



SAND MONITORING REAL TIME ACOUSTIC

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



Technical Benefits

- High sensitivity
- Best signal to noise ratio
- Instantaneous response to sand production
- Data storage from 9-90 days in flash memory
- Serial data linked based on industry standard Modbus protocol
- Low power consumption
- Ease of installation
- Minimal maintenance
- No temperature dependency effects

Operation Benefits

- Reduced risk and cost
- Ideal solution for HP/HT applications
- No pressure bearing seal failure risk
- Reduced manual handling



Service Applications

SMS Ltd are pioneers of applying sand monitoring technology to new fields. It's not only sand that our systems can detect, we can monitor any produced well solids to give clients confidence to execute safety critical operations with quality real time data. Solids monitoring for:

- Well Testing
- Frac Operations
- Scale Milling
- UBD Operations
- Process Systems
- Integrity Management

For well service applications SMS supply either single or dual sensor instrumentation system options. Custom configurations are available on request.

SMS combination of unparalleled sand services field experience combined with our class leading acoustic detection system offers the best acoustic sand monitoring package on today's market.





SPECIFICATIONS

Functional Characteristics

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|----------------------------------|--|
| Particle detection limit: | 15-25µm varies with flow regime, velocity, viscosity etc |
| Output: | grams/second (g/s) |
| Pipe Dimension: | ≥2" |
| Uncertainty: | Down to +/- 5%, depending on flow regimes and calibration level. Can be configured as a sand indicator, indicating whether there is no sand, some sand or excessive sand production or fully calibrated for accurate sand rate |
| Flow Velocity: | Min. 1m/s for most flow regimes |

Detector Unit

| | |
|----------------------------------|--|
| Power Consumption: | Max. 0.6W |
| Supply Voltage: | 11-18VDC (supplied with 24VDC via safety barrier) |
| Ex Classification: | EEx ia IIB T5 |
| Location: | Hazardous area, Zone 0, 1 or 2 |
| ATEX Certification: | NEMKO 02 ATEX 110 |
| CSA US Ex. Certification: | Certificate of Conformance 1299771 |
| Pipe Surface Temp. Range: | -40°C to + 290°C (with high temperature housing) |
| Ambient Temp. Range: | -40°C to + 80°C |
| Weight: | 3.0kg |
| Dimensions: | 88mm x 100mm |
| Ingress Protection: | IP67 |
| Installation: | Banded onto pipe |
| Material: | Stainless Steel 316 |
| Communication: | Proprietary serial SW protocol overlaid on power cable |

Field Cables

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| Cable Type: | Screened twisted pair ≥ 0.75 mm ² (power & data on single pair) |
|--------------------|--|

Portable Interface Unit

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|----------------------|--|
| Installation: | CIU / PSU / Safety barrier supplied in complete Portable Interface Unit with field cable connections terminated with Harting connectors and an RS 232 serial interface provided for laptop communication |
| Voltage: | Input 110 VAC – 240VAC Output 11-18 VDC (supplied with 24VDC via safety barrier) |
| Weight: | 5 kg |
| Dimensions: | 20cm x 10cm x 15 cm |

Calculation Interface Unit (CIU)

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|-----------------------------|---|
| Power Consumption: | 2W |
| Supply Voltage: | 24VDC +/- 5% |
| Process Bus (COM 2): | Two wire RS485, Modbus RTU, baud rate configurable, continuous, real time data transmission |
| Service Bus (COM 1): | Two wire RS485, or 3 wire RS232, Modbus RTU, baud rate configurable |
| Data Storage: | Both data and configuration parameters are stored in Flash memory. No loss of data due to power loss. Data can be stored for up to 90 days with 10 second averaging. Data is uploaded via Modbus link |
| Location: | Safe area (within Portable System CIU housing) |

Safety Barrier

| | |
|---------------------------|--|
| Type: | MTL 7087+ |
| Ex classification: | EEx ia IIC T6 |
| Ex Certification: | BAS No. Ex 95C2261 |
| Location: | Safe area (within Portable Interface Unit) |

