

Optalert Drowsiness Measurement System (ODMS)

Researchers across the world use the Optalert Drowsiness Measurement System (ODMS) to assist research into drowsiness and the resulting impairment of performance.

ODMS provides a user-friendly and intuitive interface and streamlines the data collection and data investigation processes. It enables the researcher to obtain a continuous drowsiness measure while simultaneously recording detailed eye and eyelid movement data, the results of a reaction time psychomotor vigilance test, and video of the subject or surrounding environment.



TECHNOLOGY

Optalert's patented technology provides the world's first scientifically-validated method of detecting drowsiness in its early stages, based on a new understanding of the physiology of drowsiness. Optalert's early-warning drowsiness detection system monitors alertness continuously and warns drivers of impending drowsiness before it becomes dangerous. Optalert can prevent deaths, injuries and property losses arising from accidents caused by driver drowsiness - a global public health and safety issue.

Optalert's early-warning system provides a continuous measurement of drowsiness by utilising the Johns Drowsiness Scale (JDS™), the world's first objective and validated scale for drowsiness which provides a real-time measure (from 0.0 to 9.9) of the subject's drowsiness level.

Optalert's system can be used in all weather and light conditions. It does not rely on intrusive video technology, subjective user input or any cumbersome attachments. It provides a measure of drowsiness not requiring calibration for individual users.

Several of the world's leading research institutes have used Optalert in their research including:

Professor Charles Czeisler of Harvard Medical School; Monash University; Vrije University; Austin Hospital - Institute for Breathing and Sleep; RAAF Institute of Aviation Medicine; Monash University; Swinburne University; University of New South Wales; German Aerospace Centre (DLR); Boeing Commercial Airplanes USA; King Saud University and Queensland Centre for Accident Research & Road Safety.

BENEFITS OF ODMS

Continuous and validated measure of drowsiness

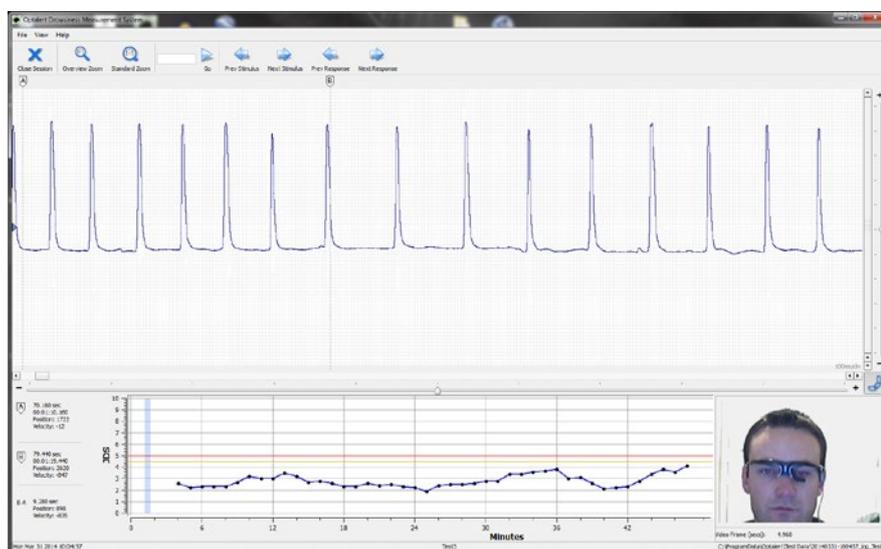
ODMS monitors eye and eyelid movements and records drowsiness continuously with an on-line JDST™ score every minute. The score is based on a weighted combination of variables describing various components of eyelid movements during blinks which change with drowsiness.

Two recording modes

Researchers can choose to record eye movement and optional video data for long periods (up to 24hrs) whilst participants perform computerised psychological or other tests (e.g. simulator recordings), or can choose to utilise the in-built psychomotor vigilance task (Johns Test of Vigilance or JTV) which records reaction time variables in conjunction with synchronised eyelid movement data and video capture over discrete, time-limited (10 – 30 mins) periods.

Efficient research data collection

Detailed eye and eyelid movement data, JDST™ data, JTV results (time stamped stimulus presentation and corresponding subject response or non-response), and an optional video recording of the subject are stored simultaneously.



On-line data search and analysis engine

Data can be easily viewed on-screen with powerful on-line data search tools. These tools provide an on-screen graphical representation of the eye and eyelid movements, the velocity of these movements, the JTV stimulus presentation and the corresponding subject response, the video footage of the subject's face, and the JDST™ scores plotted for each minute of the test.

Instant reporting capability

A detailed report for each JTV or Logging session can be saved in PDF or Excel format. This report includes the subject information, JTV performance metrics and corresponding JDST™ and ocular measures.

Efficient management of the library of test data

ODMS provides a mechanism to store, manage and retrieve the library of test data.

In-field and lab-based data collection

ODMS software can be loaded onto a Windows laptop or PC with the glasses and a response keypad connected to the computer via USB. ODMS can be used for detailed laboratory or simulator experiments, or in a vehicle for on-road testing.

PRODUCT APPLICATION

The ODMS can be used for many research applications, including:

- Research into alertness and drowsiness
- Research into drowsy driving, on the road or in a simulator
- Research into changes in reaction time as a result of drowsiness, drugs or any other external factor
- Studies into the effects of alcohol and other drugs on human performance
- Clinical trials assessing how drugs affect drowsiness and alertness
- Studies of cognition and attention using simple and choice reaction time tests (JTV)
- Research into the inefficiencies caused by reduced quality control as a result of operator drowsiness

ODMS COMPONENTS

SOFTWARE

Optalert Drowsiness Measurement System (ODMS) software (includes 12-month Research Licence and 12-months Remote Support)

HARDWARE

- Optalert Response Pad (including cable)
- Optalert glasses adjustment screwdrivers and accessories
- Optalert Glasses Pack for Research System
 - > 6 pairs of Optalert glasses including USB cables & wrap lenses (varying tints)

SYSTEM REQUIREMENTS

HARDWARE

Optalert recommends:

- 2 gigahertz (GHz) or faster multi-core processor (or multi-processor system)
- 2GB RAM (minimum)
- 10GB hard disk space
- 2 x USB 2.0 ports
- Screen resolutions: 1920x1200, 1680x1050, 1600x1200, 1280x1024, or 1366 x 768

SOFTWARE

Operating system

Windows 7 (32-bit or 64-bit)

Other software packages required

Adobe® Reader® (to view reports)