

# Warrick® Sensor Fittings and Probes

Warrick Liquid Level Sensors are available in single- and multi-probe models and with a variety of fittings. The versatility of the Warrick design makes these sensors ideal for a diverse range of applications.

Examples include:

- Food and Beverage
- Caustics and Acids
- Sumps
- Reservoirs
- Pharmaceuticals
- Boilers and Steam Generators
- Ponds
- Sewage and Wastewater

## Probe Styles

- Metal Rods
- Wire Suspended
- Corrosion Resistant
- Sanitary



## Fitting Styles

- 3/8" to 3" Threaded Mount
- Bracket Mount
- Flange Mount
- External Mount
- Sanitary Mount
- Condulet Mount



## Sensor Selection Chart




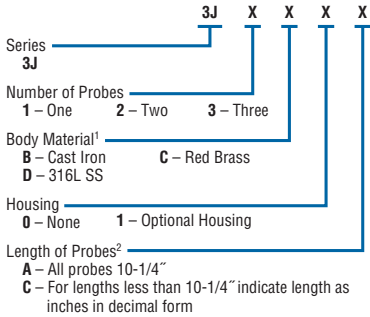
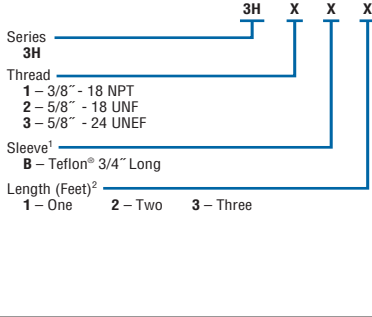
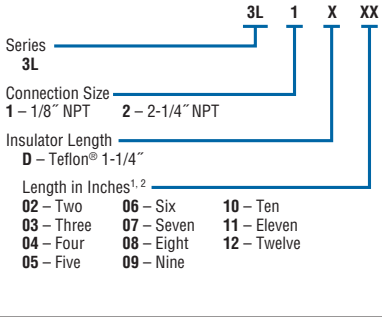
| SERIES                               |                        | 3E   | 3N   | 3F   | 3G   | 3C   | 3K   | 3J   | 3L   | 3M   | 3MT  | 3S   | 3R   | 3T   | 3B   | 3H   | 3W   | 3Y   |
|--------------------------------------|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Page Number                          |                        | E-23 | E-23 | E-22 | E-22 | E-26 | E-26 | E-21 | E-21 | E-28 | E-28 | E-27 | E-24 | E-24 | E-23 | E-21 | E-25 | E-25 |
| <b>Body Options</b>                  | Flange                 |      |      | •    | •    |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                      | Pipe Thread            | •    |      |      | •    |      |      | •    |      |      |      |      |      |      |      |      |      |      |
|                                      | Flat Mount             |      | •    |      | •    |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                      | Side Chamber           |      |      |      |      | •    | •    |      |      |      |      |      |      |      |      |      |      |      |
|                                      | Non-Contact Electrodes |      |      |      |      |      |      |      |      |      |      | •    |      |      |      |      |      |      |
|                                      | Food Grade Connection  |      |      |      |      |      |      |      |      | •    | •    |      |      |      |      |      |      |      |
|                                      | Bracket Mount          |      |      |      |      |      |      |      |      |      |      | •    |      |      |      |      |      |      |
| <b>Fitting Body Material Options</b> | Brass                  | •    | •    | •    |      | •    |      | •    |      |      |      |      |      |      |      |      |      |      |
|                                      | PVC                    |      | •    | •    | •    |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                      | 1018 Carbon Steel      |      |      | •    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                      | Stainless Steel        | •    |      | •    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                      | Forged Steel           |      |      | •    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|                                      | Nylon                  |      |      |      |      |      |      |      |      | •    | •    |      |      |      |      |      |      |      |
|                                      | Cast Iron              | •    |      |      |      | •    | •    | •    |      |      |      | •    |      |      |      |      |      |      |
| <b>Housing Material</b>              | Coated Aluminum        | •    | •    | •    |      | •    | •    | •    |      |      |      | •    |      |      |      |      |      |      |
|                                      | Polycarbonate          |      |      |      | •    |      |      |      |      |      |      |      |      |      |      |      |      |      |
| <b>Number of Probes</b>              | 1 to 3                 |      | •    |      |      |      |      | •    |      |      |      |      |      |      |      |      |      |      |
|                                      | 1 to 4                 |      |      |      |      | •    | •    |      |      | •    | •    |      |      |      |      |      |      |      |
|                                      | 1 to 7                 | •    |      | •    | •    |      |      |      |      |      |      | •    |      |      |      |      |      |      |
| <b>Electrodes</b>                    | Electrode Only         |      |      |      |      |      |      |      | •    |      |      |      | •    | •    | •    | •    | •    | •    |

WARRICK CONDUCTIVITY SENSORS

## Designed for OEM

- ▶ Compact
- ▶ One-Piece Probe/Body Construction
- ▶ Quick Install & Connect
- ▶ Order Sized to Your Spec

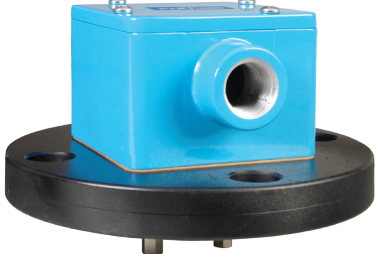

These Warrick fitting are designed for OEM use. They are shipped ready for quick installation. Integrated probes eliminate pre-assembly tasks, and avoid potential vibration-induced loosening when installed with power tools. Choose from single- or multi-electrode probe series. Gems supplies these series with probes pre-cut to lengths you specify.

| Series   | 3J   | 3H   | 3L   |
|--|--|--|--|
|  |    |    |    |
| <b>Probe Quantity</b>  | 1, 2 or 3  | 1  | 1  |
| <b>Mounting Size</b>   | 1" NPT   | 3/8" NPT or 5/8" NF/NFE  | 1/8" NPT   |
| <b>Materials</b>   |  |  |  |
| <b>Body</b>  | Case iron or red brass   | 316 stainless steel  | 316 stainless steel  |
| <b>Terminal Housing</b>  | Diecast aluminum, epoxy coated (optional)  | —  | —  |
| <b>Probe</b>   | 316 stainless steel  | 316 stainless steel  | 316 stainless steel  |
| <b>Insulation</b>  | Teflon®  | Teflon®  | Teflon®  |
| <b>Probe Diameter</b>  | 3/16"  | 1/4"   | 3/16"  |
| <b>Pressure/Temperature</b>  | 0 psig @ 500°F   | 250 psig @ 406°F   | 150 psig @ 365°F   |
| <b>Approvals</b>   | —  | U.L. File #MP2489, Vol. 1 Sec. 1; CSA; FM  | U.L. File #MP2489  |
| Use the <b>Bold</b> characters from the chart below to construct a product code. |  <p>Series <b>3J</b></p> <p>Number of Probes: <b>1</b> – One    <b>2</b> – Two    <b>3</b> – Three</p> <p>Body Material<sup>1</sup>: <b>B</b> – Cast Iron    <b>C</b> – Red Brass</p> <p>Housing: <b>0</b> – None    <b>1</b> – Optional Housing</p> <p>Length of Probes<sup>2</sup>: <b>A</b> – All probes 10-1/4"    <b>C</b> – For lengths less than 10-1/4" indicate length as inches in decimal form</p> |  <p>Series <b>3H</b></p> <p>Thread: <b>1</b> – 3/8" – 18 NPT    <b>2</b> – 5/8" – 18 UNF    <b>3</b> – 5/8" – 24 UNEF</p> <p>Sleeve<sup>1</sup>: <b>B</b> – Teflon® 3/4" Long</p> <p>Length (Feet)<sup>2</sup>: <b>1</b> – One    <b>2</b> – Two    <b>3</b> – Three</p> |  <p>Series <b>3L</b></p> <p>Connection Size: <b>1</b> – 1/8" NPT    <b>2</b> – 2-1/4" NPT</p> <p>Insulator Length: <b>D</b> – Teflon® 1-1/4"</p> <p>Length in Inches<sup>1, 2</sup>: <b>02</b> – Two    <b>06</b> – Six    <b>10</b> – Ten    <b>03</b> – Three    <b>07</b> – Seven    <b>11</b> – Eleven    <b>04</b> – Four    <b>08</b> – Eight    <b>12</b> – Twelve    <b>05</b> – Five    <b>09</b> – Nine</p> |
| <b>Notes</b>   | <ol style="list-style-type: none"> <li>Probes are stainless steel. Custom options available. Consult factory.</li> <li>10-1/4" maximum</li> </ol>  | <ol style="list-style-type: none"> <li>Longer Teflon® sleeves are available. Contact factory or your representative</li> <li>Custom probe and insulation lengths are available. Contact your representative.</li> </ol>  | <ol style="list-style-type: none"> <li>12" maximum</li> <li>Indicate fractional inches in decimal form (01.75 = 1-3/4")</li> </ol>   |

WARRICK CONDUCTIVITY SENSORS

# Top Mounting Fixtures – General Purpose

**WARRICK CONDUCTIVITY SENSORS**




| Series  | 3F  | 3G   |                          |                                      |                          |                                      |   |   |        |          |                       |     |   |    |          |                       |   |       |    |          |                       |     |   |        |          |               |  |
|---|---|--|--------------------------|--------------------------------------|--------------------------|--------------------------------------|---|---|--------|----------|-----------------------|-----|---|----|----------|-----------------------|---|-------|----|----------|-----------------------|-----|---|--------|----------|---------------|--|
|   |    |   |                          |                                      |                          |                                      |   |   |        |          |                       |     |   |    |          |                       |   |       |    |          |                       |     |   |        |          |               |  |
| <b>Mounting Connection</b>                            | Flange — 4.5" to 7.5" Dia.  | NPT, Flange, Bracket (Plate)   |                          |                                      |                          |                                      |   |   |        |          |                       |     |   |    |          |                       |   |       |    |          |                       |     |   |        |          |               |  |
| <b>Probe Quantity</b>                                 | 1 thru 7  | 1 thru 7   |                          |                                      |                          |                                      |   |   |        |          |                       |     |   |    |          |                       |   |       |    |          |                       |     |   |        |          |               |  |
| <b>Description</b>                                    | Designed for general purpose service, Series 3F flanged, pressure-tight fittings can handle up to 7 probes. They mate with standard pipe flanges coupled to the top of the vessel. Available in a variety of materials.   | Series 3G fittings are designed for general purpose use, and are made of PVC to withstand corrosive conditions. The flanged assemblies are sized to accommodate up to 7 probes and to mate with standard flanges on the tops of vessels.   |                          |                                      |                          |                                      |   |   |        |          |                       |     |   |    |          |                       |   |       |    |          |                       |     |   |        |          |               |  |
| <b>Materials</b>                                      |   |  |                          |                                      |                          |                                      |   |   |        |          |                       |     |   |    |          |                       |   |       |    |          |                       |     |   |        |          |               |  |
| <b>Terminal Housing</b>                               | Die-cast aluminum, epoxy coated   | Polycarbonate  |                          |                                      |                          |                                      |   |   |        |          |                       |     |   |    |          |                       |   |       |    |          |                       |     |   |        |          |               |  |
| <b>Body</b>   | Forged steel, red brass, 316 S.S., 1018 C.S, PVC  | PVC  |                          |                                      |                          |                                      |   |   |        |          |                       |     |   |    |          |                       |   |       |    |          |                       |     |   |        |          |               |  |
| <b>Probe Insulation</b>                               | Teflon®   | Teflon®  |                          |                                      |                          |                                      |   |   |        |          |                       |     |   |    |          |                       |   |       |    |          |                       |     |   |        |          |               |  |
| <b>Pressure/Temperature</b>                           | 125 psig @ 323°F (cast iron)<br>225 psig @ 150°F (brass)<br>230 psig @ 100°F (316 S.S.)<br>275 psig @ 100°F (1018 C.S.)<br>PVC – not rated  | 0 psig @ 150°F (PVC)   |                          |                                      |                          |                                      |   |   |        |          |                       |     |   |    |          |                       |   |       |    |          |                       |     |   |        |          |               |  |
| <b>Approvals</b>                                      | CSA   | —  |                          |                                      |                          |                                      |   |   |        |          |                       |     |   |    |          |                       |   |       |    |          |                       |     |   |        |          |               |  |
| <b>Dimensions</b>                                     | <table border="1"> <thead> <tr> <th>No. of Probes</th> <th>Nominal Pipe Flange Size</th> <th>Diameter of Flange</th> <th>Conduit Boss Thread Size</th> <th>Terminal Housing Size (W" x D" x H")</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1</td> <td>4-1/2"</td> <td>1/2" NPT</td> <td>2-1/4 x 2-1/4 x 2-1/4</td> </tr> <tr> <td>2-3</td> <td>2</td> <td>6"</td> <td>1/2" NPT</td> <td>3-1/4 x 3-1/4 x 2-3/8</td> </tr> <tr> <td>4</td> <td>2-1/2</td> <td>7"</td> <td>1/2" NPT</td> <td>3-1/4 x 3-1/4 x 2-3/8</td> </tr> <tr> <td>5-7</td> <td>3</td> <td>7-1/2"</td> <td>3/4" NPT</td> <td>4 x 4 x 2-1/2</td> </tr> </tbody> </table> | No. of Probes  | Nominal Pipe Flange Size | Diameter of Flange                   | Conduit Boss Thread Size | Terminal Housing Size (W" x D" x H") | 1 | 1 | 4-1/2" | 1/2" NPT | 2-1/4 x 2-1/4 x 2-1/4 | 2-3 | 2 | 6" | 1/2" NPT | 3-1/4 x 3-1/4 x 2-3/8 | 4 | 2-1/2 | 7" | 1/2" NPT | 3-1/4 x 3-1/4 x 2-3/8 | 5-7 | 3 | 7-1/2" | 3/4" NPT | 4 x 4 x 2-1/2 |  |
| No. of Probes   | Nominal Pipe Flange Size  | Diameter of Flange   | Conduit Boss Thread Size | Terminal Housing Size (W" x D" x H") |                          |                                      |   |   |        |          |                       |     |   |    |          |                       |   |       |    |          |                       |     |   |        |          |               |  |
| 1   | 1   | 4-1/2"   | 1/2" NPT                 | 2-1/4 x 2-1/4 x 2-1/4                |                          |                                      |   |   |        |          |                       |     |   |    |          |                       |   |       |    |          |                       |     |   |        |          |               |  |
| 2-3   | 2   | 6"   | 1/2" NPT                 | 3-1/4 x 3-1/4 x 2-3/8                |                          |                                      |   |   |        |          |                       |     |   |    |          |                       |   |       |    |          |                       |     |   |        |          |               |  |
| 4   | 2-1/2   | 7"   | 1/2" NPT                 | 3-1/4 x 3-1/4 x 2-3/8                |                          |                                      |   |   |        |          |                       |     |   |    |          |                       |   |       |    |          |                       |     |   |        |          |               |  |
| 5-7   | 3   | 7-1/2"   | 3/4" NPT                 | 4 x 4 x 2-1/2                        |                          |                                      |   |   |        |          |                       |     |   |    |          |                       |   |       |    |          |                       |     |   |        |          |               |  |
| <b>How to Order</b>                                   | <p>Use the <b>Bold</b> characters from the chart at right to construct a product code.</p> <p>Electrode Probes are ordered separately.</p> <p>Series <b>3F</b> X X</p> <p>Number of Probes <b>1 thru 7</b></p> <p>Body Material <b>A</b> – Forged Steel (Raised Face)<br/><b>B</b> – Red Brass (Flat Face)<br/><b>C</b> – 316 S.S. (Raised Face)<br/><b>D</b> – 1018 C.S. (Raised Face)<br/><b>E</b> – PVC (Flat Face)</p>  | <p>Series <b>3G</b> X X X</p> <p>Number of Probes <b>1 thru 7</b></p> <p>Base Size and Style <b>A</b> – 2" Flange (6" O.D.)<sup>3</sup> <b>E</b> – 2" NPT<sup>3</sup><br/><b>B</b> – 3" Flange (7-1/2" O.D.) <b>H</b> – 3" NPT<br/><b>C</b> – 3-1/4" x 6" x 3/4" PVC Plate</p> <p>Probe Type <b>1</b> – 316 S.S. Inserts for Use with 1/4" Rod Extensions<sup>4</sup><br/><b>2</b> – Tapered Probe Assembly<sup>5</sup><br/><b>3</b> – Wire-Suspended Probes<sup>6</sup></p> |                          |                                      |                          |                                      |   |   |        |          |                       |     |   |    |          |                       |   |       |    |          |                       |     |   |        |          |               |  |
| <b>Compatible Electrode Probes (order separately)</b> | 3R, 3W <sup>1</sup> , 3Y <sup>2</sup>   | 3R, 3T, 3W <sup>1</sup> , 3Y <sup>2</sup>  |                          |                                      |                          |                                      |   |   |        |          |                       |     |   |    |          |                       |   |       |    |          |                       |     |   |        |          |               |  |

**Notes:**

- Requires 3Z1B Adapter and 3Z1A Wire.
- Requires 3Z1B Adapter.
- Maximum 4 probes.

- Order 3R rods separately. See page E-24.
- Order 3T rods separately. See page E-24.
- Order 3W/3Y probes separately. See page E-25.

Custom options available. Consult factory.

| 3E  |                      | 3N   |                                      | 3B   |  |
|---|----------------------|--|--------------------------------------|--|--|
|    |                      |   |                                      |   |  |
| 1" to 3" NPT  |                      | #10 Machine Screws from Underside  |                                      | 3/8" - 18NPT, 5/8" - 18UNF, 5/8" - 24UNEF  |  |
| 1 thru 7  |                      | 1 thru 3   |                                      | 1  |  |
| Series 3E fittings are cast metal, pressure-tight assemblies capable of handling 1-7 probes. Attachment to vessels is accomplished with external pipe threading. 3E Fittings require the use of 3R rigid or 3W wire suspended electrodes. |                      | Series 3N fittings accommodate 1-3 probes operating at atmospheric pressure. The assembly mounts on a flat surface atop open tanks or closed vessels. 3N Fittings require the use of 3R rigid or 3W wire suspended electrodes. |                                      | Series 3B fittings are compact pressure tight assemblies that hold a single electrode probe for use in water and chemicals. These fittings incorporate a 1/4-20 female thread that must be combined with a Series 3R (rigid rod electrode) or Series 3W/3Y (wire suspended electrode) to make a complete assembly. |  |
| Die-cast aluminum, epoxy coated   |                      | Die-cast aluminum, epoxy coated  |                                      | —  |  |
| Cast iron, red brass, 316 stainless steel   |                      | PVC, red brass, 316 stainless steel  |                                      | 316 stainless steel  |  |
| Teflon®   |                      | Teflon®  |                                      | Teflon®  |  |
| 125 psig @ 353°F (cast iron)<br>250 psig @ 406°F (brass, 316 S.S.)  |                      | 0 psig @ 150°F (PVC)<br>0 psig @ 500°F (brass, 316 S.S.)   |                                      | 400 psig @ 406°F (saturated steam)   |  |
| U.L. File #MP2489, Vol. 1 Sec. 1; CSA; FM   |                      | CSA File #LR11644  |                                      | U.L. File #MP2489, Vol. 1 Sec. 1; CSA; FM  |  |
| No. of Probes   | Attachment to Vessel | Conduit Boss Thread Size   | Terminal Housing Size (W" x D" x H") |  |  |
| 3E  | 1                    | 1" NPT   | 1/2" NPT                             | 2-1/4 x 2-1/4 x 2-1/4  |  |
|   | 2-3                  | 2" NPT   | 1/2" NPT                             | 3-1/4 x 3-1/4 x 2-3/8  |  |
|   | 4                    | 2-1/2" NPT   | 1/2" NPT                             | 3-1/4 x 3-1/4 x 2-3/8  |  |
|   | 5-7                  | 3" NPT   | 3/4" NPT                             | 4 x 4 x 2-1/2  |  |
| 3N  | 1-3                  | 2-1/4" square flat pad, 1-1/2" dia. hole in top of vessel secured with #10 machine screws at the corners of a 1-1/2" square  | 1/2" NPT                             | 2-1/4 x 2-1/4 x 2-1/4  |  |
| <p>Series <b>3E</b></p> <p>Number of Probes <b>1 thru 7</b></p> <p>Body Material</p> <p><b>A</b> – Cast Iron</p> <p><b>B</b> – Red Brass</p> <p><b>C</b> – 316 Stainless Steel</p>  |                      | <p>Series <b>3N</b></p> <p>Number of Probes <b>1 thru 3</b></p> <p>Body Material</p> <p><b>A</b> – PVC</p> <p><b>B</b> – Red Brass</p> <p><b>C</b> – 316 Stainless Steel</p>   |                                      | <p>Series <b>3B</b></p> <p>Thread</p> <p><b>1</b> – 3/8" - 18 NPT</p> <p><b>2</b> – 5/8" - 18 UNF</p> <p><b>3</b> – 5/8" - 24 UNEF</p> <p>Metal Parts</p> <p><b>B</b> – 316 Stainless Steel</p>  |  |
| 3R, 3W <sup>1</sup>   |                      | 3R, 3W <sup>1</sup>  |                                      | 3R solid rod (up to 4')<br>3W <sup>1</sup> or 3Y <sup>2</sup> (greater than 4')  |  |

Custom options available. Consult factory.