

Installation of pH/ORP Electrodes

I. Submersible Installation

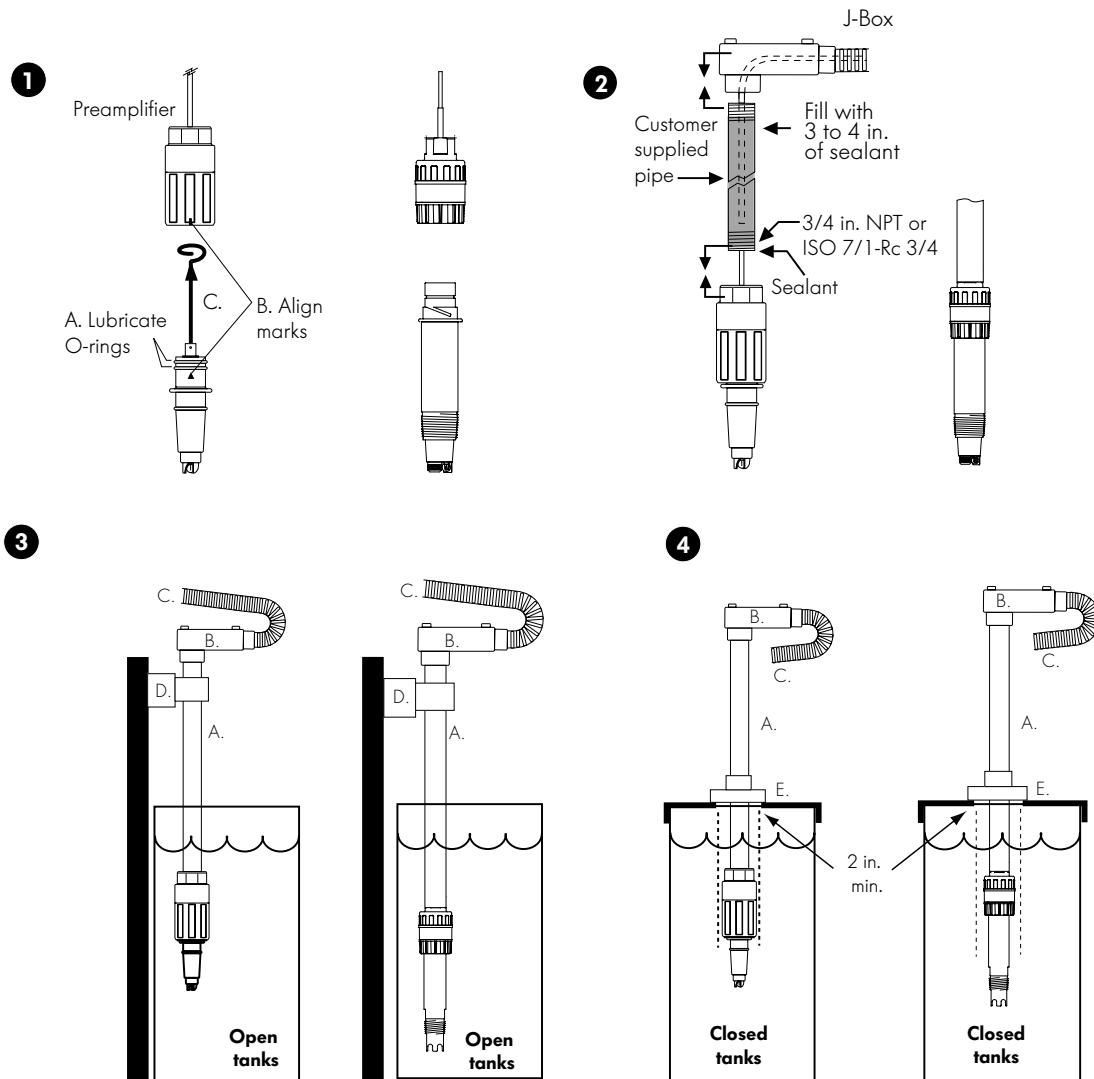
2714 to 2717/2764 to 2767/2774 to 2777 with 2720/2750/2760 preamplifier

Installation Tips

- Mount the electrode near tank outlet away from reagent addition areas.
- Place the electrode tip in pH 4 buffer during system maintenance or storage to avoid dehydration.

Sensors are designed to install in tanks by attaching conduit to the 3/4 inch threads at the top of the accompanying preamplifier or sensor electronics. Installing a sensor can simply be done by following these steps:

- 1) The dual O-ring set at the top of the electrode fits very tightly into the preamplifier. Use a small amount of lubricant (non-petroleum based) to assist the assembly.
- 2) To prevent moisture from migrating into the preamplifier, backfill the conduit with 3 to 4 inches of sealant.
- 3) Mount electrodes in a location with ample clearance to remove them for periodic cleaning and recalibration.
- 4) Choose a location that keeps the electrode glass completely submerged at all times.



Caution: If liquid level is not constant, always ensure liquid contact with electrode tip

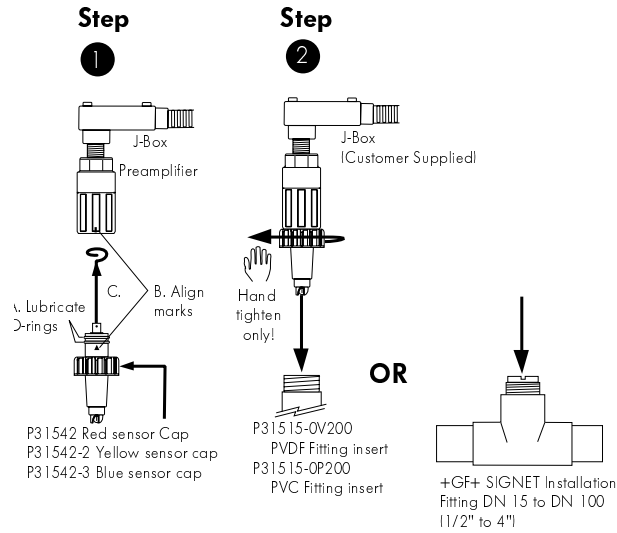
- Customer supplied:
- A) 3/4 in. NPT threaded pipe
 - B) J-box
 - C) Flex conduit
 - D) Quick release pipe clamp
 - E) Tank flange

Installation of pH/ORP Electrodes

II. In-Line Installation

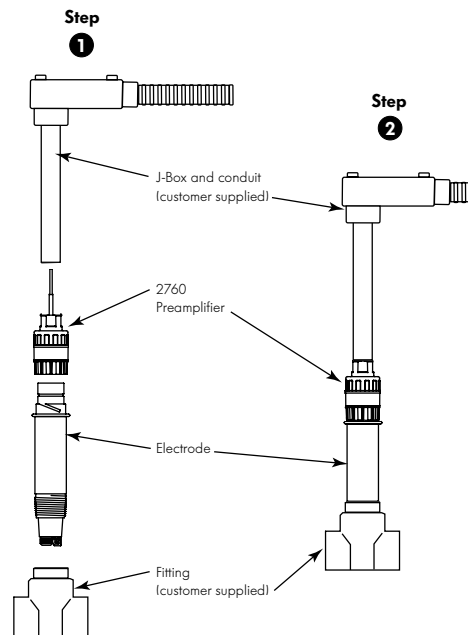
2714/2715/2716/2717 pH/ORP Electrodes with 2720 Pre-amplifier

- The Model 2714-2717 sensor cap threads onto +GF+ SIGNET installation fittings for pipes from DN 15 to DN 100 (0.5 in. to 4 in.).
- For larger pipes, install a fitting insert into any fitting with a 1.5 in. outlet
- pH and ORP electrodes respond best in moving fluids up to 3 m/s (10 ft./s)
- pH electrodes must be mounted at least 30° from horizontal to ensure proper sensing. Mounting angles less than 30° will impede performance.
- Electrodes must always be immersed in liquid. Keep pipe full at all times to avoid dehydration.
- Refer to page 210 for more information.

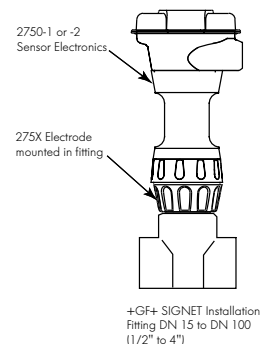


2754-2757/2764-2767/2774-2777 pH/ORP Electrodes with 2750 or 2760 Pre-amplifier

- Models 2764-2767 and 2774-2777 feature a thread close to the sensor end which allows the sensor to thread directly into a standard NPT pipe tee.
- Electrodes must be immersed in liquid. Keep pipe full at all times to avoid dehydration.
- Observe mounting angle requirements for models 2764-2767.
- Any mounting angle is acceptable for Models 2774-2777.
- Models 2754-2757 utilizes cap from sensor electronics to mount into +GF+ SIGNET installation fittings for pipes from DN15 to DN100 (1/2 in. to 4 in.).









In-line Installation



III. Installation Fittings compatible with Models 2714-2717 and 2754-2757 pH/ORP Electrodes

See Fittings Section for more information

| Type | Description |
|--|--|
|  Plastic tees | <ul style="list-style-type: none"> Available in 1/2 in. to 4 in. sizes PVC, CPVC w/solvent cement socket PVDF and PP w/union end fittings |
|  PVC saddles | <ul style="list-style-type: none"> Available in 2 in. to 4 in. sizes Requires 1-7/16 in. hole in pipe |
|  Iron strap-on saddles | <ul style="list-style-type: none"> Available in 2 in. to 4 in. sizes Requires 1-7/16 in. hole in pipe |

| Type | Description |
|---|--|
|  Carbon steel weldolets | <ul style="list-style-type: none"> Available in 2 in. to 4 in. sizes Requires 1-7/16 in. hole in pipe Install by certified welder only |
|  Carbon steel threaded tees | <ul style="list-style-type: none"> Available in 1/2 in. to 2 in. sizes Female NPT ends |
|  Universal pipe adapters | <ul style="list-style-type: none"> Use for installation in pipes > 4 in. (1-1/4 in. NPT) PVC, CPVC, or PVDF versions Specify socket or 1-1/4 inch NPT male threads (socket version shown here) |

Installation Tips

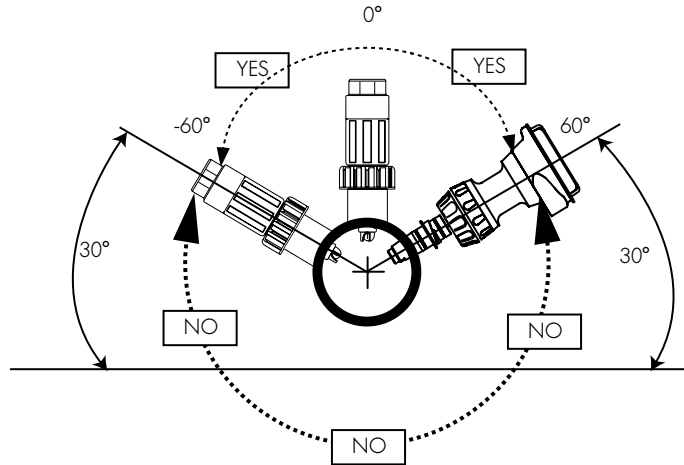
- Use pipe adapters to install electrodes into pipe sizes larger than DN100 (4 inches)
- Adapters are designed to either glue into a plain socket tee (specify socket) or thread into a 1.25 inch threaded tee (specify threaded).

Installation of pH/ORP Electrodes

IV. Mounting Angle

- Models 2714-2717, 2754-2757, and 2764-2767 must be mounted at least 30° from the horizontal to ensure proper sensing. Sensors mounted at less than 30° will impede performance.
- Models 2774-2777 may be mounted at any angle without affecting the performance.

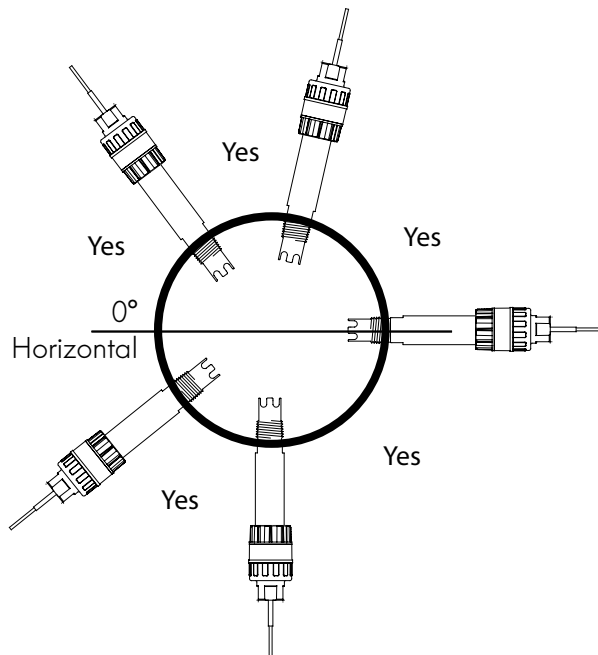
Sensor Mounting - Models 2714-2717, 2754-2757, 2764-2767



In-Line Installation

- It is recommended that you do not install standard electrodes within 30° of horizontal.

Sensor Mounting - Models 2774-2777



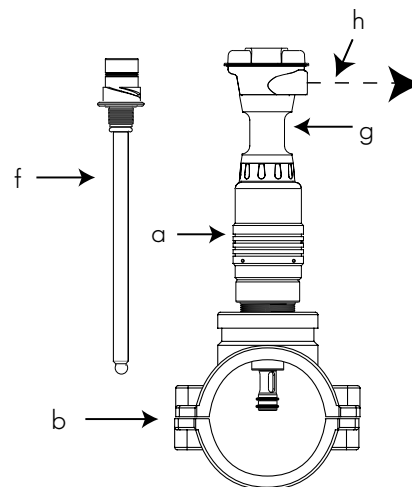
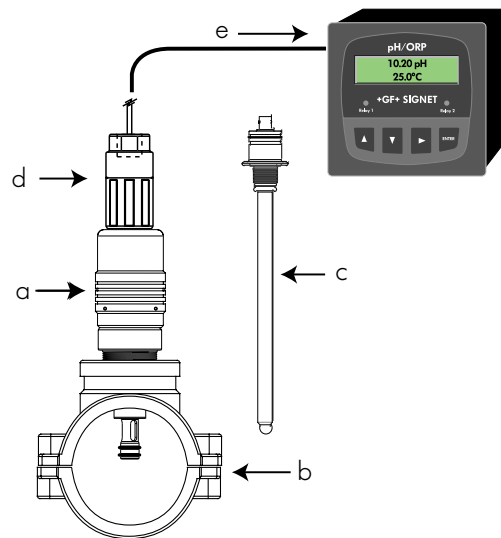
- Models 2774-2777 pH/ORP electrodes are designed to be mounted in any position, even upside-down.

Installation of pH/ORP Electrodes

V. 3719 Wet-tap Overview

- a) 3719 pH/ORP Wet-Tap
- b) Low Profile PP Clamp-on Saddle Fitting (ASTM sizes 2.5 to 12 in.)
- c) 271x-WT Twist-Lock pH or ORP Electrode ("Twist-Lock" refers to the electrode connector style)
- d) 2720 Twist-Lock Preamplifier
- e) +GF+ SIGNET pH/ORP Instrument
- f) 275x-WT DryLoc™ pH or ORP Electrode ("DryLoc" refers to the electrode connector style)
- g) 2750 DryLoc™ pH/ORP Sensor w/ J-Box
- h) Output signal options:
 - digital (S³L)
 - 4 to 20 mA

All of these components are sold separately.

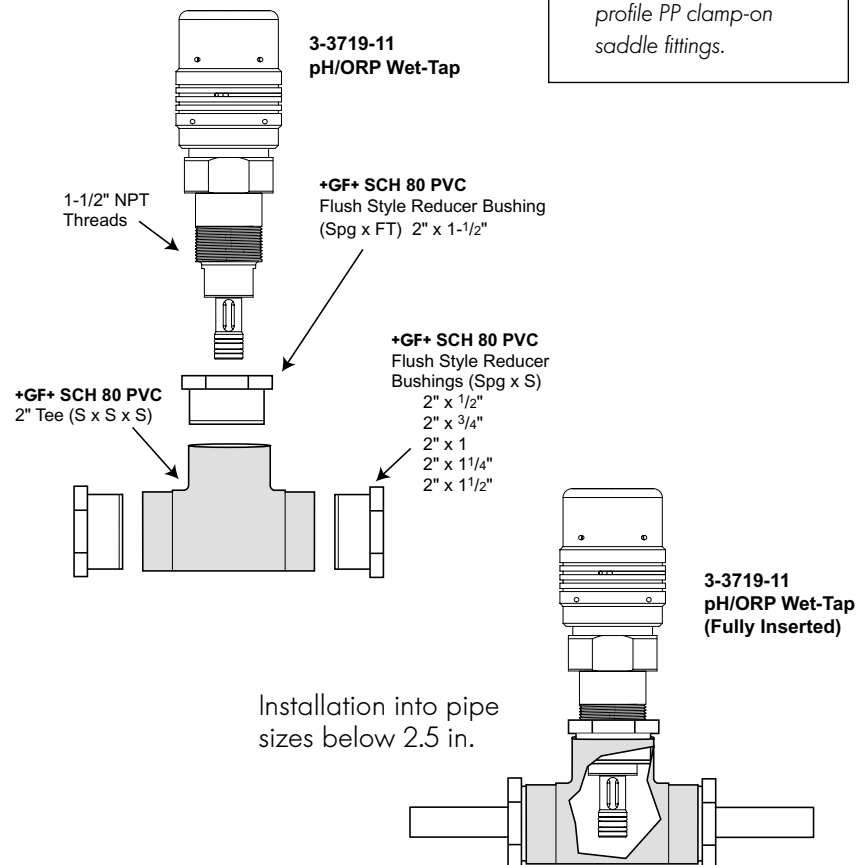


Installation Tips:

- Provide 0.6 m (20 in.) minimum clearance from the top of the pipe for electrode removal.
- The 3719 can be mounted in any orientation, including horizontal and inverted.
- Use caution when removing inverted sensors. Residual fluid may be present in the retraction housing.
- Keep electrode connector clean and dry at all times.
- For reliable in-line measurements of pH and ORP, it is imperative to position the electrode tip into the process stream.
- Because of its compact "short stroke" design, the 3719 requires low-profile fittings to assure proper positioning in pipe sizes DN 65 to DN 300 (2.5 to 12 inches).
- It is strongly recommended to use the low profile PP clamp-on saddle fittings.

3719 pH/ORP Wet-tap Installation

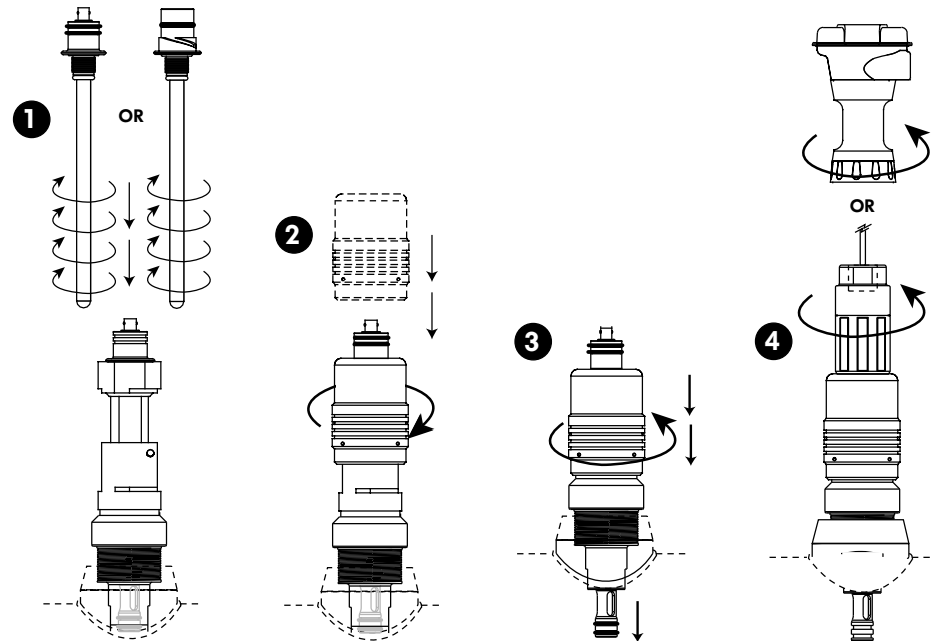
- Initial installation must be performed under non-pressurized conditions.
- The 3719-11 has a 1.5 in. NPT process connection for use with accessory saddle fittings from 2.5 to 4 in.
- The 3719-21 has a 2 in. NPT process connection for use with accessory saddle fittings from 6 to 12 in.
- It is possible to install the 3719 into pipe sizes below 2.5 inches by creating a "flow cell" with standard piping components.
- One simple solution, using a +GF+ SCH 80 PVC tee and reducer bushings, is illustrated here.
- Avoid the entrapment of air inside the flow cell.
- Model 3719-12 has an ISO 7/1-R1 .5 process connection to fit pipe sizes DN65 to DN100. Installation fittings are customer supplied.
- Model 3719-22 has an ISO 7/1-R2 process connection to fit pipe sizes DN150 to DN300. Installation fittings are customer supplied.



Installation of pH/ORP Electrodes

VI. 3719 pH Wet-tap Electrode Installation

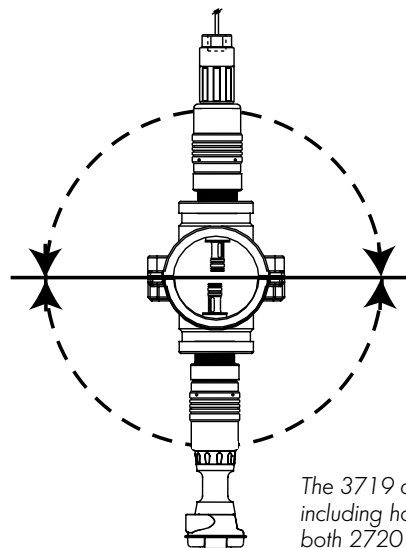
The 3719 can be mounted in any orientation, including horizontal and inverted (shown here with both 2720 preamplifier and 2750 Sensor).



1. Slide electrode (Twist-Lock or DryLoc™) straight down into electrode piston. Thread electrode into place until connector shoulder is flush with top of electrode piston. Hand tighten only.
2. Place the Locking Shroud over electrode; turn 1/4-turn clockwise to unlock the piston, then press down firmly on the locking shroud to lower the electrode piston into the pipe.
3. Turn the Locking Shroud 1/4-turn counterclockwise to lock the piston.
4. Install the 2720 Twist-Lock Preamplifier or 2750 DryLoc™ pH/ORP Sensor onto the electrode connector (see individual operation manuals for more detail).

Installation
& Wiring

VII. 3719 Wet-tap mounting angle



The 3719 can be mounted in any orientation, including horizontal and inverted (shown here with both 2720 preamplifier and 2750 Sensor).