

CZAKI THERMO-PRODUCT
ul. 19 Kwietnia 58
05-090 Raszyn Rybie
tel. (22) 720 23 02
fax. (22) 720 23 05
www.czaki.pl
handlowy@czaki.pl



***Application to acquisition
and graphic presentation
of temperature measurement***

LOGGER

version 3.0

User's guide on hardware installation
and software configuration



List of contents

1.Introduction.....	3
2.Installation.....	3
2.1 Connecting meter to the computer.....	3
2.1.1 Connected by RS-232 interface.....	4
2.1.2 Connected by RS-485 interface.....	4
2.1.3 Connected by USB converters.....	4
2.2 Software installation.....	5
3. Measurement and logging.....	7
3.1 Making connections with the meter EMT-200.....	7
3.2 Beginning measurements and logging.....	7
An Interval between measurements.....	7
3.3 The Graph.....	8
3.3.1 Types of the graph scalling.....	9
3.3.2 Magnyfyng the piece of graph.....	9
3.4 Saving data on disc.....	9
3.5 Reading saved data.....	9
3.6 Printing the graph.....	9
3.7 Alarm.....	10
4. Other functions.....	10
4.1 Saving settings.....	10
4.2 Information about software version.....	10
4.3 Finishing measurements and closing application closing....	10
5. Troubleshooting.....	11
6. Hardware requirements.....	12
7. Technical data.....	12

1. Introduction

Application "Logger" is designed to cooperate with microprocessor-based temperature meter EMT-200 made by CZAKI Thermo-Product. Values of actual measuring temperature are displayed and graphically represented at the graph function of time at computer display. Acquisition data are storing automatically on the computer's hard disc. It is also possible to print the graph of current or saved from file data. Flexible format of stored data in file, allow to import this data to the popular programs (for example Excell). Application also supports a functional alarm.

Temperature logging is online, what mean, that for all the time of measuring application must be running on the computer and connection must be establish.

Communication between meter EMT-200 is realized via serial interface RS-232 or RS-485. The application is designed to work under Microsoft Windows system.

2. Installation

2.1 Connecting meter to the computer

Depending from the version of meter, meter EMT-200 has implemented RS-232 or RS-485 interface.

Important!

To correct working Meter EMT-200 must have following settings:

- * baudrate: 2400
- *Parrrity: none
- * Stop bits: none
- *Adress: 01

These values are manufacture's defaults.

2.1.1 Connected by RS-232 interface

Meter EMT-200 in standard is delivered with RS-232 interface. The way of connecting the meter EMT-200 to a serial port of personal computer is shown in the figure on the next page. The meter is connected to the PC with three wires (that is Rx, Tx, GND). Because of low speed transmission used cable can be more longer than 15m (standard of interface RS-232). Depending of the local conditions (electromagnetic interference levels), length of cable may be increased to 100, even to 200 meters.

When used cable is long and interference level is high (inverters, high current switching) it is recommended to use cable with a shield and ground it **only from the one end**, or keep away from an energetic cables.

2.1.2 Connected by RS-485 interface

When meter EMT-200 (optional version) is manufactured with RS-485 interface, it is impossible to define scheme of connection, because it will be different for different producers of cards applied in the computer. Appropriate documentation should be enclosed together with the card by the producer. It is necessary only to remember link it, depending from label: "D+" with "D+", "D-" with "D-" or "A" with "A", "B" with "B" and "GND", (if it presents), with the computers ground.

2.1.3 Connected by USB converters

In the situation, when the personal computer isn't equip with RS-232 socket or RS-485 card (like most of current notebooks) it is possible to use converter USB<->RS232 or USB<->RS485, however this converter must be seen in the system like a virtual serial port (about numbers range from 1 to 8). That converters are available on the commercial market, also offered by CZAKI Thermo-Product with essential software.

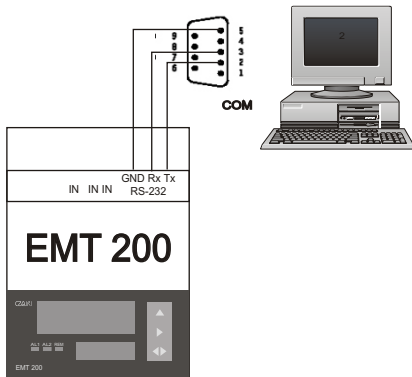


Fig. 1 Connection scheme

2.2 Software installation

Software is supplied on CD-ROM disc like self-extracting file.

The installation is reduced to the start of packed file: "logger.exe" from CD-ROM, and next to choose target place for an application. In selected folder will be 3 files: jrt.exe (the main program), config.emt (contains configuration data, for example: alarm levels, graph settings, etc) and czaki.bmp (auxiliary file). After first-time launch of application it will be created also file: jrt1.txt contains stored acquisition data.

Important!

For correct work of application, it is necessary to install a printer. If personal computer isn't equip with the printer, user should install any kind of printer, it could be also postscript printer.

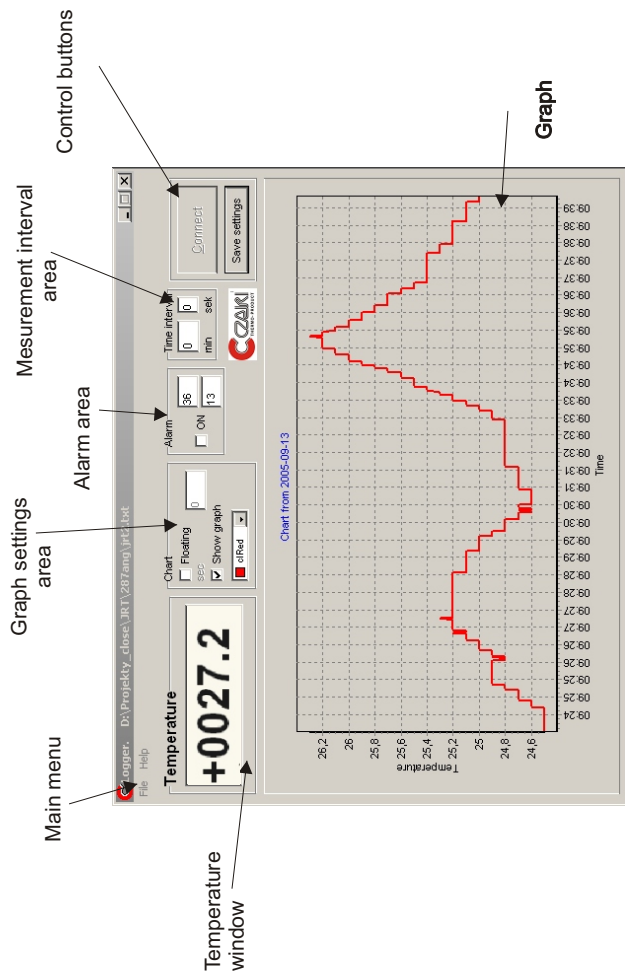


Fig.2 Application window

3. Measurements and logging

The application is composed from one, main window, simple menu and six areas: temperature, graph, alarm, graph settings, controls buttons and measurement interval.

3.1 Making connection with the meter EMT-200

Mesurements always starts from making connections with meter EMT-200. For this operation use button “Connect”, this is context type of the button, which function depends from actual situation. (After clicking, the searching meter procedure will be start).

Application “Logger” is looking for available ports and making contact itself. After finding, “Found device:” with actual temperature window will be appeared. But, in case, when meter is wrong connects or there is no free serial port (or its emulators) at the computer, “Device not responding” will be displayed.

When meter is founded, the button’s name changes at “Measure” and application is ready to measurements.

3.2 Beginning measurements and logging

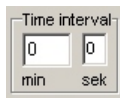
After clicking the button “Measure” the measure and logg procedure will automatically start. Current temperature is displaying in the window on the temperature area. Displayed temperature has the following format: five digits (include decimal part) and sign.

Graphic interpretation of measurement appears on diagram simultaneously, according to the settings described in further part of user’s guide.

While measurements are running some options are inaccessible, and button is changing his function on “Hold”. Now, it is possible to hold measurement and logging by clicking on it. And next click resume all processes again, because it has “Resume” function now. All data will be recorded as one process.

An interval between measurements

Measuring data will be saved in file and graph will be updated on the time setup at: “Time interval”.

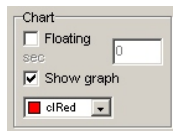


3.3 The graph

It presents graphically measured temperature on-line or saved temperatures data from a file. The area "Graph settings", presented below, is used to control this graph.

The graph could be drawn using different colors. Color is chosen by color box seeing right.

Drawing graph could be turned on or turned off by selecting option: "Draw graph". When drawing is turned off it doesn't mean that measuring data isn't logging. This option only turns off or turns on graph presentation.

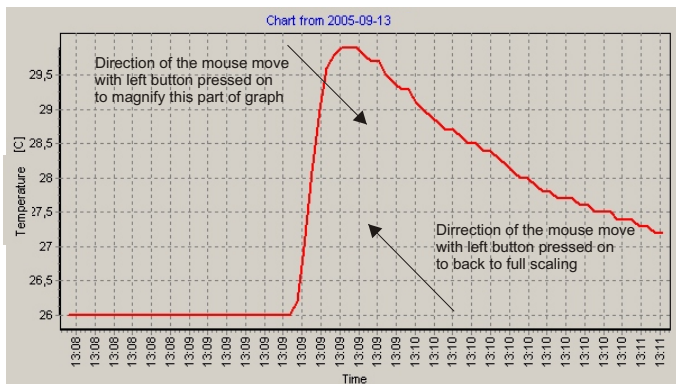


3.3.1 Types of the graph scaling

Vertical axis (temperature) of graph is scaled automatically.

However, axis of time could be scaled in two ways. First, automatically, when time period is jumping, and second, floating, with manual period of time.

If we want to observe measurements from the beginning, we don't select option "Floating". But if we want to observe measurements from defined time earlier (for example two hours), we select option "Floating" and next write 120 (minutes) in window "Length (min)".



3.3.2 Magnifying the pice of graph

To magnify the part of the graph, mouse's cursor should be in the left-up corner, then press left mouse's button and move it right-down, selecting intresting part of the graf. To back to full scale view, execute similar movement, but left-up, with pressing the left button too.

Magnifying area could be moved. By pressing right mouse's button and moving mouse, graph is moving too.

Important! It is recomended to magnify the graph after finishing or holding logging. If we magnify the part of the graph while logging, the graph will be automatically rescalling to full scale viewing in the next measurement.

3.4 Saving data on disc

If we don't select another options, measuried data are saved in default file: jrt.txt. In any moment of loggin process, or after measurement finish (but not after closing appliction!) we could change the files's name. To do this, from main menu we choose option "Save as", and next, write name of the file when measured data will be stored. If this operation will be done when measurements are running, all data from the begining, are stored in this file, and next will be currently written down.

3.5 Reading saved data

To read saved measuring data from main menu we choose "File", next "Open" and next we select file with intresting for us data. Data will be automaticly read by the graph. On the graph like this, we could make all functions described at cheaper 3.2.1.

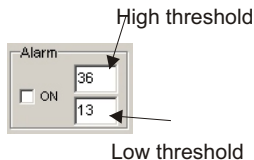
3.6 Printing the graph.

Application "Logger" enables printing the graph in form like it is at the screen when we start printing. In this case we could print only intresting for us part of graph (magnify selected part, floating chart etc.) It is possible to print current drawing data or stored in file too.

To print chart, we choose option "File" from main menu and next "Print".

3.7 Alarm

Applied alarm is over/under type. If temperature goes over high threshold or if falls down under low threshold, alarm will be turned on. Alarm is ready by selecting "On" in "Alarm" panel shown on right.



When alarm is running, "ALARM!" is displayed below this panel and temperature window changes its color. Red, if temperature is over high threshold, or blue when temperature is below low threshold.

4. Other functions

4.1 Saving settings

Parameters like: time measurement interval, color and graph type or alarm threshold could be saved. Parameters are saved by clicking on the button "Save settings" in "Control area". Saved settings will be automatically read by next start of application.

4.2 Information about software version.

All information, visible right, about application will be displayed after choosing option "Help" from main menu and next "About...". It is important to know software version and its update time before contact with manufacturer. Latest version of software is available at www.czaki.pl or on request via e-mail.



4.3 Finishing measurements and closing application

Closing of the application is typical for all applications working at Windows platform. There are two methods to choose: "File" from main menu and next "Close", or just by closing the application window. It is important to remember that all stored data, which were saved in default file, will be lost with next start of the application.

5. Troubleshooting

Problem	Possible reason	Manner procedure
After clicking "Connect" , window "Device not responding" is displayed	Meter not connected Meter wrong connected There is no free serial port at personal computer.(all busy)	Connect meter to personal computer Check meter connection, change line RX and TX Leave serial port Add new serial port Check: free serial port must have number not over COM8, if is over it, change port number at port properties. It is very important when USB<->RS232 or USB<->RS485 converters are used
Application reports error when starting, start is not possible	Printer is not installed	Install printer (any kind)
In the temperature window random signs are displayed	Wires Rx i Tx are shorted Too big capacity between wires Rx and Tx Electromagnetic interference	Repair connecting cable or plugs. Change cable at lower capacity one Change way of connecting cable. Use cable with shield, and ground it only at one end

Hardware requirements

Personal computer class

- * processor Pentium 100MHz or better (req. PIII 400MHz)
- * min. 16MB RAM (req.. 64MB)
- * 20MB free space on hard disc
- * VGA graphic card
- * free serial port or USB converter with drivers
- * Windows 98 operating system or better

Technical data

Manimium time ibetween measure: 2 second
Maximum of measurement points: about 200 000
Saved data format: open, ASCII in text file

<i>Numer fabryczny</i>	<i>Kontrola techniczna</i>
<i>Data sprzedaży</i>	<i>Punkt sprzedaży</i>