

Radar Non Contact Sensors



Measuring Principle - An electromagnetic pulse is transmitted from the ABM sensor. The pulse 5.8 - 26 GHz carrier Frequency travels to the surface being monitored and is reflected off this surface back to the sensor face. The time of flight is divided in half, and converted to an output current directly proportional to the material level. In case of low dielectric materials ($\epsilon_r < 10$), electromagnetic wave penetrates materials. In this case "Low Dielectric Material" has to be on. The ABM radar is a one echo sensor, it adjusts its power and sensitivity to receive one echo from measured material and to eliminate any false echoes. This feature gives radar extremely narrow radiation beam (like a laser) This is not offered by any other brands.

Applications -

Liquid Levels Measurement - Page 15

To monitor liquids with vapors, gases or volatile surfaces. Pick a Radar Unit with the range for your application. For corrosive applications the Antenna material can be chosen that is compatible with the liquid.

Monitoring Solid Material Levels - Page 16

To monitor Dusty Solids and Powder materials the higher 26GHz frequency and dual frequencies help to penetrate the dusty atmosphere found in solids level storage vessels, tank & bins. They are usually larger in size and require the Self Adjusting Tracking Radar for accurate measurement.

Outdoor Flood Monitoring - Page 17

The Dual Frequency Radar is used to monitor levels of rivers and seas. The radar works even in dry seasons when there is no water in riverbeds.

Oil-water non contact Radar Interface Detector (RID) - Page 18

To monitor with non-contact oil-water interface and top of oil. The 4- 20 mA current output shows both levels.

High Temperature Applications - Page 19

To monitor applications with elevated temperatures Antenna material selection is Important and Special Mounting De-coupler design with Thermal isolation is required. Temperature in environment does not effect the ABM Radar performance. For very high temperature (above 200°C) horn with bottom flange is recommended.

Sanitary Applications - Page 20

Monitoring sanitary applications with Sanitary Ferrule Mounting Food Grade Antenna's are available. For the food industry the Antenna must withstand steam cleaning and be quickly removable and easily re-installed.

Explosion Proof Applications - Page 21

For Measurement in areas Classified as Hazardous (Class I Div. I) such as Gases, Petrochemical, Vapors and Dust. These Areas require containment of Atmosphere.

Crane anti-collision Systems - Page 22

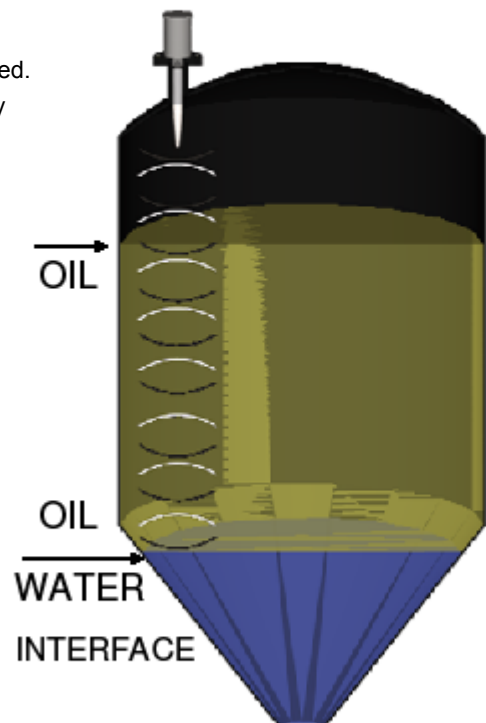
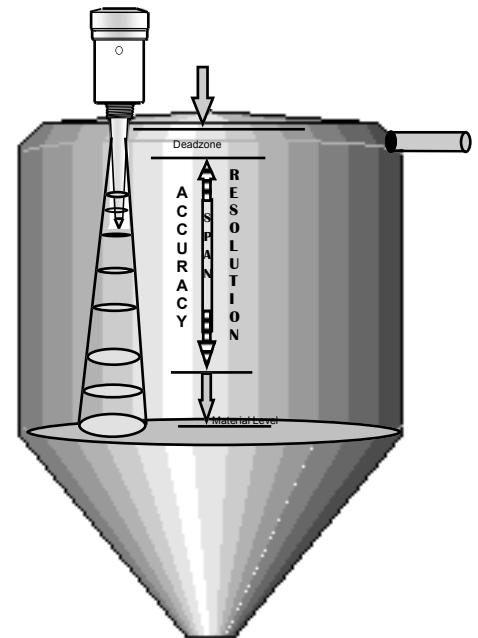
To maintain a safe working distance between two cranes operating on same track.

Fuel Efficiency for Ship Applications - Page 23

Measurement of wave profiles, to control optimal vessel trimming.

Contact Level Measurement - Page 24/25







For contact liquid measurement the ABM Radar with metal pipes, aircraft cable or rods is offered ask technical support for drawings and pictures.



Radar Non Contact and Contact Sensors



Overview

ABM sensor	Max. Measuring Range -in Liquids (Solids x .5) Accuracy : +/- 0.1% Range (max.)	Mounting Fitting - Male thread	Temperature Range for Radar	Pressure Rating @ Rod Antenna
ABMXXX-YYY Liquid Range to 240 Ft. - Radar Frequency R6 - 6.3 GHz R5 - 5.8 GHz 	017 - 17' (5m) 033 - 33' (10m) 050 - 50' (15m) 100 - 100' (30m) 140 - 140' (42m) 240 - 240' (73m) 340 - 340' (103.6m)	1.5"/2.0" NPT Std./Exp. Radar 2.0" NPT 26 GHz Radar High Temp Radar 3" NPT for 6 GHz with horn	PP Rod : - 40 to 176 °F (-40 to 80°C) Teflon " : - 40 to 350°F (-40 to 177°C) With De-coupler	Max. 5 bar 15-75 psi Without De-coupler
ABMXXX-YYY Bulk Solids in all industries -Dual Frequency Radar & 26 GHz Radar 	Radar 050 ft. (15 m) " 100 ft. (30 m) " 140 ft. (42 m) " 240 ft. (73 m) " 340ft. (103.6m)	2.0 " NPT for 26 GHz with 5" Horn 3.0 " NPT for dual Freq. with 6" Horn	6" Horn : - 40 to 140 °F (- 40 to 60°C) 6" Horn : - 40 to 350°F (- 40 to 177°C) With De-coupler 5" Horn : - 40 to 140 °F (- 40 to 60°C)	6" Horn Max. 5 bar
ABMXXX-YYY Petrochemical, Oil water Interface - Radar Frequency R6 - 6.3 GHz 	Radar 017 - 17' (5m) 033 - 33' (10m) 050 - 50' (15m) 100 - 100' (30m)	1.5"/2.0" NPT	P.P. Rod :- 40 to 140 °F (-40 to 60°C) PTFE Rod:- 40 to 400 °F (-40 to 204°C) With De-coupler	Max. 5 bar 15 - 75 psi Without De-coupler
ABMXXX-YYY, Radar with rod Liquids with Foam, gases and Vapours - Radar Frequency R6 - 6.3 GHz R5 - 5.8 GHz 	Radar 017 - 17' (5m) 033 - 33' (10m) 050 - 50' (15m)	2.0"/3.0" NPT	PTFE Launcher :- 40 to 400 °F (-40 to 204°C)	Max. 5 bar 15 - 75 psi
ABMXXX-YYY, Radar with pipe Liquids with Foam, gases and Vapours - Radar Frequency R6 - 6.3 GHz R5 - 5.8 GHz 	Radar 017 - 17' (5m) 033 - 33' (10m) 050 - 50' (15m)	2.0"/3.0" NPT	PTFE Point Antenna :- 40 to 400 °F (-40 to 204°C)	Max. 5 bar 15 - 75 psi
ABMXXX-YYY, Radar with cable Liquids with Foam, gases and Vapours - Radar Frequency R6 - 6.3 GHz R5 - 5.8 GHz 	Radar 017 - 17' (5m) 033 - 33' (10m) 050 - 50' (15m)	2.0"/3.0" NPT	PTFE Launcher :- 40 to 400 °F (-40 to 204°C)	Max. 5 bar 15 - 75 psi

Approvals - For ABM200/ABM300 Microwave Sensors:

FM(USA):

FM3810 (2005) Electrical Electronic Test,
 Measuring and Process Control Equipment
 ANSI/NEMA 250 (1991) :Enclosures for Electrical Equipment

FM(CAN.):

CSA C22.2 No. 1010.1 (2004)
 Safety Requirements for Electrical Equipment for
 Measurement, Control and Laboratory Use -
 Part 1: General Requirements
 CSA C22.2 No. 94 (2011) Special Purpose Enclosures

Radar Non Contact Sensors For Liquid Applications



Model - ABMXXX - YYRC - H A - LIQUIDS

Applications -

This range of sensors are used in liquid applications such as Food & Beverage processing. It is also ideal for Water / Wastewater due to their maintenance free nature. Other ideal applications are Pharmaceutical and Chemical as the Radar adapts to any condition automatically without user involvement.

Benefits -

- Enclosures are suitable for IP68 environmental conditions.
- Self adjusting, Monitors inside tanks environment and adjusts power and sensitivity, to receive one echo only.
- All false echoes are automatically eliminated.
- Antenna build-up is automatically compensated for to eliminate its effects.
- Enclosures are available in different materials to withstand any environment.
- Very narrow radiation beam which allows user installation very close to tank's wall.
- Fit to any Mounting requirements.
- Works at any Temperature.
- Very High Temperature Applications with TEFLON antenna, Thermal De-coupler and SS Horn with bottom flange for Asphalt Applications.
- 2 - Wire Radar's Measuring Period @ 20 mA = 1 echo / 36 msec.

Technical data -

Measuring Range : 0.9 to 340 Ft (0.27 to 103.6 m)

Temperature : PP -40 to 176°F (-40 to 80°C)

Teflon PTFE -40 to 350°F (-40 to 177°C)

Pressure Rating : 5 bar for all Radar except 2 bar for Sanitary Radar

Mounting Thread : 1.5" - 3" NPT Male Thread

Catalogue # Ordering -

Supply Voltage:

Maximum Range:

XXX = 2 Wire 20-30 Vdc

3 Wire 12-30 Vdc

4 Wire 120 Vac or 230 Vac

YYY = 017 ft (5m)

033 ft (10m)

050 ft (15m)

100 ft (30m)

140 ft (42m)

240 ft (73m)

340 ft (103.6m)

Operating Frequency:

R = R6 6.3 GHz

R5 5.8 GHz

R2 26 GHz

Communications:

C = 4 - RS485

2 - RS232

H - Hart

Housing Material:

H = A L — Aluminum Enclosure Housing

S S — SS316L Enclosure Housing

Antenna:

A = APP — Polypropylene Rod Antenna

ATE — TEFLON Rod Antenna

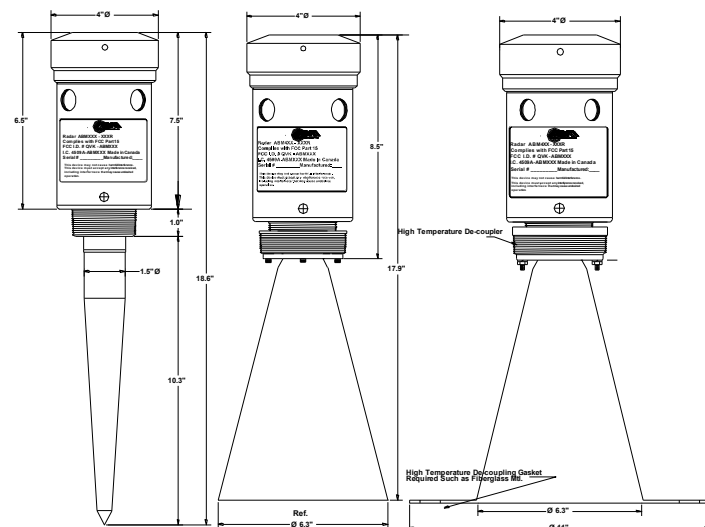
ATL — TEFLON Rod Antenna with built-in extension, good for up to 6" long metal standpipe of 3" ID or greater

HTE — High Temp. Radar, TEFLON Rod Antenna

HR6 — SS316L Std. 6" horn

HT6 — High Temp. Radar, Std. 6" SS316L horn

HT6-BF — Very High Temp. Radar, 6" SS316L horn with bottom flange



Radar Std. Radar Std. & Horn Radar c/w HT6 Bottom Flange



Antenna Extension ATL Radar 6 GHz - 6" and 8" with Rod Ant. Ext.

Radars Non Contact Sensors For Solids Applications



Model - ABMXXX - YYRC - H A – SOLIDS

Applications -

Solid materials such as cement, coal, sand and plastics (powder, pellets)

Benefits -

- Enclosures are suitable for IP68 environmental conditions.
- Self adjusting Monitors inside tank's environment and adjusts its power and sensitivity to receive one echo only.
- Antenna build-up is automatically compensated to eliminate its effects.
- Enclosures are available in different materials to withstand any environment
- Very narrow radiation beam which allows installation very close to tank's wall.
- Works at any Temperature
- Fit to any Mounting requirements

Technical data -

Measuring Range : 0.9 to 340 Ft (0.27 to 103.6 m)
 Temperature : - 40 to 140°F (-40 to 60 °C) S.S. 316 Horn
 Pressure Rating : 5 bar for all Radar except 2 bar for Sanitary Radar
 Mounting Thread : 3" NPT Male Thread (Horn only)
 Radar Horn antennas: HR6 - 6.3 GHz
 HR5 - 5.8 GHz
 Dual Frequency : 6.3 GHz and 26 GHz
 Single Frequency : 26 GHz



Radar Std. Horn Radar Std. Exp.

Catalogue # Ordering -

Supply Voltage:

XXX = 2 Wire 20-30 Vdc
 3 Wire 12-30 Vdc
 4 Wire 120 Vac or 230 Vac

Maximum Range:

YYY = 017 ft (5m)
 033 ft (10m)
 050 ft (15m)
 100 ft (30m)
 140 ft (42m)
 240 ft (73m)
 340 ft (103.6m)

Operating Frequency:

R = R6 R2, 6.3 GHz/26 GHz
 R2 26 GHz
 R5 5.8 GHz

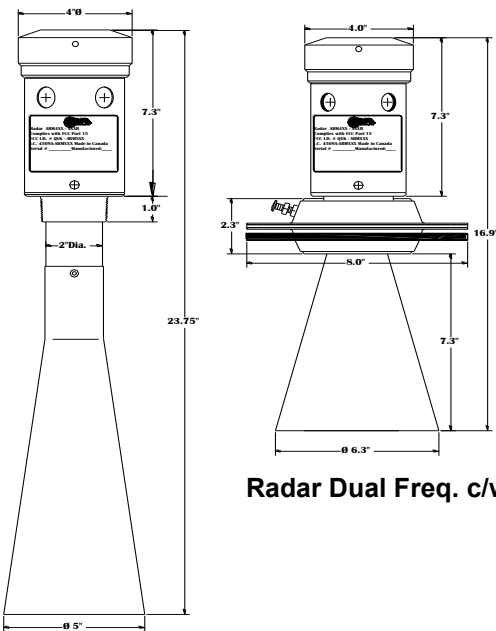
Communications: C = 4 - RS485
 2 - RS232
 H - Hart

Housing Material:

H = AL — Aluminum Enclosure Housing
 SS — SS316L Enclosure Housing

Antenna:

A = HR6 — SS316L Std. 6" horn
 HR5 — Aluminum Horn 5" horn



Radar Dual Freq. c/w Aimer /6"

Radar 26 GHz c/w 5" Horn

Radar Non Contact Sensors For River and Sea Water Level Measurement



Model - ABMXXX - YYYRC - H A - Solar Panel

Applications -

Dual frequency radar is used to measure level of rivers and sea waters, and also for water control.

Benefits -

- Enclosures are suitable for IP68 environmental conditions.
- No problem with false echoes from mounting.
- Extremely Low Power Consumption from solar panels.
- Booting time is very short.
- Good reading from dry riverbeds.
- No rain influence.
- No wind and temperature influence.
- Very narrow radiation beam which rejects the shores.

Technical data -

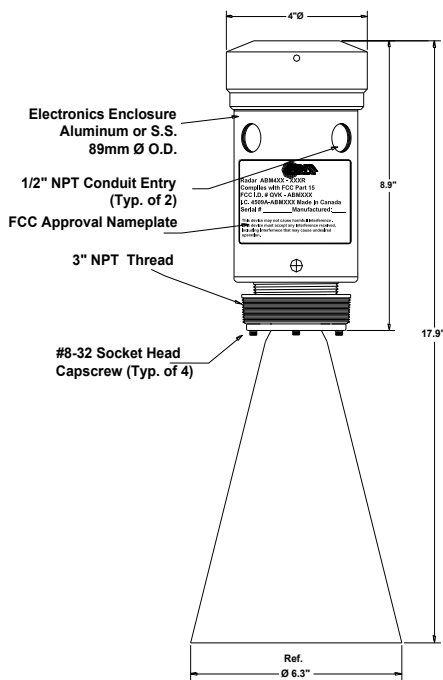
Measuring Range : 0.9 to 340 Ft (0.27 to 103.6 m)
 Temperature : PP - 40 to 176°F (- 40 to 80°C) Antenna Material
 Teflon PTFE - 40 to 350°F (- 40 to 177°C) Antenna Material
 Pressure Rating : 5 bar for all Radar except 2 bar for Sanitary Radar
 Mounting Thread : 2" - 3" NPT Male Thread
 Radar Horn Antenna : HR6 - 6.3 GHz
 Dual Frequency : HR6 - 6.3 GHz and 26 GHz



Catalogue # Ordering -

Supply Voltage:

- XXX = 2 Wire 20-30 Vdc
- 3 Wire 12-30 Vdc
- 4 Wire 120 Vac or 230 Vac



Radar Dual Freq. c/w 6" Horn - HR6

Maximum Range:

- YYY = 017 ft (5m)
- 033 ft (10m)
- 050 ft (15m)
- 100 ft (30m)
- 140 ft (42m)
- 240 ft (73m)
- 340 ft (103.6m)

Operating Frequency:

R = R6R2 6.3 GHz and 26 GHz

Communications:

- C = 4 - RS485
- 2 - RS232
- H - HART

Housing Material:

- H = A L — Aluminum Enclosure Housing
- S.S. — SS316L Enclosure Housing

Antenna:

- A = APP — Polypropylene Rod Antenna
- ATE — TEFLON Rod Antenna
- HTE — High Temp. Radar, TEFLON Rod Antenna
- HR6 — SS316L Std. 6" horn
- HT6 — High Temp. Radar, Std. 6" SS316L horn
- HT6-BF—Very High Temp. Radar, 6" SS316L horn with bottom flange

Radars Non Contact Sensors For Oil Water Interface Detection



Model - ABM300 - YYYRC - H A - RID

Applications -

This is the only non-contact radar that detects top of oil and oil-water interface when oil is free of water.

Principle of Operation -

When the radar is turned ON and oil is free of water, the radar gets a reflection from the OIL-WATER interface that gives current output proportional to the OIL-WATER interface level.

The echo from the OIL-WATER interface is masked and the radar is forced to go to higher power to detect echo from top of OIL. The output current is proportional to OIL level.

Special parameter in software changes alternation time between top of OIL and OIL-WATER interface.

In case of Water in the OIL the radar does not penetrate oil and shows the current output proportional to the top of Oil. When heat is applied and separation happens and the radar starts showing two current values; one from top of OIL and another one from OIL-WATER interface.

Benefits -

- Enclosures are suitable for IP68 environmental conditions.
- Approved for Hazardous Environments.
- Non - contact method, it doesn't require any maintenance as in the case of contact methods (build-up on sensing elements).

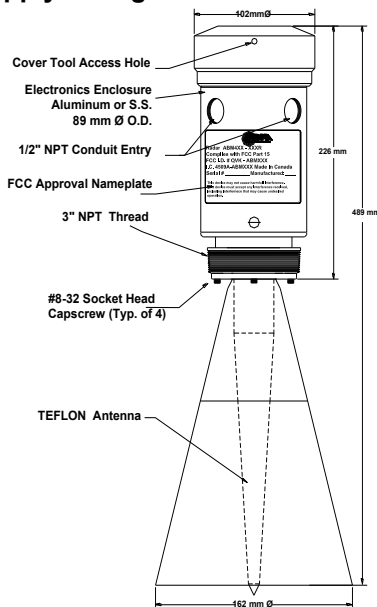
Technical data -

Measuring Range : 0.9 to 340 Ft (0.27 to 103.6 m)
 Temperature : PP Rod - 40 to 140°F (- 40 to 60°C) Antenna Material
 De-coupler & Teflon : - 40 to 350°F (- 40 to 177°C) Antenna Material
 Pressure Rating : 5 bar (without De-coupler)
 Mounting Thread : 1 1/2" - 2" NPT Male Thread, 3" NPT with Horn Antenna
 Radar Frequency : R6 - 6.3 GHz



Catalogue # Ordering -

Supply Voltage: XXX = 3 Wire 12-30 Vdc



Radars Exp. 6GHz c/w 6" Horn c/w Rod Antenna

Maximum Range :

YYY = 017 ft (5m)
 033 ft (10m)
 050 ft (15m)
 100 ft (30m)
 240 ft (73m)
 340 ft (103.6m)

Operating Frequency:

R = R6 6.3 GHz
 R5 5.8 GHz

Communications:

C = 4 - RS485
 2 - RS232

Housing Material:

H = A L — Aluminum Enclosure Housing

Antenna:

A = APP — Polypropylene Antenna
 TEF — TEFLON Antenna
 HR6 — SS316L Std. 6.3 GHz 6" horn

Radar Non Contact Sensors

For High & Very High Temperature Applications



Model - ABMXXX - YYYRC - H A - PIPE

Applications -

Extremely high temperature applications such as molten metal.

Benefits -

- Enclosures are suitable for IP68 environmental conditions.
- ABM Standard non-contact radar platform with 1 1/2" or 2" metal pipe and standard 6" horn can be used.
- All features of the ABM non-contact radar are included.

Technical data -

Measuring Range : 0.9 to 100 Ft (0.27 to 30 m)
 Temperature : at the antenna has to be below 1500°C
 Note: above 200°C Horn c/w Bottom flange is recommended
 Pressure Rating : 5 bar for all Radar
 Mounting Thread : 1.5" or 2" NPT Male Thread
 Radar Horn Antenna: HT6 - 6 GHz c/w 2" - 3" NPT TEFLON De-coupler
 Frequency : 5.8 GHz and 6.3 GHz

Catalogue # Ordering -

Supply Voltage:

XXX = 2 Wire 20-30	YYY = 017 ft (5m)
3 Wire 12-30 Vdc	033 ft (10m)
4 Wire 120 Vac or 230 Vac	050 ft (15m)
	100 ft (30m)

Maximum Range:

Operating Frequency:

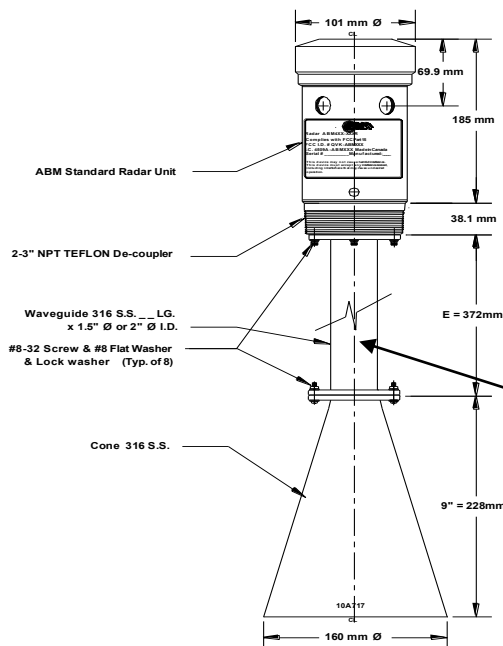
R = R6 6.3 GHz
 R5 5.8 GHz

Communications:

C = 4 - RS485
 2 - RS232
 H - Hart

Housing Material:

H = A L — Aluminum Enclosure Housing
 SS — SS316L Enclosure Housing



Note – Models with Straight or Bent pipe are available



Radar Std. High Temp. c/w 6" Horn - HR6

Radars Non Contact Sensors For Sanitary Applications



Model - ABMXXX - YYYRC - H A - SAN

Applications -

This range of sensors are used in liquid applications such as Food & Beverage processing. Where Food Grade Antenna and Mounting base are required. Other ideal applications are Pharmaceutical and Chemical as the Radar adapts to any condition automatically without user involvement.

Benefits -

- Enclosures are suitable for IP68 environmental conditions.
- Self adjusting Monitors inside tank's environment and adjusts its power and sensitivity to receive one echo only.
- Enclosures are available in different materials to withstand any environment
- Very narrow radiation beam which allows installation very close to tank's wall.
- Works at any Temperature



Technical data -

Measuring Range : 0.9 to 50 Ft (0.27 to 15 m)
 Temperature : - 40 to 400°F (- 40 to 204°C)
 Pressure Rating : 2 bar
 Mounting : 2" TEFLON Tri-Clamp with Integral Antenna
 Radar Frequency : 5.8 GHz and 6.3 GHz

Catalogue # Ordering -

Supply Voltage:

XXX = 2 Wire 20-30 Vdc
 3 Wire 12-30 Vdc
 4 Wire 120 Vac or 230 Vac

Maximum Range :

YYY = 017 ft (5m)
 033 ft (10m)
 050 ft (15m)

Operating Frequency:

R = R6 6.3 GHz
 R5 5.8 GHz

Communications:

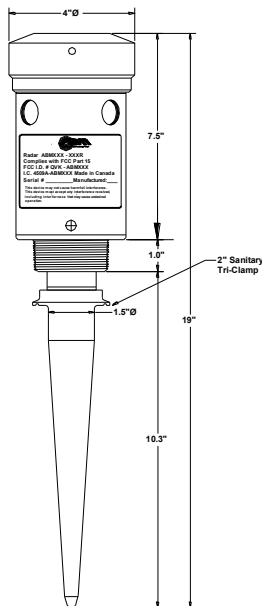
C = 4 - RS485
 2 - RS232
 H - HART

Housing Material:

H = A L — Aluminum Enclosure Housing
 SS — SS316L Enclosure Housing

Antenna:

A = S20 — TEFLON Rod Antenna with
 2" Sanitary Tri clamp Mounting



Radars C/W Sanitary 2" Antenna

Radars Non Contact Sensors For Explosion Proof Applications



Model - ABMXXX - YYYRC - H A - EXP

Applications -

This is the non-contact radar used for Liquids with vapours and gases and also solids with dust that requires EXP. Certification.

Benefits -

- Enclosures are suitable for IP68 environmental conditions.
- Approved for Hazardous Class I, Div. 1 Environments.
- Self adjusting Monitors inside tank's environment and adjusts its power and sensitivity to receive one echo only.
- Antenna build-up is automatically compensated to eliminate its effects.
- Enclosures are available in different materials to withstand any environment
- Very narrow radiation beam which allows installation very close to tank's wall.
- Works at any Temperature

Technical data -

Measuring Range : 0.9 to 240 Ft (0.27 to 73 m)
 Temperature : PP Rod - 40 to 140°F (- 40 to 60°C) Antenna Material
 De-coupler & Teflon : - 40 to 400°F (- 40 to 204°C) Antenna Material
 Pressure Rating : 5 bar (without De-coupler)
 Mounting Thread : 1 1/2" - 2" NPT Male Thread, 3" NPT with Horn Antenna
 Radar Frequency : 5.8 GHz and 6.3 GHz



Radars c/w Thermal De-coupler

Catalogue # Ordering -

Supply Voltage: XXX = 2 Wire 20-30 Vdc
 3 Wire 12-30 Vdc

Maximum Range :

YYY = 017 ft (5m)
 033 ft (10m)
 050 ft (15m)
 100 ft (30m)
 240 ft (73m)

Operating Frequency:

R = R6 6.3 GHz
 R5 5.8 GHz

Communications:

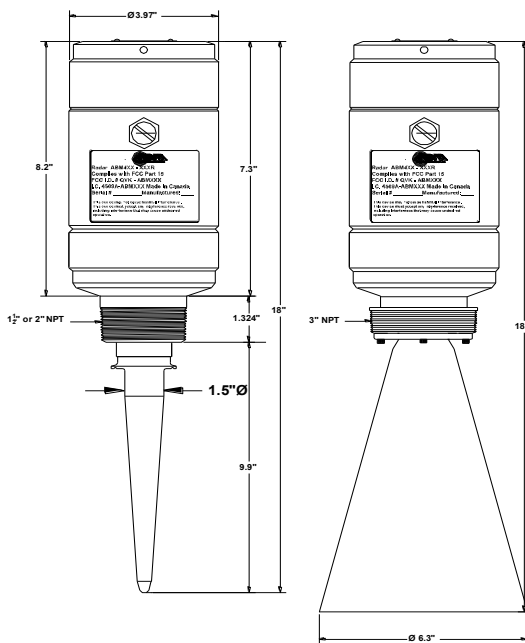
C = 4 - RS485
 2 - RS232
 H - HART

Housing Material:

H = A L — Aluminum Enclosure Housing
 SS — 316L Stainless Steel Housing

Antenna:

A = APP — Polypropylene Rod Antenna
 ATE — Teflon Rod Antenna
 HTE — High Temp. Radar, TEFLON Rod Antenna
 HR6 — SS316L Std. 6" horn
 HT6 — High Temp. Radar, SS316L Std. 6" horn



Radars Exp.

Radars Exp. c/w 6" Horn

Radars Non Contact Sensors For Crane anti-collision system



Model - ABMXXX - YYRC - HA - CRANE

Applications -

ABM provides crane anti-collision systems based on two radar units operating at 6GHz and 26GHz. Both radar units offer very fast response (a few updates per second). Maximum distance between the radar units can be up to 240ft (73m). Both units use horn type antennas and they are water-proof (IP68). Relay controllers can be connected to the Radar units current outputs or RS485 communications ports.



Standard 6 GHz Radar



26 GHz Radar

Benefits -

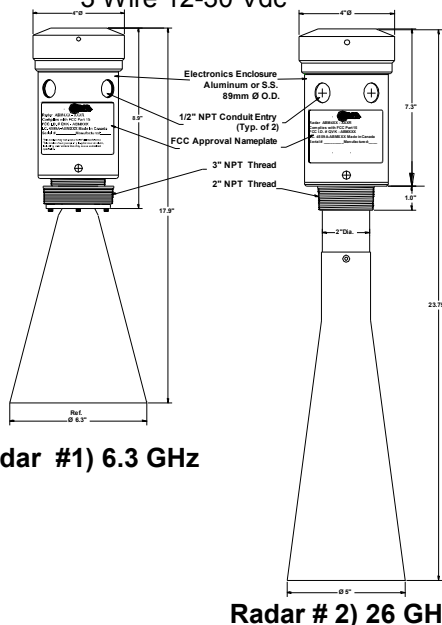
- Enclosures are suitable for IP68 environmental conditions.
- Self cleaning due to its non contact measuring operation.
- One echo system from wanted target. No list of hundreds of parameters to be downloaded.
- No wind, no rain, no snow influence.
- Extremely short blanking.

Technical data -

Measuring Range : 0.9 to 340 Ft (0.27 to 103.6 m)
 Temperature : PP Rod - 40 to 140°F (- 40 to 60°C) Horn
 De-coupler & Teflon : - 40 to 400°F (- 40 to 204°C) Antenna Material
 Pressure Rating : 5 bar (without De-coupler)
 Mounting Thread : 3" NPT with Horn Antenna
 Radar Frequency : Radar #1- 6.3 GHz, Radar #2 - 26GHz

Catalogue # Ordering -

Supply Voltage: XXX = 2 Wire 20-30 Vdc
 3 Wire 12-30 Vdc



Maximum Range :

YYY = 017 ft (5m)
 033 ft (10m)
 050 ft (15m)
 100 ft (30m)
 240 ft (73m)
 340 ft (103.6m)

Operating Frequency:

Radar #1 R = R6 6.3 GHz
 Radar #2 R2 26 GHz

Communications:

C = 4 - RS485

Housing Material:

H = A L — Aluminum Enclosure Housing
 SS — 316L Stainless Steel Housing

Antenna:

A = HR6 — SS316L Std. 6" horn
 HR5 — Aluminum Horn 5" horn

Radars Non Contact Sensors For Fuel Efficiency for Ship Applications



Model - Model ABMXXX - YYYRC - H A - Ship

Applications -

ABM Radar In SS enclosure and SS horn antenna with fast or standard protocols (4 to 30 updates per second) is used to measure ocean wave profiles to save at least 5% fuel of ships. The "importance of optimal trimming" it is a well known fact that vessel trim has an important effect on fuel efficiency. Measurement of waves profiles is a very critical parameter to do saving on fuel.

Benefits -

- Reduce fuel costs and emissions of CO2 and other harmful gases are also reduced.
- Easy to install and easy to use, ABM radar eliminates all false echoes from ships construction.
- Enclosures are suitable for IP68 environmental conditions.
- SS316L enclosure is not effected by sea conditions.

Technical data -

Measuring Range : 1 Ft to 340 Ft (0.3 to 103.6 m)
 Pressure Rating : 5 bar for all Radar
 Mounting Thread : 1.5", 2" or 3" NPT
 Frequency : 6.3 GHz and 5.8 GHz

Catalogue # Ordering -

Supply Voltage:

XXX = 3 Wire 12-30 Vdc

Maximum Range:

YYY = 017 ft (5m)
 033 ft (10m)
 050 ft (15m)
 100 ft (30m)
 140ft (43m)
 240ft (73m)
 340ft (103.6m)

Operating Frequency:

R = R6 6.3 GHz
 R5 5.8 GHz

Communications:

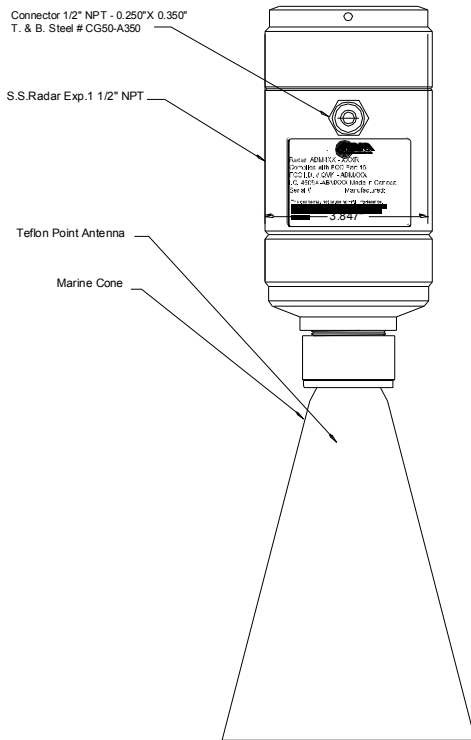
C = 4 - RS485
 2 - RS232

Housing Material:

H = S.S. — SS316L Enclosure Housing

Antenna :

A = HR6 — SS316L Std. 6" horn



Radars SS Exp. c/w SS Horn

Radar Contact Sensors For Stilling Well Applications



Model - ABMXXX - YYYRC - H A - Pipe Stilling well

Applications -

Horizontal Tanks with oil, gasoline and other liquids with vapours.

Benefits -

- Enclosures are suitable for IP68 environmental conditions.
- ABM Standard non-contact radar platform with 1 1/2" copper pipe (2" and 3" Pipe can also be used) works as a stilling well to contain vapours.
- All features of the ABM non-contact radar are included.

Technical data -

Measuring Range : 27" to 96" (0.68. to 2.4 m)
 Temperature : Teflon PTFE – 40 to 350°F (-40 to 177°C) Antenna Material
 Pressure Rating : 5 bar for all Radar
 Mounting Thread : 1.5" or 2" NPT Male Thread
 Frequency : 6.3 GHz and 5.8 GHz

Catalogue # Ordering -

Supply Voltage:

XXX = 2 Wire 20-30 Vdc
 3 Wire 12-30 Vdc
 4 Wire 120 Vac or 230 Vac

Maximum Range:

YYY = 8 ft (2.4m)

Operating Frequency:

R = R6 6.3 GHz
 R5 5.8 GHz

Communications:

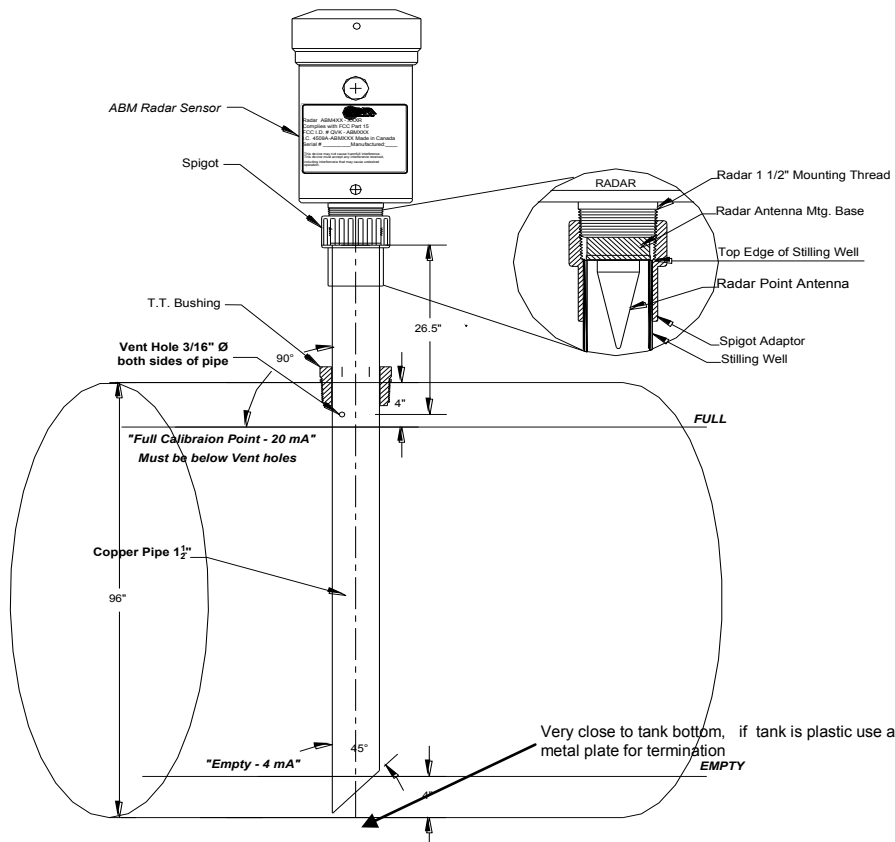
C = 4 - RS485
 2 - RS232
 H - Hart

Housing Material:

H = A L — Aluminum Enclosure Housing
 S.S. — SS316L Enclosure Housing

Antenna :

A = ATL TEFLON Launcher Antenna



Radar Storage Tank Stilling Well Installation

Radar Contact Sensors For Guided Wave Radar Sensor Applications



- Model - Model #1 ABMXXX - YYYRC - H A - CABLE**
- Model #2 ABMXXX - YYYRC - H A - ROD**
- Model #3 ABMXXX - YYYRC - H A - PIPE**

Applications -

Any liquids such as conductive, non-conductive, with foam, gases & vapours.
In very narrow tanks, tanks with obstacles, cross beams.

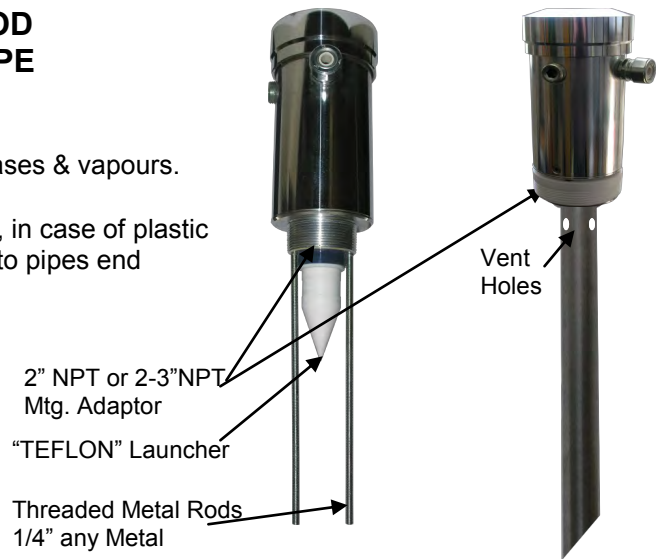
Note -1) For radar with pipe guide metal tank's bottom okay, in case of plastic tank use a metal plate within a very close distance to pipes end (not farther than 2 inches)

Benefits -

- Enclosures are suitable for IP68 environmental conditions.
- ABM non-contact radar can be used as guided wave radar along wire, rods or inside metal pipes.
- Self adjustment of power and sensitivity is still applied.

Technical data -

Measuring Range : 2 Ft to 50 Ft (.6 to 15 m)
Pressure Rating : 5 bar for all Radar
Mounting Thread : 2" or 3" NPT Male Thread
Frequency : 6.3 GHz and 5.8 GHz



Radar c/w Threaded Rod Guide

Radar c/w Pipe Guide

Catalogue # Ordering -

Supply Voltage:

- XXX = 2 Wire 20-30 Vdc
- 3 Wire 12-30 Vdc
- 4 Wire 120 Vac or 230 Vac

Maximum Range:

- YYY = 017 ft (5m)
- 033 ft (10m)
- 050 ft (15m)

Operating Frequency:

- R = R6 6.3 GHz
- R5 5.8 GHz

Communications:

- C = 4 - RS485
- 2 - RS232
- H - Hart 7

Housing Material:

- H = A L — Aluminum Enclosure Housing
- S.S. — SS316L Enclosure Housing

Cable Material:

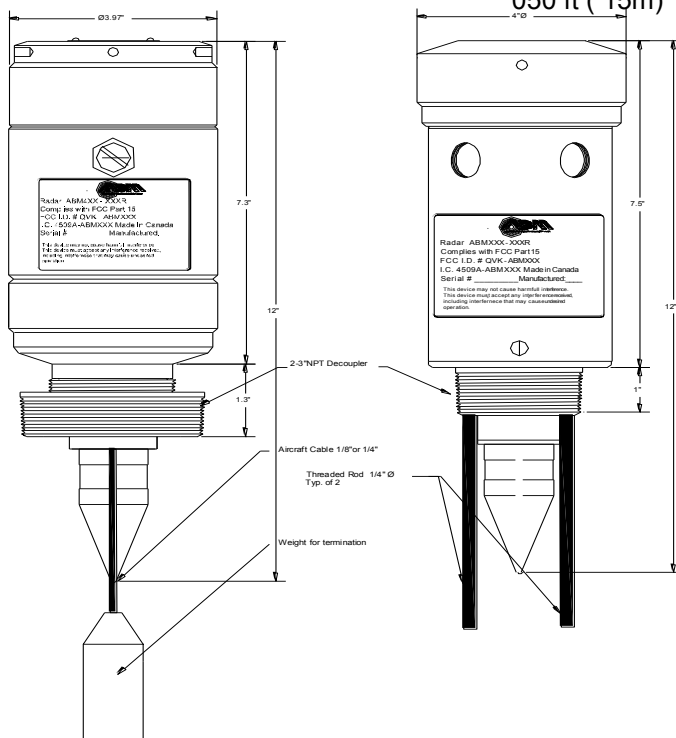
SS316 Aircraft Cable

Rod Material: any material

Metal Pipes: any material,
seamless recommended

Antenna :

- A = ATE TEFLON Rod Antenna
- ATL TEFLON Launcher Antenna



Radar Exp. c/w Cable Guide Radar Std. c/w Threaded Rod Guide

Radar Non Contact and Guided Sensors



CATALOGUE NUMBER STRUCTURE - Radar Sensors

ABM	1) XXX	2) -XXX	3) YY	4) CX	5) -XX	6) YYY	- IP68	7) XXXX	8) XXX	9) - XXXX	10) - xxxxxx
-----	-----------	------------	----------	----------	-----------	-----------	--------	------------	-----------	--------------	-----------------

- 1) Supply Voltage - 200/300/400/430 (Note #1)
- 2) Range - 017/033/050/100/140/240/340 (Feet)
- 3) Radar Frequency - R6(6.3) /R5(5.8)/R2(26) GHz
R6R2(6.3 and 26 GHz)
- 4) Communications - 4 (RS485)/ 2 (RS232)/ 0 (None)/ H (Hart - 2 Wire only)
- 5) Body Material - AL (Aluminum)/AN (Anodized Al.)/SS (316 S.S.)
- 6) Antenna Material - APP (Polypropylene)/ ATE (Teflon)/ S20 (2" Tri- clamp Mtg.)/
HR4 (6 &26 GHz)/ HR5 (26 GHz Ext.)/ HR6 (6 GHz)
- X) Ingress Protection - IP68 for Submersible
- 7) Antenna Options - ATL (1.5" Ant. Ext.)/ AE6 (6" Ant. Ext.)/ AE8 (8" Ant. Ext.)
- 8) Explosion Proof - EXP Hazardous Environment Class I, Div. I Groups B, C & D.
- 9) Mounting Options - AIM3 (8" O.D. 3" NPT Mtg. Hole)
- 10) Rod, Cable, Pipe

Note 1) ABM Code 200 = 20-30 Vdc
 300 = 12-30 Vdc
 400 = 115 Vac
 430 = 230 Vac