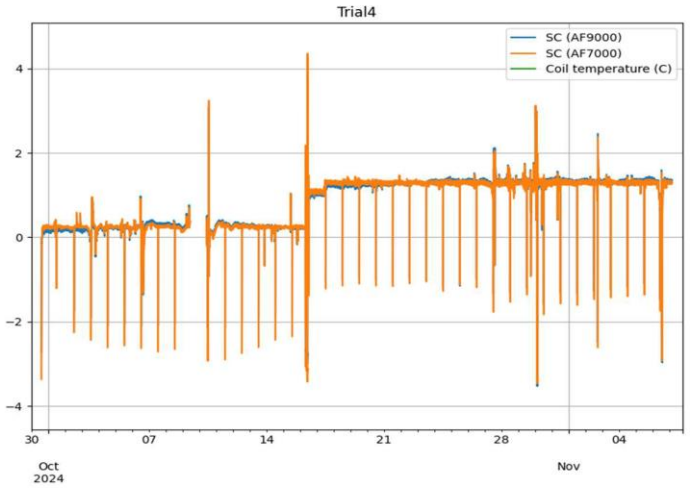
Abstract

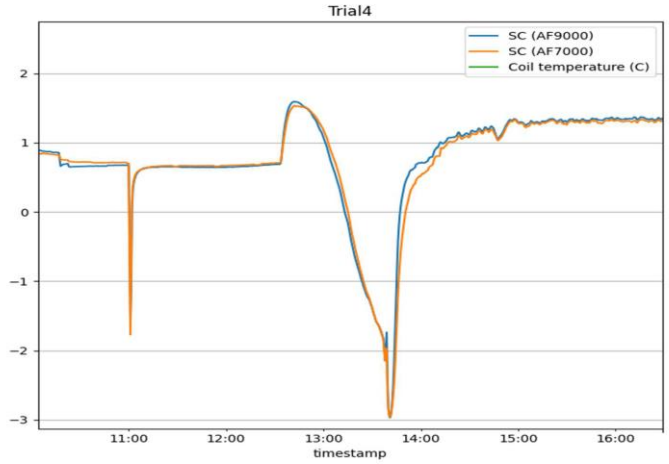
Request a full copy of our Equivalence White Paper, AF7000/AF9000 via our web contact form.

This white paper provides definitive proof that the AF9000 Streaming Current Meter (SCM) is functionally equivalent to the legacy AF7000, while also introducing significant advancements in performance, reliability, and efficiency. Designed as a direct upgrade, the AF9000 retains all critical wetted components - piston, electrode, and sample chamber - ensuring measurement consistency. However, it replaces the outdated motor, gearbox, and cam-driven system with an innovative linear magnetic actuator, eliminating wear-prone parts and dramatically improving operational longevity and accuracy.

A rigorous technical analysis confirms that the AF9000's motion profile closely matches the AF7000, with the added advantage of precise digital feedback control, ensuring greater stability and automatic fault detection. Additionally, comprehensive testing of the signal conversion process verifies that both meters deliver identical streaming current readings, guaranteeing seamless integration for existing users.

To reinforce these findings, four extensive field trials were conducted over ten months, generating over 310,000 real-world data points. Results demonstrated an exceptionally high correlation (Pearson R-values of 0.930 to 0.996) between the two meters, unequivocally proving the AF9000's ability to replicate AF7000 readings in demanding water treatment environments. Furthermore, the AF9000 eliminates the high surface temperatures of the AF7000, operating at near-ambient levels and eliminating the need for temperature warning labels - an advancement that directly enhances safety and reliability.





- Zooming into the data you see significant variation with very good correlation
- 99.6% correlation across 51,000 data points

Beyond mere equivalence, the AF9000 delivers substantial improvements: a 65% reduction in weight, a 30% smaller footprint, vastly reduced maintenance requirements (only three replaceable components), and a globally adaptable 24V DC power supply. Its enhanced signal processing capabilities and real-time motion monitoring set a new industry standard for streaming current measurement.

In conclusion, the AF9000 is not just a replacement for the AF7000, it is a substantial advancement in evolution. Field data and technical analysis leave no doubt: the AF9000 preserves the proven reliability of the AF7000 while eliminating its weaknesses, offering water treatment plants a superior and future proof solution for reliable and effective coagulation control.