

# Roxar SandLog Wireless

## Wireless sand/erosion monitoring transmitter

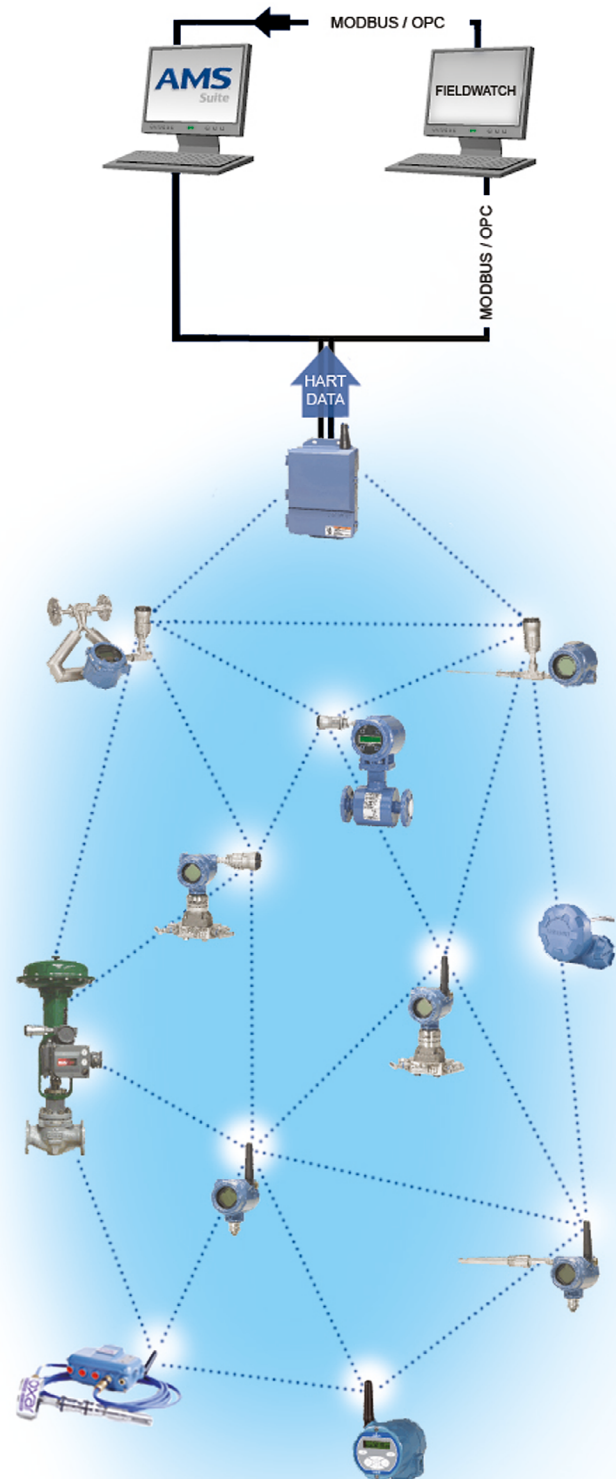


### High accuracy wireless sand/erosion monitoring transmitter

Based on the highly reliable SandLog instrument and Emerson Wireless technology, the Roxar SandLog Wireless offers high accuracy measurements with the following key features:

- Flexibility in data management via Gateway.
  - Seamless integration with Emerson AMS (Asset Management System) ensures easy operation and data management, as well as possible integration with other wireless devices used in the plant.
  - Raw data submitted directly to Roxar Fieldwatch program for detailed data management, analysis and reporting. Fieldwatch can communicate with main control system via OPC or Modbus protocol.
  - Metal loss data sent from Gateway to any control system
- Reads Roxar's unique multiple element sand/erosion probe, and combined corrosion/erosion probe.
- High resolution, high accuracy, combined with a robust design and user friendliness.
- Intrinsically safe design with international hazardous area certification.
- Wireless sand/erosion monitoring transmitter allows for continuous, on-line monitoring at previously inaccessible locations and at an affordable cost.
- Roxar is part of EPM's global network, providing support from wireless specialists for system assessment and architecture as well as access to experienced crews supplying after sales support and services.

ROXAR CORRLOG / SANDLOG WIRELESS SYSTEM



**IEC 62591 (WirelessHART™)  
... The Industry Standard**

**Self-organizing, Adaptive Mesh Routing**

- No wireless expertise required, network automatically finds the best communication paths.
- The self-organizing, self-healing network manages multiple communication paths for any given device. If an obstruction is introduced into the network, data will continue to flow because the device already has other established paths. The network will then lay in more communication paths as needed for that device.

**Reliable Wireless Architecture**

- Standard IEEE 802.15.4 radios.
- 2.4 GHz ISM band sliced into 15 radio-channels.
- Time Synchronized Channel Hopping to avoid interference from other radios, WiFi, and EMC sources and increase reliability.
- Direct sequence spread spectrum (DSSS) technology delivers high reliability in challenging radio environment.

**Emerson's Wireless Products**

Roxar SandLog Wireless transmitter is an Emerson Wireless product, using the same radio and power modules as used by other Emerson Wireless Products.

- Communicates via standard Wireless Gateways.
- Gateways interface with existing host systems using industry standard protocols including OPC, Modbus TCP/IP, and Modbus RTUo.

**Layered Security Keeps Your Network Safe**

- Ensures that data transmissions are received only by the Wireless Gateway.
- Network devices implement industry standard Encryption, Authentication, Verification, AntiJamming, and Key Management.
- Third-party security verification including Achilles and FIPS197.

SandLog Wireless can be part of a general Wireless solution together with a wide range of other Wireless instruments and monitors.



SandLog Wireless Transmitter with multiple element sand probe and hydraulic hollow plug

**Roxar SandLog Wireless Corrosion Transmitter**

**High accuracy sand/erosion monitoring**

- Sand/erosion is measured through the erosive effect caused by sand particles hitting the sensing elements of the intrusive sand probe, using electrical resistance (ER) technology. When combining measured sand/erosion rates with flow rates and assumed sand particle size, sand production can be quantified.

**Reads Roxar's unique multiple element sand/erosion probe**

- It is difficult to predict sand distribution in a line, since it depends on flow velocities and layout of the piping/pipe equipment. Roxar's multiple sand/erosion probes are based on the following:
  - a. It is recommended that Sand/erosion probe is installed in vertical pipe, preferably 10 pipe diameters after a bend, where sand is assumed to be relatively uniformly distributed within the pipe. Sand/erosion probes may also be installed in other positions, e.g. horizontal lines, depending on flow conditions.
  - b. Sand erosion probe is installed into the pipe, with sensing elements facing the flow at an optimum angle, in order to maximize sensitivity and minimize response time for sand erosion measurements.
  - c. Multiple elements (maximum 4) increase probability to detect sand independently on distribution within the pipe, and also give redundancy with respect to probe measurements and performance.
  - d. Roxar also offers combined corrosion and sand/erosion probes, comprising of 2 erosion elements and 1 corrosion element.
  - e. It is suggested to combine intrusive sand/erosion monitoring with acoustic, non-intrusive sand monitors

for optimized sand and sand/erosion monitoring in one integrated system.

**System Flexibility**

Roxar SandLog Wireless Corrosion Transmitter allows up to 20 meter cable between probe and transmitter.

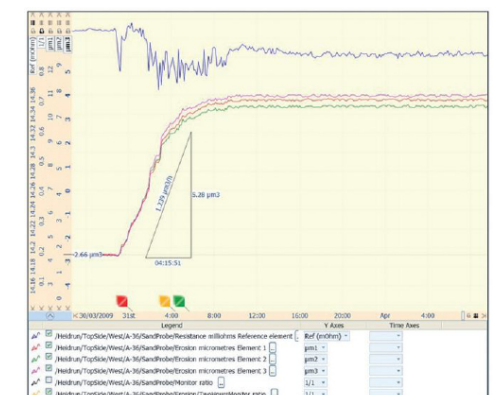
- Sandlog Wireless can be installed where it is most convenient for user, i.e. with respect to maintenance and battery replacement, without a need for scaffolding for access.
- Sandlog Wireless can be installed where it is most beneficial for wireless signal routing to avoid shadows where radio communication would be difficult.
- Retrieval or replacement of probes is more convenient when instrument removal is not required at the same time.

**Data Management**

- Raw data can be transmitted to Fieldwatch server for data storage, analysis and reporting. Key data to be provided to main control system via modbus or OPC protocol. Fieldwatch provides superior tools for data analysis and verification, as well a good total overview of all corrosion monitoring locations on site.
- Retrieval or replacement of probes is more convenient when instrument removal is not required at the same time.

**Other benefits**

- Integrated Emerson Wireless Product, can be combined with other Emerson Wireless products in an integrated network, using same gateway for data communication.
- Through Fieldwatch software, integration is also possible with other monitoring functions like acoustic sand monitoring, intrusive and/or non-intrusive corrosion monitoring (FSM technology) and acoustic pig detectors.



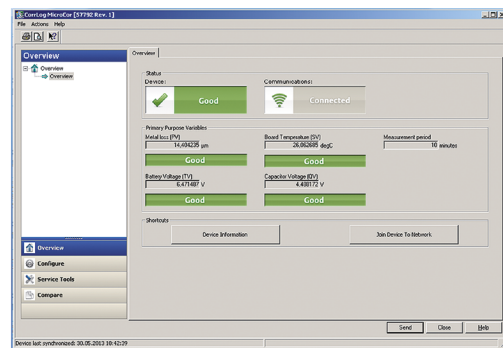
Sudden increase in sand production detected by multiple element sandprobe, SandLog and Fieldwatch software.



Roxar SandLog Wireless with 475 Field communicator

**Flexibility in set-up and data management**

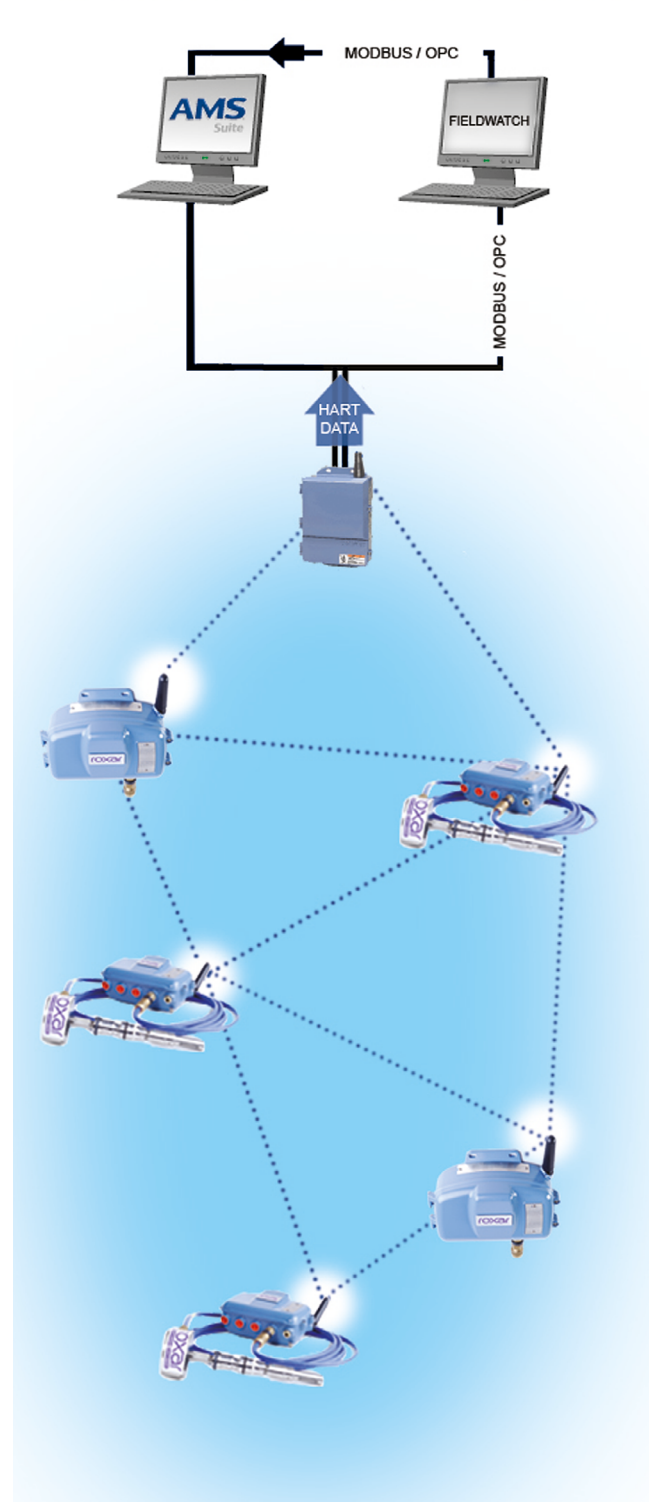
Roxar SandLog Wireless can be configured either by using the 475 Field Communicator or the Emerson Asset Management System (AMS). Using the 475 Field Communicator will be applicable in cases where data is sent via the Smart Wireless Gateway to a generic control system, or when communicating with Fieldwatch software.



Example window in AMS when communicating with CorrLog Wireless.

If used with Emerson Asset Management System (AMS), a two-way communication with Roxar SandLog Wireless is possible. This means that CorrLog Wireless can be configured directly from AMS, and that changes can be done from a PC at any time, e.g. in order to change measurement frequency, without the need for field connection using the field communicator.

**ROXAR CORRLOG / SANDLOG WIRELESS SYSTEM**

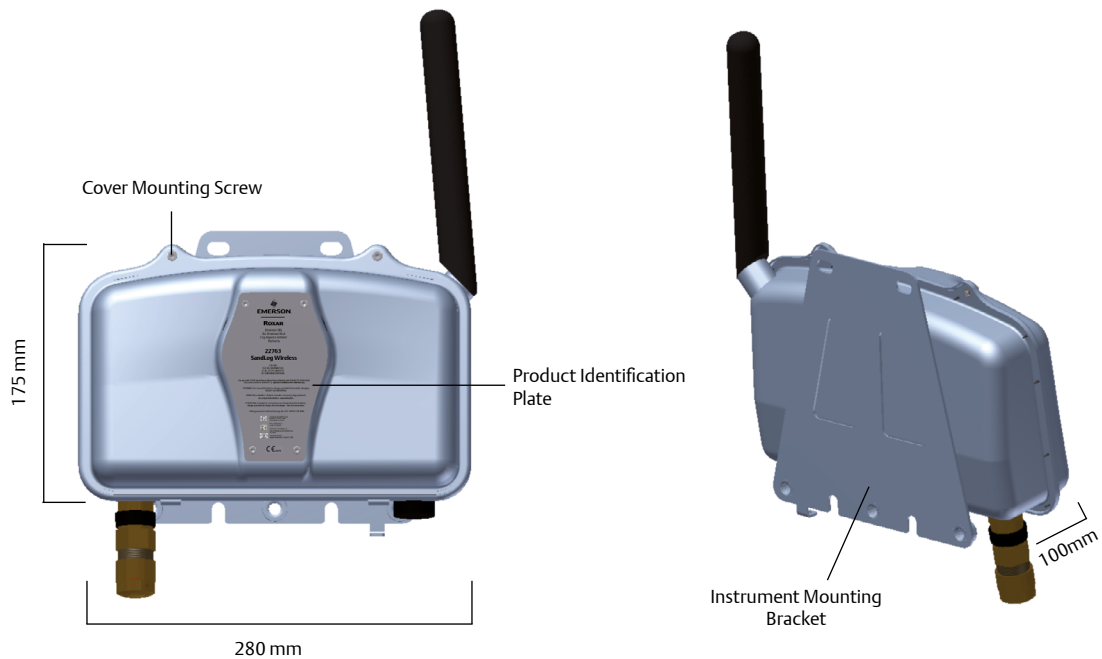


**Roxar SandLog Wireless Product Specifications**

|  |  |                      |                    |
|--|--|----------------------|--------------------|
| General:   | For connection with electrical resistance (ER) probe   |                      |                    |
| Connection   | Connected to probe via probe cable - max 20 meter (65 feet)  |                      |                    |
| Humidity Limits  | 0 - 100% relative humidity   |                      |                    |
| Measurement  | Measurement frequency to be set, recommended between every 15 minutes to 24 hours  |                      |                    |
| RF Output Power (based on maximum device output power of 6.3 mW) | Antenna type:<br>Extended Range  | Max Gain:<br>4.5 dBi | Max EIRP:<br>18 mW |
| Communication  | WirelessHART 2.4 GHz DSSS (Discrete Sequential Spread Spectrum)  |                      |                    |
| Instrument Resolution  | 24-bit (0,06 ppm of probe element thickness)   |                      |                    |
| Sand/erosion probe - actual sensitivity                          | 10 - 100 ppm of probe element thickness, depending on probe type, measurement frequency and environmental conditions   |                      |                    |
| Operating Temperature  | -40°C to +70°C (-40°F to +158°F)   |                      |                    |
| Battery capacity   | Normally 1 – 3 years depending on measurement frequency and number of probe elements. Ask vendor for more details.   |                      |                    |
| Power module   | Black Power Module, type 701PBKKF. Replaceable, non-rechargeable, intrinsically safe Lithium-Thionyl Chloride power module pack with PBT/PC enclosure. 7.2V.   |                      |                    |
| Housing  | Painted Aluminium or Stainless Steel (AISI 316-L), IP 66, NEMA 4x  |                      |                    |
| Dimensions   | Approximate (not square shape) 226 x 122 x 71 mm   |                      |                    |
| Weight   | Painted Aluminum: 2.5 kg (5.5 lbs)<br>316L Stainless Steel: 2.7 kg (5.9 lbs)   |                      |                    |
| Certification  | ATEX/ : II 1 G Ex ia IIC T4 Ga<br>INMETRO: II 1 G Ex ia IIC T4 Ga<br>IEC: IECEx Ex ia IIC T4 Ga,<br>FM: cFM <sub>US</sub> Class 1, Div 1, Groups A, B, C, D T4 |                      |                    |
| Electromagnetic Compatibility (EMC)                              | CE according to EMC/336/EEC and 92/31/EEC<br>Meets all relevant requirements of EN 61326-2-2006  |                      |                    |
| Trade Compliance:  | ECN: 5A002.a.1<br>ECCN (US Re-export): 5A991.b, 5A002.a.1  |                      |                    |



## Model Code Selector - Roxar SandLog Wireless



| Model           | Product Description               |   |                               |
|-----------------|-----------------------------------|---|-------------------------------|
| SANDLOGW        | Wireless Sand/Erosion Monitor, IS |   |                               |
| Code            | Communication Protocol            |   |                               |
| 50              | WirelessHART                      |   |                               |
| Code            | Enclosure Material                |   |                               |
| A               | Stainless Steel                   |   |                               |
| B               | Aluminum                          |   |                               |
| Code            | Probe Cable Gland                 |   |                               |
| G0              | No Gland                          |   |                               |
| M2              | Metric                            | Brass   | Hawke 501/453/Universal Ex de |
| M3              | Metric                            | Nickel plated brass                           | Hawke 501/453/Universal Ex de |
| M4              | Metric                            | Stainless steel                               | Hawke 501/453/Universal Ex de |
| N2              | NPT                               | Brass   | Hawke 501/453/Universal Ex de |
| N3              | NPT                               | Nickel plated brass                           | Hawke 501/453/Universal Ex de |
| N4              | NPT                               | Stainless steel                               | Hawke 501/453/Universal Ex de |
| X9 <sup>3</sup> | Other gland                       |   |                               |
| Code            | Probe Cable Size Range            |   |                               |
| 0 <sup>1</sup>  | Not Applicable                    |   |                               |
| 1 <sup>2</sup>  | 5,5-12mm OD / 3,5-8,1 ID          | (Selection for Roxar Standard SM Probe Cable) |                               |
| 2 <sup>2</sup>  | 9,5-16mm OD / 6,5-11,4mm ID       |   |                               |

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|                 |                                      |  |
|-----------------|--------------------------------------|--|
| 3 <sup>2</sup>  | 12,5-20,5mm OD / 8,4-14,3mm ID       |  |
| 4 <sup>2</sup>  | 16,9-26mm OD / 11,1-19,7mm ID        | (Selection for Roxar Heavy Duty BFOU SM Probe Cable) |
| <b>Code</b>     | <b>Blind and Drain Plug Material</b> |  |
| P <sup>4</sup>  | Nylon (TBV)                          |  |
| B <sup>4</sup>  | Brass                                |  |
| N <sup>4</sup>  | Nickel plated brass                  |  |
| S               | Stainless steel                      |  |
| <b>Code</b>     | <b>Approvals</b>                     |  |
| A1              | ATEX/ IECEx/ FM/ INMETRO/ EAC        | Intrinsically Safe                                   |
| <b>Code</b>     | <b>Tag Plates</b>                    |  |
| ZZ              | No tag plates                        |  |
| TG              | Standard tag plates for Instruments  |  |
| XX <sup>3</sup> | Project Specific Tag Plates          |  |
| <b>Code</b>     | <b>Factory Options</b>               |  |
| Z               | Standard product                     |  |
| X               | ETO product                          |  |

<sup>1</sup> Available only with Probe Cable Gland option G0, No Gland

<sup>2</sup> Not available with Probe Cable Gland option G0, No Gland

<sup>3</sup> Not Available with factory Option Z

<sup>4</sup> Not available with Enclosure Material option B

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