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# Operating Manual

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TagTemp Temperature Data Logger

**0568 0037-01**

V1.0x G



20. September 2021

B+B Thermo-Technik GmbH

Heinrich-Hertz-Str. 4 | D-78166 Donaueschingen

# TagTemp USB Temperature Logger

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## 1 FOREWORD

Dear customer,



We thank you for having purchased the **TagTemp USB Temperature Logger** and are very glad that you decided in favour of a product of B+B Thermo-Technik GmbH. We hope this product will fully satisfy you and will assist you effectively in your work. This Device has been developed to be technically highly up-to date. This product has been designed in accordance with the regnant European and German national directives and rules. For a proper and effective usage of the product the customer shall observe the following Operating Instructions. In the case that against one's expectations any troubles occur which you cannot resolve yourself, please contact our service centers or your salesperson. We go after giving you rapid and competent help to minimize the risk of long-time outfalls.

The following operating Instruction is an indispensable part of this Product. It contains important advices for the starting up and further use of the device









## 2 GENERAL ADVICE

This documentation contains information which must be paid in attention to assure a highly effective and secure use of the supplied product. Please read through the following instructions and make yourself familiar with the handling of the product before you insert it in your processes. Keep this document always readily to hand so you can consult it by need.

### 2.1. Labels

Symbol	Meaning	Description
	Advice	It is necessary to read the following advice before beginning the operations. The used symbols in the manual acts first as eye catcher for security risks. The symbols do not replace the security advice. The text must be read to the end
	Necessary to observe	This symbol designates important advice and tips that are necessary for the success a work step. They must be followed to get good results

### 2.1 Warning Advice

Symbol	Meaning	Symbol	Meaning
	This symbol advises the user of danger for persons, material, or environment. The text gives information that must be necessarily followed to avoid any risks		Caution against electromagnetic fields (BGV A8, GUV-V A8/W12)
	Caution against hot surfaces (BGV A8, GUV-V A8/W26) and hot liquids or substances		Caution against severe cold (BGV A8, GUV-V A8/W17)
	Caution against liquids and hot substances		Caution against dangerous high electrical voltage (BGV A8, GUV-V A8/W08)
	Caution against dangerous ex-plosive substances (BGV A8, GUV-V A8/W02)		Caution against dangerous ex-plosive atmosphere (BGV A8, GUV-V A8/W21)

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Caution against mobile engines (W29)  
Caution against moving parts



Electronic waste

## 2.2 Security Advices

B+B Thermo-Technik GmbH assume no liability for damages occurred through failure to observe these security advices. A usage non conform to the instructions given in this manual can damage the device

### BODY AND PROPERTY DAMAGES



The national and local standards for electrical installations must be strictly observed.  
The use of the device is strictly reserved / restricted to properly schooled / qualified operators.



The system is not adequate for use in atmosphere with explosion danger.



Do not use the system in a high electric or magnetic field area

### ENSURING OF PRODUCT SECURITY



The system must be operated only within the limits given in the technical Data  
Exposing the system to hot temperatures (higher than the operating temperature) will cause damages in the electronic circuits and also damage the housing

### USAGE ACCORDING TO PURPOSE



Please use the product only for the purposes for which it is conceived. In case of doubt, please first contact B+B Thermo-Technik GmbH

### DISOPOSAL



Please return the device to B+B Thermo-Technik GmbH after expiration of its lifetime

## 3 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

### 3.1 Identification

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



FIGURE 1 Front view of the device

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## 3.2 Light Signals

**Status LED 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.

## 4 TECHNICAL SPECIFICATIONS

Measuring Range	-20.0 °C (-4 °F) to 70.0 °C (158 °F)
Accuracy	± 0.5 °C @ 25 °C (± .9 °F @ 77 °F) ± 1 °C (± 1.8 °F) max. over the full scale <b>Note:</b> An eventual constant systematic error can be compensated using the OFFSET parameter in the <b>NXperience</b> or <b>LogChart II</b> software
Measurement Resolution	0.1 °C (32.18 °F).
Memory Capacity	32.000 (32 k) logs
Measurement Interval	5 seconds min to 18 hours max
Power Supply	3.0 V lithium battery (CR2032), built-in
Battery Autonomy (estimated)	More than 400 days – 1-minute acquisition interval More than 500 days – 30-minute acquisition interval.
Operating Temperature	20.0 °C (-4 °F) to 70.0 °C (158 °F).
Housing	PC - ABS
Ingress Protection	Device suitable for applications requiring up to <b>IP67</b> 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	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	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

## 5 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.

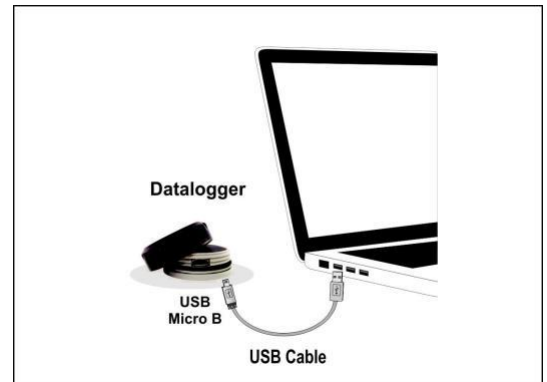
The device starts and stops registering as defined in the settings

## 6 DEVICE CONFIGURATION

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

FIGURE 2 Communication via USB cable

	<p>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.</p>
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## 7 NXPERIENCE SOFTWARE

### 7.1 Installation

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.

### 7.2 Running NXperience

When you open NXperience, the main window is displayed as shown in Fig 3

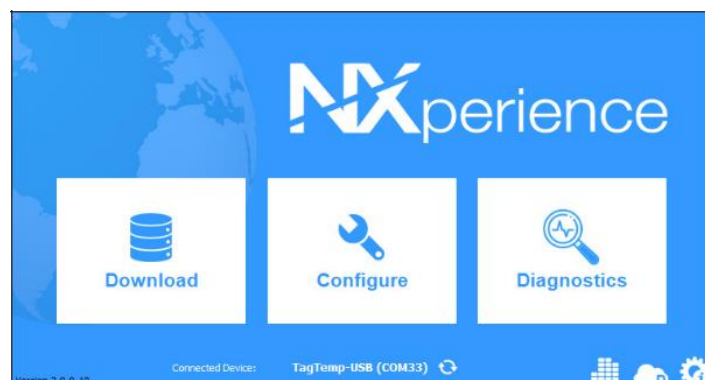


FIGURE 3 NXperience main Window

You should click Configure, and then click Read Device

### 7.2.1 General Parameters



FIGURE 4 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.

### 7.2.2 Channels Parameters

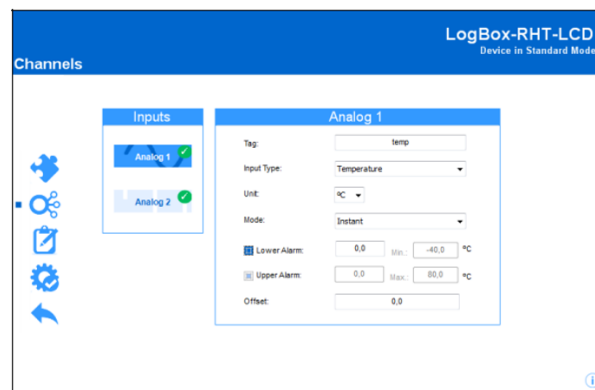


FIGURE 5 Channels Parameters

#### 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").
  - **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").
  - **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  $\pm 3\text{ }^{\circ}\text{C}$  ( $\pm 5.4\text{ }^{\circ}\text{F}$ ) can be set for temperature setting. This allows to decrease (and even zero) the temperature measurement error

### 7.2.3 Configuration of LOG Register



FIGURE 6 LOG REGISTERS

#### 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)

### 7.2.4 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



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### 7.3 Downloading and Data Visualisation

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

#### 7.3.1 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

#### 7.3.2 Visualizing Data

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

##### 7.3.2.1 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

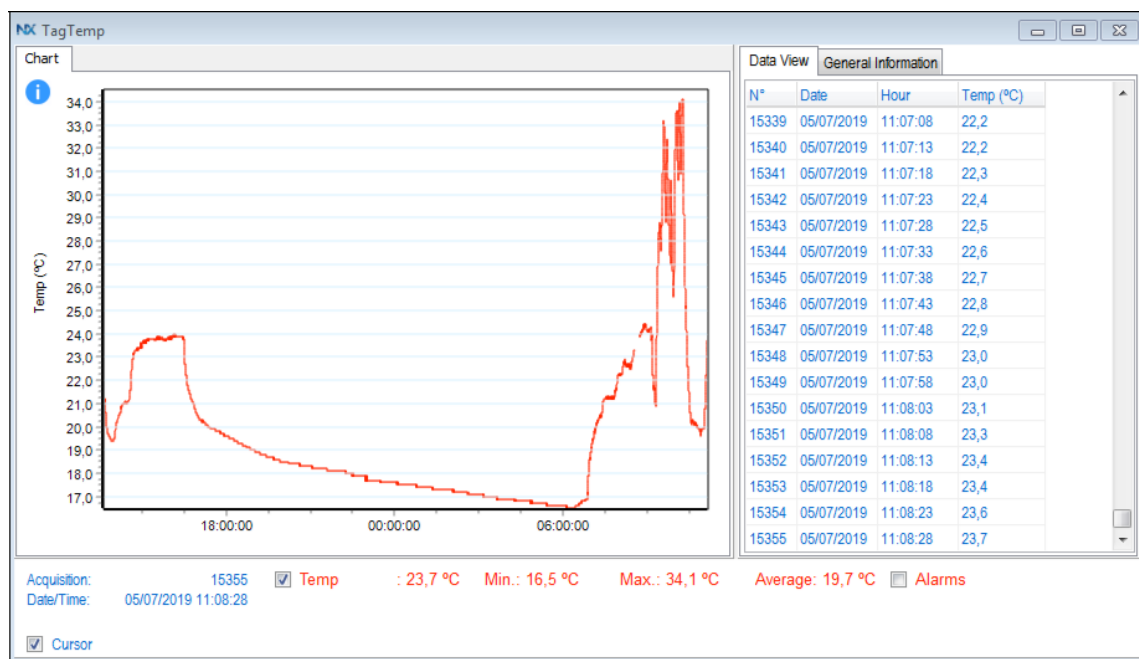


FIGURE 7 NXperience Chart Window

##### 7.3.2.2 Data View Table

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

The screenshot shows a 'Data View' window with a table of data points. The table has columns for N°, Date, Hour, and Temp (°C). The data points are the same as in Figure 7.

N°	Date	Hour	Temp (°C)
15339	05/07/2019	11:07:08	22,2
15340	05/07/2019	11:07:13	22,2
15341	05/07/2019	11:07:18	22,3
15342	05/07/2019	11:07:23	22,4
15343	05/07/2019	11:07:28	22,5
15344	05/07/2019	11:07:33	22,6
15345	05/07/2019	11:07:38	22,7
15346	05/07/2019	11:07:43	22,8
15347	05/07/2019	11:07:48	22,9
15348	05/07/2019	11:07:53	23,0
15349	05/07/2019	11:07:58	23,0
15350	05/07/2019	11:08:03	23,1
15351	05/07/2019	11:08:08	23,3
15352	05/07/2019	11:08:13	23,4
15353	05/07/2019	11:08:18	23,4
15354	05/07/2019	11:08:23	23,6
15355	05/07/2019	11:08:28	23,7

FIGURE 9 Data View Table

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## 7.3.2.3 General Information Table

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

Data View	
General Information	
Data Logger	
Model	TagTemp USB
Serial Number	17645419
Firmware Version	1.03
Memory Capacity	32668 Samples
Temp (°C)	
Input	NTC 10K
Mode	Instantaneous
Offset	0,0
Lower Alarm	N/D
Upper Alarm	N/D
Download Information	
Title	TagTemp
Log Interval	5 s
Total Logs	32657
Logs Start	Immediate
Memory Mode	Circular Memory
Logs Stop	Memory Mode
Time of Download	08/07/2019 10:10:03
First Log	06/07/2019 12:48:14

FIGURE 10 Information table

## 7.3.2.4 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.

## 8 LOGCHART II SOFTWARE

### 8.1 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.

### 8.2 Running LogChart II

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

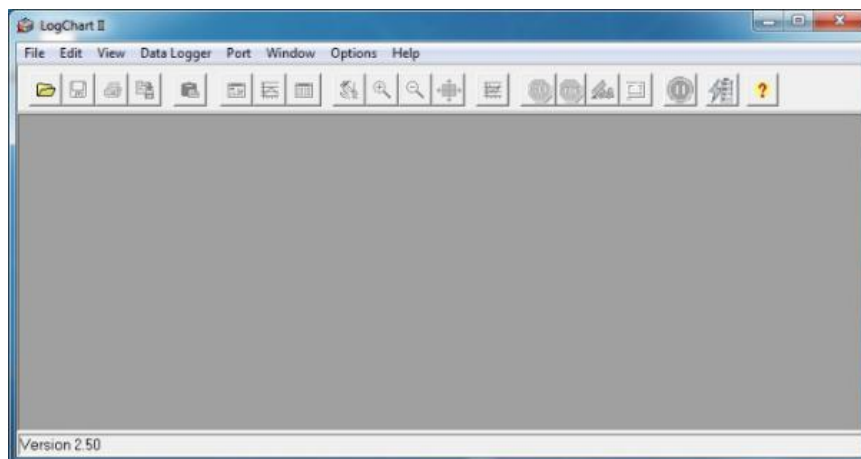


FIGURE 11 LogChart II Main Window

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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



FIGURE 12 Icons enabled when the communication port selected is a valid port

## 8.3 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

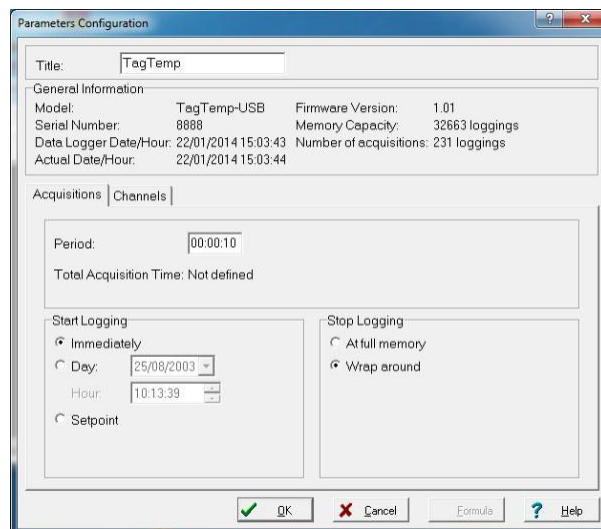


FIGURE 13 Configuration Window

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.
  - a. **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.
  - b. **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.
4. **Start of Logging:** Readings can be started in one of three different modes:
  - a. **Immediately:** Start as soon as set up is ready and sent (OK) to the device.
  - b. **Date:** Readings start at predefined date and time.
  - c. **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.
5. **Stop loggings:** Options for the end of readings are:
  - a. **Full Memory:** Readings can be stored up to the full memory capacity is reached.
  - b. **Don't stop (Wrap around):** Readings are continuous, replacing old logs with new ones as the number of readings overpasses the memory capacity

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6. **Channels:** Displays other parameters related to temperature measurement

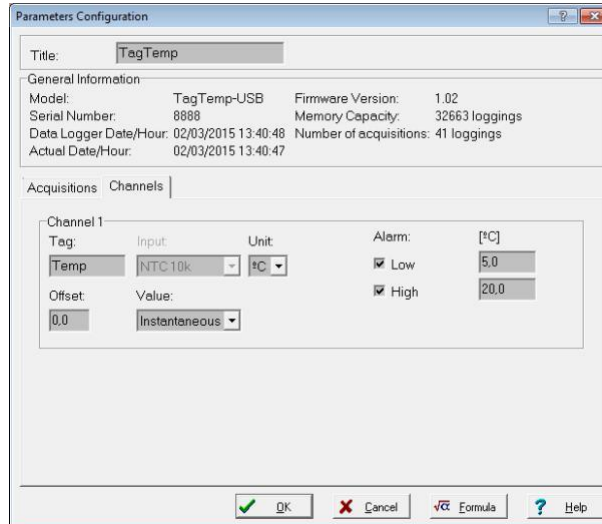


FIGURE 14 Channel Configuration

- **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 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 adding or subtracting a constant (known) error value
- **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.

## 8.4 Stop / Pause / Resume Buttons

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

	The <b>Stop</b> button allows stop logs permanently, so that the device will only register again after a new configuration by the user
	The <b>Pause</b> button action sends the appropriate command, depending on the current logging status: If the logs are In progress, pressing this button, it will be send a command to <b>Pause</b> the logs
	When the Logging has been "paused" via pressing the <b>Pause</b> Button, the latter will mutates to a " <b>Resume</b> " Button. Pressing this button will send a command to the device to resume the that were interrupted by the Pause command without erasing the previous registers of the device memory, using the same parameter settings previously configured After this the button mutates again to reflect the " <b>Pause</b> " function

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

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### 8.6 Visualizing Data

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

#### 8.6.1 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

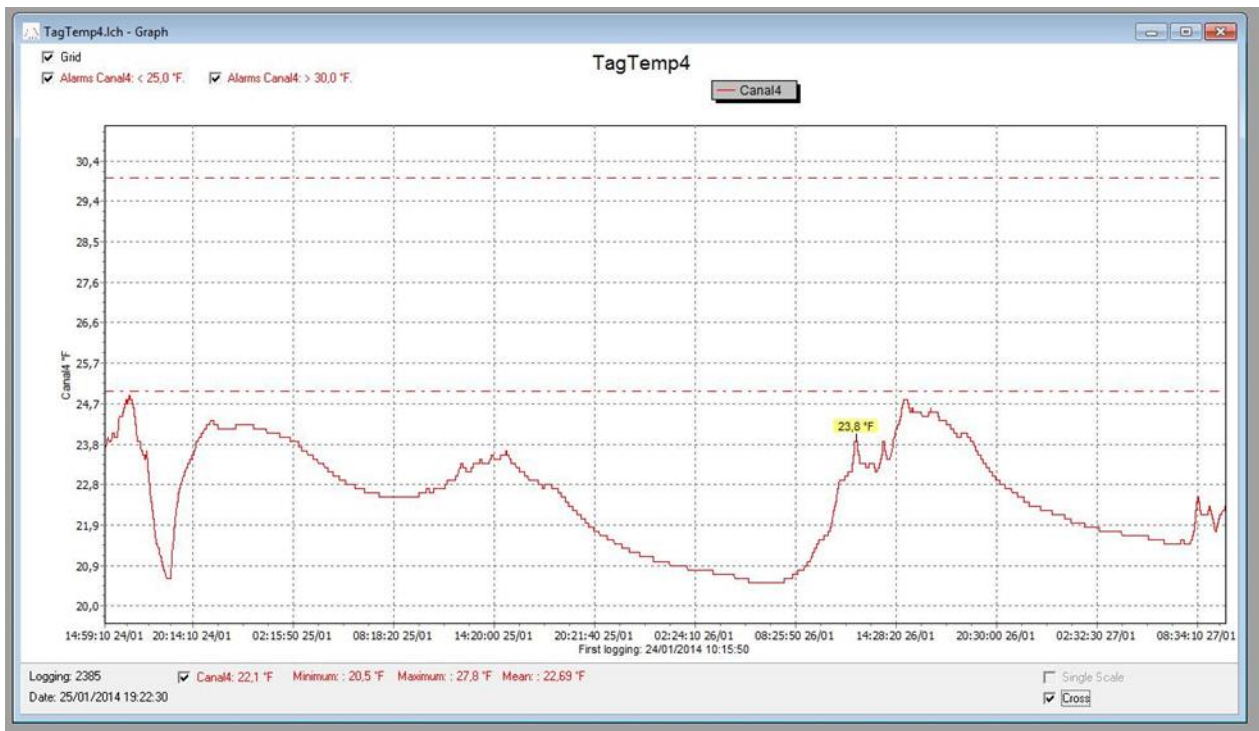



FIGURE 15 CHART WINDOW

#### 8.6.2 Data 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	Canal4 [°F]
03586	12:03:20	26/01/2014	23.8
03587	12:04:10	26/01/2014	23.8
03588	12:05:00	26/01/2014	23.8
03589	12:05:50	26/01/2014	23.8
03590	12:06:40	26/01/2014	23.8
03591	12:07:30	26/01/2014	23.8
03592	12:08:20	26/01/2014	23.8
03593	12:09:10	26/01/2014	23.8
03594	12:10:00	26/01/2014	23.8
03595	12:10:50	26/01/2014	23.7
03596	12:11:40	26/01/2014	23.6
03597	12:12:30	26/01/2014	23.6
03598	12:13:20	26/01/2014	23.6

FIGURE 16 TABLE WINDOW VIEW

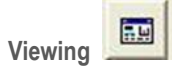
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## 8.6.3 General Information Window

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**

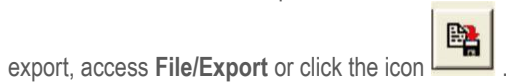


General Information	
<b>Data Logger</b>	
Model:	TagTemp-USB
Serial Number:	8888
Firmware Version:	1.01
Memory Capacity:	32663 loggings
<b>Channel 1 [°C]</b>	
Input:	NTC 10k
Value:	Instantaneous Value
Offset:	0.0
Alarm Low:	Not defined
Alarm High:	Not defined
Formula:	None
<b>Logging Information</b>	
Title:	TagTemp
Interval between readings:	10 sec
Total Number of Loggings:	239
Start Logging:	Immediately
Stop Logging:	Wrap around
Download Time:	quarta-feira, 22 de janeiro de 2014 at 15:05:02
First logging:	quarta-feira, 22 de janeiro de 2014 at 14:25:15
Place here a comment to identify the downloaded data.	

FIGURE 17 General Information Table

## 8.7 Exporting Data

Downloaded data can be exported to different file formats for further analysis. To



## 8.8 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

# 9 BATTERY REPLACEMENT

	<b>Replace battery with Panasonic lithium battery Part No. CR 2032 only. Usage of another battery may present a risk of fire or explosion</b>
--	---

Replacement procedure is described as follows:

**1**  
Remove the Plastic Cover



**2**  
With a small screwdriver, carefully remove the circuit board and battery

**3**  
Insert a new battery and reattach the electronic board in the cabinet



**4**  
Carefully connect the USB connector into the housing with the battery downward



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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 MOST FREQUENTLY ENCOUNTERED PROBLEMS

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- **The LED is not flashing:** The LED flashing light is intentionally weak, and it can be difficult to see it in bright environments. Be sure 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.

## 11 QUESTIONS?

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For further information about this or other products of B+B Thermo-Technik GmbH please do not hesitate to contact us at:

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