

Instructions for DuraTrac 4 Sensor Cleaning, Gain Adjustment, and Part Replacement Assessment

The DuraTrac 4 sensor should be cleaned at least monthly (weekly is required in some cases), and a Gain Adjustment performed at least quarterly. Regular gain adjustments compensate for probe and piston wear and ensure the sensor maintains a consistent response to changes in water quality and coagulant dose. The Gain value is also used to indicate when replacement of the piston and probe is required.

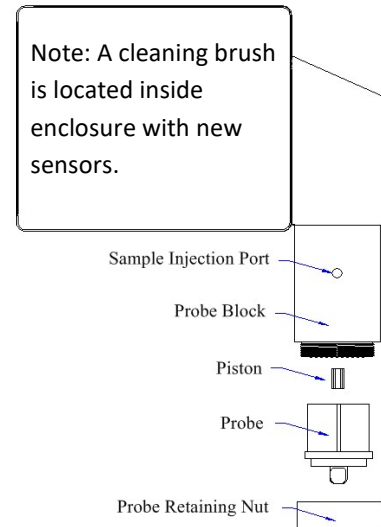
Sensor Cleaning Procedure

The need for cleaning is usually indicated by an unstable Streaming Current (SC) reading, unexplained drift in SC reading, or reduced responsiveness to changes in coagulant dose. Follow the below steps to clean your sensor. A video on cleaning can be found on YouTube by searching "DuraTrac 4 Cleaning" :

- Power Down Sensor and Stop Sample Flow:** Disable power to your DuraTrac 4 sensor and stop the treated water sample flow. If the sensor is part of an automatic control system, switch control to manual mode.
- Remove the Probe:** Unscrew the Probe Retaining Nut and extract the Probe.
- Clean the Probe and Piston:** Using a squeeze bottle filled with DI or tap water and a brush that fits into the probe bore, clean the probe. To remove stains or buildup, choose one of the following cleaning agents:
 - Powder scrubbing agent (e.g., Comet) for general cleaning
 - 1:1 solution of 3% hydrogen peroxide & 5% acetic acid for manganese removal
 - Oxalic acid or Barkeepers Friend for iron removal
 - Mild detergent for general cleaning if no other agents are available.

Fill the probe's bore with your chosen cleaning agent and scrub the bore and top of the probe with the brush. Unscrew and clean the piston using the brush and cleaning solution. Then clean up inside the probe block to remove any buildup. Lastly, rinse everything thoroughly using the squeeze bottle to remove cleaning residue.

- Reassemble Sensor and Restore Power:** Reinstall the sensor parts, ensuring the piston is on fully hand tight. Restore power to the sensor. If a gain verification or adjustment has not been carried out within the last three months, proceed to the Gain Verification Procedure. Otherwise, restart the flow of treated water to the sensor and allow a 30-minute stabilization period before resuming automatic control.



Gain Verification Procedure & Signal Health Check

- Measure Raw Water Sample:** Introduce a sample of raw water with no coagulant into the sensor through the inlet, outlet fitting, or sample injection port located on the probe block's front side. Continue adding raw water until the reading stabilizes and no further negative movement is observed. Once the reading reaches its maximum negative value, proceed to step 2.
- Set Target SC True Value:** Press the Menu button, then select the SCM tile to access the "SCM Overview" screen. Select Options > Maintenance > Automatic Gain. Press the Select (Center) button to edit the Target SC True Value. Ensure the Start button turns gray as this indicates you are in edit mode. Use the navigation buttons to set the Target SC True Value to -200, which is the recommended setting for most applications. Adjust to a higher value (e.g., -300) for more sensitivity or a lower value (e.g., -100) for less sensitivity to chemical feed changes. Ensure both the SC True Value and Target SC True Value are negative numbers before pressing Start.



3. **Start Gain Adjustment:** Press the Select (Center) button to exit the edit mode, making the Start button turn white. Press the Start button to initiate the automatic gain adjustment, which should take between 30 to 60 seconds. Verify the SCV True Value is within +/-5 units of the Target Value you entered in step 2.
4. **Record And Evaluate Gain:** After the adjustment is finished, navigate to Options > Overview to note the new Gain setting. Once the Gain exceeds 5 (or especially if it goes above 10), it is recommended to replace the piston (PN 7250) and probe sleeve (PN 7110), or entire probe (PN 7100). Go to YouTube and search “DuraTrac 4 Sleeve Replacement” for instructions.
5. **Record And Evaluate Signal Health:** Ideal Signal Health (SH) on raw water should be above 95%. If below, the causes are typically worn piston and probe sleeve or worn Yoke (PN 7320). For additional assistance troubleshooting low signal health, navigate to Options > Diagnostic > Display Waveform, capture a photo of the waveform, and email it to support@chemtrac.com with the subject line "raw water waveform." Customer service will provide further guidance.
6. **Reestablish Treated Sample Flow:** Restart the flow of treated water to the sensor and let the reading stabilize for at least 30 minutes. The treated reading should be less negative than the raw water reading established in step 3. For instance, if the raw reading is -200, the treated reading should ideally be at least -100 (a 50% reduction). If the reduction in raw water reading is 25% or less (e.g., from -200 to -150), the SCM's response to the coagulant is not ideal. In this case, please contact Chemtrac for assistance. After verifying the treated reading's stability and responsiveness, normal operation can be resumed.

NOTE: If any parts are replaced, you'll need to repeat the above procedure.

Recommended Spare Parts & Replacement Interval

PN	Description
7100*	Probe (includes 7110)
7110*	Probe Replacement Sleeve
7101	Probe O-rings
7212**	Guide, Stainless
7250	Piston
7203**	Seal Kit
7201**	Backup Guide Seal
7320	Yoke & Rod End Assembly

*The Probe (PN 7100) can be rebuilt by user by replacing Probe Sleeve (PN 7110). Factory Sleeve replacement is also available.

**These parts only need to be replaced if sensor is operated under back pressure, which is not typical of most installations.

The Piston (PN 7250) and Probe Sleeve (PN 7110), or entire Probe assembly (PN 7100), typically need replacement in 1 to 3 years depending on the amount of abrasive solids in sample. If probe and piston are wearing quickly, contact Chemtrac for assistance. It is recommended to keep a spare Probe (PN 7100) on hand as a backup.

The Yoke and Rod End assembly (PN 7320) will wear over time and cause signal health to degrade. These parts need replacing approximately every 2-3 years.

If the sensor is operated under back pressure (which is not recommended), the Guide (PN 7212) and Seal Kit (PN 7203) will require replacement every 1 to 2 years. PN 7201 can be rebuilt by user by replacing the internal o-rings which are included with the Seal Kit (PN 7203). Go to YouTube and search “DuraTrac 4 Seal Kit maintenance” for instructions.

