



**Consultoria Eletrônica**

## **Actigraphy Software**



## **User's Manual**

Software version v1.11  
Preliminary Z0

## INTRODUCTION

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This manual explains how to install the control software for ACT10 actigraphy and also how to operate it.

To follow this manual, you need a basic computer and Windows operating system knowledge.

The actigraphy software is used to configure and download data from an ACT10 actigraphy through a hardware interface ACTCabo10. Please visit [www.cebrasil.com.br](http://www.cebrasil.com.br) for more information about these products.

## MINIMUM SYSTEM REQUIREMENTS

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**Computer** Pentium I or compatible, 8MB memory RAM, 50MB hard disc and 9 pin serial port.

**Operational System**  98/Me/2000/XP

## REVISION HISTORY

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**V1.00** Preliminary Version. Portuguese only.

**V1.10** Alteration of "Frequency Registration" at Date & Time tab;

Insert the sensitivity adjustment in accelerometer, units in temperature and luminosity and graphical displays of the accelerometer at Sensors tab. Portuguese only.

**V1.11** Fix the duplication of the event on record. Portuguese only.

The Consuloria Eletrônica reserves the right to update or modify any features of the equipment or this manual without prior notice or obligation.

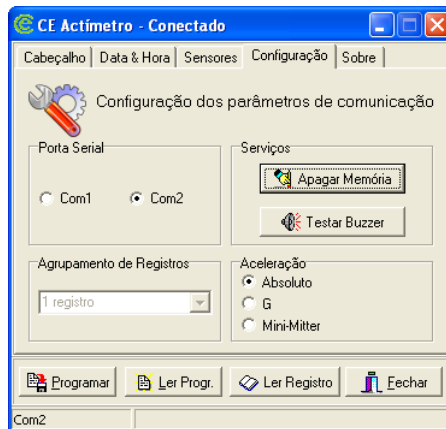
## INSTALLING SOFTWARE

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Locate the file *Install ACTSW10 v111.exe* on your computer's hard drive or a local directory. The *v111* in the archive name indicates the version of the program to be installed. Make sure you have the latest version of the program, checking for updates on the site [www.cebrasil.com.br](http://www.cebrasil.com.br).

Run the *Install ACTSW10 v111.exe* on your computer and the installer will guide you through the installation of the program.

Run the program and click the *Configuration* tab and in the *Serial Port* section, you will see that the program detected all available serial ports on your computer. Choose the serial port where interface actigraphy is installed.



## BUTTONS FUNCTIONS

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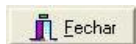
Transfer the configuration information from the program to the actigraphy



Transfer the configuration information from the actigraphy to the program.



Download data recorded in actigraphy.



Exit program

## STARTING A COMMUNICATION

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Follow the steps below to start communication with the actigraphy:

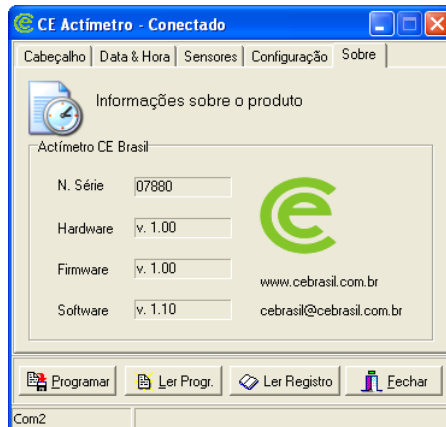
1. Insert the data cable from interface in actigraphy.
2. Press and hold the event in actigraphy until program indicate that the connection was established. The connection status appears at the top of the program window.
3. Click the *Read Progr.* to transfer the configuration information from the actigraphy to the program, if it already configured.

To stop the communication with the PC, just remove the communication cable from actigraphy. No need to close the program for this.

## GENERAL

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Several actigraphy information can be found in the *About* tab of the program, such as equipment serial number, firmware version (program resident in eprom of actigraphy), the current software version, etc.



It is very important to remain alert for new software updates and firmware for the actigraphy. To check the latest updates visit [www.cebrasil.com.br](http://www.cebrasil.com.br).

## HEADER

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This is a free memory area reserved for recording information about the experiment, such as patient name, type of experience, group of individuals, etc. Select the *Header* tab to view and edit these information up to 256 characters.

## DATE & TIME

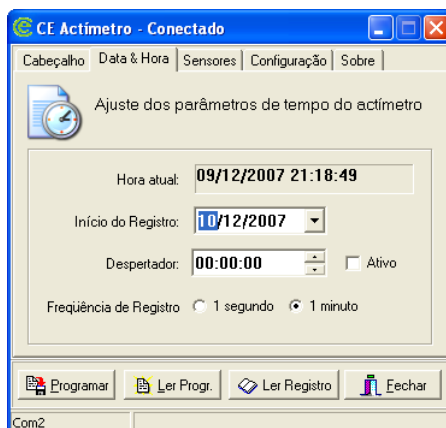
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In the *Date & Time* tab, you can view the current time of the computer, as well view and set the beginning of the record of actigraphy.

To enable the alarm function on actigraphy, set the desired time and check *Active* on this screen. If there is no need for alarm in the experiment, the option *Active* should remain uncheck.

Function *Frequency of Recording* determines how the frequency actigraphy will do a record. The frequency of 1 second is indicated for short-term experiments and high accuracy, for example, monitoring of only one night sleep, while the frequency of 1 minute is recommended for long-term experiments such as the determination of biological rhythms.

The actigraphy has its events synchronized by computer calendar that is being used in your schedule, so make sure it is properly adjusted.

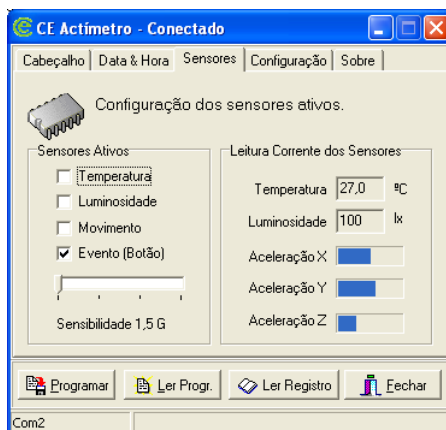


## SENSORS

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In the *Active Sensors* section, you can enable or disable functions of actigraphy to the needs of each experiment. Adjust the bottom bar of the field sensitivity of the motion sensor. The sensitivity of 1.5 G is the most sensitive to movements.

In the *Sensors current reading*, you can view all the instantaneous values of the parameters and the activity of the motion sensor in its 3 Cartesian axes.



## ERASING RECORDINGS

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To erase the memory of actigraphy that containing the records of an experience, press *Erase Memory* button in the *Services* on the *Configuration* tab. Make sure you have completed reading the records before proceeding with the erasing. The actímetro is erased automatically at the time of its programming.

## BEP

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To check the operation of the tone of actigraphy, press button *Test Buzzer* in the *Services* section on the *Configuration* tab.

## MOTION

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The ACT10 actigraphy records the variation of movement through a precise 3-axis accelerometer, which detects the position and movement of equipment based on sample rate and sensitivity chosen. These three values are stored in nonvolatile memory in the raw form,

and subsequently processed in the most appropriate selected by the researcher through the control software.

These 3 ways are described below:

- Absolute - Where the 3 values displayed in the registry is the direct reading of the sensor using a resolution of 8 bits. This value can range from 34 to 220, which corresponds to full scale sensitivity of the sensor set.
- G - Where the 3 values displayed is the Gravity value in each axis. This value can vary according to the selected full scale sensor sensitive.
- Mini-Mitter - Where the result showing on record is the result of a mathematical algorithm to approximate the result of the activity, using the values of the direct reading of the sensor using a resolution of 8 bits. This value can vary according to the full scale sensor sensitive.

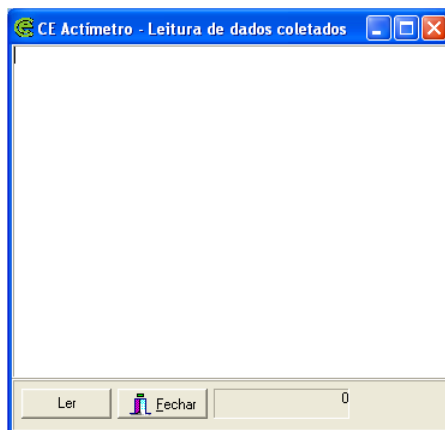
To choose which way the software will use to process the data acquired activity, select an option from the *Acceleration* field in the *Settings* tab of the program. If you want, select another option and run new reading record.

This setting does not change the way the equipment to record activity, affecting only the reading of them.

## READING A RECORD

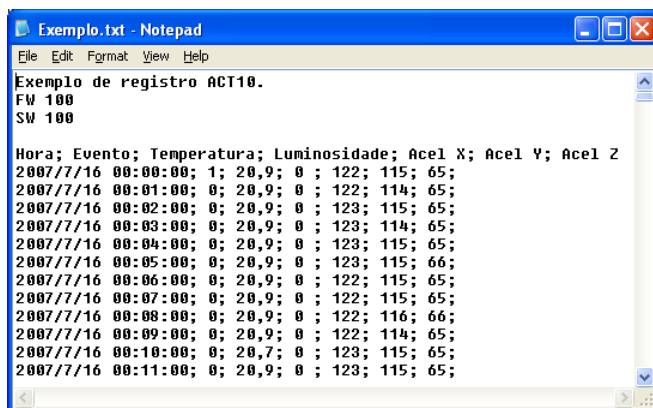
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To download the data from a actigraphy, click the *Read Registrar* button. The following screen will appear. It displays some relevant information to the reading of the records of actigraphy.



To continue reading, click the *Read* dialog box, choose the name of the file where the data will be saved and the destination directory. At the bottom of the screen will display a number indicating the number of records downloaded so far. This way you can follow the process of transferring the records. The data transfer process can take several minutes depending on the amount of sensors enabled the number of registration days.

The generated file has the termination .txt and has the following aspect:



```
Exemplo de registro ACT10.
FW 100
SW 100

Hora; Evento; Temperatura; Luminosidade; Acel X; Acel Y; Acel Z
2007/7/16 00:00:00; 1; 20,9; 0 ; 122; 115; 65;
2007/7/16 00:01:00; 0; 20,9; 0 ; 122; 114; 65;
2007/7/16 00:02:00; 0; 20,9; 0 ; 123; 115; 65;
2007/7/16 00:03:00; 0; 20,9; 0 ; 123; 114; 65;
2007/7/16 00:04:00; 0; 20,9; 0 ; 123; 115; 65;
2007/7/16 00:05:00; 0; 20,9; 0 ; 123; 115; 66;
2007/7/16 00:06:00; 0; 20,9; 0 ; 122; 115; 65;
2007/7/16 00:07:00; 0; 20,9; 0 ; 122; 115; 65;
2007/7/16 00:08:00; 0; 20,9; 0 ; 122; 116; 66;
2007/7/16 00:09:00; 0; 20,9; 0 ; 122; 114; 65;
2007/7/16 00:10:00; 0; 20,7; 0 ; 123; 115; 65;
2007/7/16 00:11:00; 0; 20,9; 0 ; 123; 115; 65;
```

The generated file can be opened in specific data processing, depending on the need for research to generate tables and graphs, compare data, etc. The previous example of log file in format Excel spreadsheet has the following aspect:

Microsoft Excel - Exemplo.txt

Arquivo Editar Exibir Inserir Formatar Ferramentas Dados Janela Ajuda

Exemplo de registro ACT10.

	A	B	C	D	E	F	G
1	Exemplo de registro ACT10.						
2	FW 100						
3	SW 100						
4							
5	Hora	Evento	Temperatura	Luminosidade	Acel X	Acel Y	Acel Z
6	16/7/2007 00:00	1	20,9	0	122	115	65
7	16/7/2007 00:01	0	20,9	0	122	114	65
8	16/7/2007 00:02	0	20,9	0	123	115	65
9	16/7/2007 00:03	0	20,9	0	123	114	65
10	16/7/2007 00:04	0	20,9	0	123	115	65
11	16/7/2007 00:05	0	20,9	0	123	115	66
12	16/7/2007 00:06	0	20,9	0	122	115	65
13	16/7/2007 00:07	0	20,9	0	122	115	65
14	16/7/2007 00:08	0	20,9	0	122	116	66
15	16/7/2007 00:09	0	20,9	0	122	114	65
16	16/7/2007 00:10	0	20,7	0	123	115	65
17	16/7/2007 00:11	0	20,9	0	123	115	65
18	16/7/2007 00:12	0	20,9	0	122	115	65

Exemplo / NUM

In this example it is easy to view the data recorded in the experiment. The beginning of the record occurred at 00:00 of the July 16, 2007. At the moment it was announced an event represented by the value in column 1.

Always an event is logged at the beginning of the record.

The temperature value is expressed in °C and the value of brightness is expressed in lx.

The values of acceleration are dimensionless, represent only the variation in 3 axes. This variation occurs in the range of 0 to 255, and the value 128 equal to 0G

NOTES

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