

A100 Outalarm Self-Contained Portable Outage Alarm

Visual and audible alerts
when probe makes contact



Mobile Tank Gauging with Remote A100 Monitor

Remote mounted monitor;
Sensor remains installed on tank



Probe with Capacitance Sensor
A200PC24A



Cable
A200CB3P25



Cable to Monitor Adapter
A100CBLMTR



Monitor
A100MTR

ADS Capacitance probes have been used for:

- Petroleum products - gasoline, diesel, kerosene, and jet fuel
- Bio-diesel
- Water-based products
- Water/petroleum waste
- Ether
- Esters
- Surfactants
- Sulfuric acid
- Amines
- Molten sulfur
- Sodium hydroxide
- Methyl diphenyl diisocyanate (MDI)
- Vinyl chloride monomer
- Alcohol and methanol
- Brine

Capacitance probes work with all liquids with dielectric constant 1.8 or higher.

Dixon® Industrial Fluid Control* manufactures products specifically designed for liquid terminal operations. Our standard product offering is shown on the following pages. However, there are numerous additional applications, materials, and custom designs available. For technical information or assistance with ordering these products, please contact your local Canadian branch at 877.963.4966 or isales@dixonvalve.ca.

*Formerly Automated Design Service, Inc. (ADS)

ADS Outalarms with Probe

Applications:

- Specifically designed for liquid terminal operation on batch loading and overfill protection, tank cars, tanks trucks, marine barges; suitable for open and closed domes.

Sizes:

- 24", 36", 48", and 60" probe lengths standard, other lengths available

Features:

- Totally self-contained; no wires, tubing, or external power
- Rugged weather- and corrosion-resistant construction
- No moving parts, tip sensitive phase shift™ digital capacitance sensor for conductive and non-conductive fluid; conductivity sensor available for conductive fluids
- Requires no calibration or adjustment
- Adjustable insertion length through a standard ½" NPT fitting
- High-intensity audible and flashing visual outputs
- Optional opto-isolated solid state contact output
- Full, hard graduated laser engraved rod
- A100 operates up to 2,500 hours on a single 9V alkaline battery in standby mode
- Fail-safe, continuous battery monitor goes to alarm state on low battery
- Battery current drain <0.23 mA during standby; <60 mA in alarm state

Materials:

- Wetted materials: 316 stainless steel, PTFE standard, other materials available

Specifications:

- Minimum dielectric constant 1.8
- Temperature range:
 - capacitance probe: -14°F to 250°F (-26°C to 121°C)
 - high-temp capacitance probe: -14°F to 325°F (-26°C to 163°C)
 - outalarm monitor: -40°F to 150°F (-40°C to 65°C)
- Activation point: ¼" into liquid surface
- Compatible with any liquid or dry bulk material with a dielectric constant of 1.8 or greater
- Horn intensity: 101 dB at 2'
- Light output :3 each 3000 mcd high-intensity red flashing LEDs
- Pressure rating on standard unit: **50 PSI**: consult Dixon® for applications up to **300 PSI**

Approvals:

- Intrinsically safe design per ANSI/UL913 for Class I, Div I Groups A, B, C, and D Hazardous Areas



A100 capacitance probe

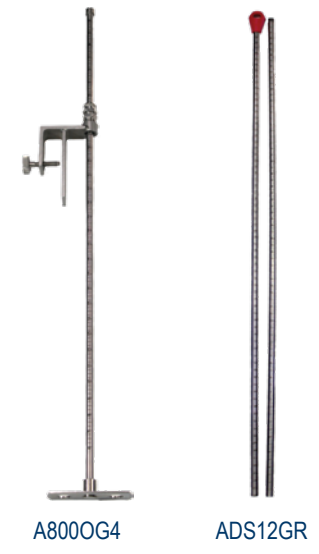
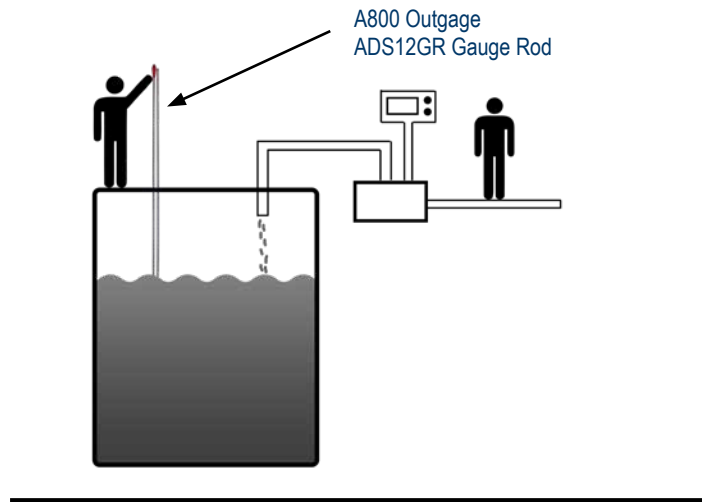
A100 Probe

Length	Capacitance 250°F (121°C) Max Part #	Hi-temp Capacitance 325°F (163°C) Max Part #	Conductivity for Conductive Fluids ¹ Part #
12"	A100C12A	A100HC12A	A100CSS12A
24"	A100C24A	A100HC24A	A100CSS24A
36"	A100C36A	A100HC36A	A100CSS36A
48"	A100C48A	A100HC48A	A100CSS48A
60"	A100C60A	A100HC60A	A100CSS60A
72"	A100C72A	A100HC72A	A100CSS72A
84"	A100C84A	A100HC84A	A100CSS84A

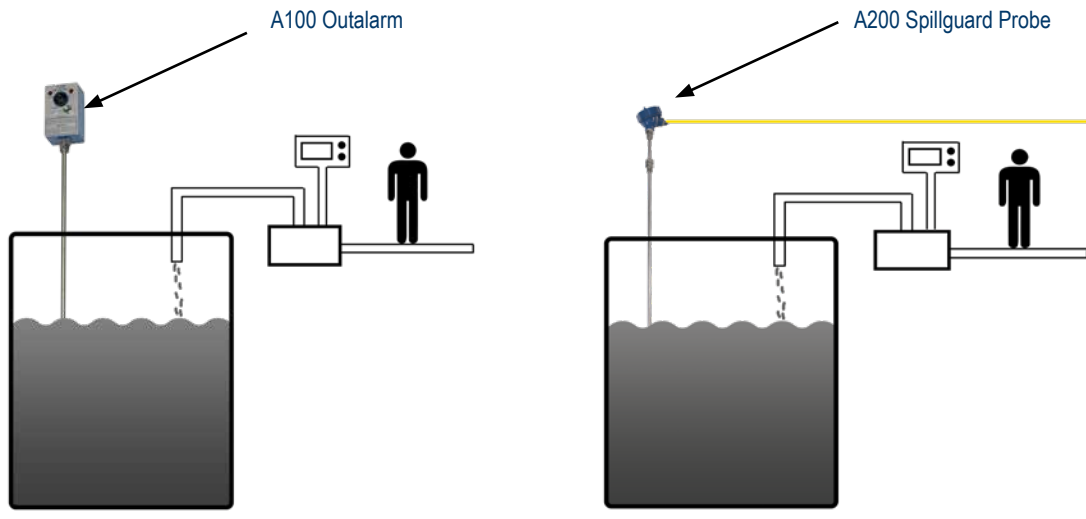
¹Material to be sensed must be specified at time of order.

ADS Tank Overfill Prevention Methods

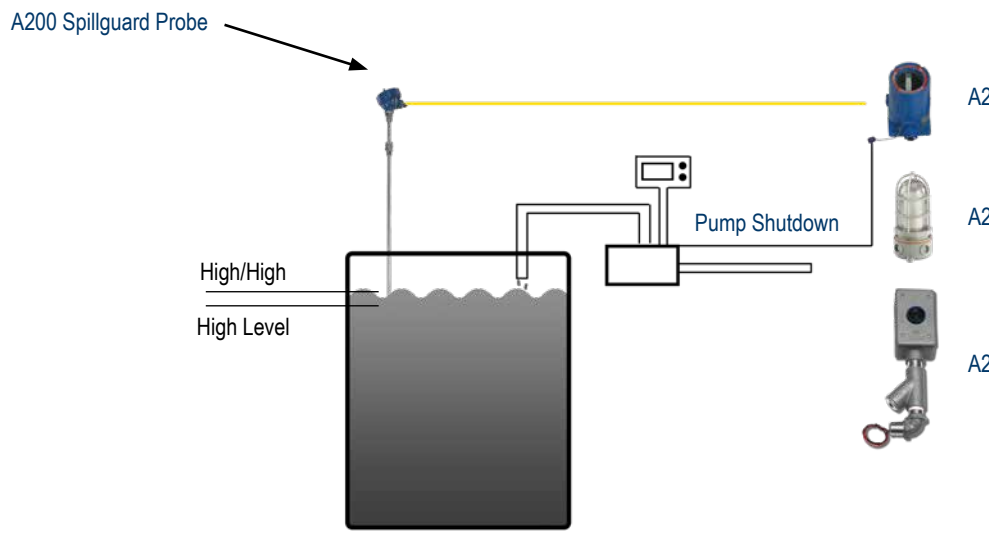
Manual Operator Gauging



Overfill Alarm



Multi-point Overfill with PLC Pump Shutdown



ADS Spillguard™ Systems

Applications:

- Shutdown and alarm system for tank cars, tank trucks, barges, and ships; suitable for open and closed domes

Sizes:

- Standard cable lengths: 15', 25', and 50', other lengths available
- Insertion lengths 4" to 60" standard, other lengths available

Features:

- Rugged, explosion-proof, weather-, chemical-, and corrosion-resistant
- LED status lights visible through glass cover
- Inserts into tank through standard 1/2" NPT fitting
- Probe can be portable or permanently installed in the vessel
- Laser engraved graduated rod with 1/4" graduations
- Probe-to-controller cable protected by stainless steel interlocking armor sheath and heavy-duty latching connectors at both ends
- Fail-safe design, unit trips in the event of an open or shorted cable or loss of power
- Choice of capacitance, conductivity, or single-point ultrasonic sensors
- Input power: 120 VAC, 240 VAC, or 24 VDC, 2.5 watts
- Output relay de-energizes on high level, broken or shorted sensor cables, or loss of power
- Sensor excitation open circuit voltage 8 VDC, short circuit current 8 mA with built-in FM-approved barrier
- Optional self-test feature, tilt and ground verification interlocks, and latching circuit available

Materials:

- Wetted materials: 316 stainless steel and PTFE standard, other materials available
- Controller housing NEMA 4X, NEMA 7, Explosion Proof, Class I, II, Groups B, C and D

Specifications:

- Minimum dielectric constant 1.8
- Temperature range:
 - capacitance probe: **-14°F to 250°F (-26°C to 121°C)**
 - high-temp capacitance probe: **-14°F to 325°F (-26°C to 163°C)**
- Probe pressure rating: **50 PSI** with standard fitting; consult Dixon® for applications up to **300 PSI**
- Sensor suitable for Class I, II, III, Div 1, Groups A, B, C, and D when used with supplied controller and cable lengths of 10,000' or less
- Output relay dry contacts 2 form C (2PDT) rated 2 amps at 120/240 VAC, 1 form C (SPDT) with optional latching circuit and reset switch

Approvals:

- Cable connectors designed for repeated mating meet IP 65 mechanical and environmental specifications
- FM, CSA HAZ Loc Class I Div I, Groups B, C and D



A210 Spillguard™ Monitors

Monitor Options	24V DC Part #	120V DC Part #
A210 Spillguard™ monitor	A210-24	A210-120
with bypass timer	A210B-24	A210B-120
with external reset switch	A210R-24	A210R-120
dual channel control monitor	A212-24	A212-120

ADS Spillguard™ Probes

Capacitance Probes

Application:

- For materials with dielectric constant > 1.8, liquids, powders, slurries

Features:

- ½" NPT sliding fitting standard, ¾" fitting optional
- Open dome adapter and washout fitting available
- Tilt sensor optional

Materials:

- Probe: 316 stainless steel
- Housing: NEMA 4X, IP66

Specifications:

- Capacitance probe: **250°F (121°C)** maximum
- High temperature capacitance probe: **325°F (163°C)** maximum

Length	Capacitance	
	Capacitance Part #	High-Temp Part #
12"	A200PC12A	A200PHC12A
24"	A200PC24A	A200PHC24A
36"	A200PC36A	A200PHC36A
48"	A200PC48A	A200PHC48A
60"	A200PC60A	A200PHC60A
72"	A200PC72A	A200PHC72A
84"	A200PC84A	A200PHC84A

Conductivity Probes

Application:

- For conductive fluids such as acids and water-based mixtures

Features:

- ½" NPT sliding fitting standard, ¾" fitting optional, **50 PSIG, 150 PSIG, or 300 PSIG** fittings available
- Open dome adapter and washout fitting available
- Tilt sensor option
- Single electrode protected in housing
- Dual electrodes exposed for easy cleaning
- **Material to be sensed must be specified at time of order**

Materials:

- Probe: 316 stainless steel, Hastelloy available for HCL service
- Housing: NEMA 4X, IP66

Length	Conductivity	
	Single Electrode Part #	Dual Electrode Part #
12"	A200PCSS12A	A200PCSSDP12A
24"	A200PCSS24A	A200PCSSDP24A
36"	A200PCSS36A	A200PCSSDP36A
48"	A200PCSS48A	A200PCSSDP48A
60"	A200PCSS60A	A200PCSSDP60A
72"	A200PCSS72A	A200PCSSDP72A
84"	A200PCSS84A	A200PCSSDP84A

ADS Multi-Point Ultrasonic Sensors

Application:

- For use when multiple detection points are required, such as dribble mode, pump shutoff, and overflow alarm

Features:

- Intrinsically safe design class I, Div 1, Groups A, B, C, D
- Up to five detection points available
- Rugged "tube in tube" ultrasonic sensor welded construction
- Individual level and pressure outputs
- Silicon strain gage pressure transducer available, welded diaphragm, **0-50 PSIA** standard range, single or dual set points, trip Hi, Lo, or outside of gap
- Tilt storage indicator option
- Ground verification option
- Full hard heavy wall probe shaft, laser engraved scale up to 86" long

Material:

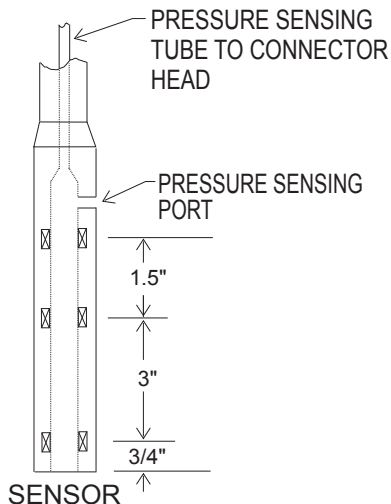
- Wetted material: 316 stainless steel

Specification:

- Operating temperature range: **-40°F (-40°C) to 250°F (121°C)**



Example:
3 point ultrasonic sensor



Ordering Guide

Part Number Breakdown

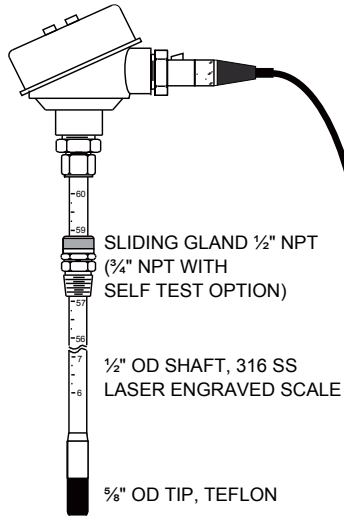
Example: A330U 36 P T 2 xxxxx

Product Line	Sensor Length	Pressure Option	Tilt Option	Liquid Sensor Points ¹	Dixon® Assigned #
A330U - Ultrasonic sensor	08 - 8" 12 - 12" 13 - 13" 24 - 24" 26 - 26" 36 - 36" 48 - 48" 60 - 60"	P - Pressure	T - Tilt	1 - 1 detection point 2 - 2 detection points 3 - 3 detection points 4 - 4 detection points 5 - 5 detection points	Custom assigned number by Dixon®

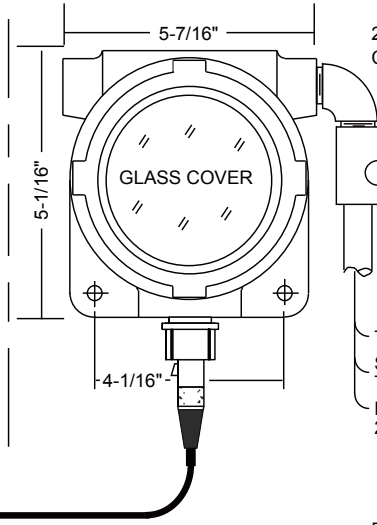
¹ Consult Dixon® for distance between sensor points. Probes with three or more detection points require custom monitor.

A210 Spillguard System Wiring

SENSOR INTRINSICALLY SAFE FOR CLASS I, DIV 1, GROUPS A, B, C, & D



HAZARDOUS AREA



2 EA. 3/4" NPT CONDUIT CONNECTIONS

TO OPTIONAL HORN SHUTDOWN TO VALVE OR PUMP
POWER 120 VAC, 24 VDC
240 VAC (SPECIFY)

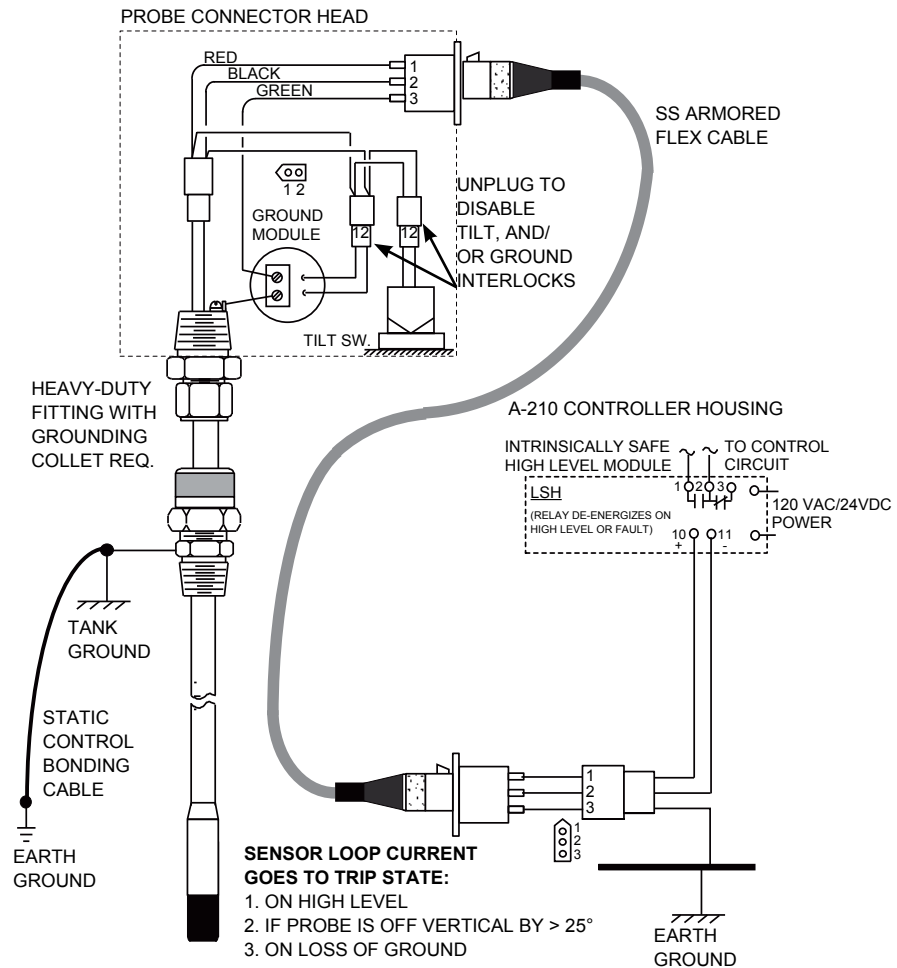
EXPLOSION-PROOF ENCLOSURE, CLASS I, 11, GROUPS B, C, & D, NEMA 4X

CABLE 2/C SS INTERLOCKING ARMOR QUICK CONNECT CORROSION-RESISTANT CONNECTORS AT BOTH ENDS. STANDARD LENGTHS 15, 25, AND 50 FT. LONGER LENGTHS OPTIONAL.

Special applications and custom-engineered solutions available:

- Multiple sense points
- Control systems
- Special sensor configurations

Call technical support: 877-582-3569.



Dielectric Constant Common Materials

Fluid	Dielectric Constant	Fluid	Dielectric Constant
Acetal	3.8	Ethylamine	6.3
Acetaldehyde	15	Ethylene glycol	37
Acetamide	59.2	Fish oil	2.6
Acetic acid	6.2	Fluorbenzene	6.4
Acetone	20.7	Furan	3
Acetophenone	18	Furfural	42
Acetyl bromid	16.2	Gasoline, gas	2
Acetyl chloride	15.9	Glycerine	47 - 68
Acetylacetone	23	Glycerol	42.5
Acetylene dibromide	7.2	Glycerol water	37
Acetylene tetrabromide	5.6	Glycol	37
Aconite acid ester	6.3	Heptane	1.9
Adipic acid	1.8	Hexane	2
Aerosile	1	Hexanol	13.3
Aether	4	Hydrazine	52
Alcohol, allyl	20.6	Iodine	11.1
Alcohol, cetyl	3.6	Isopropanol	18
Alcohol, diacetone	18.2	Jet fuel	1.7
Alcohol, ethyl (ethanol)	24.3	Kerosene	1.8
Alcohol, methyl (methanol)	33.1	Linoleic acid	2.6 - 2.9
Alcohol, propyl	21.8	Linseed oil	3.2 - 3.5
Allyl chloride	8.2	Methane	1.7
Allyl iodide	6.1	Napthalene	2.5
Aluminum bromide	3.4	Octane	2
Ammonia	15	Oil	2
Ammonia solution 25%	31.6	Olive oil	3.1
Amyl amine	4.5	Oxygen	1.51
Aniline	7.3	Palmitic acid	2.3
Anisole	4.5	Palm seed oil	1.8
Antimony hydride	1.8	Paraffin	1.6
Argon	1.5	Pentane	1.8
Arsine	2.1	Phenol	4.3
Arsole	2.3	Pentanol	14.8
Azoxybenzene	5.2	Phosgene	4.7
Benzene	2.3	Phosphorus liquid	3.9
Bromine	3.1	Pinene	2.7
Butane	1.4	Propane	1.6
Butanoic acid	3	Propanol, propyl alcohol	2.2
Caproic acid	2.6	Propylene	11.9
Caprylic acid	2.5	Propylether	3.3
Carbon disulfide	2.64	Pyridine	1.12
Carbon tetrachloride	2.23	Resorcinol	3.2
Castor Oil	4.7	Stearic acid	2.3
Chlorine, chlor fluid	2	Styrene	2.4
Chlor benzene	5.7	Terpinene	2.7
Chloroform	4.8	Toluene	2.0 - 2.4
Coconut oil, refined	2.9	Transformer oil	2.1
Cotton seed oil	3.1	Turpentine (wood), white spirit	2.2
Cresol	10.6	Vinegar	24
Cumene	2.4	Water	10
Decane	2	Water, demineralised	29.3
Diesel oil, fuel	2.1	Water, heavy	78.3
Dodecane	2	Water - oil emulsion	24
Ether	4.3	Wine	25

A comprehensive list is available on dixonvalve.com.

ADS Outage Gauges

Applications:

- Set level fill point for manual / visual fill control
- Measure outage requirements on mobile tanks

Feature:

- Open dome bracket

Material:

- 316 stainless steel

Length	Standard Outgauge Part #	Outgauge with J Bar Part #
2'	A800OG2	A8000GJ2
3'	A800OG3	A8000GJ3
4'	A800OG4	A8000GJ4
5'	A800OG5	A8000GJ5



laser engraving closeup

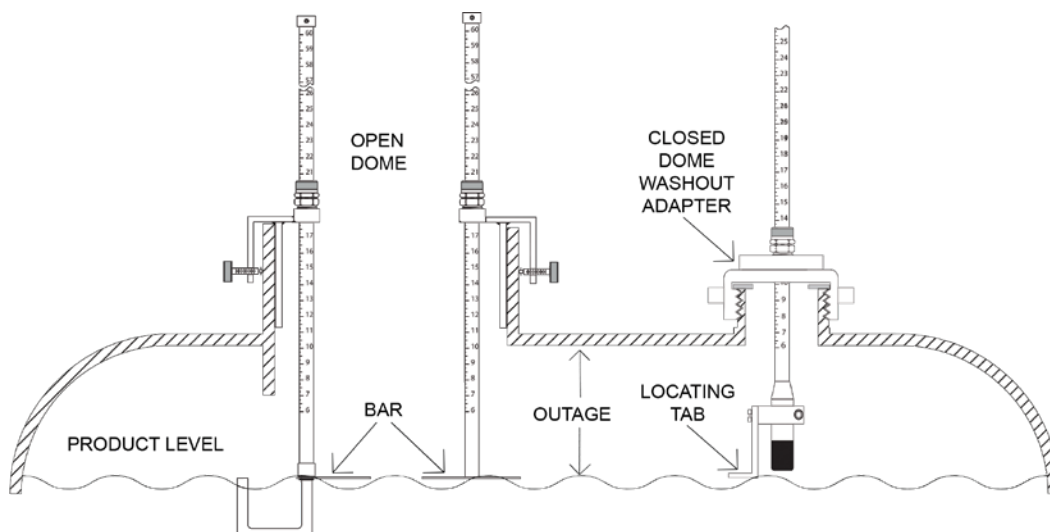


Setting Outage on Closed Dome with A100LT Locating Tab

1. Screw washout adapter onto washout nozzle
2. Withdraw gauge rod until tab touches inside shell of tank. Note reading on rod.
3. Add desired outage to reading and push down rod to the calculated reading.
4. The probe sensor is now at the desired outage.

Setting Outage on Open Dome Operation

1. Clamp bracket to vertical section of dome.
2. Withdraw gauge rod until bar touches inside shell of tank. Note reading on rod.
3. Add desired outage to reading and push down rod to the calculated reading.
4. The bar is now at the desired outage.
5. For tanks with manway protruding past shell, use J-bar gauge.



ADS Gauge Rods

Application:

- Used to gauge liquid levels in any mobile tank

Size:

- 1/2" x .065 weight

Features:

- Laser engraved scale with 1/4" graduations
- Rods come in two sections that screw together at the midpoint
- Foot marks inscribed on rod at 1' intervals below the inch mark
- Heavy-duty plastic handle

Material:

- 316 stainless steel



laser engraving closeup



Description	Part #	Part # w/sliding innage bar
gauge rod, 4' length, one piece	ADS4GR	ADS4GR-IB
gauge rod, 8' length, two piece	ADS8GR	ADS8GR-IB
gauge rod, 12' length, two piece	ADS12GR	ADS12GR-IB

ADS Spillguard™ Cables

Features:

- 3 or 5 pin connector
- 316 stainless steel armoured cable or yellow rubber cable
- Custom lengths available, call 513.874.8499 or 877.582.3569 for more information

Armored Cables

Length	3 Pin Part #	5 Pin Part #
15'	A200CA3P15	A200CA5P15
20'	A200CA3P20	A200CA5P20
25'	A200CA3P25	A200CA5P25
50'	A200CA3P50	A200CA5P50



Rubber Cable ¹

Length	3 Pin Part #
25'	A200CB3P25
30"	A200CB3P30



¹ Note: For use with (-M) mini connectors only.

ADS Parts and Accessories

ADS Open Dome Adapters



A100DA

Features:

- Flexible design fits most domes
- 1/2" and 3/4" NPT port for Outalarm probes

NPT Size	Stainless Steel Part #
1/2"	A100DA
3/4"	A100DB

Tank Washout Caps



A100TTA



A200SA

Description	Part #
tank truck 3" wash-out adapter, 1/2" NPT	A100TTA
tank truck 3" wash-out adapter, 3/4" NPT	A100TTB
washout cap with swivel	A200SA
washout cap with swivel and 2" vent	A200SVA

Cable Junction Boxes



A210CR-3

Description	Part #
3 pin	A210CR-3
5 pin	A210CR-5

Additional Parts & Accessories



A210PZH-24



A210-12TC

Description	Part #
1" cam and groove coupler and 1/2" NPT bushing, stainless steel	A100CA1050
1" cam and groove coupler with 1/2" NPT busing and 1" NPT vent tee, stainless steel	A100CA1050V
A100 / 200 splash guard, with 1 1/8" diameter poly	A100SG-POLY
locating tab for A100 / 200 probes	A100LT
replacement A100 monitor only	A100MTR
cable to monitor adapter	A100CBLMTR
A210 Piezo horn 24V DC	A210PZH-24
A210 Piezo horn 120V AC	A210PZH-120
tri-color external signal light 24V DC	A210-24TC
tri-color external signal light 120V AC	A210-120TC

ADS Parts and Accessories

A100 Monitor Repair Parts

Description	Part #	Qty
assembly, PCB, A100 monitor	30027	1
monitor housing	30028AL	1
monitor front panel	30029AL	1
foam battery retainer	30030	1
horn assembly, standard	30031	1
horn assembly repair kit	30031RK	1
horn retaining ring	30032BLA	1
lamp holder accessory (includes nut) red	30033	2
lamp holder accessory (includes nut) clear	30054	1
lamp holder o-ring	30036BN	3
lamp holder backup washer	30037	4
standoff, hex	30038AL	4
socket set screw/ 3"-32 x 5/16"	30039	4
switch guard	30040SS	1
circuit board retaining screws 8"-32 x 5/16	30041SS	4
flanged probe connector	30052SS	1
cap screw 4"-40 x 1/2"	30043SS	4
serial number instruction label	30044AL	1
A100 enclosure gasket	30205SA	1
flanged connector O-ring	30045BN	1
molex connector, 2 position, female	30021	1
A100 top light assembly, order with 30021	30022	1

Additional Parts & Accessories

Description	Part #
capacitance probe tester	A500
pressure tester	A400PSAL10012
cable to A100 adapter kit	A100CBLMTR
cable to monitor adapter kit, 3 pin mini	A100CBLMTR-002
stahl repeater parts for A210	30092RK
stahl repeater parts for A211	30093RK
replacement timer for A210B series	30399RK
A100 capacitance probe subassembly	30077-xxx¹
A200 capacitance probe subassembly	30139-xxx¹



¹ xxx = probe length in inches

Sensor Selection Guidelines

Capacitance:

Capacitance probes work with all liquids with a dielectric constant minimum of 1.8 or higher (Higher numbers on dielectric chart are good, 3-100 makes no difference to sensor)

- Temperature does affect the dielectric constant
- Solution and chemical compatibility to be monitored also need to be considered
 - Note: Some high-viscosity sticky material may adhere to the sensor and cause sensor to read wet

Ultrasonic:

- For multi-point applications – up to 5 sense points
- Ideal for areas where splashing is a problem
- Pressure sensing options available - specify pressure at time of order


Conductivity:

All conductivity probe orders must include product used and/or specific tuning requested. Standard conductivity tuning is 200K Ohm. These two liquids are the most common for conductivity probe use:

- Alcohol: Low in conductivity, requires 2 megOhm tune
- HCL: High in conductivity requires 10K Ohm tune ¹

 ¹ HCL fumes are very invasive. Capacitance sensors not recommended. Use conductivity sensors only

 Conductivity probes are an alternative to capacitance probes if the liquid is conductive and there is risk of the capacitance probe being falsely tripped from splashing.

 Dual electrode conductivity probes are good for liquids that may stick to the electrode. The exposed electrodes can easily be wiped off between loads.

NOTE: There are always exceptions to these basic rules. Please call technical support at 877-963-4966 if you have any questions regarding your application.

Limited Warranty

DIXON VALVE & COUPLING COMPANY, LLC (herein called "Dixon") warrants the products described herein and manufactured by Dixon to be free from defects in material and workmanship for a period of one (1) year from date of shipment by Dixon under normal use and service. Its sole obligation under this warranty being limited to repairing or replacing, as hereinafter provided, at its option any product found to Dixon's satisfaction to be defective upon examination by it, provided that such product shall be returned for inspection to Dixon's factory within three (3) months after discovery of the defect. The repair or replacement of defective products will be made without charge for parts or labor. This warranty shall not apply to: (a) parts or products not manufactured by Dixon, the warranty of such items being limited to the actual warranty extended to Dixon by its supplier; (b) any product that has been subject to abuse, negligence, accident, or misapplication; (c) any product altered or repaired by others than Dixon; and (d) to normal maintenance services and the replacement of service items (such as washers, gaskets, and lubricants) made in connection with such services. To the extent permitted by law, this limited warranty shall extend only to the buyer and any other person reasonably expected to use or consume the goods who is injured in person by any breach of the warranty. No action may be brought against Dixon for an alleged breach of warranty unless such action is instituted within one (1) year from the date the cause of action accrues. This limited warranty shall be construed and enforced to the fullest extent allowable by applicable law.

Other than the obligation of Dixon set forth herein, Dixon disclaims all warranties, express or implied, including but not limited to any implied warranties of merchantability or fitness for a particular purpose, and any other obligation or liability. The foregoing constitutes Dixon's sole obligation with respect to damages, whether direct, incidental or consequential, resulting from the use or performance of the product.

Some products and sizes may be discontinued when stock is depleted, or may require a minimum quantity for ordering.

Warranty & Repair Returns

Effective January 1, 2017, Dixon® purchased ADS controls and maintains technical, parts, and warranty support for product in use. To arrange warranty or repair returns, call 877-582-3569 with model number, serial number, and a description of the problem and product being sensed. Note: All returns must be returned clean and decontaminated. If any product is to be returned on the probe an SDS for that product must be attached.

Limits of Liability

This catalog is intended as a product offering. It is not intended to be a user or technical manual. Information in this catalog is subject to change without notice. All users and distributors of products sold through this catalog should contact Dixon® with questions of use, compatibilities, coupling procedures and life of product. Our full-time engineering and test staff is always available to recommend uses and to assist distributors and users with any questions.



Safety



Safety logos, which appear throughout our catalog, are used as a reminder that the user should carefully review for the appropriateness of the product for the media, application and environment in which it will be used.

NOTE: Because of the health hazards associated with contamination and lead content in drinking water systems, Dixon® couplings, unless otherwise specifically approved, are not recommended for potable water service and should not be used in applications where drinking water will contact the wetted surfaces of the coupling.

Warning: Dixon® products may contain chemicals known to the State of California to cause cancer, birth defects, or other reproduction harm.

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Dixon®, founded in 1916, is a premier manufacturer and supplier of hose couplings, valves, dry-disconnects, swivels, and other fluid transfer and control products. The company's global reach includes a wide range of products for numerous industries including petroleum exploration, refining, transportation, chemical processing, food & beverage, steel, fire protection, construction, mining and manufacturing. Dixon's strategic objective is to create solutions that make products safer, leak-free, longer lasting, and always available.

canada.dixonvalve.com • *Customer Service:* 877.963.4966



The Right Connection®



INDUSTRIAL CONTROLS

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