### Integrated Temperature Sensors Options

1. Thermistor for Continuous Indication
   - Excellent Repeatability
   - Value: 10,000 ohms @ 77°F (25°C)
   - Tolerance: ±0.2°C from 32°F to 158°F (0°C to 70°C)

2. Thermostat for Switch Action
   - Temperature and their frequencies.
   - Open or close switch on increasing temperature

### Return Policy

Returns are accepted on stock items up to 30 days from date of order. You must contact our Returns Department for a Return Authorization (RA) number. Return the goods - freight prepaid - in the original container and include original packing slip. C. O. D. returns are not accepted. Gems reserves the right to apply restocking charges.

### Important Points:

- Gems products must be maintained and installed in strict accordance with the National Electrical Code and the applicable Gems product instruction bulletin that covers installation, operation and proper maintenance. Failure to observe this information may result in serious injury or death.
- For hazardous area applications involving such things as, but not limited to, ignitable mixtures, combustible dust and flammable materials, use an appropriate explosion-proof enclosure or intrinsically safe interface device. *WARNING: To prevent ignition of flammable or combustible materials, disconnect power before servicing.*
- Life expectancy of switches contacts varies with application. Contact Gems if life cycle testing is required.
- Ambient temperature changes do affect switch set points. The extent of adjustment depends on the unit length and the distance from the mounting to the highest float stop.
- Maximum overall length is limited to 72" with this option.

### Installation Procedure for Model LS-802 - Two-Piece Level Switch

1. Unpack unit from shipping crate.
2. Position unit near tank and unstrap stem assemblies.
3. The lower stem section (section with floats) can be inserted into tank to facilitate ease of installation, but must be retained to install upper section.
4. With lower stem in desired position, insert tube coupling nut securely to stem (~ 1 turn past handtight).
5. Check and tighten the upper section nut, if necessary.
6. Install unit in tank and tighten mounting plug.
7. Connect level switch wires per wiring diagram.

### Temperature Sensor Assembly

- End of unit stem must be submerged a minimum of 2-3/4" for level switch actuation.

### Typical Wiring Diagram

- BLACK
- RED
- GREEN

### Series LS-800, LS-800 Adjustable Multi-Station Level Switches

(Includes LS-800’s with Temperature Sensors)

### LS-800 Adjustable Mounting

Adjustable mounting is available for LS-800 Series Mounting Types 2, 3, and 4. A special cinch nut on the mounting allows the stem to travel up or down for fine tuning of the actuation points. The extent of adjustment depends on the unit length and the distance from the mounting to the highest float stop.

### Mounting Types

- **Type 1**: 1/2” NPT
- **Type 2**: 1-1/4” NPT
- **Type 3**: 2” NPT
- **Type 4**: 3” Dia., 150# Flange

### Mounting Position

- Vertical ±30° Inclination

### Units greater than 72” overall length are supplied with collars with set screws (made of same material as stem and mounting), in place of float-stop rings. Collars are optional on units less than 72” overall length.

- Units requiring 316 SS float stops must be special-ordered with 316 SS collars instead of grip rings.

### Stem and Mounting Material

- **Brass or 316 Stainless Steel**
- Flange: Carbon Steel or 316 SS Stem: 316 SS

### Max. Length (LO)

- 36”
- 60”
- 140”

### Mounting Position

- Vertical ±30° Inclination

### Float Stops

- Brass Units: Beryllium Copper Grip Rings; Stainless Steel Units: S.S. ARMCO PH-15-7MO Grip Rings

### LS-800 Adjustable Mounting

- Adjustable mounting is available for LS-800 Series Mounting Types 2, 3, and 4. A special cinch nut on the mounting allows the stem to travel up or down for fine tuning of the actuation points. The extent of adjustment depends on the unit length and the distance from the mounting to the highest float stop.

### Mounting Types

- **Type 1**: 1/2” NPT
- **Type 2**: 1-1/4” NPT
- **Type 3**: 2” NPT
- **Type 4**: 3” Dia., 150# Flange

### Mounting Position

- Vertical ±30° Inclination

### Units greater than 72” overall length are supplied with collars with set screws (made of same material as stem and mounting), in place of float-stop rings. Collars are optional on units less than 72” overall length.

- Units requiring 316 SS float stops must be special-ordered with 316 SS collars instead of grip rings.

### Stem and Mounting Material

- **Brass or 316 Stainless Steel**
- Flange: Carbon Steel or 316 SS Stem: 316 SS

### Max. Length (LO)

- 36”
- 60”
- 140”

### Mounting Position

- Vertical ±30° Inclination

### Float Stops

- Brass Units: Beryllium Copper Grip Rings; Stainless Steel Units: S.S. ARMCO PH-15-7MO Grip Rings

### LS-800 Adjustable Mounting

- Adjustable mounting is available for LS-800 Series Mounting Types 2, 3, and 4. A special cinch nut on the mounting allows the stem to travel up or down for fine tuning of the actuation points. The extent of adjustment depends on the unit length and the distance from the mounting to the highest float stop.

### Mounting Types

- **Type 1**: 1/2” NPT
- **Type 2**: 1-1/4” NPT
- **Type 3**: 2” NPT
- **Type 4**: 3” Dia., 150# Flange

### Mounting Position

- Vertical ±30° Inclination

### Units greater than 72” overall length are supplied with collars with set screws (made of same material as stem and mounting), in place of float-stop rings. Collars are optional on units less than 72” overall length.

- Units requiring 316 SS float stops must be special-ordered with 316 SS collars instead of grip rings.

### Stem and Mounting Material

- **Brass or 316 Stainless Steel**
- Flange: Carbon Steel or 316 SS Stem: 316 SS

### Max. Length (LO)

- 36”
- 60”
- 140”

### Mounting Position

- Vertical ±30° Inclination

### Float Stops

- Brass Units: Beryllium Copper Grip Rings; Stainless Steel Units: S.S. ARMCO PH-15-7MO Grip Rings

### LS-800 Adjustable Mounting

- Adjustable mounting is available for LS-800 Series Mounting Types 2, 3, and 4. A special cinch nut on the mounting allows the stem to travel up or down for fine tuning of the actuation points. The extent of adjustment depends on the unit length and the distance from the mounting to the highest float stop.

### Mounting Types

- **Type 1**: 1/2” NPT
- **Type 2**: 1-1/4” NPT
- **Type 3**: 2” NPT
- **Type 4**: 3” Dia., 150# Flange

### Mounting Position

- Vertical ±30° Inclination

### Units greater than 72” overall length are supplied with collars with set screws (made of same material as stem and mounting), in place of float-stop rings. Collars are optional on units less than 72” overall length.

- Units requiring 316 SS float stops must be special-ordered with 316 SS collars instead of grip rings.

### Stem and Mounting Material

- **Brass or 316 Stainless Steel**
- Flange: Carbon Steel or 316 SS Stem: 316 SS

### Max. Length (LO)

- 36”
- 60”
- 140”

### Mounting Position

- Vertical ±30° Inclination

### Float Stops

- Brass Units: Beryllium Copper Grip Rings; Stainless Steel Units: S.S. ARMCO PH-15-7MO Grip Rings
Switch actuation levels are determined following the guidelines below:

All units 72” or less length overall with stainless steel or Buna N floats. Also Type 5 units over 72” length overall with Buna N floats:

- **A**: 1-1/2” minimum distance to highest level (2”, Type 5 only)
- **B**: 2” minimum distance from end of unit to lowest level
- **C**: 3” minimum distance between levels
- **D**: 1/4” minimum distance between actuation levels (Note: One float for two levels can be used only when low level is N.C. dry and high level is N.O. dry.)

Types 1, 3, 4 and 5 units with stainless steel float P/N 15666:

- **A**: 1-5/8” minimum distance to highest level (2”, Type 5 only)
- **B**: 2-1/2” minimum distance from end of unit to lowest level
- **C**: 4” minimum distance between levels
- **D**: 1/4” minimum distance between actuation levels (Note: One float for two levels can be used only when low level is N.C. dry and high level is N.O. dry.)

**Notes:**
1. A, B, and C dimensions are based on liquid specific gravity of 1.0.
2. One float for two levels can be used only when 20VA switch is used.
3. Actuation levels are calibrated on descending fluid level, with water as types for maximum length values. The calibrating fluid, unless otherwise specified.
4. Tolerance on actuation levels is ±1/8”.

**Pressure Ratings Chart**

<table>
<thead>
<tr>
<th>Float Part Number</th>
<th>Mounting Type</th>
<th>1, 2, 3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>26032</td>
<td>1, 2, 3</td>
<td>150</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>Water: To 180°F (82.2°C)</td>
<td>Oil: -40°F to +230°F (-40°C to 110°C)</td>
<td>-40°F to +300°F (-40°C to +148.9°C)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min. Media Specific Gravity</td>
<td>75</td>
<td>55</td>
<td>75</td>
<td>75</td>
</tr>
</tbody>
</table>

**Electrical Specifications**

**Switch (N.O. or N.C.):**

- **SPST**: 20 VA or 100 VA
- **SPDT**: 20 VA

**Lead Wires**: #22 AWG, 24” L., Polymeric

**Typical Wiring Diagrams**

For clarity, only two actuation levels are shown in each group diagram.

<table>
<thead>
<tr>
<th>Group I</th>
<th>Group II</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPST</td>
<td>SPST</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group III</th>
<th>Group IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPDT</td>
<td>SPDT</td>
</tr>
</tbody>
</table>

**Actuation Level Dimensions**

- **L1**
- **L2**
- **L3**
- **L4**
- **L5**
- **L6**

*Actuation level distances and L0 (overall unit length) are measured from inner surfaces of mounting plug or flange.

**Notes:**

1. Multi-station units included in shaded areas of chart can be supplied in UL-recognized configurations.
2. Wire size is #18 AWG for units of UL-recognized configurations and #22 AWG (Teflon) for non-UL-recognized configurations.
3. Units with 50 or 100 VA switches are not UL-recognized.

**Switch Ratings - Maximum Resistive Load**

<table>
<thead>
<tr>
<th>VA</th>
<th>Volts</th>
<th>Amps AC</th>
<th>Amps DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>0-50</td>
<td>.2</td>
<td>.13</td>
</tr>
<tr>
<td>120</td>
<td>.06</td>
<td>.4</td>
<td>.3</td>
</tr>
<tr>
<td>100</td>
<td>N.A.</td>
<td>N.A.</td>
<td>.1</td>
</tr>
<tr>
<td>1-30</td>
<td>120</td>
<td>.17</td>
<td>.13</td>
</tr>
<tr>
<td>240</td>
<td>.06</td>
<td>.2</td>
<td>.06</td>
</tr>
<tr>
<td>50</td>
<td>0-50</td>
<td>.5</td>
<td>.5</td>
</tr>
<tr>
<td>120</td>
<td>.4</td>
<td>.4</td>
<td></td>
</tr>
<tr>
<td>240</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>100*</td>
<td>120</td>
<td>.8**</td>
<td>N.A.</td>
</tr>
<tr>
<td>240</td>
<td>4</td>
<td></td>
<td>N.A.</td>
</tr>
</tbody>
</table>

* Level switch units with 50 VA and 100 VA switches are not UL recognized or CSA approved.
** Limited to 50,000 operations

**Float Types**

<table>
<thead>
<tr>
<th>Float Material</th>
<th>Buna N</th>
<th>316 Stainless Steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compatible Mounting Types</td>
<td>2, 1, 3, 4, 5</td>
<td>1, 3, 4, 5 (Units &lt;72&quot;)</td>
</tr>
<tr>
<td>2, 1, 3, 4, 5 (Units &gt;72&quot;)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Float Dimensions**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Water:</th>
<th>Oil:</th>
</tr>
</thead>
<tbody>
<tr>
<td>26032</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>10558</td>
<td>150</td>
<td>316 S.S.</td>
</tr>
<tr>
<td>14569</td>
<td>150</td>
<td>75</td>
</tr>
<tr>
<td>15666</td>
<td>75</td>
<td>75</td>
</tr>
</tbody>
</table>

**Pressure Ratings Chart**

<table>
<thead>
<tr>
<th>Float Part Number</th>
<th>Mounting Type</th>
<th>1, 2, 3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>26032</td>
<td>1, 2, 3</td>
<td>150</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>Brass</td>
<td>100 @ +70°F (21.1°C)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>316 S.S.</td>
<td>150</td>
<td>75</td>
<td>300</td>
<td></td>
</tr>
</tbody>
</table>

**Wiring Color Codes**

<table>
<thead>
<tr>
<th>SPST Switches</th>
<th>SPDT Switches 20 VA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wiring</td>
<td>Group I</td>
</tr>
<tr>
<td>Com. Wire</td>
<td>Black</td>
</tr>
<tr>
<td>L1</td>
<td>Red</td>
</tr>
<tr>
<td>L2</td>
<td>Yellow</td>
</tr>
<tr>
<td>L3</td>
<td>Blue</td>
</tr>
<tr>
<td>L4</td>
<td>Brown</td>
</tr>
<tr>
<td>L5</td>
<td>Orange</td>
</tr>
<tr>
<td>L6</td>
<td>Grey</td>
</tr>
</tbody>
</table>

**Notes:**

1. Multi-station units included in shaded areas of chart can be supplied in UL-recognized configurations.
2. Wire size is #18 AWG for units of UL-recognized configurations and #22 AWG (Teflon) for non-UL-recognized configurations.
3. Units with 50 or 100 VA switches are not UL-recognized.