



**ARCHON Industries, Inc**

# Liquid Level Gauges

**Model  
SG-LLG**



## **INSTALLATION & MAINTENANCE INSTRUCTION**

Instruction #: **1014.4**  
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Approved by: **Engineering Manager**

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# Warning

**ONLY QUALIFIED PERSONNEL WHO ARE FAMILIAR WITH GAUGE GLASS VALVES AND THEIR OPERATION SHOULD UNDERTAKE INSTALLATION OF THIS PRODUCT.**

# Danger

**Failure to properly install could result in serious personal injury and property damage. Read all warnings and instructions before performing installation or maintenance. Safety glasses and gloves should be worn at all times when working with or examining water gauge glass and connections.**

**NOTE: Gauge is not suitable for steam-water applications.**

## INSTALLATION

### Valve Installation

1. Prior to actual installation, turn handwheel on the upper and lower valves clockwise until stem closes against seat.
2. Apply Teflon tape or pipe dope to pipe threads and mount to vessel. It is recommended to use a union type pipe fitting between the gauge valves and vessel connections.
3. Check vessel connections as well as vent and drain connections at each end of the gauge to ensure pressure tightness.

### Gauge Installation

1. Remove glass packing, packing gland and packing nut from gauge glass valve set. It may only be necessary to loosen the packing nut.
2. Place glass packing nut, gland, and packing onto 5/8" or 3/4" diameter nozzle on each end of the level gauge. Push glass packing onto nozzle as far as is required for glass packing nut or packing gland to bottom out on gauge frame. It may be necessary to lubricate packing prior to assembly to ensure easy installation.
3. Insert upper nozzle of gauge into stuffing box of installed upper gauge glass valve as far as it will go and then swing lower end of gauge over until lower nozzle is aligned with center of installed lower gauge glass valve stuffing box.
4. Lower gauge nozzle down into lower valve stuffing box until end of gauge nozzle

rests on glass stop inside valve.

5. Thread lower valve packing nut onto valve and tighten.
6. Thread upper valve packing nut onto valve and tighten.

## Operating Instructions

1. Open the valves slightly by turning the valve handwheel counterclockwise very slowly to avoid thermal shock and mechanical stress on the tubular glass sight tube.
2. Allow gauge pressure and temperature to slowly equalize with the vessel. Do not open the valves fully.

**NOTE: FAILURE TO SLOWLY BRING THE GAUGE INTO SERVICE WILL CAUSE RAPID PRESSURIZATION OF THE SIGHT TUBE WHICH COULD RESULT IN SERIOUS PERSONAL INJURY AND PROPERTY DAMAGE.**

3. Inspect gauge for leaks before proceeding with installation.
4. Ball checks have been installed in the valve bodies to prevent loss of fluid in the event of glass breakage. Open the valves completely after temperature and pressure have equalized to permit the ball checks in the valve bodies to properly seat.

**NOTE: In some circumstances where liquid being gauged tends to surge in a rapid manner, ball checks can seat and give a false level reading.**

## MAINTENANCE

1. During system shutdown, gauge valves should be left open to allow the gauge pressure and temperature to equalize with the vessel.
2. Should the gauge require maintenance while the vessel is in service, gauge valves should be closed completely to allow the gauge to reach ambient temperature if necessary. Liquid should be carefully drained through the drain valve on the lower gauge valve.

**NOTE: Do not proceed with any maintenance unless the gauge has been relieved of all pressure or vacuum and has reached ambient temperature. Gauge should be flushed out to remove any hazardous liquids.**

3. If removal of the sight tube is necessary, proceed as follows:

- a. Remove the polycarbonate shield or expanded metal shield by bending the crimped portion of the gauge frame on each end away from the shield to slide the shield out.
  - b. Remove wire from around the sight tube splicer if it exists.
  - c. Remove end nozzles from gauge by unthreading from gauge frame end blocks. Use of slot in end of nozzles is critical so the smooth surface of nozzle O.D. is not damaged.
  - d. Remove o-ring seal from each end of sight tube.
  - e. Carefully remove sight tube from gauge frame.
4. To install the sight tube, proceed as follows:
- a. Replace ¼" thick x 1-3/8" O.D. rubber sight tube isolator onto sight tube if applicable.
  - b. Place the sight tube into gauge frame through existing holes in gauge frame end blocks.
  - c. Insert sight tube into splicer if one exists. If a Teflon shrink-tube splicer exists it will be necessary to place Teflon O-rings cushion between adjoining sight tubes and heat-shrink the Teflon splicer in place.
  - d. Slide O-ring seals onto each end of sight tube.
  - e. Thread one nozzle into gauge frame end block and tighten.
  - f. Thread other nozzle into gauge frame end block and tighten.

## Warning

**Read all warnings and instructions before performing installation or maintenance. Safety glasses and gloves should be worn at all times when working with or examining water gauge glass and connections.**

## Danger

**Improper installation or maintenance of gauge glass and connections can cause immediate or delayed breakage resulting in bodily injury and/or property damage.**

## Use And Care

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## **DO NOT's**

**DO NOT** use glass if it contains any scratches, chips, or any other visible signs of damage.

**DO NOT** re-use any tubular glass packing.

**DO NOT** subject gauge glass to bending or torsional stresses.

## **Use And Care**

### **DO NOT's**

**DO NOT** over tighten glass packing nuts.

**DO NOT** allow glass to touch any metal parts.

**DO NOT** exceed the recommended pressure of the gauge or gauge glass.

**DO NOT** clean the gauge or gauge glass while pressurized or in operation.

### **DO's**

**DO** verify proper gauge has been supplied.

**DO** examine gauge glass and packing carefully for damage before installation.

**DO** install protective guards and utilize automatic ball checks where necessary to help prevent injury in case of glass breakage.

**DO** inspect the gauge glass daily, keep maintenance records, and conduct routine replacements.

**DO** protect glass from sudden changes in temperature such as drafts, water spray, etc.