

Turbo Studio FAQ #01

How accurate is the power data displayed and recorded by the Turbo Studio's ergometers?

Turbo Studio uses the Lab model of the Computrainer ergometer. These units leave the factory with extra attention paid to ensure good calibration. Provided the user sets up their equipment properly, undertakes a suitable warm up protocol and correctly performs a roll down calibration (the specifics of this process we have established and execute consistently for all Turbo Studio Power Sessions), then the units are reliable and accurate in both the setting of resistance levels during training and the recording of a rider's power output.

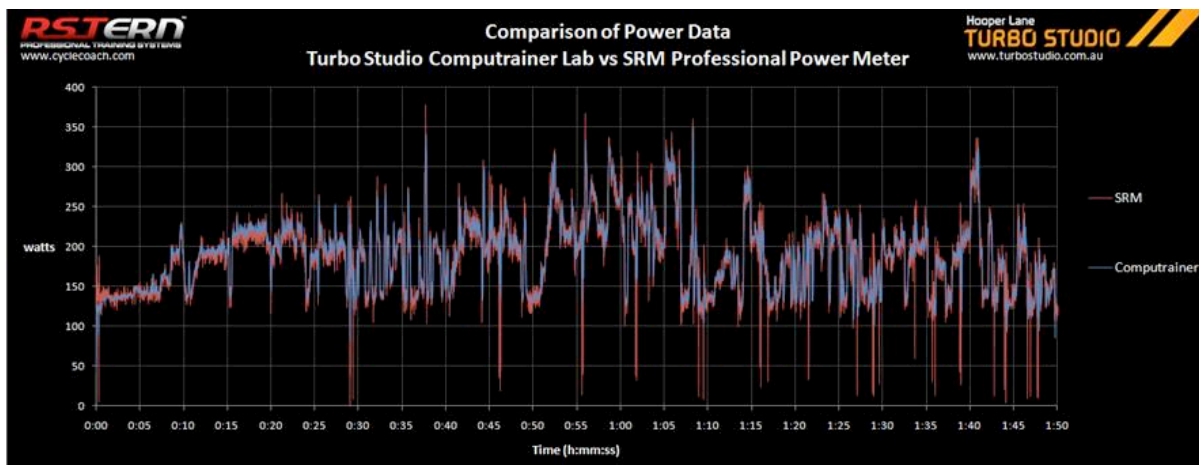
By way of an example, following are two charts comparing the rider's power output as recorded on Turbo Studio Computrainers with the power recorded by a professionally calibrated SRM power meter. Two units were chosen at random from the Turbo Studio's selection and the rides were performed on different days. One session is an interval set and another is a simulated club ride with highly variable power output.

Summary data is provided, along with a chart overlaying the power data obtained from the Computrainer and the SRM.

Ride #1	Duration (h:mm:ss)	Average Power	Normalised Power	Work done (mechanical)
Computrainer Data	0:49:31	195 watts	211 watts	580 kJ
SRM Data	0:49:33	195 watts	211 watts	580 kJ



Ride #2	Duration (h:mm:ss)	Average Power	Normalised Power	Work done (mechanical)
Computrainer Data	1:49:43	188 watts	200 watts	1237kJ
SRM Data	1:49:43	187 watts	198 watts	1233 kJ



Of note from the above two examples:

- There is excellent correlation between the power resistance setting and recorded by the Turbo Studio's Computrainers and a calibrated SRM professional power meter.
- There is no discernable drift apart in power measurement by the Computrainer and SRM during the course of these training sessions. In other words, Turbo Studio's Computrainers maintain their accuracy through the course of a training session, as well as provide consistent resistance control through the course of Turbo Studio's Power Sessions.
- For those familiar with the concept of Normalised Power, the other thing to note is that while the recorded average power of the sessions is very close, so is the Normalised Power – which also indicates that the variability in the resistance and power output is being well captured by the Computrainer.
- For the more experienced and astute user of power meters, one might actually expect the SRM data to be slightly higher than the Computrainer, by approximately 2-3%, which is typically the power losses attributable to the drivetrain of modern bicycles (chain, chainrings, cogs, pulleys etc). Nevertheless, these data are well within the expected accuracy level of the SRM power meter and Computrainer, and most importantly, the lack of drift between each is significant and important. The close correlation with the SRM suggests this is a result of the factory's calibration processes.

So, when set up and operated using Turbo Studio's protocols, the power measurements and resistance settings for Turbo Studio's ergometers are accurate, consistent and reliable and Turbo Studio clients can train with the confidence that their performance is being recorded accurately and the training is suitable for their individual development needs.

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