FOR

- Oil & Gas
- Sand Monitoring
- Pipe Monitoring
- Asset Management
- Well Efficiency
- Valve Protection
- Maximize Well Productivity

Solids & Sand Management

Solids and sand production in oil and gas wells is a growing problem for oil and gas producers. As well as the ages, there is a tendency to produce more solids through reservoir degradation. The challenge is not only to avoid solids/sand production but also to optimize well productivity, as even small quantities of solids particles in the well flow can cause significant pipe or valve damage.

When solids or sand are produced from a reservoir, the production rate is reduced and maintenance costs go up. It also represents an environmental risk in the disposal of the solids. Produced solids / sand can never be ignored, and any well producing from an unconsolidated reservoir needs to have some sort of sand monitoring system in place, preferably monitoring in real-time.

Sand Handling

Produced sand enters the processing system and the operator needs to make sure that is it capable of handling the solids safely. An important aspect of sand management is reviewing erosion rates and removal issues.

Measurement

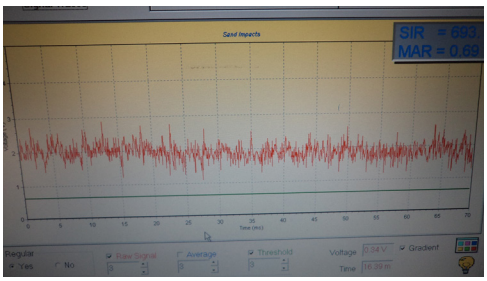
When the prediction and handling issues have been carefully considered, including an understanding of erosion risk and sand removal challenges.

The PulsarGuard 2001 Sensor

The PulsarGuard 2001 sensor measures sand and other particles through passive acoustic technology, it detects the acoustic impact signal that is generated by solid particles impacting on the inside of the pipe wall, immediately after a bend where the sensor is located.

The unique PulsarGuard 2001 acoustic sensor is an intrinsically safe unit made from 316 stainless steel with environmental protection to IP68. SandAlert is perfect for a wide variety of different applications, and installation could not be simpler. The sand sensor is connected to the outside of the pipeline with a stainless steel band, detecting changes in the acoustic signature of flow within the pipe and converting that into a solids / sand impact rate. Because the sensor monitors only a narrow frequency band, it is highly resistant to interference from background noise, fluid or gas flow. Any pipe diameter is suitable and the SandAlert controller may be positioned up to 1,000 m (3,280 ft) away using a standard instrument cable connection.

PulsarGuard 2001 Sensor



PC Software screenshot

PC Software

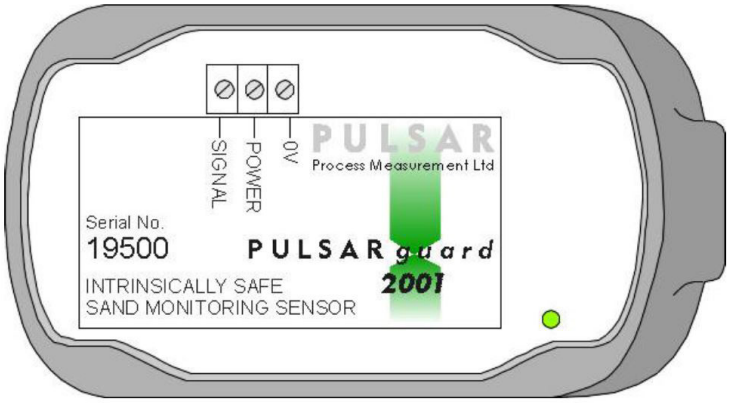
The iSensys SandAlert measures sand production completely independently of flow regime, giving you a cost-effective, real-time presentation of sand and trending information. All the data gathered by SandAlert can be saved and logged for further analysis and long term records.

The software lets you keep long-term log records of sand production to track well performance, as well as allowing programming and fine-tuning of all SandAlert installations.

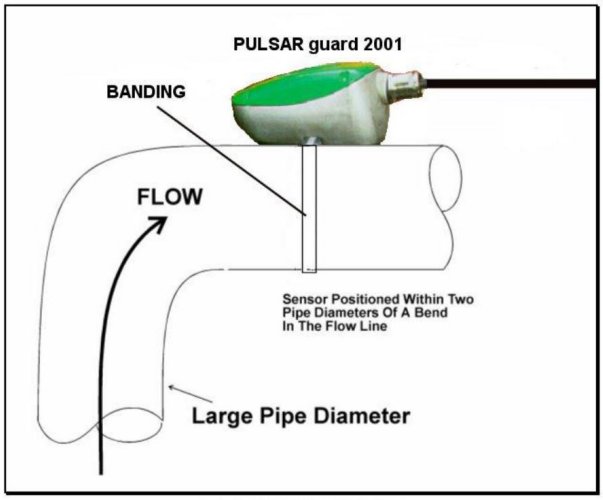
Technical Specifications

PHYSICAL

Dimensions:	70 mm H x 65 mm D x 118 mm L (2.75 in x 2.55 in x 4.64 in)
Weight:	Nominal 1 kg (2.2 lb)
Operating Temperature:	• -20 °C to +80 °C (-4 °F to +176 °F) • 200 °C (392 °F) with heat shunt fitted
Housing:	Type 316 stainless steel
Ingress Protection:	IP68
Flammable Atmosphere:	ATEX EEx ia IIC T6 or EEx ia IIC T4 for ambient temp to 92 °C (197 °F)
Cable:	4 core cable with overall screen, wired to sensor terminals
Output:	0-5 V DC
Power Supply:	24 V DC, protected by suitable intrinsically safe barrier
Type:	24 V DC, protected by suitable intrinsically safe barrier



PulsarGuard 2001 Cable Connection Drawing



PulsarGuard 2001 Sensor Mounting Drawing

PulsarGuard 2001 Sensor on a pipe

PulsarGuard 2001 Sensor on a pipe

Delivering the Measure of Possibility

Pulsar Measurement offers worldwide professional support for all of our products, and our network of global partners all offer full support and training. Our facilities in Malvern, UK and Largo, USA are home to technical support teams who are always available to answer your call or attend your site when required. Our global presence, with direct offices in the UK, USA, Canada, and Malaysia, allows us to create close relationships with our customers and provide service, support, training, and information throughout the lifetime of your product.

By taking a step forward in echo processing technology, Pulsar Measurement addresses applications previously thought to be beyond the scope of ultrasonic measurement. This technology improves signal processing at the transducer head which has made it possible to increase resistance to electrical noise, enabling the transducer to 'zone in' on the true echo.

For more information, please visit our website:

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