










DELAVAN Process Instrumentation
an *L&J TECHNOLOGIES* Company





OFFERING MORE IN
LEVEL CONTROLS



	Sonac 110	Sonac 120	Sonac 1100	Sonac 220
Principle of Operation	Integral mount magnetostrictive, single point (on/off) switch; for flow/no flow indication; high/low level alarms or starvation control.	Remote mount magnetostrictive, single point (on/off) switch; for flow/no flow indication; high/low level alarms or starvation control.	True "two-wire" magnetostrictive, single point (on/off) switch; for flow/no flow indication; high or low level alarm or control.	Ultrasonic Switch, single point (on/off); contact or non-contact; for high and low level switch for alarm or control; plugged chute and starvation detection.
Features and Benefits	Integral electronics; long-life single sensor unaffected by chemical/physical changes in liquid. Circuit is fail-safe and self checking. Uniform sensor design-- no gaps to clog.	Remote electronics; long-life single sensor unaffected by chemical/physical changes in liquid. Circuit is fail-safe and self checking. Uniform sensor design-- no gaps to clog.	Integral electronics; long-life single sensor unaffected by chemical/physical changes in liquid. Circuit is completely fail-safe and self checking. Built-in diagnostics.	Sensing method not dependent on specific electrical or physical properties; unaffected by hostile conditions such as dust or moisture variations; non-intrusive installation; 12 ft. sensor separation.
Application	Most types of liquids; liquid/foam interface, liquids that change electrical properties; high pressure and vacuum vessels.	Most types of liquids; liquid/foam interface, liquids that change electrical properties; high pressure and vacuum vessels.	Most types of liquids; liquid/foam interface, liquids that change electrical properties; high pressure and vacuum vessels.	Dry bulk materials with variable physical properties; municipal solid waste, textile fibers, puffed cereals, styrofoam pellets, sawdust, wood chips, metal chips, etc. Most all bulk solids 1/4 lb/cu. ft. and greater.
Power Requirements/ Output	<u>Universal power supply:</u> accepts 115, 230 VAC and 24 VDC <u>Output:</u> Contact closure DPDT; Form C Ratings; 5 amps; 115 Volts AC Non Inductive 2.5 amps; 230 Volts AC Non Inductive	<u>Universal power supply:</u> accepts 115, 230 VAC and 24 VDC <u>Output:</u> Contact closure DPDT; Form C Ratings; 5 amps; 115 Volts AC Non Inductive 2.5 amps; 230 Volts AC Non Inductive	<u>Power supply:</u> accepts 15-28 VDC <u>Output:</u> 4-20 mA step change current; two-wire, 15-28 VDC	<u>Universal power supply:</u> accepts 115, 230 VAC and 24 VDC <u>Output:</u> Contact closure DPDT; Form C Ratings; 5 amps; 115 Volts AC Non Inductive 2.5 amps; 230 Volts AC Non Inductive
Mounting Requirements	Horizontal or vertical; 1" N.P.T.; sanitary 1-1/2" -2" tri-c; amp; 2"-5" flange.	Horizontal or vertical; 1" N.P.T.; sanitary 1-1/2" -2" tri-c; amp; 2"-5" flange.	Horizontal or vertical; 1" N.P.T.; sanitary 1-1/2" -2" tri-c; amp; 2"-5" flange.	Horizontal; 2" N.P.T.
Temperature/ Pressure	<u>Temperature (sensor):</u> -40°F to +400°F (-40°C to +204°C) <u>(Elect.):</u> -40°F to +160°F <u>Pressure:</u> Vacuum to 2000 PSI	<u>Temperature (sensor):</u> -40°F to +400°F (-40°C to +204°C) <u>(Elect.):</u> -40°F to +160°F <u>Pressure:</u> Vacuum to 2000 PSI	<u>Temperature (sensor):</u> -40°F to +400°F (-40°C to +204°C) <u>(Elect.):</u> -40°F to +160°F <u>Pressure:</u> Vacuum to 2000 PSI	<u>Temperature (sensor):</u> -65°F to +400°F (-55°C to +204°C) <u>(Elect.):</u> -40°F to +160°F <u>Pressure:</u> 0 to 10 PSIG
Wetted Part Construction	Available in: 316 SS; Teflon, Zylon, Epoxy, Hastelloy; many others.	Available in: 316 SS; Teflon, Zylon, Epoxy, Hastelloy; many others.	Available in: 316 SS; Teflon, Zylon, Epoxy, Hastelloy; many others.	Dry product contact; bright zinc plated brass, stainless steel; nylon bin wall fittings.
Area Classification/ Enclosure Rating	Housing cast aluminum with fused polyester finish; meets 4, 5, 7, 9 & 12 NEC Class I, Group C, D; Class II, Groups E, F & G.	Rugged polyester reinforced enclosure meets NEMA 4, 4X and 12.	Housing cast aluminum with fused polyester finish; meets 4, 5, 7, 9 & 12 NEC Class I, Group C, D; Class II, Groups E, F & G.	Rugged polyester reinforced enclosure meets NEMA 4, 4X and 12; CSA approved

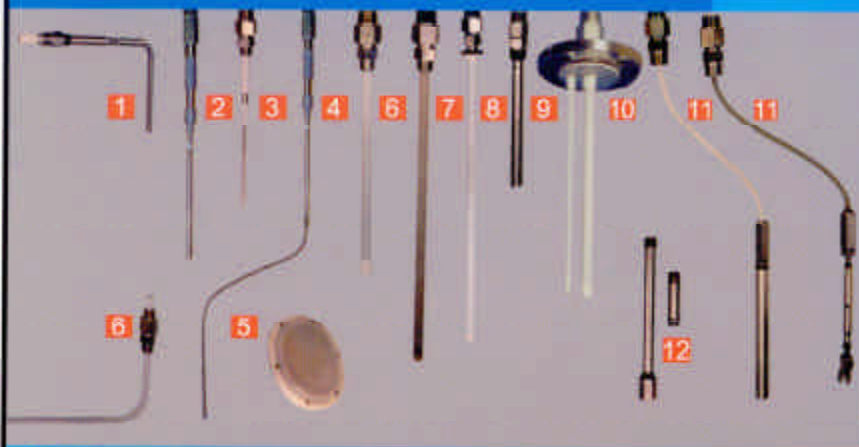
Microwave 320	Cap Analog 410	Cap Analog 420	Cap Analog 421
			
<p><u>Remote</u> mount microwave, single point (on/off) switch; non-contact; for flow/no flow indication; high and low level switch for alarm or control; plugged chute and starvation detection.</p>	<p><u>Integral</u> mount R.F. Capacitance Continuous Level transmitter; uses in liquids and bulk solids.</p>	<p><u>Remote</u> mount R.F. Capacitance Continuous Level transmitter, with 4-20 mA and up to 2 relays.</p>	<p><u>Remote</u> mount R.F. Capacitance Continuous Level transmitter with on-board LCD; two-wire operation between electronics and probe.</p>
<p>Excellent alternative to nuclear devices; not affected by heat, pressure or adverse environmental conditions; no user license required; sensors are not exposed to kinetic energy of moving materials. Energy can penetrate through non-metallic tanks or windows.</p>	<p>Ignores material build-up; easy to install; heavy-duty, flexible or high temperature probes available with lengths up to 250 ft.; explosion-proof design.</p>	<p>Remote electronics-- up to 800 ft. separation; ignores material build-up; selectable fail-safe modes; relay status indication L.E.D.'s; independent relay time delays; pump control capability.</p>	<p>Remote electronics-- up to 1 mile separation; ignores effects from material build-up; on-board LCD; two-wire twisted pair operation; up to 2 independently adjustable relays; pump control capability.</p>
<p>Heavy, abrasive bulk materials in tanks or chutes; ignores dust build-up; 100ft. sensor separation; external detection can see through non-metallic vessels.</p>	<p>Most liquids > 1.5 dielectric constant. Bulk solids > 10 lbs/cu. ft. with fairly stable moistures.</p>	<p>Most liquids > 1.5 dielectric constant. Bulk solids > 10 lbs/cu. ft. with fairly stable moistures.</p>	<p>Most liquids > 1.5 dielectric constant. Bulk solids > 10 lbs/cu. ft. with fairly stable moistures.</p>
<p><u>Universal power supply</u>: accepts 115, 230 VAC and 24 VDC</p> <p><u>Output</u>: Contact closure DPDT; Form C Ratings; 5 amps; 115 Volts AC Non Inductive 2.5 amps; 230 Volts AC Non Inductive</p>	<p><u>Universal power supply</u>: accepts 115, 230 VAC and 24 VDC</p> <p><u>Output</u>: Isolated 4-20 mA, and 0-10 VDC proportional to level</p>	<p><u>Universal power supply</u>: accepts 115, 230 VAC and 24 VDC</p> <p><u>Output</u>: Isolated 4-20 mA, and 0-10 VDC proportional to level</p> <p>Relays optional</p>	<p><u>Power supply</u>: accepts 115, 230 VAC</p> <p><u>Output</u>: Isolated 4-20 mA, and 0-10 VDC proportional to level</p> <p>Relays optional</p>
<p>Bracket mount or 2-1/2" N.P.T., or optional weldments.</p>	<p>Vertical; 3/4" N.P.T. or flange options.</p>	<p>Vertical; 3/4" N.P.T. or flange options.</p>	<p>Vertical; 3/4" N.P.T. or flange options.</p>
<p><u>Temperature</u> (sensor): -20°F to +700°F (371°C) with water cooling (Elect.): -40°F to +160°F <u>Pressure</u>: up to 50 PSIG</p>	<p><u>Temperature</u> (probes): see graph (Elect.): -40°F to +160°F <u>Pressure</u>: To 1000 PSI</p>	<p><u>Temperature</u> (probes): see graph (Elect.): -40°F to +160°F <u>Pressure</u>: To 1000 PSI</p>	<p><u>Temperature</u> (probes): see graph (Elect.): -40°F to +160°F <u>Pressure</u>: To 1000 PSI</p>
<p>UHMW and various window materials available.</p>	<p>316 SS, Kynar, or Teflon.</p>	<p>316 SS, Kynar, or Teflon.</p>	<p>316 SS, Kynar, or Teflon.</p>
<p>Rugged polyester reinforced enclosure meets NEMA 4, 4X and 12; FM approved.</p>	<p>Housing cast aluminum with fused polyester finish; meets 4, 5, 7, 9 & 12 NEC Class I, Group C, D; Class II, Groups E, F & G.</p>	<p>Housing cast aluminum with fused polyester finish; meets 4, 5, 7, 9 & 12 NEC Class I, Group C, D; Class II, Groups E, F & G; remote NEMA 4X.</p>	<p>Housing cast aluminum with fused polyester finish; meets 4, 5, 7, 9 & 12 NEC Class I, Group C, D; Class II, Groups E, F & G; remote NEMA 4X.</p>

	Cap Analog 450	Cap Analog 460	Cap Analog 4100	Caprol 500
				
Principle of Operation	MICROCONTROLLER-based R.F. Capacitance Continuous Level transmitter with <u>integral</u> electronics and up to 4 independently adjustable relays.	MICROCONTROLLER-based R.F. Capacitance Continuous Level transmitter with <u>remote</u> electronics and up to 4 independently adjustable relays.	<u>Integral</u> mount true "two-wire" R.F. Capacitance Continuous Level Transmitter.	Integral mount R.F. Capacitance MICROCONTROLLER-based point level switch; for high and low level alarm or control.
Features and Benefits	On-board MICROCONTROLLER; 8 character alpha-numeric L.E.D. display; 4 button keypad user interface; superior system diagnostics; pump sequencing for up to 4 pumps; 2 point calibration.	On-board MICROCONTROLLER; 8 character alpha-numeric L.E.D. display; 4 button keypad user interface; superior system diagnostics; pump sequencing for up to 4 pumps; 2 point calibration.	True two-wire 24 VDC operation; low cost; hazardous location operation; field selectable reversible output (4-20mA, 20-4mA); range from 6" to 250 Ft.	On-board MICROCONTROLLER; "one-touch" button calibration; built-in driven force field/guard; thorough system diagnostics; status indication L.E.D.'s explosion proof design; sensing probe lengths to 50 ft.
Application	Most liquids > 1.5 dielectric constant. Bulk solids > 10 lbs/cu. ft. with fairly stable moistures.	Most liquids > 1.5 dielectric constant. Bulk solids > 10 lbs/cu. ft. with fairly stable moistures. Interconnect cable length is 1200 ft. to remote unit.	Most liquids > 1.5 dielectric constant. Bulk solids > 10 lbs/cu. ft. with fairly stable moistures.	Liquids; caustics; and powder bulk solids; particularly applicable for pneumatic conveying vessels. Bulk solids-- 10 lbs/cu. ft. and greater
Power Requirements/ Output	<u>Universal power supply:</u> accepts 115, 230 VAC and 24 VDC <u>Output:</u> Up to 4 contact closure DPDT; Form C Ratings; 5 amps; 115 Volts AC Non Inductive 2.5 amps; 230 Volts AC Non Inductive	<u>Universal power supply:</u> accepts 115, 230 VAC and 24 VDC <u>Output:</u> Up to 4 contact closure DPDT; Form C Ratings; 5 amps; 115 Volts AC Non Inductive 2.5 amps; 230 Volts AC Non Inductive	<u>Power supply:</u> accepts 15-28 VDC <u>Output:</u> Isolated 4-20 mA current; two-wire, 15-28 VDC	<u>Universal power supply:</u> accepts 115, 230 VAC and 24 VDC <u>Output:</u> Relay-- 5 amp DPDT, Form C
Mounting Requirements	Horizontal; 3/4" N.P.T.; flange options.	Horizontal; 3/4" N.P.T.; flange options.	Horizontal; 3/4" N.P.T.; flange options.	Horizontal or vertical; 3/4" N.P.T.; flange options.
Temperature/ Pressure	<u>Temperature (probes):</u> see graph (Elect.): -40°F to +160°F <u>Pressure:</u> To 1000 PSI	<u>Temperature (probes):</u> see graph (Elect.): -40°F to +160°F <u>Pressure:</u> To 1000 PSI	<u>Temperature (probes):</u> see graph (Elect.): -40°F to +160°F <u>Pressure:</u> To 1000 PSI	<u>Temperature:</u> (Elect.): -40°F to +160°F; (Probes): G.I.M. -40°C to +300°F; G.T.: -60°F to +400°F <u>Pressure:</u> G.I.M. up to 90 PSI Teflon Probes: up to 400 PSI
Wetted Part Construction	316 SS, Teflon or Kynar.	316 SS, Teflon or Kynar.	316 SS, Teflon or Kynar.	316 SS, Teflon, or Food grade plastic.
Area Classification/ Enclosure Rating	Housing cast aluminum with fused polyester finish; meets 4, 5, 7, 9 & 12 NEC Class I, Group C, D; Class II, Groups E, F & G.	Housing cast aluminum with fused polyester finish; meets 4, 5, 7, 9 & 12 NEC Class I, Group C, D; Class II, Groups E, F & G; remote NEMA 4X.	Housing cast aluminum with fused polyester finish; meets 4, 5, 7, 9 & 12 NEC Class I, Group C, D; Class II, Groups E, F & G.	Housing cast aluminum with fused polyester finish; meets 4, 5, 7, 9 & 12 NEC Class I, Group C, D; Class II, Groups E, F & G.

Captrol 511-B	Captrol 510	Captrol 514	Captrol 520
			
<p><u>Integral</u> mount R.F. Capacitance point level switch; for high and low level alarm or control</p>	<p><u>Integral</u> mount R.F. Capacitance dual-point level switch; single or dual point contact; for high and low level alarm or control; adjustable differential.</p>	<p><u>Integral</u> mount R.F. Capacitance MICROCONTROLER-based multipoint level switch; single, dual or multipoint contact; for high and low level alarm or control; adjustable differential.</p>	<p><u>Integral</u> mount R.F. Capacitance dual-point level switch; single or dual point contact; for high and low level alarm or control; adjustable differential.</p>
<p>Driven force field/guard; on-board performance DVM test points; status indication L.E.D.'s; selectable failsafe modes; adjustable sensitivity; adjustable time delay.</p>	<p>Pump control with adjustable set point over the full length of the probe; built-in coating rejection; field selectable failsafe modes; one 3/4" process connection for two control points.</p>	<p>On-board microcontroller; built-in self diagnostics; integral mount electronics; easy-to-read L.E.D. display; 4-button keypad user interface; built-in system AutoTest; pump sequencing for up to 4 pumps.</p>	<p>Pump control with adjustable set point over the full length of the probe; built-in coating rejection; on-board time delay; field selectable failsafe modes.</p>
<p>Liquids and bulk solid materials. Liquids-- dielectric constants of 1.5 or greater.</p>	<p>Liquids and free flowing materials; Hi-Lo alarms; Pump Control range from 6" of oil to 125 feet/water; well-suited for interface applications.</p>	<p>Most liquids > 1.5 dielectric constant. Bulk solids > 10 lbs/cu. ft. with fairly stable moistures.</p>	<p>Liquids and free flowing materials; Hi-Lo alarms; Pump Control range from 6" of oil to 125 feet/water; well-suited for interface applications.</p>
<p><u>Universal power supply:</u> accepts 115, 230 VAC and 12-24 VDC</p> <p><u>Output:</u> Relay-- 5-amp DPDT, Form C</p>	<p><u>Universal power supply:</u> accepts 115, 230 VAC and 24 VDC</p> <p><u>Output:</u> Up to 2 form C SPDT contacts, 5-amp relays</p>	<p><u>Universal power supply:</u> accepts 115, 230 VAC and 24 VDC</p> <p><u>Output:</u> Relay, up to 4 form C, 5-amp DPDT and RS 485 two-way communication</p>	<p><u>Universal power supply:</u> accepts 115, 230 VAC and 24 VDC</p> <p><u>Output:</u> Up to 2 form C DPDT contacts, 5-amp relays</p>
<p>Vertical; 3/4" N.P.T.; many flange options.</p>	<p>Vertical; 3/4" N.P.T.; many flange options.</p>	<p>Vertical; 3/4" N.P.T.; many flange options.</p>	<p>Vertical; 3/4" N.P.T.; many flange options.</p>
<p><u>Temperature:</u> (Elect.): -40°F to +160°F; (Probes): G.I.M. -40°C to +300°F; G.T. -60°F to +400°F <u>Pressure:</u> G.I.M. up to 90 PSI Teflon Probes: up to 400 PSI</p>	<p><u>Temperature:</u> (Elect.): -40°F to +160°F (-40°C to +71°C) (probes-- see graph)</p>	<p><u>Temperature:</u> (Elect.): -40°F to +160°F (-40°C to +71°C) (probes-- see graph)</p>	<p><u>Temperature:</u> (Elect.): -40°F to +160°F (-40°C to +71°C) (probes-- see graph)</p>
<p>316 SS, Teflon, or Food grade plastic.</p>	<p>316 SS, Teflon, or Kynar.</p>	<p>316 SS, Teflon, or Kynar.</p>	<p>316 SS, Teflon, or Kynar.</p>
<p>Housing cast aluminum with fused polyester finish; meets 4, 5, 7, 9 & 12 NEC Class I, Group C, D; Class II, Groups E, F & G.</p>	<p>Housing cast aluminum with fused polyester finish; meets 4, 5, 7, 9 & 12 NEC Class I, Group C, D; Class II, Groups E, F & G.</p>	<p>Housing cast aluminum with fused polyester finish; meets 4, 5, 7, 9 & 12 NEC Class I, Group C, D; Class II, Groups E, F & G.</p>	<p>Housing cast aluminum with fused polyester finish; meets 4, 5, 7, 9 & 12 NEC Class I, Group C, D; Class II, Groups E, F & G; remote NEMA 4X.</p>

	<h3>Micropoint 800</h3> 	<h3>Sonac 100 Series Sensors</h3>																		
Principle of Operation	Integral mount R.F. Capacitance MICROCONTROLLER-based point level switch; for high and low level alarm or control.																			
Features and Benefits	On-board microprocessor; built-in self diagnostics; push button calibrations; integral mount electronics.	<table border="1"> <thead> <tr> <th>Model No.</th> <th>Type</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>94</td> <td>General Purpose</td> <td>316 Stainless Steel Temp. Range: -65° F to +220° F (-54° C to +104° C) Pressure: 2000 psi</td> </tr> <tr> <td>95</td> <td>General Purpose - Sensor Sintered Teflon Coated for non-stick</td> <td>316 Stainless Steel Temp. Range: -65° F to +220° F (-54° C to +104° C) Pressure: 2000 psi</td> </tr> <tr> <td>93</td> <td>Sanitary - Ladish Fitting (USDA Approval for AAA Sanitary Service)</td> <td>316 Stainless Steel Temp. Range: -65° F to +220° F (-54° C to +104° C)</td> </tr> <tr> <td>94TA</td> <td>General Purpose</td> <td>304 Stainless Steel Field Adjustable Temp. Range: -65° F to +220° F (-54° C to +104° C) Pressure: 2000 psi</td> </tr> <tr> <td>95TA</td> <td>General Purpose - Sensor Sintered Teflon Coated for non-stick</td> <td>304 Stainless Steel Field Adjustable Temp. Range: -65° F to +220° F (-54° C to +104° C) Pressure: 2000 psi</td> </tr> </tbody> </table>	Model No.	Type	Description	94	General Purpose	316 Stainless Steel Temp. Range: -65° F to +220° F (-54° C to +104° C) Pressure: 2000 psi	95	General Purpose - Sensor Sintered Teflon Coated for non-stick	316 Stainless Steel Temp. Range: -65° F to +220° F (-54° C to +104° C) Pressure: 2000 psi	93	Sanitary - Ladish Fitting (USDA Approval for AAA Sanitary Service)	316 Stainless Steel Temp. Range: -65° F to +220° F (-54° C to +104° C)	94TA	General Purpose	304 Stainless Steel Field Adjustable Temp. Range: -65° F to +220° F (-54° C to +104° C) Pressure: 2000 psi	95TA	General Purpose - Sensor Sintered Teflon Coated for non-stick	304 Stainless Steel Field Adjustable Temp. Range: -65° F to +220° F (-54° C to +104° C) Pressure: 2000 psi
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Application	Liquids; caustics; and powder bulk solids; particularly applicable for pneumatic conveying vessels.																			
Power Requirements/ Output	24 VDC = Solid State FET output Output: 110/220 VAC = Form C DPDT relay 5 amp @ 115 VAC Non Ind. 5 amp @ 230 VAC Non Ind.																			
Mounting Requirements	Horizontal or vertical; 3/4" N.P.T.; other options available.																			
Temperature/ Pressure	<u>Temperature:</u> (Elect.): -40° F to +160° F (-40° C to +71° C) (probes-- see graph)	<h3>Microwave Sensors</h3>																		
Wetted Part Construction	316 SS, Teflon, or Kynar.																			
Area Classification/ Enclosure Rating	Explosion Proof: Meets NEMA 4,5,7,9, & 12 NEC Class I Division II NEC Class II Division II Watertight: Meets NEMA 4X watertight corrosion resistant	<p>MT811/MR811- Short range accurate high/low level detection. Range up to 10' in air. Uses primarily for accurate position and level sensing of bottles, small boxes and battery filling level control.</p> <p>MT841/MR841- 10 db gain horn antennas are used. Maximum range 100' in air. Level control when vessel or environment is extremely hot. Applications include furnaces, kins, cupolas, fly ash, etc.</p> <p>MT851/MR851- Sensors are constructed in 2 1/2" steel pipe. Designed to be screwed directly into steel vessels. For severe service including bin level control of sand, rock, asphalt, coal, etc.</p> <p>MT861/MR861- Similar to MT851/MR851 except waveguide 10db horn and electronics is located inside water cooled jacket. Applications include hot product, water cooled level control of limestone, ores, and other products contained in firebrick enclosures.</p> <p>Window- Microwave UHMW Polyethylene, Lexan, or Teflon window can be used with MT/MR801, MT/MR811, and MT/MR841 systems.</p> <p>"Pipe" Extension and Elbow- In certain cases it may be necessary to "pipe" waveguide around existing obstructions. "E Bend and H Bend"</p>																		

R.F. Capacitance Sensing Probes



This is a representative sample of the full line of Delavan R.F. Capacitance probes. Custom variations, with different lengths, diameters, construction characteristics and materials can be made to fit specific customer applications.

1. G.A.R. (Guarded, Abrasion Resistant). Used in powder bulk solid applications that are abrasive in nature. Probe construction is S.S. with a durable plastic insulator. Rugged S.S. sleeves protect insulating material from wear. For use with Model 500 & 511 point level switches.

2. G.I.M. (Guarded, Injection Molded). Used in general purpose liquids and bulk solid applications. Probe construction is a standard 1/4" S.S. probe with a durable food grade plastic indicator. Mounting requirements are 3/4" N.P.T. For use with Model 500 & 511 point level controls. Length to 10 feet.

3. G.T. (Guarded, Teflon). Used in general purpose liquid and bulk solid applications. Probe construction is a 316 S.S. with 1/4" center rod and Teflon insulation. Mounting requirements are a 3/4" N.P.T. or flange mount. For use with Model 500 & 511 point level controls. Max temperature 450° F, max length of 60'.

4. G.F.C. (Guarded, Flexible Cable). Used when extended insertion lengths are required and/or with heavy or abrasive material. Probe construction is a 3/8" 316 S.S. cable with durable Kynar as a food grade insulator. Available in lengths up to 50 ft. Mounting requirements are a 4/4" N.P.T. or flange connection. Max pressure 125 psig, max temperature 300° F. Actual probe length may vary by + 1%. For use with Model 500 & 511 point level controls.

5. G.N.I. (Guarded, Non-Intrusive). Used in applications that require minimum protrusion into the process due to heavy abrasive materials that come into direct contact with the sensing probe i.e. coal and various aggregates. Probe construction is a 10" O.D. steel plate and guard ring with a UHMW insulating material. For use with Model 500 & 511 point level controls.

6. T.H.D. (Teflon, Heavy Duty). Used in general purpose and aggressive liquid applications. Standard, 1/2" S.S. center rod insulated with Teflon, 3/4" N.P.T., max length 19 ft., max temp 450° F @ atmospheric, max pressure 500 psig @ 100° F. For use with Model 510, 514, 520, and Cap Analog transmitters.

7. K.H.D. (Kynar, Heavy Duty). Used in general purpose liquid application. Generally less expensive than Teflon insulated probes. Standard, 1/2" S.S. center rod insulated with Kynar, 3/4" N.P.T., max length 15 ft., max temp 400° F @ atmospheric, max pressure 250 psig @ 100° F. For use with Model 510, 514, 520, and Cap Analog transmitters.

8. S.T.H.D. (Sanitary Teflon, Heavy Duty). Used in food, dairy, and pharmaceutical applications that have requirements for C.I.P. (Clean in Place). Design is based on 3-A specifications. Probe construction is a 1/2" O.D. center rod with Teflon insulation. Mounting requirements are a 1-1/2" to 2" end cap sanitary fitting which is used with tri-clamp quick disconnects. Sanitary and washdown temperatures to 250° F. continuously.

9. T.C.T. (Teflon, Concentric Tube). Used in cylindrical and non-metallic vessels and/or materials with extremely low dielectric values that are free flowing and non-viscous. 1/4" S.S. center rod with Teflon and surrounded with a 7/8" O.D. 316 S.S. concentric tube, 3/4" N.P.T., max length 12 ft., max temperature 450° F @ atmospheric, max pressure 500 psig @ 100° F.

10. Dual Probes. Used in liquid applications that are non-conductive or that have a low dielectric value. Also used in applications where there is not an ample earth ground, i.e. non-metallic vessels. Unlike T.C.T., the Dual is used where the material is more viscous in nature. Mounting requirements are a 3" to 5" flange. Available in both Teflon or Kynar insulation with an insertion length to 15 ft. For use with Model 510, 514, 520, and all Cap Analog transmitters.

11. T.F.K.F. (Teflon Coated Flexible Cable/Kynar Flexible Cable with weight or turnbuckle anchoring assembly). Used in liquids and non-abrasive bulk solid applications. A turnbuckle assembly is used to anchor the sensing probe to a fixed point. Depending on application, sensing cable is available in Teflon or Kynar coatings. Max length for liquids 100 ft. Max length for solids 50 ft. Mounting requirements are 1" N.P.T. or flange connection.

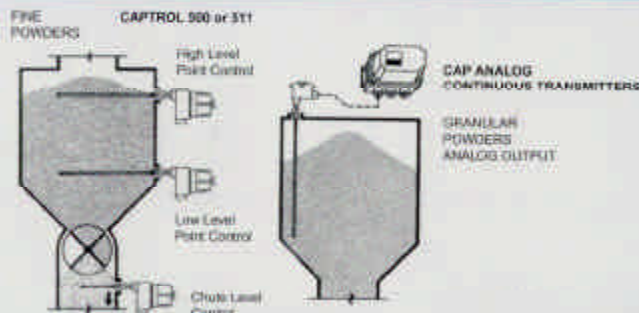
12. High Temperature Lagging Extensions. Used where process temperatures over 200° F. are present, and/or on vessels that are blanket insulated. A 12" or 12' lagging assembly is used to recess the electronic unit away from high temperatures. Can be used with all Delavan sensing elements.

Typical Applications

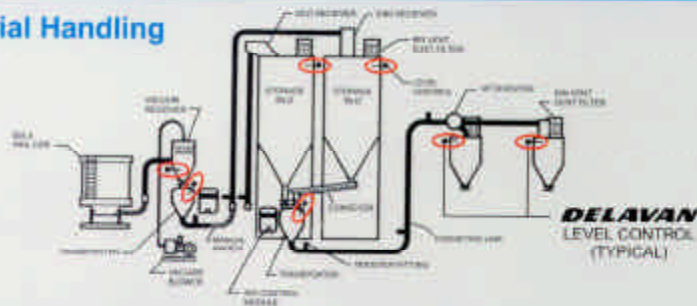
Liquid Level



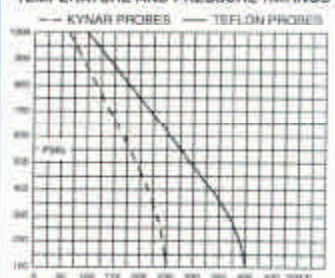
Bulk Level



Material Handling



TEMPERATURE AND PRESSURE RATINGS



Product Reference Chart

	<i>Sonac 100 Series: Magnetostrictive technology (liquids only)</i>	<i>Sonac 200 Series: Ultrasonic technology (bulk solids only)</i>	<i>300 Series: Microwave technology</i>	<i>CAP ANALOG 400 Series: R.F. Capacitance continuous level technology</i>	<i>CAPTROL 500 Series: R.F. Capacitance point level technology</i>
Material					
Bulk/Solid		•	•	•	•
Slurry			•	•	•
Liquid	•		•	•	•
Process Material Viscosity					
Low	•		•	•	•
Medium			•	•	•
High			•	•	•
Bulk Material Moisture					
Low (<5%)		•	•		•
Medium		•	•	•	•
High (>15%)		•	•	•	•
Bulk Material Density					
Low (<20 PCF)		•	•		•
Medium		•	•	•	•
High (>60 PCF)		•	•	•	•
Pressure					
Atmospheric	•	•	•	•	•
Low	•	•	•	•	•
High	•			•	•
Vibration					
Low	•	•	•	•	•
High		•	•	•	•
Process Material Changes (electrical characteristics)					
No	•	•	•	•	•
Yes	•	•	•		•
Corrosive					
No	•	•	•	•	•
Yes	•		•	•	•
Coating/Build-up Potential					
None	•	•	•	•	•
Minimal		•	•	•	•
Heavy			•		•



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