

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.



Image courtesy of Fugro Structural Monitoring

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

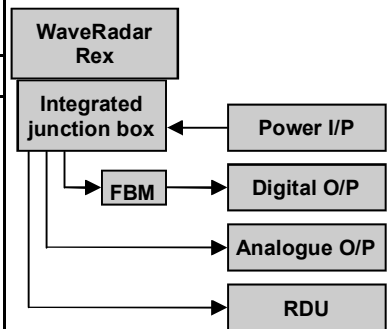
- Stable in the most adverse weather conditions
- Suitable for permanent or temporary installation
- BASEEFA03ATEX, UL & IECEX EEx - certified
- Accurate to mm precision
- No re-calibration required
- Optional remote display (RDU40)
- Non-contact sensor
- Small size and weight
- Auto starting
- Ideal 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

TECHNICAL SPECIFICATION		
Performance	Measuring range	3-65 metres to surface
	Accuracy	Range <50m = +/- 6mm Range >50m = +/- 12mm
	Maximum deviation	Range <50m = +/- 1mm
	Beam Width	10 degrees included angle
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 output	Data bus	Digital two wire FSK field bus binary data output.
	Connector cabling	Eex "e" (non intrinsically safe)
	Output data rate	2 to 10Hz (4Hz default) Factory selectable
	Digital - from FBM	RS232 at 4800 baud
	Type	8 data bits, no parity, one stop bit
	Protocol	Simplex
	Analogue output	1 x current loop
Range	4-20mA	
Resolution	16 bits	
Refreshing rate	4Hz (default)	
Connector cabling	Eex "e" (non intrinsically safe)	
Power supply Mains Version (M)	Voltage	100 to 240V AC +10%-15% max 50-60Hz
	Radar power rating	80 watts maximum
DC version (D)	Current consumption	2A max: operating <1A
	Voltage	20 to 28V DC +10%-15%
	Radar power rating	30 watts maximum
	Current consumption	1.25A max: operating <650mA
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 PTFE (teflon)
Environmental	Operating and storage temp.	-40°C to +70°C
	Environmental sealing	IP67
CE Conformity	Approval number	0575
Hazardous Zone Certification BASEEFA03ATEX (standard)	Radar unit type no.	TH2015-RTG3930
	Certification no.	BASEEFA03ATEX0071X
	Code	EX II 1/2G EEx d IIB T6 (T _{amb} = -40°C to +70°C)
Underwriters Laboratory (optional)	Radar unit type no.	TH2015-RTG3930
	UL listed	939U
	FCC ID	K8CRTG
	Hazardous location	Class 1, Division 1, Group C or D. Class 1, Zone 1, Group IIB. Ex d[ia] IIB T6 (T _{amb} = -40°C to +70°C)
International Electrochemical Commission (IECEX) (optional)	Radar unit type no.	TH2015-RTG3930
	Certification no.	IECEX BAS 04.0032X
	Code	EX ia IIC EX d IIB T6 (-40°C < T _a < +60°C)

Versions

WaveRadar Rex M
- Mains powered (100-240VAC)
WaveRadar Rex D
- DC powered (24VDC)

System Schematic



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

Shipping Details

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



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.

