



 **O&O DriveLED 2**  
Professional Edition

O&O DriveLED 2  
Rev. 2007-05-09

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O&O Software GmbH • Am Borsigturm 48 • 13507 Berlin • Germany

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# About O&O DriveLED

## Monitoring Your Hard Drive

No single part of the modern computer system is more susceptible to malfunction than the hard disk. In fact, such a malfunction can be unavoidable. With Windows-based O&O DriveLED 2, however, you now have the ability to recognize a potential malfunction before it happens. You can then secure your data and, through the removal of affected hard disk drives, potentially avoiding a fatal loss of data.

While O&O DriveLED 2 makes it possible for you to see your hard drive's built-in LEDs on your computer screen, this is just the beginning. In addition, you now have the possibility of monitoring all of your virtual drives, such as network drives, being able to clearly distinguish between read-access and write-access.

## S.M.A.R.T.

Furthermore, O&O DriveLED 2, with the help of S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology), thoroughly evaluates the data on your hard disk and warns you of potential problems that may arise. A detailed monitor provides continuously updated data about your hard disk: From the number of successful system boot-ups to its current temperature.

O&O DriveLED 2 not only contributes greatly to your system's security and the sustainable availability of your data, but is the correct solution for SMART inspections of your hard disk.

We hope you have fun with our product! Our team is, as always, ready to assist you should you have questions regarding our products, so please don't hesitate to ask.

Your O&O Software GmbH  
[www.oo-software.com](http://www.oo-software.com)

## Highlights of the New Version

- Tracking and display of read/write access for logical volumes
- Tracking and display of current storage capacity for logical volumes
- Automatic monitoring of all S.M.A.R.T. properties
- Tracking and display of current temperatures for all hard disk drives (if supported by hard disk)
- Prognosis of remaining operational life for all hard disk drives
- Self tests run directly in Windows without the creation of a boot disk!
- Warning notification of possible operational errors on all hard disk drives
- Support of all windows-compatible hardware volumes
- Support of all SCSI disk drives

# Installation und System Requirements

## System Requirements

O&O DriveLED 2 is compatible with Windows NT 4 (Service Pack 6 or newer), Windows 2000, Windows 2003, and Windows XP. In addition, it is necessary to have Microsoft Internet Explorer (Version 5.01 or newer) installed.

In order to install O&O DriveLED 2, you need to either be a member of the local group administrators or possess comparable access rights. If you are a Domain Administrator, you should possess the correct level of permission.

## Installation

The Installation of O&O DriveLED 2 is very simple. Please follow the steps below:

1. Turn on the computer on which you would like to install O&O DriveLED 2.
2. Start Windows NT/2000/XP and sign in as a Local Administrator.
3. Insert removable media with O&O DriveLED 2 software into disk drive.

After the setup program has been successfully loaded, follow the on-screen dialogue to complete installation.

## Unlocking the Full Version

After the Installation has been completion, O&O DriveLED 2 will load its registration assistant. You will be asked to enter the registration information for this product, which will then unlock the full version of O&O DriveLED 2. You will only be required to enter this information once.

Please remember that you will only be able to use O&O DriveLED 2 for up to 30 days before registering. Every time you start the unregistered program, the registration assistant will appear, enabling you to enter your registration information at a later date.

## Remove O&O DriveLED 2

To remove O&O DriveLED 2 from your system, open the 'Control Panel' by clicking on Settings in the Start Menu and double-click on the icon Add or Remove Programs. From the list of installed programs, please select 'O&O DriveLED 2' and click on Add/Remove button. Confirm this removal of O&O DriveLED 2. After the program is removed, you will be notified on-screen with a pop-up window. O&O DriveLED 2 is now removed from your system.

## Settings and Controls for O&O DriveLED 2

O&O DriveLED 2 enables you to monitor the condition and activity of your system's drives at all times. Because of this surveillance, potential malfunctions, including the probable time remaining before it occurs, can be predicted. This makes it possible for you to back-up your data and change out the potentially affected data volume, before the hard disk fails.

In the ControlCenter of O&O DriveLED 2, all of your hard drives are portrayed by small indicator lights. Every one of these LEDs monitors the status of a disk drive and, depending on its status, changes color accordingly.

- Blue – No activity to report
- Green – Read access on the partition
- Red – Data is being written onto the partition
- Yellow – Data is being written onto the partition and read access on the partition has been reported



ControlCenter of O&O DriveLED 2

With a right mouse click you can activate the context menu. From this menu it is possible to change the settings of O&O DriveLED 2.

## Hard Disk Drives

Next to each of the disk drive symbols, mentioned above, the letters of each data volume. Beneath each of those LED symbols are bars stating the current memory capacity for each partitioned data volume. If you double-click on one of the disk drives, Windows Explorer will be opened up and take you to this specific drive.

## Monitoring CD/DVD Drives

You can also monitor CD/DVD-ROM drives. In order to activate this feature, select View in the context menu and then 'Monitor CD/DVD drives'.

### Note:

These drives can only be monitored when valid media has been inserted into the drive.

## Monitoring Tape Drives

Tape drives can be monitored as well. In order to activate this feature, select View in the context menu and then 'Monitor tape drive'.

 **Note:**

These drives can only be monitored when valid media has been inserted into the drive.

## Network Drives

In addition to hard drives you can also observe access to the network drives. To activate this function, go to View in the context menu and then click on Monitor network. Once activated, all assigned network drives will be displayed along with the hard drives indicators

## Dynamic Drives

Finally, it is possible to monitor dynamic drives along side CD/DVD drives. Such drives include floppy drives, USB sticks, and digital cameras. To activate this feature, go to View in the context menu and click Monitor dynamic drives.

 **Note:**

These drives can only be monitored when valid media has been inserted into the drive.

## Status Updates

When you activate S.M.A.R.T., an oval-shaped indicator will appear next to the hard disk drive indicators. With this indicator you can monitor the current temperatures of your hard drives (as long as your hard drive supports this function). The status bar in the upper part of the display gives you information regarding the overall condition of the hard drive; the more units visible in the status bar, the better the condition of the hard drive. Should problems occur while S.M.A.R.T. is activated, the entire indicator will turn red. More information about this feature you can find below in the chapter regarding S.M.A.R.T.

## Further Options

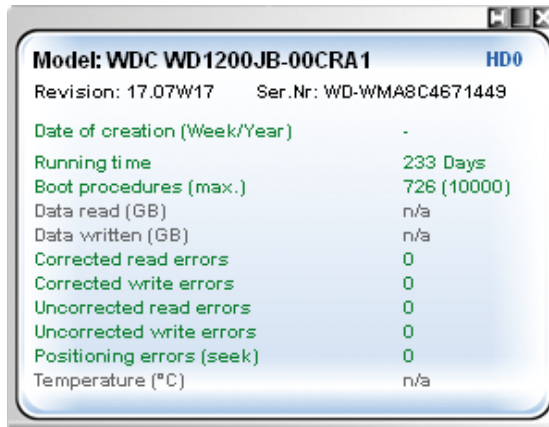
All other options available in O&O DriveLED 2 can be found In the context menu. You can change the window's view from horizontal mode to vertical mode; automatically align the program window to the edge of the screen; and adjust the transparency of the program window to a desired level.



# Monitoring with S.M.A.R.T.

## Monitoring the Hard Disk

O&O DriveLED 2 takes advantage of a hard disk's integrated S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology), in order to manage the condition of the drives. In doing so, the program gives a readout of values for the characteristic 'attributes' determined during the hard drive's 'self-diagnostic'. These 'attributes' could be, for example, the total number of operating hours or the rate of read errors. These values change with time and, in turn, show the wear and tear on the drive itself.



The screenshot shows a window titled "S.M.A.R.T. Readout of a Hard Drive" with a light blue background. The window displays the following information:

Model: WDC WD1200JB-00CRA1		HDD
Revision:	17.07W17	Ser.Nr: WD-WMA8C4671449
Date of creation (Week/Year)	-	
Running time	233 Days	
Boot procedures (max.)	726 (10000)	
Data read (GB)	n/a	
Data written (GB)	n/a	
Corrected read errors	0	
Corrected write errors	0	
Uncorrected read errors	0	
Uncorrected write errors	0	
Positioning errors (seek)	0	
Temperature (°C)	n/a	

S.M.A.R.T. Readout of a Hard Drive

Along with the model and serial number of the hard drive, O&O DriveLED 2 displays these attributes in a detailed window accessible through the context menu.

Some of these attributes can be displayed directly in the ControlCenter. Once you activate S.M.A.R.T. in the context menu, four new details will appear in the main window. They display the number of boot procedures, current temperature, and the number of both read and write errors.

## Explanation of S.M.A.R.T. Readout

The table below explains the different information O&O DriveLED 2 is designed to display. Depending on the make and manufacturer of your hard disk, it is possible that not all values can be displayed.

Date of Manufacture	Week and year of the hard disk drive's manufacture
Running time	Overall running time of the hard drive measured in days (one day equaling 24 hours)
Boot Procedures	Number of times the hard drive has been booted
Data Read (GB)	Volume of read data in Gigabytes up to this point
Data Written (GB)	Volume of written data in Gigabytes up to this point
Corrected Read Errors	Number of corrected read errors. In other words, errors that could be corrected internally by the hard drive
Corrected Write Errors	Number of corrected write errors. In other words, errors that could be corrected internally by the hard drive
Uncorrected Read Errors	Number of read errors that could not be corrected internally by the hard drive, leading, in turn, to faulty data transmissions
Uncorrected Write Errors	Number of write errors that could not be corrected internally by the hard drive, leading, in turn, to faulty data transmissions
Positioning Error	Number of positioning errors having occurred during the reading and/or writing of data
Temperature	Current and maximum allowed temperature of the hard drive in degrees Celsius

 **Note:**  
S.M.A.R.T. data cannot be transferred from Network Drives, Tape Drives, Dynamic Drives and external storage volumes.

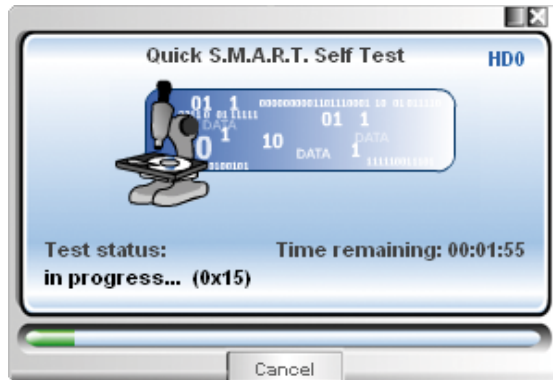
## Self Test

Every hard drive with S.M.A.R.T. is capable of running self tests. The manufacturers normally offer various tools requiring the user to reboot the computer from a specific boot disk. O&O DriveLED 2 now gives you the possibility of initializing a self test with the click of the mouse. Go to the heading 'Self Test' in the context menu and select whether you would like a quick or detailed self test. A self test can be aborted at anytime.



### Note:

If you abort the Test, this only closes the window. The hard disk will continue to carry out the test. You can continue working undisturbed throughout.



Running S.M.A.R.T. Self Test from O&O DriveLED 2

During the course of the test, the different functions of the hard drive are systematically analyzed. Specific tests include, but are not limited to: an examination of the interface, surface, and mechanics (including all read elements); an assessment of the error protocol; and finally, a diagnostic of the S.M.A.R.T. system itself.

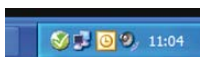
After the self test is completed and no errors are found, the respective categories will be lit up green. If errors occur, they will be reported. Should this be the case, it is recommended to contact the hardware manufacturer.

Test Status	Description
0	OK – Test successfully completed
0x3	Test not possible
0x4	Unknown hardware error
0x5	Electronic hardware error
0x6	Servo Hardware Error
0x7	Read Unit Error
0x15	Test still running (no definitive results)

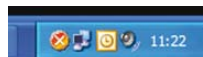
### Monitor in the Task Tray

O&O DriveLED 2 also displays the current status of your hard drives in Windows' task tray. With this indicator you can determine whether your various drives are operating correctly or an error has been reported.

**Note:**  
 In order to take advantage of this feature, S.M.A.R.T. must be activated with all drives supporting this functionality.



Status – all drives are working properly.



Status – at least one drive has reported a problem. Check the S.M.A.R.T. of all drives, as soon as possible.

# O&O Support and Contact

## Technical Support

To receive more information about O&O DriveLED 2, please visit our website, [www.oo-software.com](http://www.oo-software.com), and get the latest information about product developments and support. Also included on our website are regularly updated FAQs and Knowledge Bases that offer the most common problems and questions regarding our products.

All registered customers receive installation and product support free of charge for the first 90 days after registration. When contacting our support department, please do not forget to have your registration code ready.

In addition, it may be helpful to read our frequently asked questions (FAQ) section of our website before you contact our support department. It is always possible that your specific question or problem may have already been addressed.

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O&O Software GmbH  
Am Borsigturm 48  
13507 Berlin  
Germany

Tel +49 (0)30 4303 4303

Fax +49 (0)30 4303 4399

E-mail [info@oo-software.com](mailto:info@oo-software.com)

[sales@oo-software.com](mailto:sales@oo-software.com)

Web [www.oo-software.com](http://www.oo-software.com)

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O&O Software GmbH  
Am Borsigturm 48  
13507 Berlin  
Germany

Tel +49 (0)30 4303 4303  
Fax +49 (0)30 4303 4399

E-mail [info@oo-software.com](mailto:info@oo-software.com)  
[sales@oo-software.com](mailto:sales@oo-software.com)

Web [www.oo-software.com](http://www.oo-software.com)