TagTemp-USB

TEMPERATURE LOGGER
INSTRUCTIONS MANUAL V1.0x G

CE Mark

This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

1 INTRODUCTION

TagTemp-USB 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 **NXperience** and **LogChart II** software enables to set up the device operation mode. It is also used for viewing acquisitions. Other parameters such as end of measurements, logging interval, etc., are easily defined through the **NXperience** and **LogChart II** software.

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

1.1 IDENTIFICATION

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

Fig. 01 – Front view of the device

1.2 LIGHT SIGNALS

Status indicator: This visual indicator reports the status of operation of device through the number of flashes that occur in an interval of 5 seconds. The states of operation are:

- **One flash**: The device is waiting to start the log in memory (standby) or completed a series of logs in memory.
- **Two flashes**: The device is performing logs in memory.
- **Three flashes**: The device is or has gone through an alarm condition and is not performing logs in memory.
- **Four flashes**: The device is or has gone through an alarm condition and is performing logs in memory.

2 TECHNICAL DATA

Measuring Range	Temperature: -20.0 °C (-4 °F) to 70.0 °C (158 °F).
Accuracy	$\pm$ 0.5 °C @ 25 °C ($\pm$ .9 °F @ 77 °F). $\pm$ 1 °C ($\pm$ 1.8 °F) max. over the full measuring range. Note: A measure error can be ruled out using the **OFFSET** parameter in the **NXperience** or **LogChart II** software.
Measurement Resolutions	Temperature: 0.1 °C (32.18 °F).
Memory capacity	32.000 (32 k) logs.
Measurement Interval	5 seconds min. 18 hours max.
Supply	3.0 V lithium battery (CR2032), built-in.
Estimated battery autonomy	• More than 400 days – 1-minute acquisition interval. • More than 500 days – 30-minute acquisition interval.
Operating temperature	From 20.0 °C (-4 °F) to 70.0 °C (158 °F).
Housing	PC-ABS
Protection	Device suitable for applications requiring up to **IP67** degree of protection. See chapter SPECIAL CARE.
Dimensions	55 x 37.5 x 15 mm.
Device-PC data transfer time	Proportional to the number of logs. 20 seconds to 32.000 logs.
PC Interface	Micro-USB cable.
NXperience software operation environment	Configurator software for Windows 10, 8, 7, and XP. Menus in Portuguese, English, French or Spanish. Sets up, reads and displays data on the screen.
LogChart II software operation environment	Configurator software for Windows 8, 7, and XP. Menus in Portuguese, English, French or Spanish. Sets up, reads and displays data on the screen.
Certification	CE

3 OPERATION

To operate the device, you must install **NXperience** software or **LogChart II** software on a PC, as instructed in the SOFTWARE NXPERIENCE and SOFTWARE LOGCHART II chapters of this manual. The communication between device and PC must be performed using a USB connector.

The configuration that defines the operation mode of the device must be previously created in the **NXperience** or **LogChart II** software. Each parameter must be defined and the consequences must be observed.

The device starts and stops registering as defined in the settings.

4 DEVICE CONFIGURATION

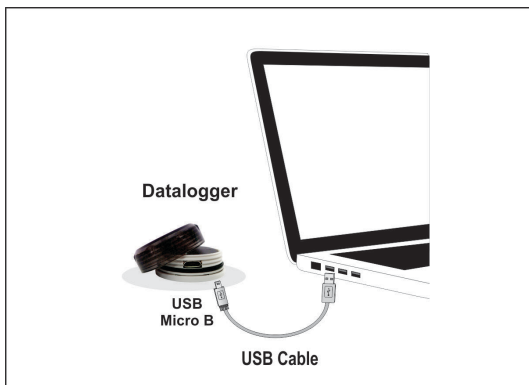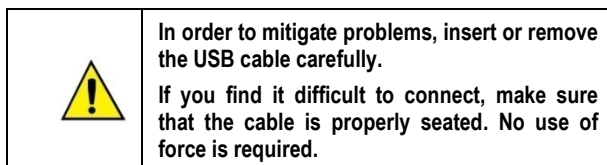To perform a configuration, the device must be connected to the USB port of the PC.

Fig. 02 – Communication via USB cable

⚠️	**In order to mitigate problems, insert or remove the USB cable carefully.**
	If you find it difficult to connect, make sure that the cable is properly seated. No use of force is required.

5 NXPERIENCE SOFTWARE

5.1 INSTALLING NXPERIENCE

NXperience software allows you to explore all the features of the device by communicating through its USB interface. It is also a complete tool to perform the analysis of the data logged by **TagTemp-USB**.

To install **NXperience**, just execute the *NXperienceSetup.exe* file, available from our website.

5.2 RUNNING NXPERIENCE

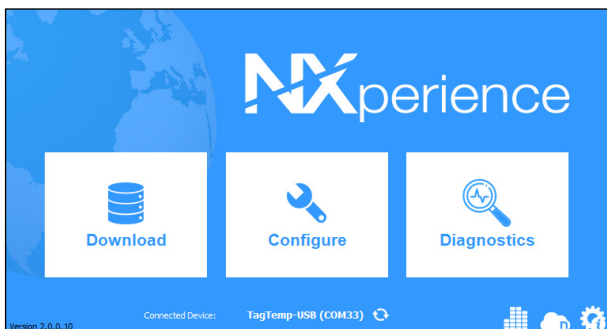When you open **NXperience**, the main window is displayed:

Fig. 03 – **NXperience** main window

You should click **Configure**, and then click **Read Device**.
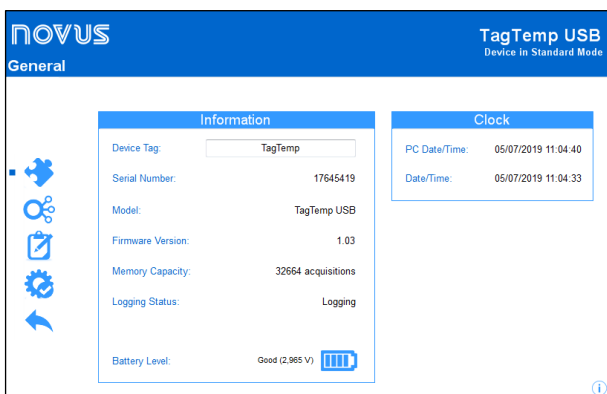
5.2.1 GENERAL PARAMETERS

Fig. 04 – General parameters

INFORMATION

- **Device Tag**: Allows you to set a name for the digital channel. The field accepts up to 16 characters.
- **Serial Number**: Shows the device unique identification number.
- **Model**: Shows the device model name.
- **Firmware Version**: Shows the firmware version recorded in the device.
- **Memory Capacity**: Shows memory space still available for new logs.
- **Logging Status**: Informs if the device is registering or not.
- **Battery Level**: Shows the device's battery charge level.

CLOCK

- **PC Date/Time:** Shows the date and time of the computer.
- **Date/Time:** Shows the date and time of the device when it was read by **NXperience**.
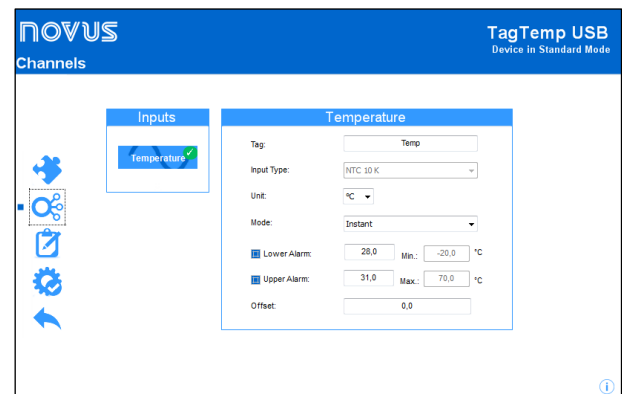
5.2.2 CHANNELS PARAMETERS

Fig. 05 – Channels parameters

TEMPERATURE

- **Tag:** Allows you to set a name, which will be used as channel identification during a download, for the channel. The field allows up to 16 characters.
- **Input Type:** Shows the type of sensor supported by the device.
- **Unit**: Allows you to define the unit °C or °F.
- **Mode**: Allows you to define how the value measured will be registered. Options are:
  - ○ **Instant**: 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 5 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 50 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 50 seconds.
  - ○ **Medium**: The registered value will be the average of ten measurements made on logging interval. The minimum time between each record is 50 seconds.
- **Lower Alarm:** Allows you to enable and configure a lower alarm setpoint (option available only if the log Start Mode is set to "Immediate Start" or "Date/Time").
  - ○ **Minimum:** Displays the minimum temperature supported by the device.
- **Upper Alarm:** Allows you to enable and configure a higher alarm setpoint (option available only if the log Start Mode is set to "Immediate Start" or "Date/Time").
  - ○ **Maximum:** Displays the maximum temperature supported by the device.
- **Lower Setpoint:** When the measured temperature is lower than the value set in this parameter, the device will start the logs (option available only if the log Start Mode is set to "Setpoint").

- o **Minimum:** Displays the minimum temperature supported by the device.
- **Upper Setpoint:** When the measured temperature is higher than the value set in this parameter, the device will start the logs (option available only if the log Start Mode is set to "Setpoint").
  - o **Maximum:** Displays the maximum temperature supported by the device.
- **Offset**: Allows you to make small adjustments to the channel readings. The configured offset will be added to all readings performed. An offset up to ± 3 ° C (± 5.4 ° F) can be set for temperature setting. This allows to decrease (and even zero) the temperature measurement error.

5.2.3   CONFIGURATION OF LOG REGISTER
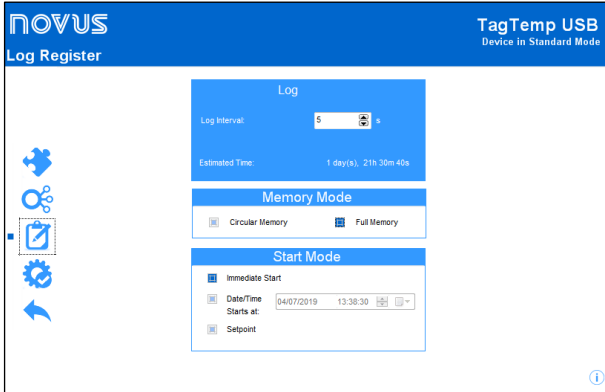
Fig. 06 – Log register

LOG

- **Log Interval:** Allows you to select the frequency (in hours, minutes or seconds) with which a log must be made and logged in the memory.
- **Estimated Time:** Based on the value set in the **Log Interval**, shows the estimated time for the memory to fill**.**

MEMORY MODE

- **Circular Memory:** Logs are continuous, replacing old logs with new ones as the number of logs overpasses the memory capacity.
- **Full Memory:** Logs can be stored up to the full memory capacity is reached.

START MODE

- **Immediately**: Start as soon as set up is ready and sent (OK) to the device.
- **Date/Time**: Logs start at predefined date and time.
- **Setpoint**: Logs start when a certain temperature value is reached. In this option, the setpoint value is set in the **Channels** field, in the **Upper Setpoint** and **Lower Setpoint** parameters (these options appear only when this log mode is selected).
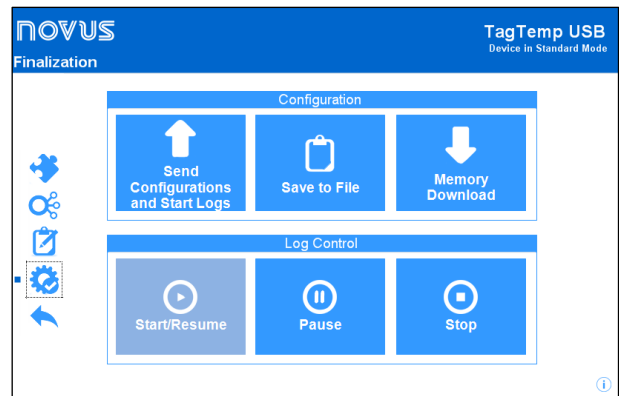
5.2.4   FINALIZATION

Fig. 07 – Finalization

CONFIGURATION

- **Send Configurations and Start Logs:** Allows you to send the configuration to the device and start the logs.
- **Save to File:** Allows you to save the configuration to a file that can later be used.
- **Memory Download:** Allows you to download logs from memory.

LOG CONTROL

- **Start/Resume:** Allows you to start or resume logs that have been interrupted by the **Pause** command, without discarding logs that are in the device's memory, using the configured parameters.
- **Pause:** Allows you to stop logs, allowing them to be resumed in the future using the **Start/Resume** button.
- **Stop:** Allows you to permanently stop logs, so that the device will only re-register when it receives a new configuration.

5.3   DOWNLOADING AND DATA VISUALIZATION

Data downloaded are send from device to PC. Data can be downloaded any time: at the end of the logging process or while they are being acquired.

If data download takes place during the logging process, **the process will not be interrupted**, following the device configuration.

5.3.1   DOWNLOADING DATA

Data download is accomplished by clicking the button **Download Logs** in the **Download** screen from **NXperience**.

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

5.3.2   VISUALIZING DATA

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

5.3.2.1   CHART WINDOW

It is possible to select a region of the chart to zoom in. Zoom commands can be accessed 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.
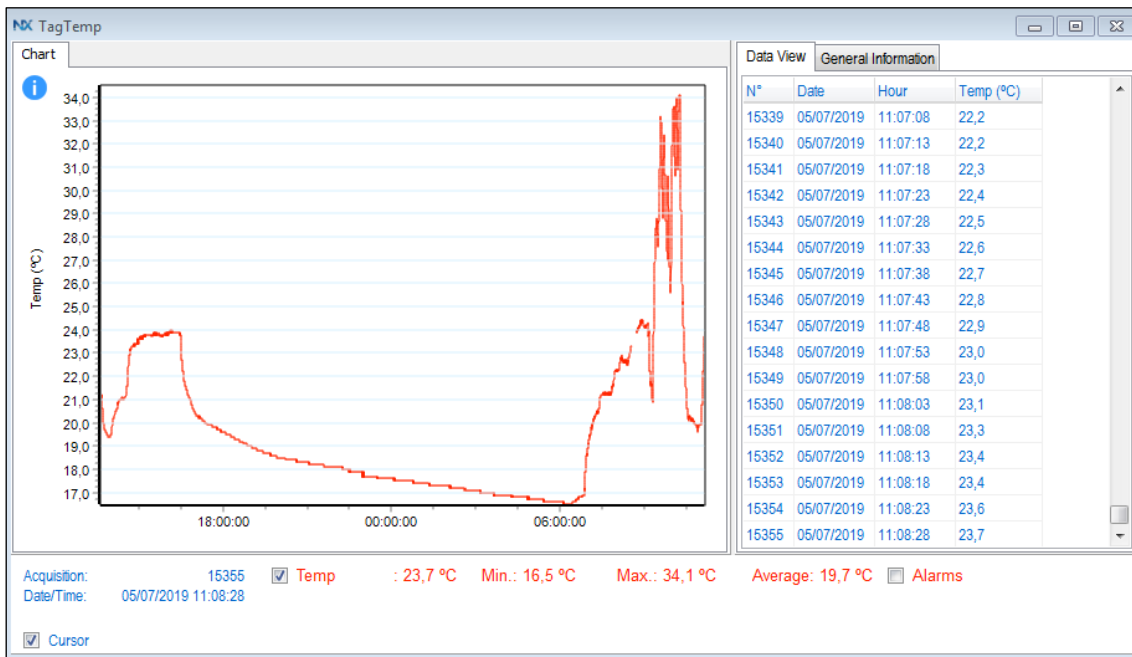
Fig. 08 – NXperience chart window

5.3.2.2 DATA VIEW TABLE

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

Fig. 09 – Data view table

5.3.2.3 GENERAL INFORMATION TABLE

This window shows some information about the device whose data were just read and its configuration.

Fig. 10 – General information

5.3.3 OTHER FEATURES

Check the **NXperience** Operations Manual for more information on the other features offered by the software, such as exporting to other formats, filter logs, chart junction, etc.

6 LOGCHART II SOFTWARE

6.1 INSTALLING LOGCHART II

The **LogChart II**, application is used to configure the parameters for data transfer. To install the **LogChart II**, run the file **LC_II_Setup.exe** available on our web site.

6.2 RUNNING LOGCHART II

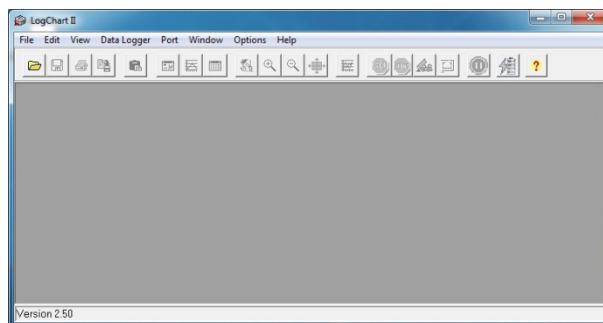When you open **LogChart II,** the main window is displayed.

Fig. 11 – 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). 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:

Fig. 12 – Icons enabled when the communication port selected is a valid port

6.3 CONFIGURING THE DEVICE

For device configuration is necessary that the communication interface is connected to the computer, using the selected port described in the previous section. See figure below:

After the serial port is selected, click on the button:

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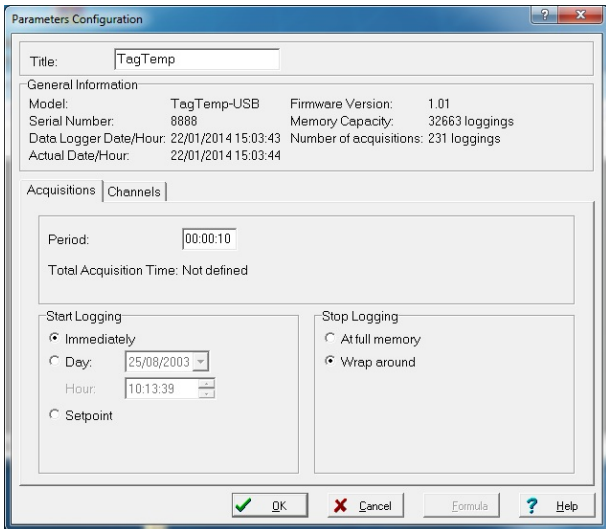

Fig. 13 – Configuration window

Fields are:

1 - Title: In this field, the user identifies the device by assigning it a name.

2 - General information: Area with information about the device, such as **Model**, **Serial Number**, **Data Logger Date/Hour**, **Actual Date/Hour**, **Firmware Version**, **Memory Capacity** and **Number of acquisitions** (stored in memory).

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

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

Interval: Defines the interval between readings: The minimum interval is (5) seconds and maximum is (18) hours.

Note: When the type of value logged is minimum, maximum or average values, the minimum interval is 50 seconds.

Estimated time: In this parameter, the device 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 three different modes:

- **Immediately**: Start as soon as set up is ready and sent (OK) to the device.
- **Date**: Readings start at predefined date and time.
- **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 logs with new ones as the number of readings overpasses the memory capacity.

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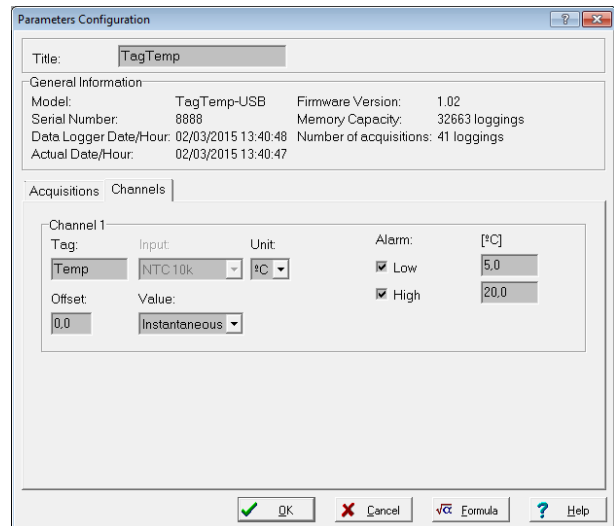

Fig. 14 – Configuration window

Unit: Defines the unit of the value measured: **ºC** or **ºF** 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 5 seconds.
- **Average**: The registered value will be the average of 10 measurements made on logging interval. The minimum time between each record is 50 seconds.
- **Maximum**: The value logged will be the maximum value found within 10 consecutive measurements taken within a predefined interval. The minimum interval between measurements is 50 seconds.
- **Minimum**: The value logged will be the minimum value found within 10 consecutive measurements taken within a predefined interval. The minimum interval between measurements is 50 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 the settings will be sent to the device.

6.4   STOP / PAUSE / RESUME BUTTONS

These buttons will be enabled once the device is fully configured.

The **Stop** button allows stop logs permanently, so that the device will only register again after a new configuration by the user.

The **Pause** / **Resume** button action sends the appropriate command, depending on the current registration status:

If the logs are **In Progress** and pressing this button, it will be send a command to **Pause** the logs.

Pause: Pauses the registry, allowing it to be resumed later using the **Resume** button.

If registration is **Paused** and pressing this button, it will be send a command to **Resume** the logs.

Resume: Resumes the logs that were interrupted by the **Pause** command without erasing the previous registers of the device memory, using the same parameter settings previously configured.

6.5 DOWNLOADING DATA

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

Data download is accomplished by clicking the button **Download Data**:

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

6.6 VISUALIZING DATA

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

6.6.1 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.
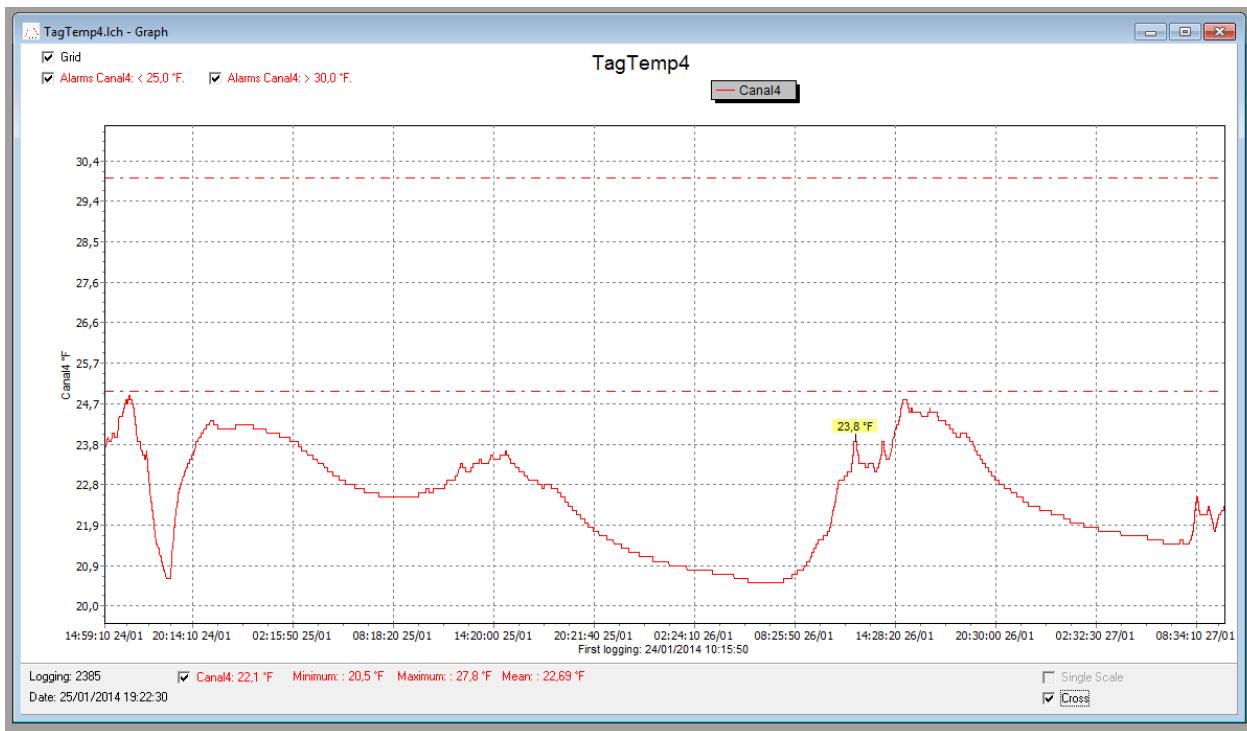

Fig. 15 - Chart window

6.6.2 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.

Fig. 16 – Screenshot showing the measurement table

6.6.3 GENERAL INFORMATION TABLE

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

Fig. 17 – General information window

6.7 EXPORTING DATA

Downloaded data can be exported to different file formats for further

analysis. To export, access **File/Export** or click the icon:

6.8 DIAGNOSTICS

Battery Level: Indicates the level of battery voltage. When the battery reaches a low level voltage, immediate replacement is recommended to ensure that the device will be continue to function properly.

Device Status: Summarizes the state of the device, including its memory, and the occurrence of alarm events to the time of the opening of the Diagnostic page.

7   BATTERY REPLACEMENT

⚠️	**Replace battery with Panasonic lithium battery Part No. CR 2032 only.** **Usage of another battery may present a risk of fire or explosion.**

Replacement procedure is described as follows:

- Remove the plastic cover.

Fig. 18

- With a small screwdriver, carefully remove the circuit board and battery

Fig. 19

- Insert a new battery and reattach the electronic board in the cabinet.

Fig. 20

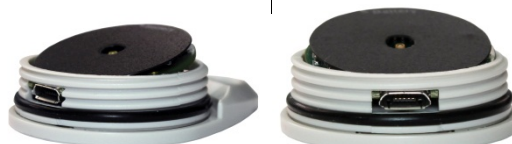- Carefully connect the USB connector into the housing with the battery downward.

Fig. 21

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 device 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 website www.novusautomation.com/warranty.