**Point Level Probe Assembly**

- **Body (Fitting) Style**
  - C 1-1/2" Tri-Clamp (1)
  - D 2" Tri-Clamp
  - E 2-1/2" Tri-Clamp
  - F 3" Tri-Clamp
- **Probe Connection**
  - 0 Quick Disconnect Receptacle (QDR)
  - 01 QDR w/connector (field wireable)
  - 02 QDR w/25 ft Standard Molded Cordset (Relay Type 1)
  - 03 QDR w/50 ft Standard Molded Cordset
  - 04 QDR w/100 ft Standard Molded Cordset
- **Probe Coating**
  - T Teflon
  - 00 None
- **Probe Length (2) (Probes 1-4)**
  - 06 3" Long
  - 09 6" Long
  - 12 9" Long
  - 15 12" Long
  - 18 15" Long
  - 21 18" Long
  - 24 21" Long
  - 27 24" Long
  - 30 30" Long
  - 33 33" Long
  - 36 36" Long
  - 39 39" Long
  - 42 42" Long
  - 45 45" Long
  - 48 48" Long
  - 51 51" Long
  - 54 54" Long
  - 57 57" Long
  - 60 60" Long
  - 63 63" Long
  - 66 66" Long
  - 69 69" Long
  - 72 72" Long
- **Offset Probe**
  - One (1) Probe offset

**Point Level Switch Modules**

- **Relay Type**
  - 1 SPDT (Select with A and K sensitivity - Fixed Sensitivity)
  - 3 SPDT (Select with Y and Z sensitivity - Adjustable Sensitivity)
- **Sensitivity / Action**
  - A 800 ohm Direct (Pump down)
  - K 800 ohm Reverse (Pump up)
  - Y Adjustable Sensitivity Direct (Pump down)
  - Z Adjustable Sensitivity Reverse (Pump up)
- **Supply Voltage**
  - 1 110 VAC
  - 2 Octal 11 pin (Relay type 3)

**LL Switch Module Specifications**

- **Control Design** (Relay Type 1 & Type 3)
  - Solid state components enclosed in clear Lexan plug-in style housing. Housing carries NO NEMA rating.
- **Contact Design** (Relay Type 1 & Type 3)
  - SPDT (1 for C) one normally open (N.O.) and one normally closed (N.C.) non-powered contacts
- **Contact Ratings** (Relay Type 1 & Type 3)
  - 10A @ 240 VAC, 1/3 HP @ 120, 240 VAC
- **Contact Life** (Relay Type 1 & Type 3)
  - Mechanical: 5 million operations. Electrical: 100,000 operations at rated minimum load.
- **Supply Voltage** (Relay Type 1 & Type 3)
  - 120 VAC (per model), plus 5%, minus 15%, 50/60Hz
- **Supply Current** (Relay Type 1 & Type 3)
  - 120 VAC, Relay energized 4.4 VA.
- **Secondary Circuit** (Relay Type 1 & Type 3)
  - 12 VAC RMS voltage on probes, 1.5 milliamp current.
- **Sensitivity (Relay Type 1)**
  - Operates from 0-1,000,000 ohm maximum specific resistance
- **Sensitivity (Relay Type 3)**
  - Operates from 0-1,000,000 ohm maximum specific resistance. Field adjustable.
- **Temperature (Relay Type 1 & Type 3)**
  - -40 to 150 deg F, ambient
- **Terminals (Relay Type 1 & Type 3)**
  - 06-32 screw type terminals with provisions for 1/4"-20 threaded
- **Time Delays (Relay Type 1 & Type 3)**
  - Standard: 5 seconds on / 15 sec off delay
  - Options: 20 seconds on / 20 seconds delay

**Installation and Startup Guide**

- Be sure to keep moisture from entering the probe housing prior to completing field installation and startup. Upon installation, be sure no moisture path exists into housing. Properly seal all junction boxes, flexible conduit or customer supplied cable grips.

**Contact Anderson**

Phone: 518-922-5315
Fax: 518-922-8997
Reach us on the World Wide Web [www.andinst.com](http://www.andinst.com)
Each of the modules is supplied from the factory in a Direct or Inverse mode of operation. Referring to the product matrix descriptions, determine the mode of operation for your module. The following definitions explain the action that will occur with each of the specific modules.

**SWITCH MODULE ACTION IS FACTORY SET, AND MAY NOT BE CHANGED IN THE FIELD**

**Direct Mode Operation (Pump Down) Single Level Service**

When the liquid rises to the probe tip, the module energizes, changing the state of the load contacts. At this time, the internal LED will be lit. The module remains energized until the liquid recedes below the probe tip. The module then de-energizes, turning off the internal LED, and returning the switch contacts to their original shelf state.

**Typical Operation:** High level alarm

**Inverse Mode Operation (Pump Up) Single Level Service**

When the liquid reaches the probe tip, the module de-energizes, turning off the internal LED, and returning the switch contact to the original shelf state. The module remains de-energized until the liquid levels recede below the desired high switch point. The module then energizes, changing the state of the load contacts.

**Typical Operation:** Low level alarm

**Direct Mode Operation (Pump Down) Differential Service**

When the liquid rises to the “High” setpoint (probe on terminal 3) the module energizes, changing the state of the load contacts. At this time, the internal LED will be lit. The module remains energized until the liquid recedes below the “Low” setpoint (probe on terminal 4). The module then de-energizes, turning off the internal LED, and returning the switch contacts to their original shelf state.

**Typical Operation:** You have a vessel that you do not want to overflow, but also do not want to fall below a certain level. When the product reaches the level of the high probe, a pump is started to transfer product to another vessel. When the liquid recedes below the low probe, the pump stops.

**Inverse Mode Operation (Pump Up) Differential Service**

The module energizes with power, changing the state of the load contacts. At this time, the internal LED will be lit. When the liquid rises to the “High” setpoint (probe on terminal 3) the module de-energizes, turning off the internal LED, and returning the switch contacts to their original shelf state. The module then de-energizes until the liquid recedes below the “Low” setpoint (probe on terminal 4). The module then energizes, changing the state of the load contacts.

**Typical Operation:** You have a vessel that you do not want to go empty. When you apply power to the module, the pump turns on and fills the vessel until you reach the level of the high probe. The pump then shuts off. If you fall below the level of the low probe, the pump will start again to keep the vessel filled.

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**Probing Specifications**

**Material and Finish**
- Fitting and Probe: 316L grade stainless steel
- Probe coating/insulation: 0.05" min. thickness, FEP
- Seamless stainless and coating: Ra better than 25 micro-inches

**Probe specifications**

- **Probe diameter (including coating):** 0.44" diameter
- **Probe coating/insulation:** 0.03" min. thickness, FEP

**Typical Product Sensitivity Values**

<table>
<thead>
<tr>
<th>Category</th>
<th>Resistance (KΩ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baby Foods</td>
<td>1K</td>
</tr>
<tr>
<td>Beer</td>
<td>2.2K</td>
</tr>
<tr>
<td>Bourbon</td>
<td>200K</td>
</tr>
<tr>
<td>Butter milk</td>
<td>1K</td>
</tr>
<tr>
<td>Cake Batter</td>
<td>5K</td>
</tr>
<tr>
<td>Cataput</td>
<td>2.2K</td>
</tr>
<tr>
<td>Cream</td>
<td>1K</td>
</tr>
<tr>
<td>Cream (Foam)</td>
<td>4.7K</td>
</tr>
<tr>
<td>Coffee</td>
<td>2.2K</td>
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<tr>
<td>Corn Syrup</td>
<td>49K</td>
</tr>
<tr>
<td>Corn Cream Style</td>
<td>2.2K</td>
</tr>
<tr>
<td>Jam / Jelly</td>
<td>49K</td>
</tr>
<tr>
<td>Juice Fruit / Veg</td>
<td>1K</td>
</tr>
<tr>
<td>Mayonnaise</td>
<td>5K</td>
</tr>
<tr>
<td>Milk</td>
<td>1K</td>
</tr>
<tr>
<td>Milk Foam</td>
<td>2.0m</td>
</tr>
<tr>
<td>Soup Foam</td>
<td>1K</td>
</tr>
<tr>
<td>Soybean Oil</td>
<td>10K</td>
</tr>
<tr>
<td>Oil Soluble</td>
<td>200K</td>
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<tr>
<td>Buttermilk</td>
<td>1k</td>
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<tr>
<td>Soap Foam</td>
<td>10K</td>
</tr>
<tr>
<td>De-ionized Water</td>
<td>2.0m</td>
</tr>
<tr>
<td>Mayonnaise</td>
<td>5K</td>
</tr>
<tr>
<td>Hard / Natural Water</td>
<td>5K</td>
</tr>
<tr>
<td>Milk</td>
<td>1K</td>
</tr>
<tr>
<td>Wine</td>
<td>2.2k</td>
</tr>
</tbody>
</table>

**Seals**
- 3-A and USP, Class IV compliant

**Fitting and Probe:**
- 316L grade stainless steel

**Note:** Under normal conditions, select a module sensitivity just higher than the product’s electrical resistivity. If lower sensitivity is required for the product, you may refer to the chart shown in Figure 8 for sample sensitivity values.

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**Field Modifications to Probe Lengths**

Probe lengths are available in one-inch increments from 3” to 72”. If a probe length must be field modified, consult Technical Service for proper guidelines and procedures.