



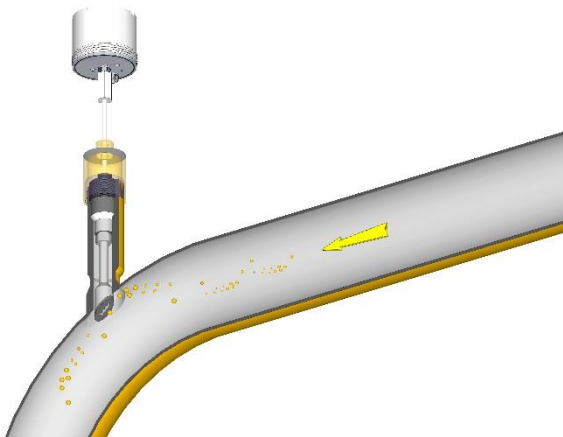
Real Time Intrusive Sand Monitoring



SMS provides sand monitoring using best in class, field proven technology. After extensive testing of intrusive monitoring systems, we identified the instrumentation to give our clients the edge they require.

System Overview

For Well Service applications SMS supply standard 4" spools c/w 3" 1502 hammer unions & access fitting rated to 414 Bar (6,000PSI). Spools can be custom fabricated to client specifications when required. For high pressure environments a 689 Bar (10,000PSI) rated intrusive probe can be supplied. Single, dual or triple acoustic sensor instrumentation can be integrated into the I-ART system.



Features

Flush Mount Intrusive

- Design is used to reduce wake frequency and flow turbulence issues

Smart Data Acquisition Instantaneous

- High sensitivity response to sand production and Logging metal loss every minute

Industry Standard – Data Communication

- Serial data linked based on industry standard Modbus protocol

Integrated Smart Data

- SMART software allows Integrated smart data interpretation

Benefits

Increased Safety

- Double isolation barrier design to eliminate risk of hydrocarbon leaks

Reduced Costs

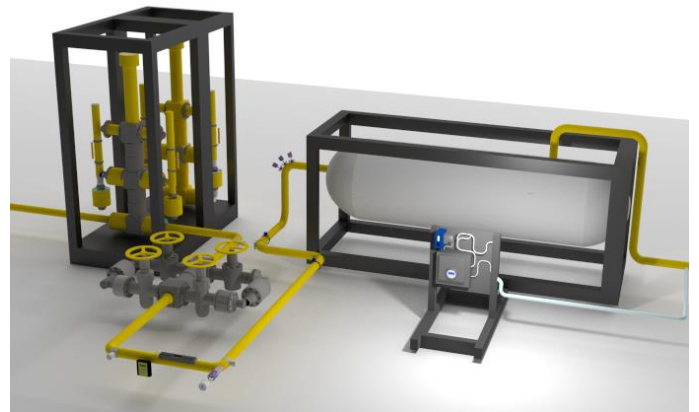
- Increased reliability while achieving cost saving considerably

Real-Time Erosion Measurement

- Informs Real-Time decision making, risk assessment allowing increased reliability and safe operations

Remote Monitoring

- Save on manpower and offshore bed space



Sense



Understand



Perform

Real Time Intrusive Sand Monitoring

Functional Characteristics

Output: Metal Loss: m, mm, mils

Erosion Rate: m/yr, mm/yr, mils/yr

Sand Probe

Model:..... S4700 Angle Head (Standard*)

Classification: NACE standard MR0175

Installation: Installed in flow line / spool assembly through access fitting

Probe Material: 316L Stainless steel body c/w PPS (Polyphenylene Sulphide) potting compound

Probe Element: F20 Hasteloy element (254m / 20 mil thickness) (Standard*)

Max. Temp Rating: 260C / 500F

Max. Pressure Rating: 689Bar / 10000PSI (for high pressure version) *Probe options on client request

Transmitter Unit

Transmitter:..... Model ST-9485A

Voltage: 24 VDC

Current Consumption: 17mA @ 24 VDC

Ex Classification: EEx d IIC T6

Location: Hazardous Area, Zone 1 or 2

ATEX Classification: DEMKO 03 ATEX 0215219

Ambient Temp. Range: -40C to +70C (-40F to 158F)

Weight: 1.6kg (3.5lbs)

Dimensions: 115mm (4.5") Diameter X 108mm (4.25") High

Ingress Protection: IP 66

Installation: Direct to probe through connector assembly

Resolution: 18 Bit/256 times higher than standard ER probes

Field Cables

Cable Type: Individually screened two pair cable 16 – 22 SWG wire dependent on cable length

Portable Interface Unit

IIU 19" rack assembly c/w Intelligent Interface Unit – embedded pc, power supply, repeaters and converters for two channel multi-drop acquisition. Provides data and configuration parameter storage and back up. Data can be uploaded via LAN, USB, serial and modem connections. Each channel is capable of monitoring up to thirty-two (32) locations simultaneously through proprietary software. Two channels for system redundancy

MK9300 Armour case data acquisition system for rugged applications. MK 9300 system c/w power, repeaters and converters for two channel multi-drop acquisition. Supplied laptop runs proprietary software for real time erosion monitoring. Two channels for system redundancy

Voltage: Input 110 VAC – 240VAC Output 24 VDC

Weight: IIU 12kg, MK9300 15kg, IIU 48cm (19") x 46cm (18") x 18cm (7") MK9300 49cm (19.5") x 39cm (15.5") x 19 cm (7.5")

Dimensions: RS 485 two wire, 2400 Baud Rate, 8 data bits, 1 stop bit, no parity

Communication: Proprietary serial communication protocol based on Modbus RTU and OPC Server/Client

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