

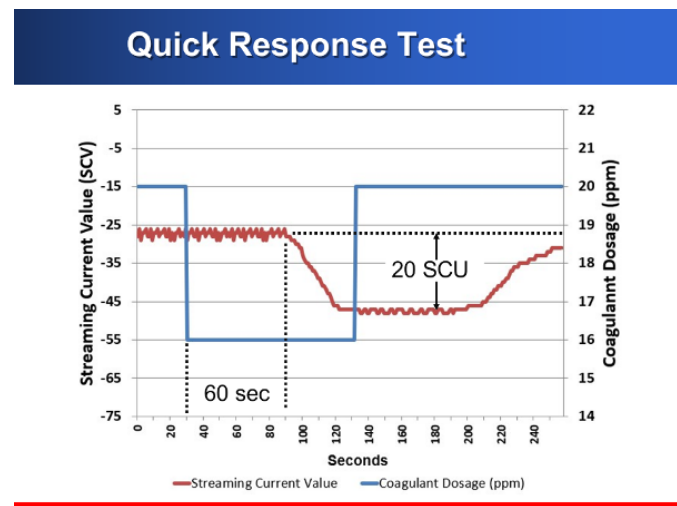
Streaming Current Detector Calibration?

There are no true “standards” for calibrating Streaming Current Detectors (SCD). However, there are reliable and proven verification methods that can be used to check how effectively the SCD is working, and provide a basis for adjusting the instrument’s gain setting so as to maintain consistent and repeatable responses to changes in water quality and coagulant dosage.

Quick Response Test

The first verification method is called the Quick Response Test. This is a very simple test that can be done at any time, and will ensure the SCD is responding properly:

- Note the Streaming Current Value (SCV) of the continuous flowing sample when the target coagulant dosage is being fed.
- For just a few minutes, reduce the coagulant dosage by 10 to 20% (e.g., go from 20 to 16 ppm for a 20% reduction).
- Allow the reading to mostly stabilize at a more negative value and note the SCV for the reduced dosage. In the example graph below, the SCV drops from -27 to -47. This shows that a 20% reduction in coagulant dosage resulted in a -20 unit change in the SCV reading. The ideal response is 5 to 10 SCU units per 10% change in dosage. If the response is smaller, it is recommended to then perform the next procedure outlined below (Total Response Test).
- Return the coagulant dosage to the original target dosage and observe the SCV return close to its original level.



Total Response Test

The second verification method is called the Total Response Test. This test should be done as soon as the streaming current sensor has been installed, as well as every 1 to 3 months thereafter:

- Turn off the continuous treated water sample flow to the sensor.
- Clean the probe and piston and rinse thoroughly with tap water or DI water. It is also a good idea to clean inside the probe block area for this test.
- Measure the Streaming Current Value (SCV) of the raw water sample. This sample must not contain any coagulant or polymer. For the DuraTrac 4, the raw water sample can be injected into the sensor through the front ¼" push-to-connect port, or for the DuraTrac 3 or 4, the raw water can be poured into the sensor through the inlet fitting.
- Adjust the gain to attain an SCV reading of -200. On the DuraTrac 4 sensor, ensure the Signal Health is greater than 95%. If the Gain required for the -200 SCV is greater than 10.0, or if the Signal Health is less than 95%, then service is required. See our earlier blog post [Here](#) for more information on what to service on the streaming current sensor.
- Establish the sample flow the treated sample. This needs to be a continuous flowing sample taken within 60 seconds lag time (ideally) of coagulant addition with adequate mixing.
- Assuming an SCV of -200 on the raw water sample, the treated water sample will typically have an SCV anywhere in the range of -100 to +50. At a minimum, the treated SCV needs to be -150 in order for the measurement to be sufficiently responsive to water quality changes.
- If there is any concern with the response, install a new probe and piston and repeat this procedure. If the new probe and piston are substantially more responsive, then leave the new sensor parts installed and discard the original set.

Total Response Test

