

## High Resolution Intrusive Sand Monitoring

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

### Service Applications

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



### Technical Benefits

- Highest resolution available on market
- 256 times greater sensitivity than standard ER sand monitoring systems
- Flexible serial interface options based on Modbus and OPC
- Logging probe metal loss every minute
- Excellent temperature compensation feature
- Unique 'plug and play' probe connector system ensures highly accurate probe readings

### Operation Benefits

- Reduced risk over 'standard' intrusive market offerings
- Increased reliability
- Significant cost saving
- Increased safety through pressure bearing cap assembly for double block & bleed seal system
- Online retrieval for probe replacement



For Well Service applications SMS Ltd supply as standard 4" elbow spools c/w 3" 1502 hammer unions & access fitting rated to 414 Bar (6000PSI). Spools can be custom fabricated to client specifications as required.

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

### Sand Monitoring Services Ltd

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ISO 9001: 2000  
FS 504551



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No. 10050227

## Specification for Standard Equipment & Options

### Functional Characteristics

**Output:** Metal Loss:  $\mu\text{m}$ , mm, mils  
Erosion Rate:  $\mu\text{m}/\text{yr}$ , 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) Thermoplastic potting compound  
**Probe Element:** F20 Hasteloy element (254 $\mu\text{m}$  / 20 mil thickness) (Standard\*)  
**Max. Temp Rating:** 260C / 500F  
**Max. Pressure Rating:** 414Bar / 6000PSI  
\*Probe options can be specified 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 provided 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 supplied for system redundancy.

**Voltage:** Input 110 VAC - 240VAC  
Output 24 VDC

**Weight:** IIU 12kg  
MK9300 15kg

**Dimensions:** IIU 48cm [19"] x 46cm [18"] x 18cm [7"]  
MK9300 49cm [19.5"] x 39cm [15.5"] x 19 cm [7.5"]

**Communication:** RS 485 two wire, 2400 Baud Rate, 8 data bits, 1 stop bit, no parity  
Proprietary serial communication protocol based on Modbus RTU and OPC Server/Client

**Addresses:** 0-31 per communication link



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