TERAGON

LP7 TRANSMITTER USER GUIDE

*** IMPORTANT ***

Ignoring the following may void your warranty!

Do not attempt to remove the LP7 head from the probe.
Do not drop or bend the LP7 transmitter.
Do not use the LP7 head as a handle during installation.
Do not allow moisture to condense on or in the probe.
Do not apply more than 36VDC between any two leads.

Do support both ends of the probe when it is horizontal.
Do store the probe on its wooden frame when not in use.

Unpacking

Inspect the shipping container and the LP7 transmitter for external damage. If visible damage exists, a claim should be filed with the carrier. Do not discard the shipping container or contents; they will be needed if the probe is to be stored or returned. The transmitter is a precision instrument and should be handled with care. The probe can be easily damaged if dropped or bent. Always handle the probe by supporting both ends. A *slight* rattling sound is normal; the central rod is loosely supported with PTFE standoffs.

Installation

Before installation, the probe should be checked for proper operation at room temperature. Remove any rubber caps or masking tape if present. With power applied to the probe leads (Red = 10-30 volts, Black = 0 volts) the transmitter should draw approximately 4 mA at room temperature. When installing the probe, note that the vent on the probe should be located within the LN_2 reservoir and the probe should not rest on the bottom of the reservoir. A minimal clearance of 0.040 inches (1 mm) is recommended to allow the liquid to enter the probe. When installing the probe on a threaded boss, do NOT screw the probe into place by using its head as a handle. Applying excess torque to the head will damage the probe.

The probe was calibrated at the factory to your specified Sensing Length. If desired, the probe can be recalibrated in the field using the following steps: (1) remove the cover plate, (2) with the probe empty and at its operating temperature, adjust the OFFSET screw so that the probe draws 4.0 mA, (3) with the probe submerged to its full Sensing Length, adjust the RANGE screw so that the probe draws 20.0 mA, (4) repeat steps 2 and 3, (5) replace the cover plate.

Threaded Adapters

Teragon provides optional threaded adapters to permit the LP7 transmitter to be installed on a threaded boss. Adapters are available in nylon (adjustable) or stainless steel (fixed) with a variety of straight or NPT pipe threads. Each adapter has a 1/4 inch tube fitting that compresses onto the LP7 probe.

Nylon adapters are NOT recommended for use with pressurized dewars or reservoirs. Install the nylon adapter by placing the adapter at the desired position on the probe and then tightening the adapter's hex nuts until snug. When repositioning a probe that is already installed on a boss, be aware that loosening the compression fitting will allow the probe to free-fall into the reservoir. The probe must be adequately supported BEFORE loosening the hex nuts.

Stainless adapters are installed at a fixed position on the probe and cannot be moved once installed. Stainless adapters are recommended when the probe is to be installed in a pressurized reservoir or when used to monitor liquids that are incompatible with nylon (alcohols, halogens, SO_2, etc.).

Teragon recommends that stainless adapters be installed at the factory for two reasons: 1) The compression of the tube fitting can alter the probe calibration; particularly for shorter probes with insertion lengths less than 1 foot and 2) An adapter that is improperly installed by the customer is not covered under the LP7 warranty. Nonetheless, uninstalled stainless adapters will be provided to customers who elect to install the adapters themselves.

To install a stainless adapter, place the adapter at the desired location on the probe. Tighten the adapter hex nuts to finger-tight. Continue to tighten the hex nuts 1-1/6 turns past finger tight. If the adapter is later loosened, it should only be retightened by 1/4 turn past finger tight.

Removal

If the probe must be removed from a cryogenic reservoir, it is best to do this after the probe has come to room temperature. This will prevent ice or water from condensing on or in the probe. Ice or water in the probe can result in erroneous level indications and ultimately cause the probe to stop functioning. Usually the effects of moisture damage are reversible, but drying the probe may be difficult or time consuming.

If the probe must be removed when cold, condensation on the probe can be minimized by using one of the following: (1) Immediately placing the probe in the poly bag that the probe was shipped in, collapse the bag as much as possible, then seal the bag. Remove the bag after the probe has completely warmed to room temperature. (2) Immediately place the probe in a dry box or desiccator. (3) Temporarily place the probe in a different LN_2 reservoir. Whichever procedure is used, care should be taken not to physically damage the probe.

Problems

The two most common problems encountered with the LP7 are moisture in the probe and probe damage due to mishandling. If the probe has been physically damaged, it should be returned to Teragon for repair. If condensation has occurred on the probe and it is malfunctioning, it should be warmed to room temperature and allowed to dry thoroughly, inside and out. Depending on the length of the probe and the relative humidity this may take several days. If such facilities are available, the probe can be warmed in dry air to 75°C without damage.

Your LP7 transmitter is warranted to be free from defects in materials and construction for one year from the date of purchase. The transmitter contains no user service-able parts and must be returned to Teragon for service.