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TagTemp

TEMPERATURE LOGGER – INSTRUCTIONS V 1.1x B

1 INTRODUCTION

TagTemp is a small portable electronic temperature logger. Its internal sensor measures local environment temperature and logs such values in an electronic memory. Logged data, or ACQUISITIONS, can be later viewed and analyzed on a PC where they can be opened in tabular and graph forms.

The logger is supplied with **LogChart-II** software, which enables to set up the logger operation mode. It is also used for viewing acquisitions. Other parameters such as end of measurements, logging interval, etc., are easily defined through the **LogChart-II** software.

Acquisitions can also be exported to be analyzed in other applications, such as spreadsheet programs.

1.1 UNPACKING

The following items must be included in the package:

- The electronic logger TagTemp;
- A CD-ROM with the LogChart-II software and a USB driver;
- Quick logger operation guide.
- A communication interface upon request.

1.2 IDENTIFICATION

The identification label is on the logger body. Check if the features described are in accordance with your order.

The following elements are shown in the logger front.

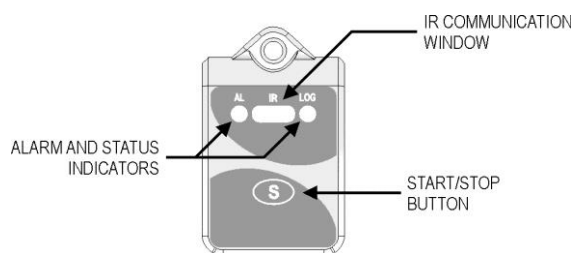


Figure 01 – Logger Front

Start/stop button (S): This button “wakes up” the logger whenever a communication between logger and PC is intended to start. It can also be configured to start or stop the temperature measurement process.

IR communication Window: PC - Logger communication area. During download, the communication interface must be directed towards this window.

Status indicator (LOG): While in stand-by (not logging) or after a series of measurements, it flashes once at every four seconds. During logging it flashes twice at every four seconds.

Alarm Indicator (AL): Warns the user as to alarm conditions. Whenever an alarm situation takes place it will flash once at every four seconds, until a new configuration is applied to the logger.

2 TECHNICAL DATA

Measure Range	Temperature: -20.0 °C to 70.0 °C.
Accuracy	± 0.5 °C @ 25 °C. ± 2 °C max. along the entire measured range. Note: A measure error can be fixed using the OFFSET parameter in the LogChart-II software.
Measurement Resolutions	Temperature: 0.1 °C.
Memory capacity	16.000 (16 k) logs.
Measurement Interval	1 second min. 18 hours max.
Supply	3.0 V lithium battery (CR2032), built-in
Estimated autonomy	Higher than 200 days, with weekly data reading. Frequent logged data readings may shorten battery life.
Operating temperature	From -20 °C to 70 °C
Case	Polycarbonate
Protection	Suitable for products with protection level IP67 . See “Special Care” section.
Dimensions	30 x 47 x 0.47 mm
Logger-PC data transfer time	According to the number of logs. 40 seconds for 16,000 logs.
PC Interface	Ir/USB or Ir/Serial
LogChart-II software operation environment	Set up Software for Windows XP, Vista and 7. Menus in Portuguese, English or Spanish. Sets up, reads and displays data on the screen.

3 OPERATION

It is only possible to operate the logger after the LogChart-II software is installed to a PC, according to the steps described in **LogChart-II Software** section of this manual. The communication between logger and PC is performed with the aid of the **IR-Link wand**.

The logger must be “waken up” before communication is attempted. To do so, press the **Start/Stop** button.

The logger starts flashing the **Status Indicator** according to his current status:

- **One** flash at every four seconds (stand-by) indicates the logger is waiting to start measuring or that a series of measures was concluded and the logger is waiting for a new command.
- **Two** flashes, measures ongoing.

The logger operation mode set up is defined in advance by using the **LogChart-II** software. Each setting must be defined and the consequences observed.

The logger starts and stops logging as defined in settings.

4 LOGCHART-II SOFTWARE

4.1 INSTALLING LOGCHART-II

LogChart II is the software provided with the logger to allow for configuration and data offload. To install, run the **LC_II_Setup.exe** file provided with the CD-ROM.

Note: Be sure your Windows date separator is configured as a slash: dd/mm/yy or dd/mm/yyyy.

4.2 RUNNING LOGCHART-II

When you open LogChart-II the main window is displayed.

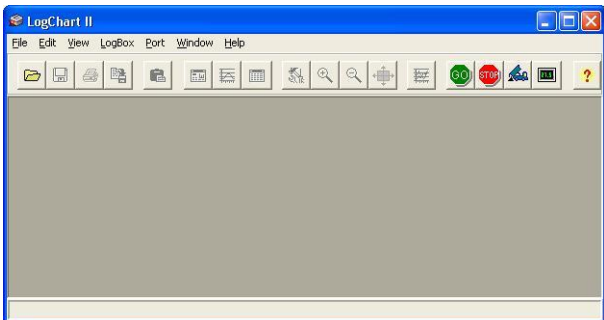


Figure 03 – LogChart-II main window

Next, select the serial port that the communication interface will use in the "Port" menu.

Check which serial is available. Usually COM2 is free, once the mouse uses COM1. The chosen port will be chosen by default next times the LogChart II is initiated. When a valid port is selected, the icons below are displayed.



Figure 04 – Icons enabled when the communication port selected is a valid port

4.3 CONFIGURING THE LOGGER

Make sure the communication interface is connected to the PC port selected. The interface must be constantly directed towards the front part of the logger (communication window) at a maximum distance of 1 m. (See Figure 05).

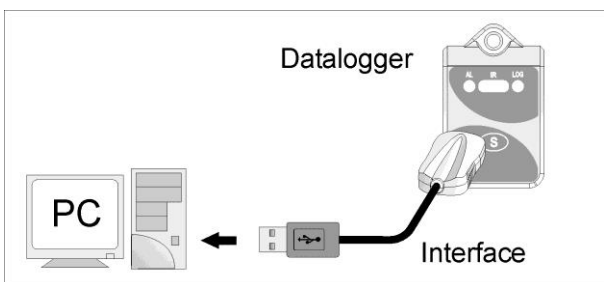


Figure 05 – Infrared communication interface position

The logger must be "waken up" by pressing the Start/Stop button.

After the serial port is selected, select:



The **Parameters Configuration** screen is displayed. In this screen the user can define the logger operation mode and also obtains general information about the device.

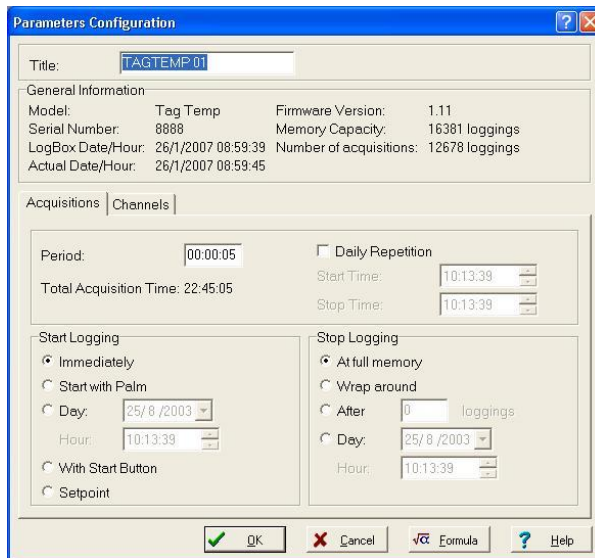


Figure 06 – Configuration window

Fields are:

- Title:** In this field, the user identifies the logger by assigning it a name.
- General information:** Area with information about the logger, such as Model, Serial Number, Logger Date/Time, PC Date/Time, firmware version, memory capacity and number of acquisitions stored in memory, etc.

In this field, time is constantly updated while the communication between logger and computer is taking place.

- Readings:** Presents a series of parameters that define the acquisition process.

Interval: Defines the interval between readings: The minimum interval is (1) second and maximum is (18) hours.

Note: When the type of value logged is maximum or minimum values, the minimum interval is 10 seconds.

In **Daily repetitions** the user defines the time that daily logs will take place.

Estimated time: In this parameter, the logger informs the user how long it will take to occupy the full memory, in the conditions set up during configuration.

Start of Readings: Readings can be started in one of five different modes:

- Immediately:** start as soon as set up is ready and sent (OK) to the logger.
- Start via Palm:** start with a command sent via PDA, which runs the software Log Chart Palm-OS. For further information, see **PDA User** section in this guide.
- Date:** readings start at predefined date and time.
- Via Start/Stop Button:** starts and interrupts readings by pressing the Start/Stop button, in the frontal part of the logger, for two seconds. See **Figure 01**.
- Setpoint:** acquisitions start when a **temperature** setpoint is reached. In this option, the setpoint value is defined in the Channels field, where the Alarm parameter is replaced by setpoint.

Stop loggings: Options for the end of readings are:

- Full Memory:** readings can be stored up to the full memory capacity is reached.
- Don't stop (Wrap around):** readings are continuous, replacing old records with new ones as the number of readings overpass the memory capacity.
- After:** the logger stops readings after a certain number of readings.

- **Date:** Readings stop at user-predefined date and time. In case the logger memory capacity is reached before the date defined, readings are stopped.

4- Channels: Displays other parameters related to temperature measurement:

Unit: Defines the unit of the value measured: °C or °F for channel 1 (temperature).

Value: It defines how the value measured will be registered. Options are:

- **Instantaneous:** The value logged will be exactly the value measured at each interval defined. Measurement is taken at the end of the defined interval. The minimum interval between measurements is 1 seconds.
- **Maximum:** The value logged will be the maximum value found within ten consecutive measurements taken within a predefined interval. The minimum interval between measurements is 10 seconds.
- **Minimum:** The value logged will be the minimum value found within ten consecutive measurements taken within a predefined interval. The minimum interval between measurements is 10 seconds.

Offset: Makes possible to correct the value logged.

Alarm: Defines limit values that, when exceeded, characterize an alarm condition. Alarm events are informed to the user through a flashing mode of the **Alarm Indicator**.

After filling all the fields select OK and settings will be sent to the logger.

5 INTERFACE INSTALLATION

In the Ir-Link3/RS232 model there is a RSR232/Ir communication interface. It must be connected to the serial port at the PC.

In the **Ir-Link3/USB** model there is a USB/Ir communication interface, which must be connected to the available USB port. Windows will request the proper driver installation, which is found in the CD-ROM that is provided with the logger.

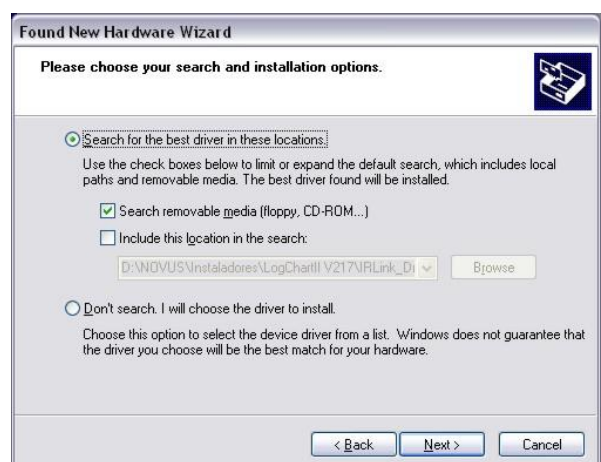
5.1 USB DRIVES INSTALLATION

The drives installation steps may vary according to the machine, even for the same version of an operating system. The following screenshots and steps are only to provide guidance.

1. Insert the CD shipped with the logger in the CD-ROM drive.
2. Connect the serial communication interface IrLink-3 to the PC USB port. Windows® will acknowledge the presence of new hardware and a few seconds later it will start the drivers installation process.
3. The found new hardware wizard will be displayed, and you will be asked if you want to install the driver from the Windows Update website. Select “No, not this time”, and then click Next.
4. Select “Install from a list or specific location (Advanced)” and click “Next”.
5. Select “Search for the best driver in these locations” and check “Search removable media”. Click “Next”. If installation files are not in a CD, check “Include this location in the search” and show the file path.
6. If a prompt warns you that it does not support Windows® XP, click “Continue anyway”.
7. The interface driver files will be copied to the computer and after a few seconds a screen is displayed informing that the software installation as been concluded. Click “Finish”.
8. In some situations, the steps described above may be repeated again. Follow the same procedures.

In later uses of the interface, Windows® may require the driver installation again. In this case, the same installation wizard will be displayed, and you will have to select the option “Install software automatically (recommended), as the driver may already be in the computer.

The following screenshots show examples of Windows XP® installation wizard. The screens in Windows 2000 are slightly different, but the content is basically the same.





6 OFFLOADING AND DATA VISUALIZATION

Data collected are sent from logger to PC. Data can be collected any time, at the end of the acquisition process or while they are being acquired. If data collection takes place during the acquisition process, the process will not be interrupted, following the logger configuration.

It is important to "wake up" the logger before starting communication.

6.1 OFFLOADING DATA

Data offload is accomplished by clicking the button **Offload Data**:



During data transference, a status bar indicates remaining data to be transferred. Data offloading time is proportional to the number of readings logged.

6.2 VISUALIZING DATA

At the end of values transfer, data can be displayed in a graphical form.

6.3 CHART WINDOW

It is possible to select a region of the chart to zoom in. Zoom commands can be accessed through the *View* menu or through zoom icons from the task bar.

It is also possible to select an area from the chart to zoom in by clicking and dragging the mouse, thus creating a zoom region starting from the upper left corner on the chart area.

The graphic curves can be vertically dragged with a right-click and dragging the mouse up and down.

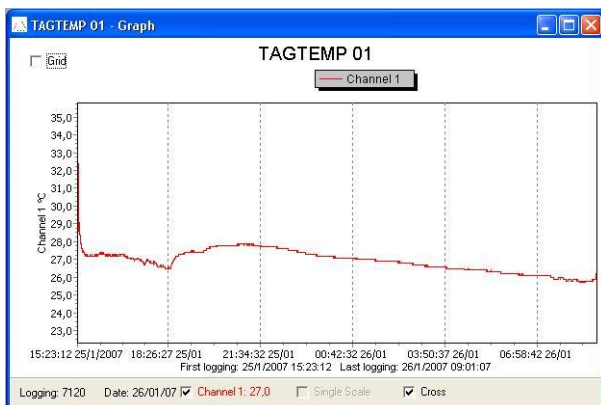


Figure 07 - Chart window.

6.3.1 MeasureS Table Window

To display measurements in a tabular form, press the icon **Table View**:



Values are presented in a tabular form, listing the measurement time and value.

Logging Nr.	Time	Date	Channel 1 [°C]
00001	15:23:12	25/1/2007	27,4
00002	15:23:17	25/1/2007	27,4
00003	15:23:22	25/1/2007	27,4
00004	15:23:27	25/1/2007	27,4
00005	15:23:32	25/1/2007	27,4
00006	15:23:37	25/1/2007	27,4
00007	15:23:42	25/1/2007	27,4
00008	15:23:47	25/1/2007	27,4
00009	15:23:52	25/1/2007	27,4
00010	15:23:57	25/1/2007	27,4
00011	15:24:02	25/1/2007	27,6
00012	15:24:07	25/1/2007	28,1
00013	15:24:12	25/1/2007	29,0
00014	15:24:17	25/1/2007	30,0
00015	15:24:22	25/1/2007	32,4
00016	15:24:27	25/1/2007	31,6
00017	15:24:32	25/1/2007	31,0
00018	15:24:37	25/1/2007	30,8
00019	15:24:42	25/1/2007	30,6
00020	15:24:47	25/1/2007	30,3

Figure 08 – Screenshot showing the measurement table

6.3.2 General information table

This window shows some information about the logger whose data were just read and its configuration. The screen can be displayed by pressing the icon **Parameter Viewing**:



General Information	
LogBox	
Model:	Tag Temp
Serial Number:	8888
Firmware Version:	1.11
Memory Capacity:	16381 loggings
Channel 1 [°C]	
Input:	NTC 10k
Value:	Instantaneous Value
Offset:	0,0
Logging Information	
Title:	TAGTEMP 01
Interval between readings:	5 sec
Total Number of Loggings:	12850
Start Logging:	Immediately
Stop Logging:	At full memory
Download Time:	sexta-feira, 26 de janeiro de 2007 at 09:14:03
First logging:	quinta-feira, 25 de janeiro de 2007 at 15:23:12
Last logging:	sexta-feira, 26 de janeiro de 2007 at 09:13:57

Figure 09 – General Information Window

6.4 EXPORTING DATA

Logged data can be exported to different file formats, for further analysis. To export, access *File/Export* or click the icon:



7 PDA USER

It is possible to set up the logger and collect acquired data with a PDA that supports the Palm-OS system.

The application **LogChart Palm-OS** is shipped with the logger. The stilled in the PDA through a HotSync process (data synchronization between PDA and PC).

The user needs the **Palm Desktop** and the **LogChart II** software installed in his machine. It is recommended to execute the Palm *HotSync* before installing the **LogChart PalmOS**.

To install the software, insert the disk in the driver, click on Start and Execute in the windows task bar. Type **d:\LCP_Setup**, where **d:** is the disk driver unit. Press "OK". The installation wizard will guide you through the installation process.

Executing a new *HotSync* will install the **LogChart PalmOs** software in the PDA. The LogChart icon will be added to the PDA home screen.

Starting the **LogChart PalmOS** application will display the **Recorded Data** screen on the PDA. Starting the LogChart PalmOS application will display the **Recorded Data** on the PDA screen, where from it is possible to access the logger to change settings and offload data, as well as to access recorded data.



Figure 10 – Recorded Data screen

7.1 ACCESSING THE LOGGERS

To have communication between the logger and the PDA established, the user must align the PDA infrared wand to the logger communication window, run the LogChart Palm-OS software, wake up the logger and press **Search Device** in the **Recorded Data** screen.

When the PDA finds the logger, the **Monitoring** screen will be displayed. The screen displays values of variables measured, configuration information and current logger status.

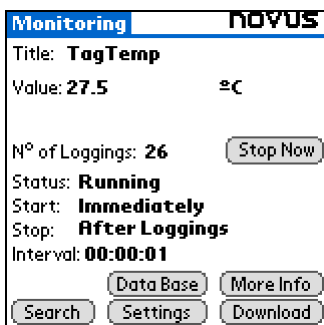


Figure 11 – PDA Monitoring screen

Buttons are assigned the following functions:

Search: It allows "searching" for another logger or reconnect communication lost for any reason. After finding a logger, the PDA displays a new **Monitoring** screen.

Download: Offload logged data. Download can be partial and it does not interfere in the ongoing measurement process.

More Info: Displays further information on the connected logger, such as model, serial number, version and memory capacity.

Settings: Accesses the Settings screen, which allows for modifying the logger configuration.

Data Base: Displays the **Recorded Data** screen listing all the processes stored and processed in the PDA data base.

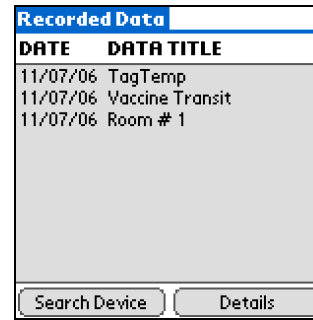


Figure 12 – Recorded Data Details screen

7.2 CONFIGURING THE LOGGER – SETTINGS

During configuration, the logger and the PDA ports must be aligned.

Press **Settings** in the **Monitoring** screen. The screen **Settings** is opened and provides the required parameters for configuring the logger.

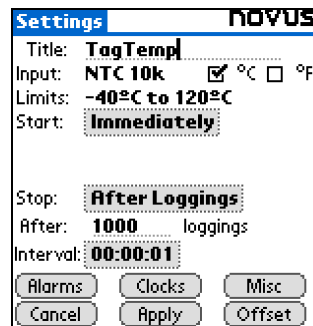


Figure 13 – PDA Settings screen

The parameters to be defined are:

Title: Name of the process.

Input: Enables the user to select the temperature unit.

Start (start of acquisitions): Defines the measurement start mode. Options are:

Immediately: The logger starts logging as soon as configuration is sent to the logger.

By date/time: Start in defined data and time, always after current time. It is possible to perform daily repetitions. If this option is selected, a new box to define the stop logging time is displayed.

By <Start> Button: Press the **Start_Now** button from the **Monitoring** screen to start logging. The PDA must be turned towards the logger.

By Setpoint value: Measurements start when a temperature setpoint is reached. With this option it is also possible to start measurements above (**log Above**) or below (**log Below**) a temperature setpoint (channel 1). This option is not valid for alarms that have already been set up.

By TagTemp button: Starts when the **Start/Stop** button at the frontal side of the logger is pressed.

Stop: Defines the measurements stop mode: Options are:

Full memory: Loggings can be stored **up to** the logger full memory capacity is reached.

Wrap around: Logging never stops. When the logger maximum memory capacity is reached, oldest records are overwritten by newest data.

After loggings: The logging will stop after the number of readings are defined.

By date/time: Logging is stopped on user-defined date and time.

Interval: Defines the interval between readings: hour, minutes and seconds. When the logging mode is set to the **instantaneous** the minimum interval is 1 second. For **maximum** and **minimum** values, the minimum interval is 10 seconds in both models.

Misc: Shows the Logging Mode parameter that defines how measured value will be logged. Options are:

Instantaneous: The value logged will be exactly the value measured at each interval. Measurement is taken at the end of the defined interval. The minimum interval between measurements is 1 second.

Minimum: The value logged will be the minimum value found within ten consecutive measurements taken within an interval. The minimum interval between measurements is 10 second.

Maximum: The value logged will be the maximum value found within ten consecutive measurements taken within an interval. The minimum interval between measurements is 10 second.

Alarms: Enables an alarm that is triggered according to user-defined parameters. Values shown in the temperature unit selected.

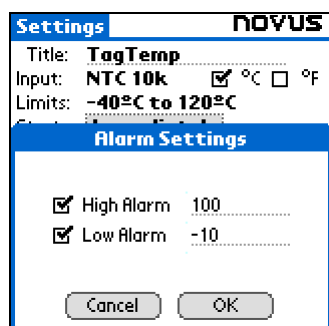


Figure 14 – PDA Alarm Settings screen

Clocks: Provides access to Logger and PDA clocks. When a new configuration is sent to the logger, clocks are updated.

Offset: allows fine offset adjustment on the measured value. The **Reset** button clears changes made and the logged values are the measured values again.

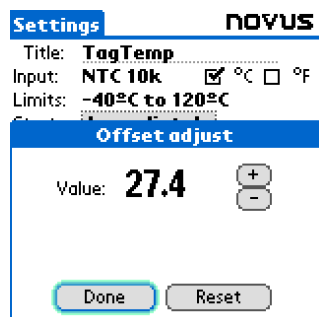


Figure 15 – Offset adjust screen

After configuring clocks in the **Settings** screen, click **Apply** to send this configuration to the Logger, returning to the **Monitoring** screen.

Sending a new configuration implies the **exclusion** of all data collected present in the logger memory.

7.3 DOWNLOADING DATA FROM THE LOGGER

In the **Monitoring** screen, the **Download** button performs the transfer of the data from the LogBox to the PDA. Download can be partial and it does not interfere in the ongoing acquisition process.

The data base of loggings is displayed in the **Recorded Data** screen, identified with the name assigned to the process (**Data Title**) and the date it was downloaded.

Should the PDA batteries be discharged, all readings will be lost.

7.4 FILE VISUALIZATION

The **Recorded Data** screen lists the data base logged and stored in the PDA. To access data, select the desired data base and press **Details**. **Recorded Data Details** screen shows several information about the data base.

View Data shows in table format the logged values and the date and time they were performed.

Press **Delete** to erase the selected data base.

7.5 TRANSFERRING DATA TO YOUR DESKTOP

HotSync of data stored in a PDA with the Desktop is performed through a conduit installed together with the LogChart Palm-OS. The conduit converts the data collected by the LogChart Palm-OS to a file compatible with the LogChart-II software.

To access the conduit options, the **HotSync Manager** software must be active. Click on the HotSync Manager in the Windows taskbar. Select in the drop-down menu the option **Custom**. Select **LogChart Conduit** and click **Change**. The following window will be exhibited:

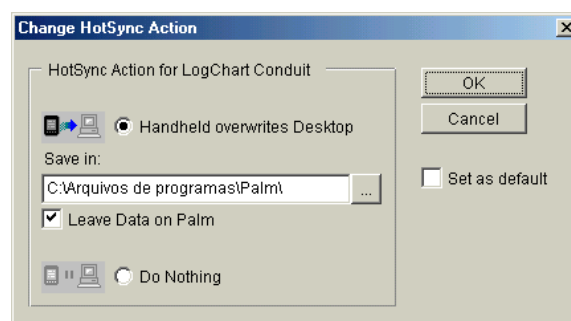


Figure 16 – LogChart Conduit options

Handheld overwrites Desktop: LogChart Palm-OS files are transferred to the Desktop.

Save in: Choose a directory to record files generated during data synchronization.

Leave Data on Palm: Option to keep or delete the data in the PDA after HotSync.

Do nothing: Data synchronization will not be performed;

Set as default: The same settings will be used in the next **HotSync** processes.

8 MOST FREQUENTLY FOUND PROBLEMS

The LED is not flashing: The LED flashing light is intentionally weak, and it can be difficult to see it in clear environments, certify it is really not flashing.

Communication with the logger fails:

Make sure the COM port is selected correctly and there is no other program using the same port during communication attempts;

Make sure there is no physical obstacle blocking the infrared signal;

Make sure the cable is well connected to the PC port;

Make sure the port selected does not present any problem;

9 SPECIAL CARE

When handling the device and its battery, observe the following:

- When the device is opened, avoid touching the electronic components and the printed circuit board to avoid electrostatic discharge damages.
- Pay close attention to battery polarity.
- When closing, the cover and its sealing must be mounted correctly and carefully to ensure the enclosure sealing.
- Used batteries must be disposed in accordance to local regulations. Don't try to recharge, dismount or heat, since explosion may occur.

10 WARRANTY

Warranty conditions are available on our web site.