

**Osler-2 Specification**

**Osler-2 Main Box:** box containing LED designed for wall mounting.

**Size:** 180x100x45mm

**Weight:** 300 g

**Power:** 4 alkaline AA (R6) cells

**Temperature Range:** 0 - +40°C

**Osler-2 Switch:** for use by the subject.

**Size:** 150x70x30mm

**Weight:** 200 g

**Power:** 9v PP3 (6F22) battery

**Temperature Range:** 0 - +40°C

**Headphones:**

**Impedance:** 32 Ω

**Sensitivity:** 102 dB/mW (at 1kHz) with volume control

**Frequency Response:** 20-2000 Hz

**Interconnecting Cable:** between switch and control unit.

**Cable type/ length:** RJ11/ 7.6m

**Serial Cable:** used for connection of control unit to PC.

**Cable length:** Up to 10m (1.7m supplied)

**Power Adaptor:** 9v 670mA UK or Euro

**Loudspeaker:** Pc. type with volume control (not supplied)

**Computer requirements:**

Microsoft Windows™ 2000 / XP with serial port or USB / serial adapter

Software is Stowood Scientific Osler-2 on CD ROM

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E&OE

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**OSLER-2**  
The **Oxford Sleep Resistance Test**

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**SSI**

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‘Behavioural **M**aintenance of  
**W**akefulness **T**est (MWT)  
and  
**M**ultiple **U**nprepared  
**R**eaction **T**ime  
(MURT)’

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## OSLER-2: 'OSLER TEST':

### Behavioural Maintenance of Wakefulness Test and Multiple Unprepared Reaction Time Test

It is often desirable to measure daytime sleepiness objectively rather than relying on subjective methods such as the Epworth sleepiness questionnaire. One objective method is the Maintenance of Wakefulness Test (MWT) where the subject is required to lie for up to 40 minutes semi-recumbent four times during the day in a darkened, quiet room whilst trying to stay awake. A sleep technician determines the time of sleep onset by continual observation of the electroencephalograph, which makes the MWT time consuming and awkward to perform.

The OSLER test is a behavioural version of the MWT - a simpler way to assess day time sleepiness – which by not requiring EEG observation, allows more efficient use of the technician's time while achieving the same results as the MWT



The OSLER test consists of a small light emitting diode (LED) in a wall /end of bed mounted control unit and a subject held, proximity sensitive switch with wireless or cable connection to the control unit. During the test, the LED is switched on for one second in every 3 seconds and the subject is required to respond to the illumination by tapping the switch. The technician is alerted via a loud speaker in the technician room if the subject fails to respond.

During each OSLER the subject is told to try remain awake but not to use extraordinary measures to achieve this. There is no 'click' on the switch to provide positive feedback, and the test ends when the subject fails to respond to 7 illuminations. Four tests are usually performed with 2 hour intervals, with the subject not being allowed to fall asleep in the intervals.

The control unit may be controlled from a Windows computer programme via a serial connection, or the system may be used independent of a computer, in the lab or at the subject's home. The control unit LCD display shows the termination timing and the number of missed events, with up to 32 tests being stored. The data can then be downloaded to a computer later. The system may be powered from batteries or its mains transformer. The switch box also generates a white noise signal for use with headphones to mask environmental sounds.

The OSLER control unit also includes the facility to perform both visual and audible Multiple Unprepared Reaction Time (MURT) tests. The MURT measures the reaction time in response to a series of visual (LED) or audible (buzzer) stimuli presented at random intervals of between 1 and 10s over a period of 10-15 min. The reaction times are measured and stored, and downloaded to the pc.

Osler-2 being used for



MURT testing

The computer software stores the data from the unit, allows editing and produces reports for printing.

The OSLER test has already proven to work as well as the MWT in obstructive sleep apnoea, can discriminate between sleep apnoeics and normals, has high sensitivity and specificity for detecting sleep, OSLER test reproducibility is better than MWT and is also a useful, accurate, convenient and simple way to detect microsleep episodes.

#### References:

- Bennett LS. Stradling JR. Davies RJO, 'A behavioural test to assess daytime sleepiness in obstructive sleep apnoea', J. Sleep Res. 1997, **6**:142-145.
- Jenkinson C. Davies RJO. Mullins R Stradling JR, 'Comparison of therapeutic and subtherapeutic nasal continuous positive airway pressure for obstructive sleep apnoea: a randomised prospective parallel trial', Lancet, 1999, **353**:2100-2105.
- Mazza S. Pepin J-L. Deschaux C. Naegele B. Levy P, 'Analysis of Error Profiles Occuring during the OSLER Test'. Am J Respir Crit Care Med, 2002, **166**:474-478.
- Priest B. Brichard C. Aubert G. Liistro G. Rodenstein DO, 'Microsleep during a Simplified Maintenance of Wakefulness Test', Am J Respir Crit Care Med, 2001, **163**:1619-1625.