MANUFACTURER-AGNOSTIC COMPUTER-ASSISTED SLEEP STUDY SCORING SOFTWARE

Company	Philips Respironics	Younes Medical Technologies
Software	Somnolyzer Sleepware G3 with Somnolyzer	michele. SLEEP SCORING Michele Sleep Scoring
Website	www.philips.com/sleepdx	www.michelesleepscoring.com
Cost to Buy	Varies with number of activations purchased at one time. With a 250-use activation license, per use cost is $14 for PSG, $7.50 for respiratory only.	$25 US for Level 1 Study, $15 US for Level 3 Study
Free Trial Period	See a Philips Respironics representative for trial options	30 days or 100 studies
Algorithm Details	Algorithms developed and trained using a database of 687 PSGs, each scored by multiple experts.	Developed by Magdy Younes, MD, FRCPC, PhD, Distinguished Professor Emeritus at the University of Manitoba. Algorithms based on the 2007 AASM scoring guidelines for sleep staging, scoring of arousals, PLMs, and the recommended and alternate hypopnea criteria.
Validation	Anderer P et al. Computer-assisted sleep classification according to the standard of the American Academy of Sleep Medicine: validation study of the AASM version of the Somnolyzer 24 × 7. *Neuropsychobiology.* 2010;62(4):250-64. Epub 2010 Sep 9. Multiple other peer-reviewed studies also.	Malhotra A et al. Performance of an automated polysomnography scoring system versus computer-assisted manual scoring. *Sleep.* 2013 Apr 1;36(4):573–582. Validated as equivalent to a consensus of 10 academic scorers in this completely arm's-length multi-center study.
Upload Time	N/A (Analysis is on customer's local PC; no need to upload.)	Typically, <10 min (depends on user bandwidth)
Scoring Time	Typically, 3 minutes or less for an HST study or finalizing scoring of a live PSG acquisition; 7 minutes or less for analysis of an imported PSG study.	Average is 2 min
HL7 Compliant	Optional HL7 interface available via Sleepware G3	No
HIPAA Compliant	Yes	Yes
Batch Uploading	N/A (Analysis is on customer's local PC; no need to upload.)	Yes
Training Program	Free pre-recorded online webinars; optional live training	One 4-hour screen-sharing session with Younes Medical Technologies support staff at no additional cost
Technical Support	24/7/365 phone support at no additional cost	By phone (toll-free) or e-mail at no additional cost
Additional information	Somnolyzer uses a "traffic light" system to show where Somnolyzer has high confidence (green), some uncertainty (yellow), or really is unsure (red). This allows the skilled scorer to speed through the green portions and focus on just the sections that need expert input. This results in decreasing scoring time by 50% to 85% and increasing scoring consistency.	Easy to use viewer that displays several values to assist in scoring, including respiratory amplitude as percent of baseline and presence of flow limitation in any selected breath, total duration of delta waves in the current epoch, odds ratio product (ORP) in the current epoch (ORP is a validated continuous index of sleep depth. *Sleep.*2015;38:641-654). Viewer also provides a list of suggested editing actions (Editing Helper). Following these suggestions reduces average editing time to <10 minutes without compromising clinical reliability. Customizable reports that, in addition to standard scoring summaries, can optionally include novel indices such as depth of sleep (ORP) in each sleep stage, total sleep time and total recording time, as well as the average intensity of arousals and the heart rate response to a standard arousal intensity (*Sleep.* 2014; 37:645-653).

Additional Information on Computer-Assisted Scoring

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Punjabi NM et al. Computer-assisted automated scoring of polysomnograms using the Somnolyzer system. *Sleep.* 2015 Mar 24. pii: sp-00224-14. [Epub ahead of print].

Frauscher B et al. Validation of an integrated software for the detection of rapid eye movement sleep behavior disorder. *Sleep.* 2014 Oct 1;37(10):1663-71.

Van Houdt PJ et al. Automatic breath-to-breath analysis of nocturnal polysomnographic recordings. *Med Biol Eng Comput.* 2011 Jul;49(7):819-30.

Kuna ST et al. Agreement in computer-assisted manual scoring of polysomnograms across sleep centers. *Sleep.* 2013 Apr 1;36(4):583–589.

Werner A. Autoscoring technology. *Sleep Review.* 2011 Mar 6. www.sleepreviewmag.com/2011/03/autoscoring-technology