WaveRadar Rex
Wave, Sea Level & Air Gap Sensor

A third generation, non-invasive, highly stable system for the measurement of Waves, Sea Level and Air Gap in the offshore, renewable energy and coastal monitoring environments.

APPLICATIONS
- Safety status monitoring
- Structural monitoring
- Weather forecasting
- Air gap studies
- Sea state assessment for operations
- Input to Met-Ocean systems
- Water level observations
- Wind farm monitoring

WaveRadar Rex is manufactured by Rosemount, Gothenburg, Sweden and is distributed exclusively by RS Aqua Ltd. The device is a derivative of Rosemount’s TankRadar, many thousands of which are in global operation. The Rex version is an enhancement of the original WaveRadar, first introduced in 1994.

Microwave radar is a perfect medium for the extreme demands of the harsh offshore environment. The downward looking non-contact sensor uses a microwave radar technique to measure distance to the sea surface. Sampled at high frequency, the radar pulses provide an exceptionally stable and accurate measurement of sea surface profile. The microwave signals are very low in power and present no safety hazard. Information is continuously collected and processed to provide precision distance measurement outputs to a data bus. Output values can be displayed and stored to industry standards on a remote PC or may be interfaced to multi-parameter environmental monitoring systems. Output values can also be displayed on an optional remote display unit, model RDU40.

WaveRadar Rex provides digital (RS232) and analogue (current loop) outputs as standard with either AC (M) or DC (D) power options. The sensor is EEx hazardous zone certified by BASEEFA03ATEX, Underwriters Laboratory (UL) and International Electrotechnical Commission (IECEx).

TYPICAL USERS
Shell Exploration ~ Maersk Oil & Gas ~ BP Amoco ~ Exxon Mobil ~ GE Wind Energy ~ BHP ~ Fugro Oceanor KORDI ~ Petronas Carigali ~ Channel Coast Observatory ~ Fugro Structural Monitoring ~ Metocean Engineers National Ocean Technology Centre (China) ~ Shandong Institute of Ocean Instrumentation ~ Muir Matheson Strainstall ~ Vestas ~ BMT Scimar ~ Chevron ~ Rijkswaterstaat ~ Semco Maritime ... and many more.

FEATURES
- Stable in the most adverse weather conditions
- Suitable for permanent or temporary installation
- BASEEFA03ATEX, UL & IECEx EEx - certified
- Accurate to mm precision
- No re-calibration required
- Optional remote display (RDU40)
- Non-contact sensor
- Small size and weight
- Auto starting
- Ideal upgrade for existing systems
- Analogue & digital outputs
- AC and DC versions
- Recognised as the industry standard
- Optional PC display/logging software
- ISO 9001 manufacturer
- Optional mounting frames
**Performance**
- Measuring range: 3-65 metres to surface
- Accuracy: Range <50m = +/- 6mm, Range >50m = +/- 12mm
- Maximum deviation: Range <50m = +/- 1mm, 10 degrees included angle
- Beam Width: 9.7 to 10.3GHz (linear sweep)
- Effective radiated power: <0.5mW
- Parant (parabolic) reflector

**Radar transmission**
- Transmitter frequency: 9.7 to 10.3GHz (linear sweep)
- Effective radiated power: <0.5mW
- Antenna type: Parant (parabolic) reflector

**Radar measurement**
- Measuring frequency: 10Hz
- Data bus: Digital two wire FSK field bus
- Power I/P: Eex “e” (non intrinsically safe)
- Digital O/P: binary data output.
- Analogue O/P: 4-20mA
- Connector cabling: Factory selectabel

**Data output**
- Connector cabling: Power I/P, Digital O/P, Analogue O/P
- Output data rate: 4Hz (default)
- Protocol: RS232 at 4800 baud
- Refreshing rate: 2 to 10Hz (4Hz default)

**Power supply**
- Mains Version (M): 100 to 240V AC +10% -15% max 50-60Hz
- DC version (D): 20 to 28V DC +10% -15%
- Voltage: 80 watts maximum
- Current consumption: 2A max: operating <1A
- Power and data cabling: Power and data cabling

**Mechanical**
- Overall dimensions: 635(h) x 440(w) x 440(d)mm
- Weight: 26kg
- Measurement datum: Upper surface of TRL/2 adapter
- Materials (external): Stainless steel 316 grade, Anodised aluminium alloy ss4253
- Environmental sealing: IP67
- Operating and storage temp.: -40°C to +70°C

**Environmental**
- Approval number: 0575
- CE Conformity: Approval number

**Hazardous Zone Certification**
- BASEEFA03ATESX (standard)
- BASEEFA03ATESX0011X
- EX II 1/2G
- EEx d IIB T6 (Tamb = -40°C to +70°C)
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- EEx d IIB T6 (Tamb = -40°C to +70°C)
- TH2015-RTG3930
- Underwriters Laboratory (optional)
- UL listed: 938U
- FCC ID: K8CRTG
- Hazardous location: Class 1, Division 1, Group C or D

**International Electrochemical Commission (IECEX) (optional)**
- TH2015-RTG3930
- IECEx BAS 04.0032X
- EX ia IIC
- EEx ia IIC
- EEx d IIB T6 (-40°C < Ta < +60°C)

**Scope of Supply**
- 1 x Sensor assembly complete with mounting plate
- 1 x Field bus modem with RS232 cable and power supply adapter
- 1 x Documentation pack

**Optional Items**
- WaveView (Windows XP min. spec.)
- display and logging software
- Galvanised mounting frame (deck level) or stainless steel mounting frame (guard rail mounted)
- Power and data cabling
- RDU40 local display unit

**System Schematic**
- Integrated junction box
- Power I/P
- Digital O/P
- Analogue O/P
- RDU

**Shipping Details**
- Transit case: Wooden - Treated to ISPM-15
- Dims: 800 x 600 x 600mm
- Gross Wt: 45kg - standard supply

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**Mechanical Features**
WaveRadar Rex is a sensor with maximum tolerance to encrustation by salt, chemicals and other waste deposits. Experience has proved it to be reliable and trouble-free in operation, with minimum maintenance requirements. The transmitter head consists of a flame proof anodised cast aluminium alloy enclosure with an integral junction box. A weather protection cover is fitted to provide protection from direct solar heating.

WaveRadar Rex is manufactured by Rosemount, Gothenburg, Sweden and distributed worldwide by RS Aqua Ltd.

RS Aqua Ltd is a distributor of oceanographic and marine environmental instrumentation to the research, monitoring, offshore and civil engineering markets.

**WaveView Software**
WaveView is an optional programme which processes raw WaveRadar Rex data outputs to calculate wave parameters and water level/air gap values for display and logging.