



Comparative Time Study of the EVOM™ Auto Versus the REMS

World Precision Instruments' (WPI) legacy Robotic Epithelial Measurement System (REMS) and the new advanced 2023 version of REMS, the EVOM™ Auto, are high-throughput, automated transepithelial/transendothelial electrical resistance (TEER) measurement systems. These robotic systems, combined with EVOM™ electronics, expedite TEER measurements.

A 96-well plate can be read within a few minutes using an automated TEER measurement system versus using a manual TEER measurement system, which can take up to 90 minutes to read a single 96-well plate. Manual systems require a user to move the electrode from one well to another and perform the rinsing in between, if needed. (Rinsing of the electrode while reading through a number of samples helps to prevent sample cross-contamination.) As automated systems measurements and rinsing are controlled by robotics, manual handling time is eliminated. Additionally, automated systems offer better measurement accuracy, due to the elimination of human errors associated with electrode handling.

When comparing the EVOM™ Auto with the REMS system in efficiencies, the EVOM™ Auto comes with an array of eight electrodes versus the REMS single electrode. The table below shows the times savings you can achieve when using the new EVOM™ Auto versus the REMS system.

Run Time with No Rinsing (Test 1)

To read a 96-well plate with no rinsing between samples, a REMS takes 4.67 minutes, and an EVOM™ Auto only 3.22 minutes.* EVOM™ Auto improves measurement timing 31% over REMS when no rinse option is used.

Run Time with 1 and 2 Electrode Rinses (Tests 2 & 3)

Similarly, when the electrodes are rinsed once or twice, the REMS takes 10.07 minutes and 14.73 minutes, respectively. The EVOM™ Auto takes 5.83 minutes and 7.23 minutes, respectively, to execute the same protocol.* When compared with the REMS, EVOM™ Auto offers 42% quicker sampling with the one rinse station option (Test 2) and 51% with a two rinse station option (Test 3).

Run Time with 3 Electrode Rinses (Tests 4)

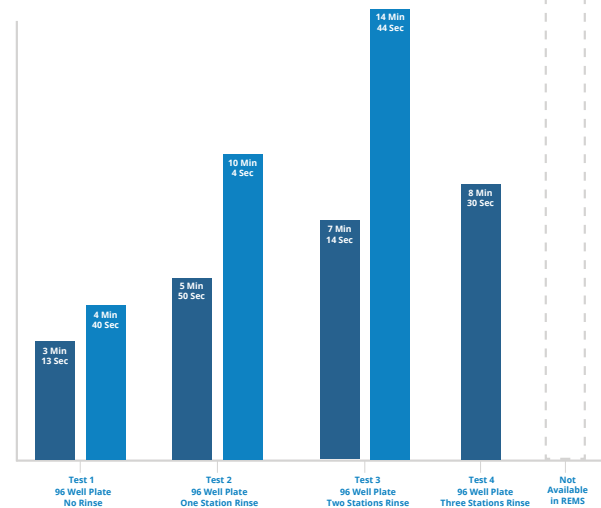
When running a protocol with three rinse stations between measurements, EVOM™ Auto takes 8.5 minutes.* REMS only offers two rinse stations and could not be compared in this trial.

Multiple rinse option is desirable to disinfect the electrode in one station after reading a sample, and then using the other stations to stabilize and equilibrate the electrode before measuring the next sample. Overall, EVOM™ Auto offers significantly improved timing and rinsing options for a better TEER measurement experience in HTS platforms.

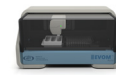
*All sample readings and rinse well dips were 1 second in duration.

Sample Reading Time

EVOM™ AUTO VS REMS



EVOM Auto
High-Throughput Screening System



REMS
Automated TEER Measurement System



Timing Improvement with EVOM™ Auto

Test 1: No Rinse 31%
Test 2: 1 Rinse 42%
Test 3: 2 Rinses 51%

Comparative Time Study of the EVOM™ Auto Versus the REMS



EVA-MT-02-01

SPECIFICATIONS

Autosampler Dimensions (WxDxH)	16x10x8.4"	Number of Rinse Stations	3
Autosampler Weight	15.5 lbs.	Electrode Array for 96 HTS Plate	Array of 8 pair of (1mm Φ) electrodes
CE Certified	Yes	Minimum Sample Reading Time	1 Second
Compatibility	Wide variety of 96-well HTS Plates, including Corning, Millipore and MatTek	Control Device for Running Software	Tablet, Laptop, Desktop with Wi-Fi adapter
Resistance Range	10KΩ, 50KΩ, 100KΩ	Output Data	CSV/Microsoft® Excel

