Rev.09
2025



NEW XS mini - zLogg

TEMPERATURE AND HUMIDITY DATALOGGER

NEW XS mini

SUMMARY

1. PRESENTATION AND INSTALLATION SOFTWARE: 4

1.1. Introduction to zLogg Manager 4

1.2. Main features 4

1.3. Download 4

1.4. Installation for Windows: 5

1.5. Installation for Mac OSX 5

1.6. Quick Menu & Configuration 6

1.7. Graph view 6

1.8. Data view 7

1.9. Menu 7

1.10. General Preferences 8

1.11. Chart Preferences: Customize style and colors 9

1.12. Data Preferences 9

1.13. PDF Preferences 9

2. CONFIGURATION 10

2.1. General settings 10

2.2. Alarms 10

2.3. Delay before alarm 11

2.4. Start, Stop & Measurement interval 13

3. GRAPH 14

3.1. Presentation 14

3.2. Navigation 15

3.3. Zoom 15

4. DATA 17

4.1. Presentation 17

4.2. Specifications & Configurations 18

4.3. Alarms 19

4.4. Summary & Statistics 20

4.5. Data 21

5. REPORT GENERATION 22

5.1. ZLG file 22

5.2. TXT file 22

5.3. CSV file 22

5.4. PDF file 23

6. MINI T, MINI T1, MINI TB & MINI TH 26

6.1. DESCRIPTION 26

6.2. XS mini T & mini T1 27

✓ Technical specifications 27

6.3. XS mini TB 28

✓ Technical specifications 28

6.4. XS mini TH 29

✓ Technical specifications 29

6.5. XS mini 1-way T 30

✓ Technical specifications 30

6.6. XS MINI 1 Way th 31

✓ Technical specifications 31

6.7. XS Mini 1way LCD 32

✓ Technical specifications 32

6.8. XS LOGGER High Temperature 33

✓ Technical specifications 33

6.9. LCD display 33

6.10. LCD DISPLAY ICONS 34

6.11. LCD Display Screens 34

6.12. How to configure the data logger step-by-step 36

6.13. How to start recording 37

6.14. How to read and download data 38

6.15. How to stop recording 38

7. USEFUL INFORMATION ABOUT 39

7.1. Disposal of electronic equipment 39

NEW XS mini

1. SOFTWARE PRESENTATION AND INSTALLATION:

1.1. INTRODUCTION TO ZLOGG MANAGER

zLogg Manager is a multi-platform desktop application designed to interface with the XS mini and mini V2 series of data loggers.

This software facilitates the rapid creation of reports in various formats, such as PDF, CSV, and .txt text files. The PDF report includes: graph, histogram, summary, data table, and other configuration information. This software also allows the configuration of acquisition, alarm thresholds, and any reporting delays.

1.2. MAIN FEATURES

- FREE SOFTWARE
- ALL-IN-ONE CONFIGURATION AND REPORTING
- CUSTOMIZABLE REPORTS
- MULTI-PLATFORM: WINDOWS, MAC OSX, LINUX
- AUTOMATIC AND FREE UPDATES
- DATA EXPORT IN VARIOUS FORMATS
- STATISTICS OF STORED DATA
- DATA LOGGER FIRMWARE UPGRADES
- CFR 21/11 SOFTWARE AVAILABLE

1.3. DOWNLOAD

You can download a free copy of zLogg Manager for Windows OS from the download section of the Giorgio Bormac and XS instruments websites:

Windows OS: https://www.giorgiobormac.com/

zLogg Manager for MAC OSx and Linux operating systems:

MAC OSX dmg file: https://dataloggermanager.com/app/Mac/zLoggManager.dmg

LINUX: https://dataloggermanager.com/app/Linux/zLoggManager

We recommend installing the latest software release available.
At the time of writing this manual, **zLoggManager version 1.25.01**.

1.4. INSTALLATION FOR WINDOWS:

Extract your copy of zLoggManagerSetup (*.exe) and launch the installation wizard. This installation will create a shortcut to the software on your desktop.

1.5. INSTALLATION FOR MAC OSX:

Double-click on the zLoggManager.dmg file. This will mount the file and open a window containing the zLoggManager application. Move the application to the Applications folder so that the zLoggManager application can be launched directly.



NEW XS mini

1.6. QUICK MENU & CONFIGURATION

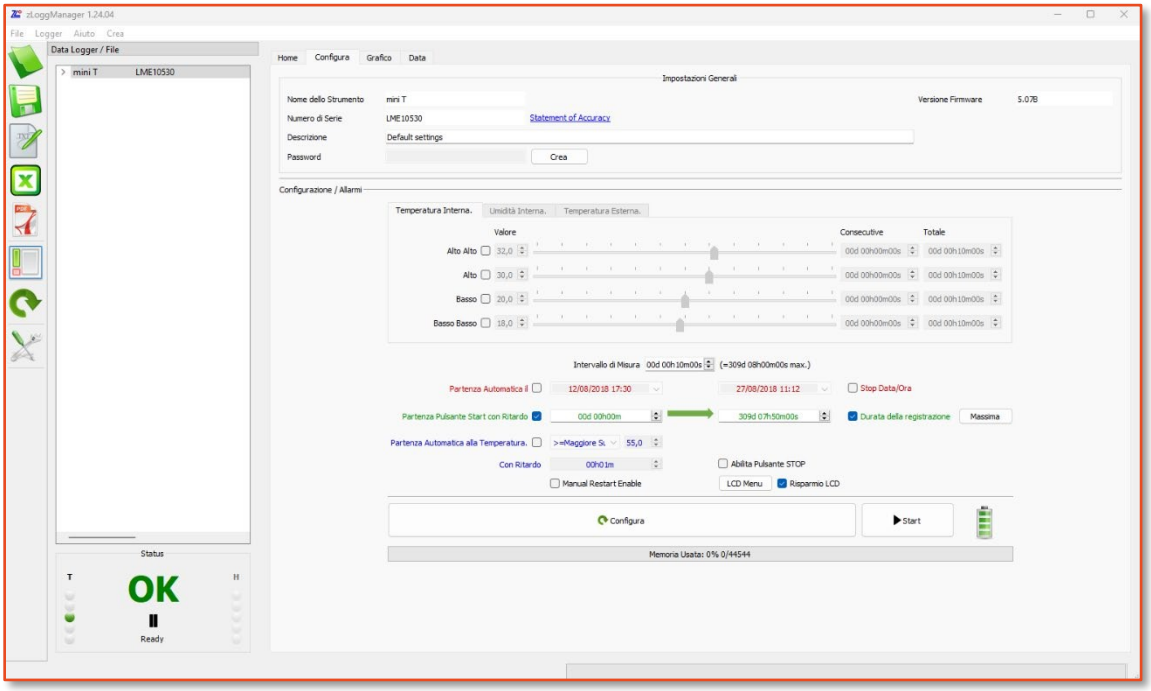


Figure 1: zLoggManager - Initial configuration screen

1.7. GRAPHIC VIEW

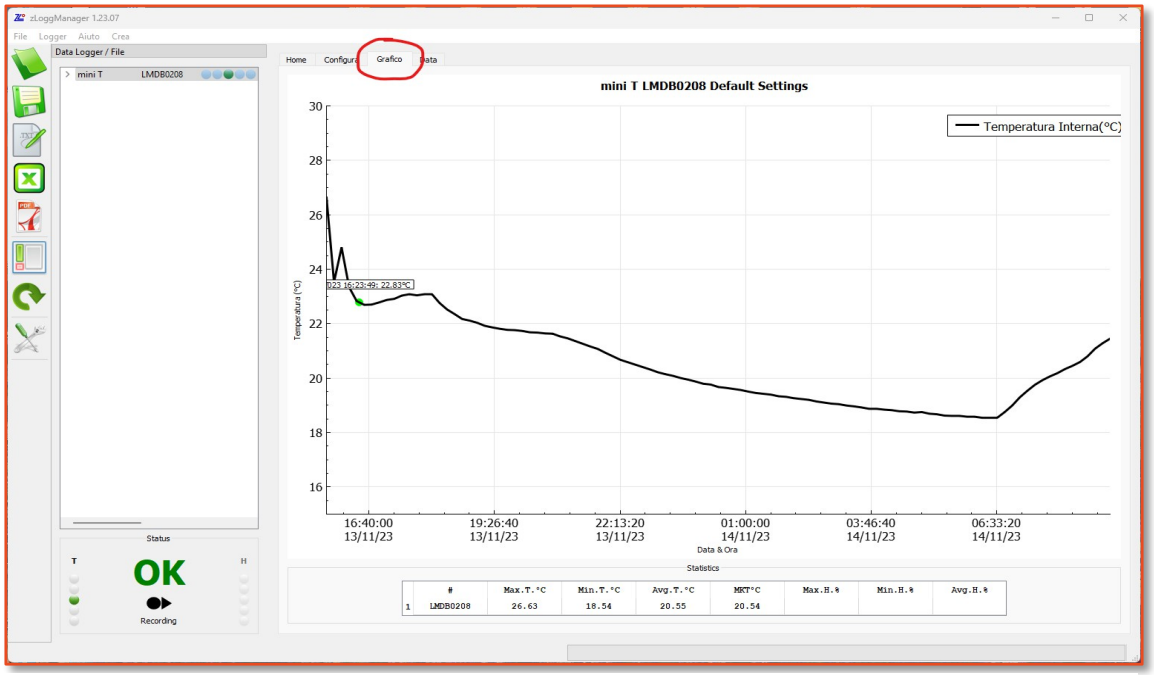


Figure 2: Advanced graph viewer with zoom on both axes or on a single axis

1.8. DATA VIEW

Fully customizable data summary including logger configuration, alarm statuses, and data statistics.

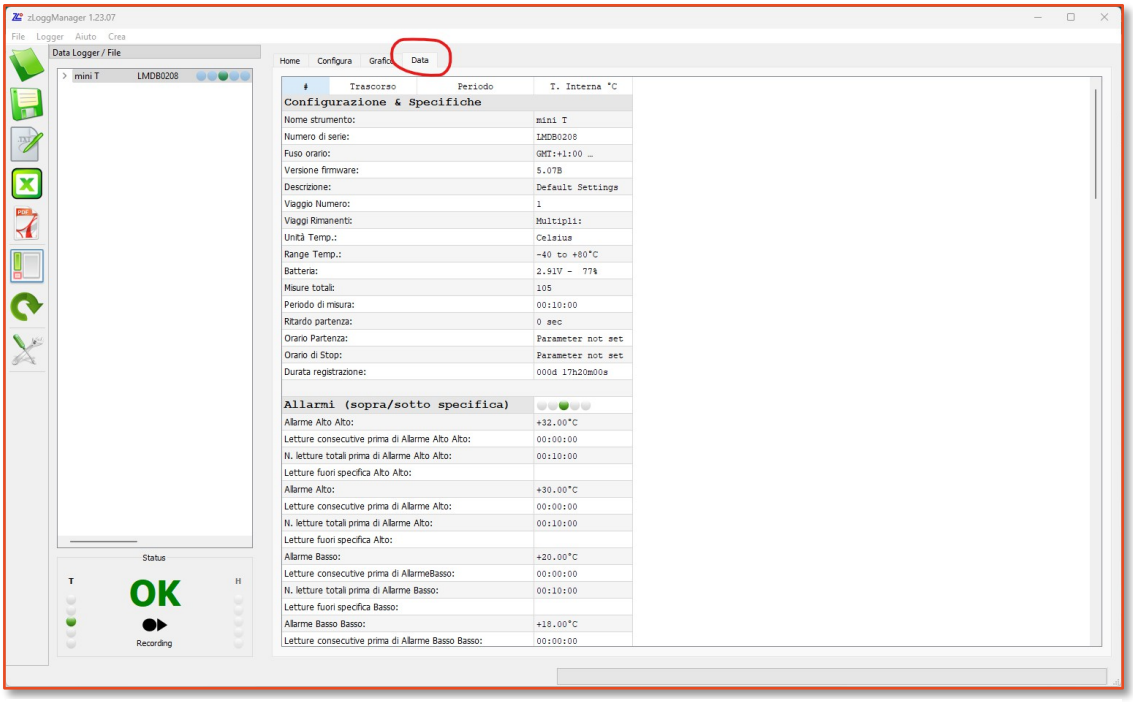


Figure 3: Summary of recorded data and device configurations

1.9. MENU



Figure 4: File menu summary

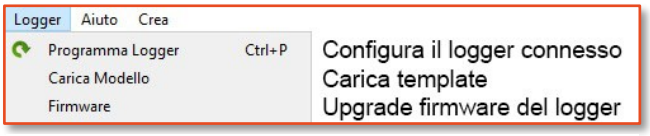


Figure 5: Logger menu summary

1.10. GENERAL PREFERENCES



- **Path:** Select the default path where files will be saved.
- **Language:** Current language.
- **Time Zone:** Select based on country/city or UTC format.
- **Temperature unit:** Select Celsius/Fahrenheit.
- **Excel CSV file separator:** Select the default separator used for generating CSV files.
- **Excel decimal:** Select the default decimal separator in Excel.
- **MKT Activation Energy:** Set the activation energy value:

$$T_K = \frac{\frac{\sum_{i=1}^{n} \Delta H_i}{R}}{-\ln\left(\frac{\sum_{i=1}^{n} e^{\frac{-\Delta H_i}{RT_i}}}{n}\right)}$$

dove:

- T_K è la temperatura cinetica media in kelvin
- $\sum_{i=1}^{n} \Delta H_i$ è l'energia di attivazione (in genere tra 60–100 $kJ \cdot mol^{-1}$ per solidi o liquidi)
- R è la costante dei gas
- T_i è la temperatura dell'i-esimo campione in kelvin
- n è il numero dei campioni di temperatura.

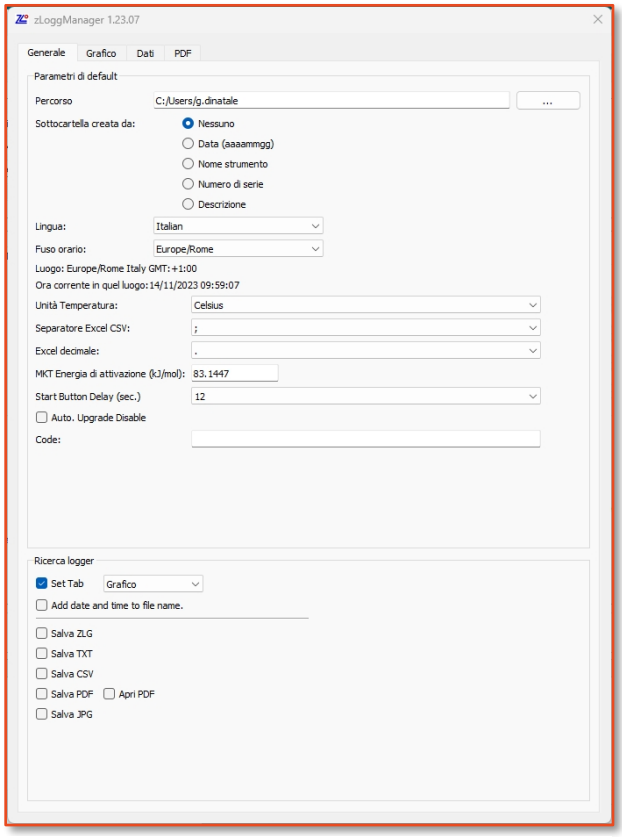


Figure 6: General preferences

The mean **kinetic temperature** (MKT) is a useful measure for expressing the effect of fluctuating temperature variations during a transient.

The mean kinetic temperature is an indicator of measurement stability widely used in the pharmaceutical and food industries.

- **Auto Upgrade Disable:**
  When selected, the software will never ask you to update to the latest release when it starts up. We recommend that you always keep the automatic update of the zLogg Manager software enabled.
- **Logger Search:**
  Selects the default software view when connecting the data logger.
- Select the desired formats for automatic saving when connecting to the PC.

1.11. CHART PREFERENCES: CUSTOMIZE THE STYLE AND COLORS.

- **Color/Thickness/Theme:** Customize all aspects of the chart, such as the background, color, and line thickness.
- **Theme:** You can choose from three predefined themes: gray, white, and black.
- **Fit to screen:** Default zoom to fit all data in the chart to the screen.
- **Show Statistics:** Show basic statistics (max, average, min, etc.) on the graph.
- **Alarm Limit Style:** Select whether to show alarm limits as lines or areas.

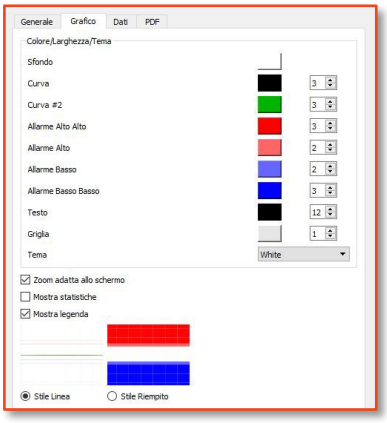


Figure 7: Chart preferences

1.12. DATA PREFERENCES

Select the information you want to be displayed in the data window.

- **Add Specifications:** Add device configuration information.
- **Add Alarms:** Add alarm settings such as limits and delays.
- **Add Statistics:** Add basic statistics such as minimum, average, maximum, and MKT values.
- **Add Data:** Add all recorded data.

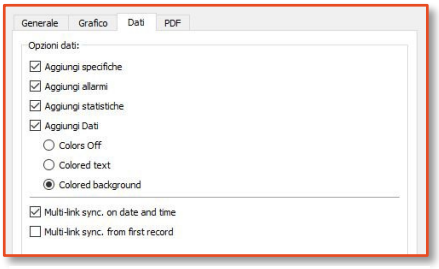


Figure 8: Data Preferences

1.13. PDF PREFERENCES

Customize the PDF generated by the data logger and zLogg Manager software according to your needs. Choose the colors and thicknesses of the curves and alarm lin

- **PDF Colors/Thickness:** Customize the alarm limit lines and their thickness.
- **PDF Options:** Select which data you want to add to the PDF generated by the application.



Figure 9: PDF preferences

2. CONFIGURATION

2.1. GENERAL SETTINGS

- **Instrument name**: Manufacturer model.
- **Serial number**: Unique serial number of the data logger.
- **Firmware version**: Current firmware version.
- **Description**: Description can be modified by the user.

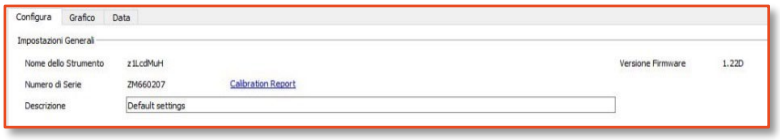


Figure 10: General settings

2.2. ALARMS

- Up to four alarm limits with intelligent delay management.
- Each alarm can be postponed by a consecutive and/or total delay.
- The resolution of the alarm limits is 0.1°C over the entire measurement range.
- Alarms can be enabled or disabled using the check box. This allows you to configure the data logger without alarms or with 1, 2, 3, or 4 alarm thresholds.
- Alarm limits are always included. In the example shown in the figure: e.g.: *High Alarm* if T >= 8.0°C, the value is out of specification.

  e.g.: *Low Alarm* if T <= 2.0°C, the value is out of specification.



Figure 11: Alarm threshold configuration

2.3. DELAY BEFORE ALARM

The delay **before alarm** is the mechanism that activates the alarm based on the active sensor, the duration of "out of specification," and the type of delay.

The **consecutive** delay is a counter that stores how long the value measured by the sensor exceeds the set limit value. If the measured value returns within the limits before it has reached the consecutive delay, this counter is reset to zero.
The consecutive alarm is therefore only activated if the time spent outside the specification is equal to the consecutive delay without returning to the specification.

If the value is set to zero, this delay is disabled.

The **total** alarm, on the other hand, is a counter that counts the total time elapsed since the sensor went out of specification. This counter is not reset to zero if the sensor returns to within specification, but is maintained and continues to increment when the sensor goes out of specification again. When the set total delay value is reached, the alarm is activated.
If the value is set to zero, the delay is disabled.

Example: Suppose we have a high temperature limit set at 7.5°C with a consecutive delay of 8 minutes and no total alarm. The acquisition interval is 1 minute. The alarm is activated when the consecutive delay reaches 8 minutes. As can be seen in the example, the counter is reset twice when the temperature drops below 7.5°C.

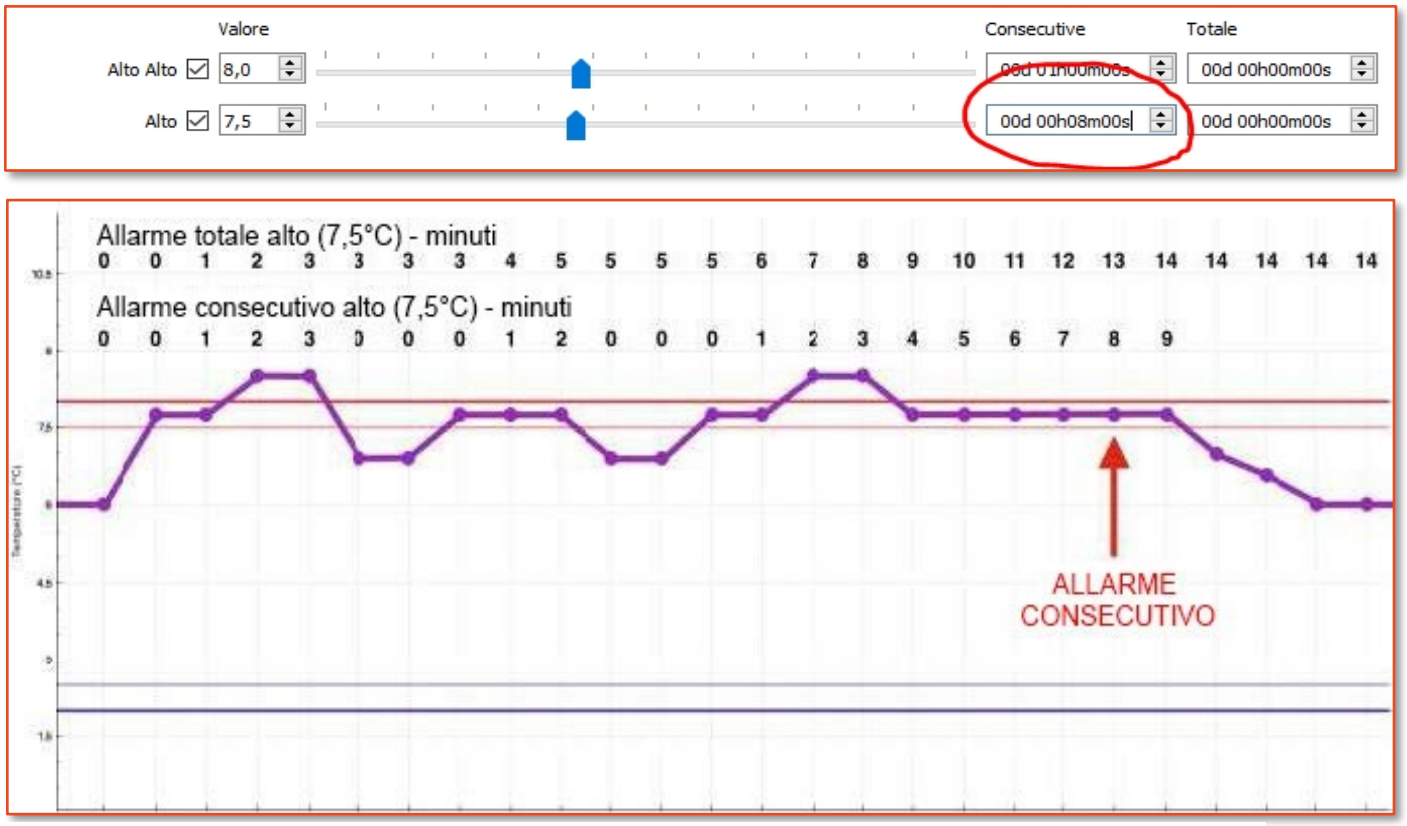


Figure 12: Consecutive alarm

Consider the same example for a zero consecutive delay and a total delay of 10 minutes. The acquisition interval is 1 minute. The alarm is triggered when the total time outside the specifications reaches 10 minutes, regardless of how many times the temperature has returned within the specifications. In this case, the counter simply stops and resumes incrementing when the sensor returns outside the specifications.

Consecutive and *total* alarms can also be combined, in which case the alarm is activated as soon as one of the two set delays is reached.

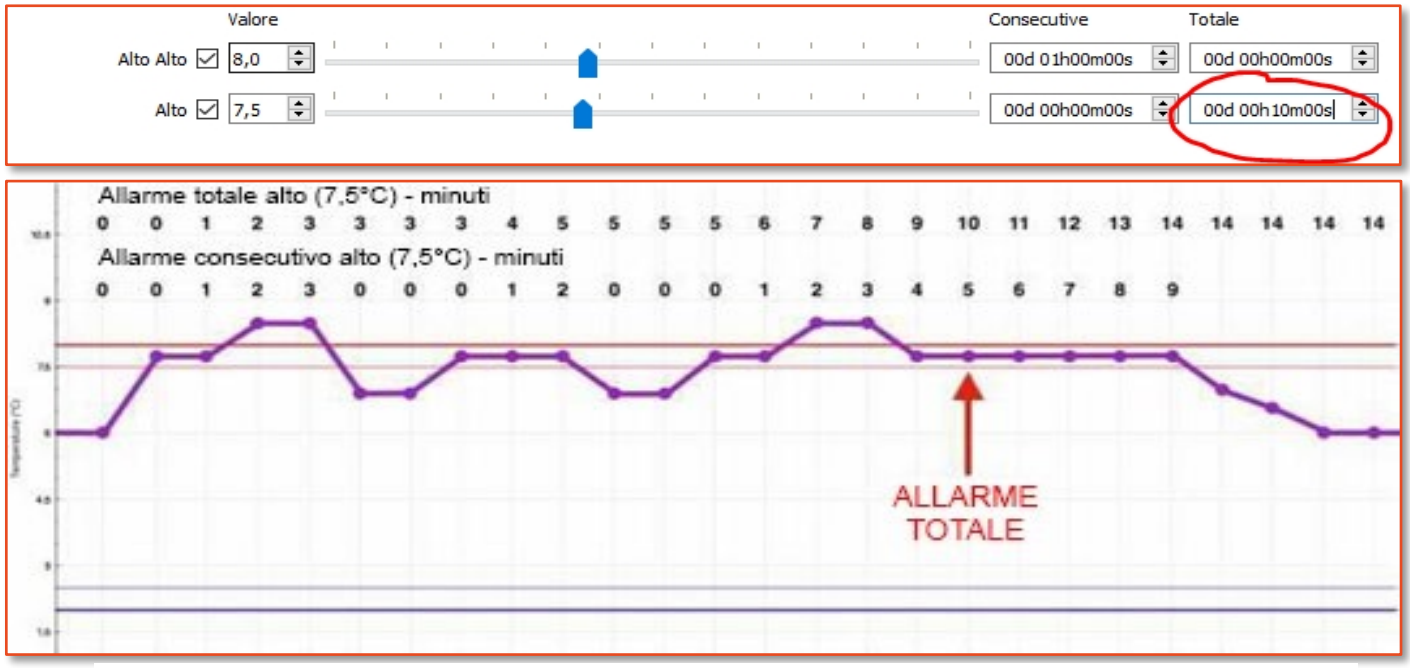


Figure 13: Total alarm

2.4. START, STOP & MEASUREMENT INTERVAL

The measurement interval is the recording period, i.e., how often the value is stored in the data logger's memory.
XS mini data loggers can record and stop in several ways:

- Manual start by pressing the Start button, with or without delay.
- Automatic start at a preset date and time.
- Automatic start when a preset temperature is reached and a certain delay has elapsed, which can also be zero.
- Automatic end of recording after a certain preset time.
- Automatic recording end at a desired date and time.
- End of recording with the Stop button (if enabled).

Manual and **automatic** starts can be enabled at the same time. In this case, recording will start according to the automatic start settings, but the user can start it earlier by manually pressing the START button for 12 seconds (default).

Measurement interval:	from 5 seconds to 24 hours
Start button with delay:	Recording begins by pressing the START button for 12 seconds, with or without delay (from 0 to 99 days). The delay is a period during which the logger is not yet recording but is waiting.
Automatic start:	Recording begins at a preset date and time.
Automatic start at T + delay:	Recording begins once the temperature has been reached and the set delay has elapsed.
Recording duration:	Recording stops after a certain period of time. From 5 seconds to 1 year.
Stop date/time:	Recording stops at a certain preset date and time.
Maximum button:	Automatically sets the maximum possible duration based on available memory and the set acquisition time.
Manual Restart Enable:	The "*Manual Restart Enable*" flag allows you to restart the mini XS data logger with the same configuration once it has stopped. **Warning**: restarting the recording empties the memory of the previous session's data.

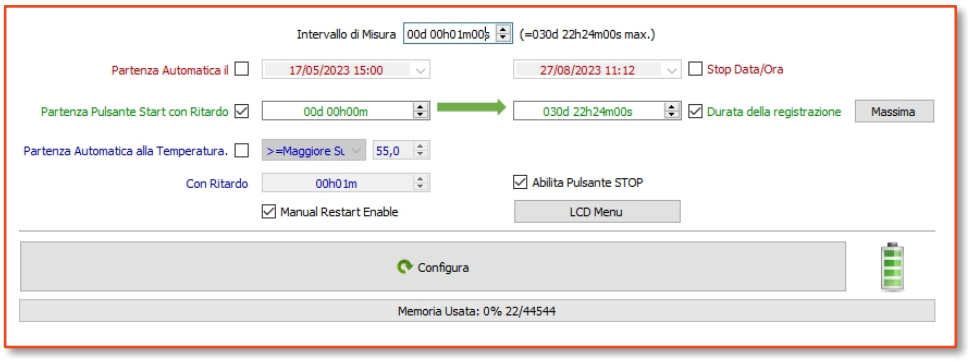


Figure 14: Start and stop configuration

3. GRAPH

3.1. PRESENTATION

The graph is a quick interface for viewing, isolating, and analyzing all the most relevant information in the recording. The display can be customized in the Settings section under "Graph." (See paragraph *1.11*).

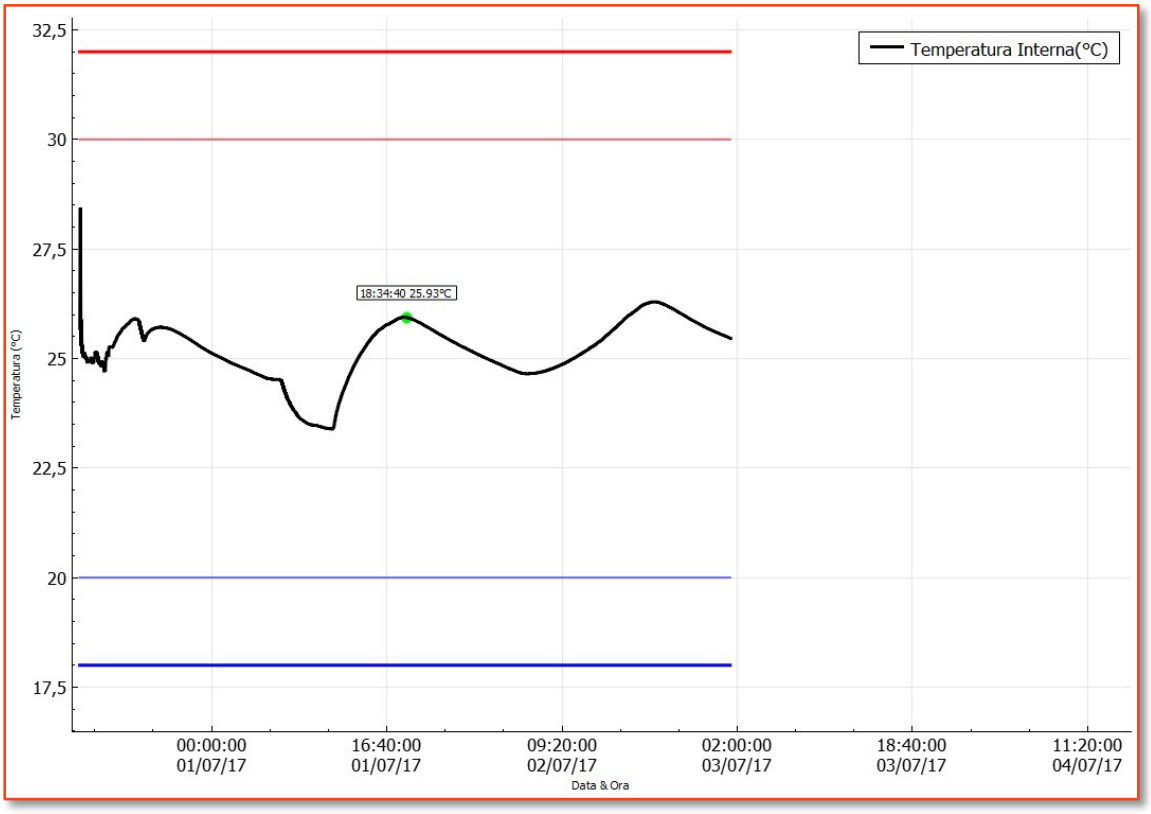


Figure 16: Graph display

3.2. NAVIGATION

- Click and drag with the left mouse button to move around the graph.
- Use the middle mouse wheel to zoom in and out.
- Select the X or Y axis for vertical and horizontal zooming.
- Right-click to open the quick menu.
  - **Zoom Fit to Screen:** Adjusts the vertical axis to fit the graph to the page.
  - **Reset Zoom:** Returns to the previous zoom level.
  - **Show Statistics:** Shows the minimum, average, and maximum values, indicating them with arrows.
  - **Capture Graph:** Copies the graph to the clipboard.

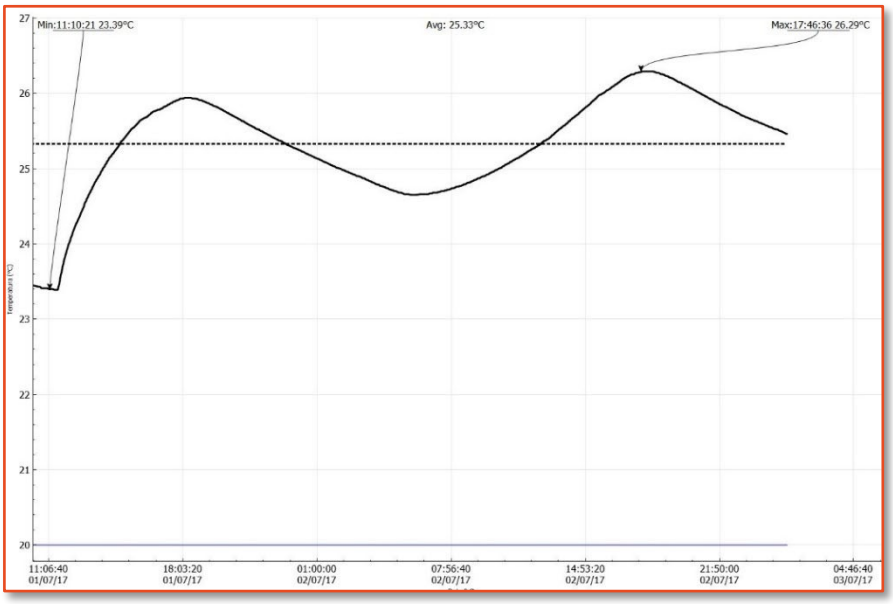


Figure 17: Example of a graph with statistics

3.3. ZOOM

This function allows you to zoom in on both the X and Y axes, or to select only one of the two to zoom in only along the x-axis or y-axis.

The default zoom operates on both the X and Y axes.

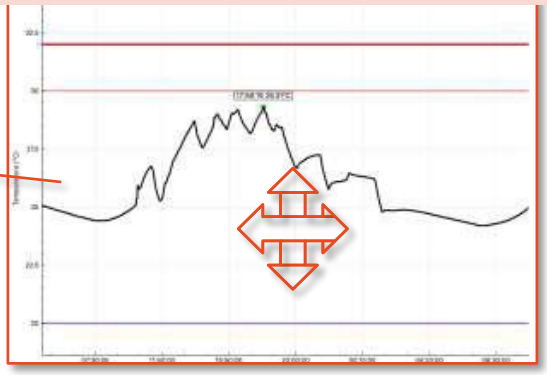


Figure 18: X and Y zoom

Select the Y axis to zoom only along the Y axis ordinates

Click anywhere within the graph to deselect the axes.

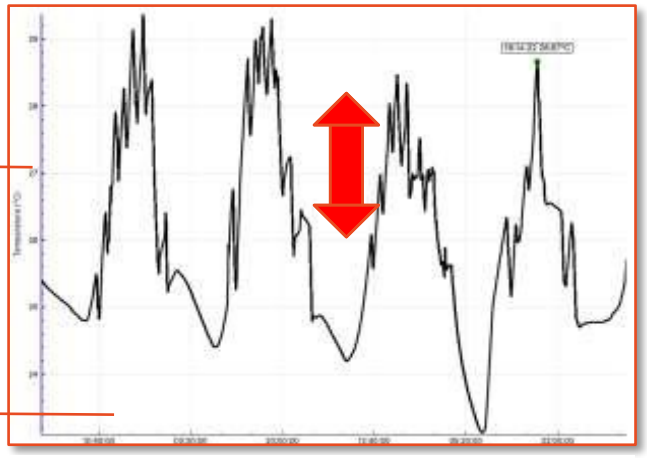


Figure 19: Y-axis zoom

Select the X axis to zoom only along the abscissa axis

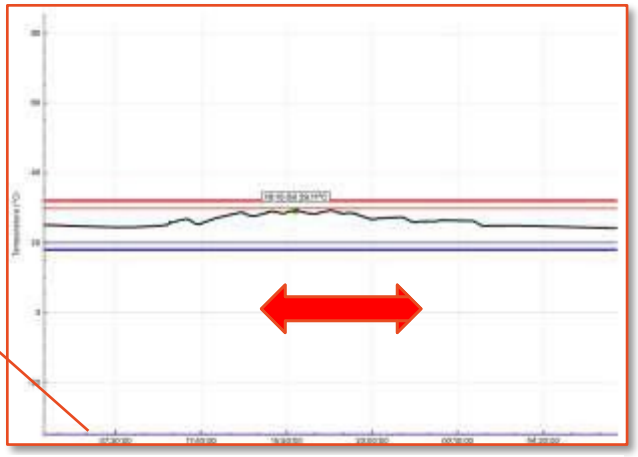


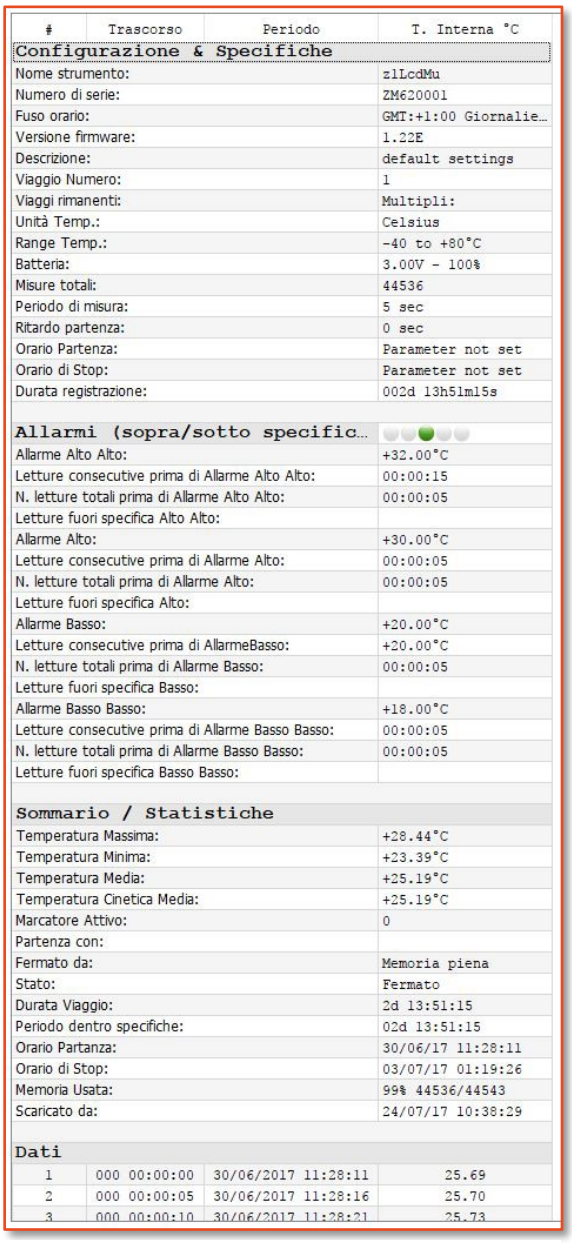
Figure 20: Zoom X-axis

4. DATA

4.1. PRESENTATION

The Data section is a customizable summary containing all configurations, statistics, alarm statuses, and recorded data. This summary consists of four sections that can be enabled or disabled in the Preferences/Data section:

- ✓ Specifications & Configuration
- ✓ Alarms
- ✓ Summary & Statistics
- ✓ Data

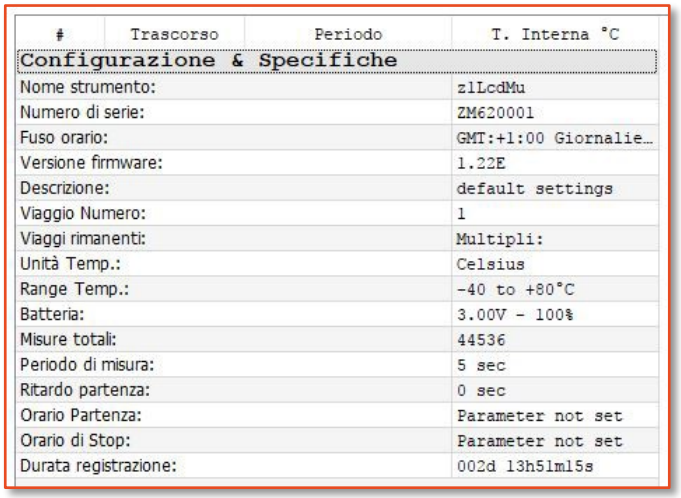


#	Trascorso	Periodo	T. Interna °C
Configurazione & Specifiche			
Nome strumento:			z1LcdMu
Numero di serie:			ZM620001
Fuso orario:			GMT:+1:00 Giornalie…
Versione firmware:			1.22E
Descrizione:			default settings
Viaggio Numero:			1
Viaggi rimanenti:			Multipli:
Unità Temp.:			Celsius
Range Temp.:			-40 to +80°C
Batteria:			3.00V - 100%
Misure totali:			44536
Periodo di misura:			5 sec
Ritardo partenza:			0 sec
Orario Partenza:			Parameter not set
Orario di Stop:			Parameter not set
Durata registrazione:			002d 13h51m15s
Allarmi (sopra/sotto specific…			
Allarme Alto Alto:			+32.00°C
Letture consecutive prima di Allarme Alto Alto:			00:00:15
N. letture totali prima di Allarme Alto Alto:			00:00:05
Letture fuori specifica Alto Alto:			
Allarme Alto:			+30.00°C
Letture consecutive prima di Allarme Alto:			00:00:05
N. letture totali prima di Allarme Alto:			00:00:05
Letture fuori specifica Alto:			
Allarme Basso:			+20.00°C
Letture consecutive prima di AllarmeBasso:			+20.00°C
N. letture totali prima di Allarme Basso:			00:00:05
Letture fuori specifica Basso:			
Allarme Basso Basso:			+18.00°C
Letture consecutive prima di Allarme Basso Basso:			00:00:05
N. letture totali prima di Allarme Basso Basso:			00:00:05
Letture fuori specifica Basso Basso:			
Sommario / Statistiche			
Temperatura Massima:			+28.44°C
Temperatura Minima:			+23.39°C
Temperatura Media:			+25.19°C
Temperatura Cinetica Media:			+25.19°C
Marcatore Attivo:			0
Partenza con:			
Fermato da:			Memoria piena
Stato:			Fermato
Durata Viaggio:			2d 13:51:15
Periodo dentro specifiche:			02d 13:51:15
Orario Partanza:			30/06/17 11:28:11
Orario di Stop:			03/07/17 01:19:26
Memoria Usata:			99% 44536/44543
Scaricato da:			24/07/17 10:38:29
Dati			
1	000 00:00:00	30/06/2017 11:28:11	25.69
2	000 00:00:05	30/06/2017 11:28:16	25.70
3	000 00:00:10	30/06/2017 11:28:21	25.73

Figure 21: Configuration and statistics summary table

4.2. SPECIFICATIONS & CONFIGURATIONS

Complete summary including device information and configuration.



#	Trascorso	Periodo	T. Interna °C
Configurazione & Specifiche			
Nome strumento:			zlLcdMu
Numero di serie:			ZM620001
Fuso orario:			GMT:+1:00 Giornalie…
Versione firmware:			1.22E
Descrizione:			default settings
Viaggio Numero:			1
Viaggi rimanenti:			Multipli:
Unità Temp.:			Celsius
Range Temp.:			-40 to +80°C
Batteria:			3.00V - 100%
Misure totali:			44536
Periodo di misura:			5 sec
Ritardo partenza:			0 sec
Orario Partenza:			Parameter not set
Orario di Stop:			Parameter not set
Durata registrazione:			002d 13h51m15s

Figure 22: Configuration and Specifications

Instrument name:	Manufacturer's data logger code.
Serial number:	Unique serial identification number.
Time zone:	Select the time zone during configuration + daylight saving time/standard time.
Firmware version:	Current firmware version.
Description:	User-customizable data logger identifier.
Trip Number:	Trip counter. Increases when a new recording session starts (read-only).
Remaining trips:	Indicates the number of trips still available or "Multiples" for multi-trip loggers.
Temp. Unit:	Indicates the unit of measurement chosen for temperature (Celsius or Fahrenheit) during configuration.
Temp. range:	Sensor temperature range.
Battery:	Current voltage and estimated battery charge percentage.
Total measurements:	Total number of values stored in the logger.
Measurement period:	Acquisition interval set between each storage during configuration.
Start delay:	Configured manual start delay.
Start time:	Automatic start configuration with date and time.
Stop time:	Stop configuration with date and time.
Recording duration:	Total duration of the recording made.

4.3. ALARMS

Complete summary including information on alarms and their configurations.



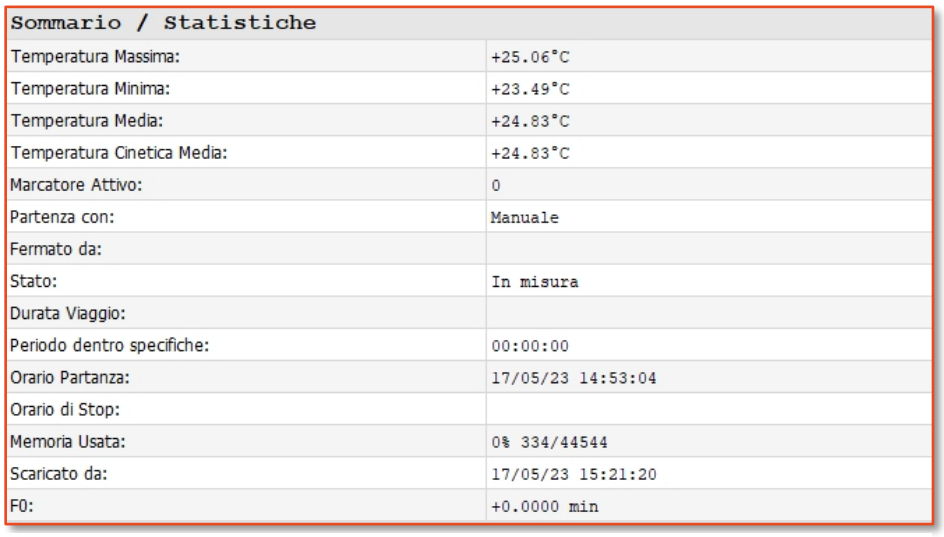
Allarmi (sopra/sotto specific…	
Allarme Alto Alto:	+32.00°C
Letture consecutive prima di Allarme Alto Alto:	00:00:15
N. letture totali prima di Allarme Alto Alto:	00:00:05
Letture fuori specifica Alto Alto:	
Allarme Alto:	+30.00°C
Letture consecutive prima di Allarme Alto:	00:00:05
N. letture totali prima di Allarme Alto:	00:00:05
Letture fuori specifica Alto:	
Allarme Basso:	+20.00°C
Letture consecutive prima di AllarmeBasso:	+20.00°C
N. letture totali prima di Allarme Basso:	00:00:05
Letture fuori specifica Basso:	
Allarme Basso Basso:	+18.00°C
Letture consecutive prima di Allarme Basso Basso:	00:00:05
N. letture totali prima di Allarme Basso Basso:	00:00:05
Letture fuori specifica Basso Basso:	

Figure 23: Alarm summary

High alarm:	Limit configured for the very high alarm.
Consecutive readings before high high alarm:	Consecutive delay above the very high alarm limit before the alarm was activated.
Total readings before high-high alarm:	Cumulative delay above the very high alarm limit before the alarm was activated.
High high out of specification:	Total duration above the very high alarm limit.
High alarm:	Limit configured for the high alarm.
Consecutive readings before high alarm:	Consecutive delay above the high alarm limit before the alarm is activated.
Total readings before high alarm:	Cumulative delay above the high alarm limit before the alarm was activated.
High out of specification:	Total duration above the high alarm limit.
Low alarm:	Configured limit for low alarm.
Consecutive readings before low alarm:	Consecutive delay below the low alarm limit before the alarm is activated.
Total readings before low alarm:	Cumulative delay below the low alarm limit before the alarm was activated.
Low out of specification:	Total duration below the low alarm limit.
Low alarm low:	Configured limit for the very low alarm.
Consecutive readings before low alarm low:	Consecutive delay below the very low alarm limit before the alarm was activated.
Total readings before low alarm:	Cumulative delay below the very low alarm limit before the alarm was activated.
Low low out of specification:	Total duration below the very low alarm limit.

4.4. SUMMARY & STATISTICS

Summary of travel statistics, duration, and times.



Sommario / Statistiche	
Temperatura Massima:	+25.06°C
Temperatura Minima:	+23.49°C
Temperatura Media:	+24.83°C
Temperatura Cinetica Media:	+24.83°C
Marcatore Attivo:	0
Partenza con:	Manuale
Fermato da:	
Stato:	In misura
Durata Viaggio:	
Periodo dentro specifiche:	00:00:00
Orario Partanza:	17/05/23 14:53:04
Orario di Stop:	
Memoria Usata:	0% 334/44544
Scaricato da:	17/05/23 15:21:20
F0:	+0.0000 min

Figure 24: Statistics summary

Maximum temperature:	Maximum temperature during the entire trip.
Minimum temperature:	Minimum temperature during the entire trip.
Average temperature:	Average temperature during the entire trip.
Average kinetic temperature:	MKT for the entire trip using the activation energy set during configuration.
Active marker:	Number of markers, manually activated by the user.
Start with:	How recording started:
	Manual: by pressing the Start button for 12 seconds
	Start Timer: automatic start with date and time.
	Temperature: automatic start at a set temperature.
Stopped with:	How to end recording:
	Manual: press and hold the Stop button for 12 seconds
	Memory full: the logger has reached maximum capacity.
	Reset: the logger has been reset.
	Stop Timer: automatic stop with date and time.
Status:	Current status of the logger:
	Ready: The logger is configured and ready to record.
	Delayed start: The logger has been programmed and is currently counting down to the start of recording.

	Recording: The logger is recording.
	Stopped: The logger is no longer recording. End of trip.
Trip duration:	Total trip duration. Time elapsed between the first and last recorded values.
Period within specifications:	Time spent within alarm limits.
Start time:	Date and time when recording began.
Stop time:	Date and time when recording ended. End of trip.
Memory Used:	Percentage of memory used and number of values in memory / total memory.
Downloaded:	Date and time of data download from the logger.
F0:	F0 is defined as the thermal lethality time required to eliminate all microorganisms from a food product by exposing it to a temperature of 121.1°C and is expressed in minutes.

4.5. DATA

The data table contains the values recorded with the date and time.
Once the data logger is connected to the PC's USB port, the data table is automatically updated each time a new measurement is acquired.

#	Trascorso	Periodo	T. Interna °C
Dati			
1	000 00:00:00	30/06/2017 11:28:11	25.69
2	000 00:00:05	30/06/2017 11:28:16	25.70
3	000 00:00:10	30/06/2017 11:28:21	25.73
4	000 00:00:15	30/06/2017 11:28:26	25.78
5	000 00:00:20	30/06/2017 11:28:31	27.44
6	000 00:00:25	30/06/2017 11:28:36	28.26
7	000 00:00:30	30/06/2017 11:28:41	28.44
8	000 00:00:35	30/06/2017 11:28:46	28.40
9	000 00:00:40	30/06/2017 11:28:51	28.22
10	000 00:00:45	30/06/2017 11:28:56	28.02

Figure 25: Data recording table

#:	Sequential measurement number
Elapsed:	Time elapsed since the start of recording ddd hh:mm:ss
	✓ ddd: days
	✓ hh: hours
	✓ mm: minutes
	✓ ss: seconds
Period:	Records the time and date corresponding to the configured time zone
T Internal °C:	Temperature measured by the sensor

5. REPORT GENERATION

5.1. ZLG FILE

ZLG is the proprietary file format of the zLogg Manager software, which contains:

- Datalogger information such as model, serial number, and firmware version.
- Configuration menus, including start & stop conditions and alarm settings.
- All recorded values.

This file can be saved manually or automatically when the logger is connected.

The data can also be viewed after multiple uses of the logger. All data is retained until the maximum memory capacity is reached.

Saving this file allows reports to be generated even if the logger is disconnected.

5.2. TXT FILE

The generated TXT file is a simple text file encoded using the ASCII standard and using a TAB character as a separator.

It contains columns with the same information that can be viewed in the data section of the software:

#:	Sequential measurement number
Elapsed time:	Time elapsed since the start of recording ddd hh:mm:ss
	✓ ddd: days
	✓ hh: hours
	✓ mm: minutes
	✓ ss: seconds
Period:	Records the time and date corresponding to the configured time zone
Internal T °C:	Temperature measured by the sensor

5.3. CSV FILE

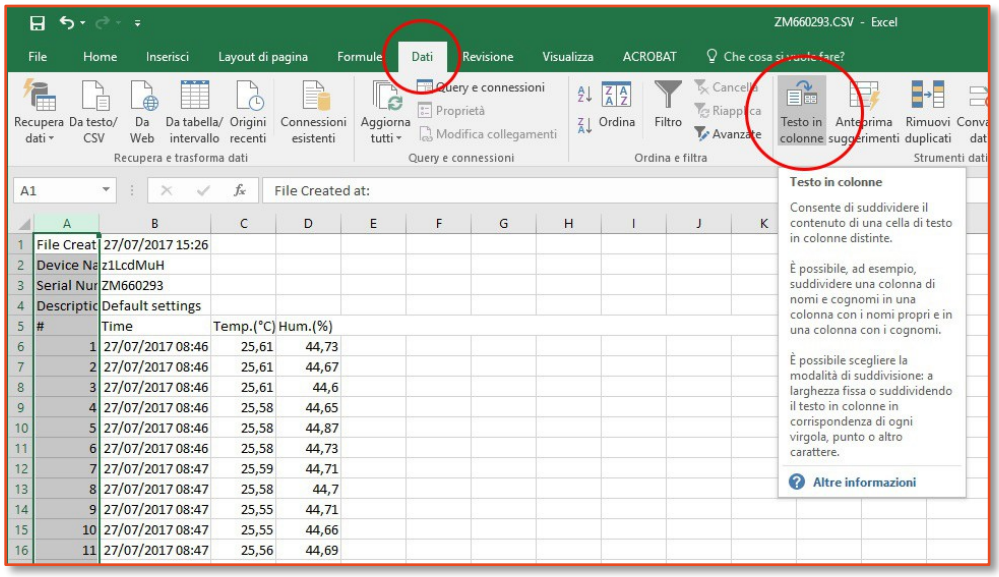
The generated CSV file is a standard Excel file encoded with ASCII characters that contains the same information displayed by the software in columns. It uses a specific character for tabulation in columns, which can be customized in the *Preferences / General* menu.

	A	B	C	D	E
1	#	Trascorso	Periodo	T, Interna °C	
2	1	000 00:00:	30/06/2017	11:28:11	25,69
3	2	000 00:00:	30/06/2017	11:28:16	25,7
4	3	000 00:00:	30/06/2017	11:28:21	25,73
5	4	000 00:00:	30/06/2017	11:28:26	25,78
6	5	000 00:00:	30/06/2017	11:28:31	27,44
7	6	000 00:00:	30/06/2017	11:28:36	28,26

Figure 26: Example of an Excel CSV record

How to configure the column separator in Excel:

- Double-click on the CSV file to open it in Excel.
- If the wrong separator is set, all columns will appear in the first column of the Excel file. Select the first column and click on the "Text to Columns" button in the "Data" section. Then select the correct separator.



	A	B	C	D
1	File Creat	27/07/2017 15:26		
2	Device Na	z1LcdMuH		
3	Serial Nur	ZM660293		
4	Descriptic	Default settings		
5	#	Time	Temp.(°C)	Hum.(%)
6	1	27/07/2017 08:46	25,61	44,73
7	2	27/07/2017 08:46	25,61	44,67
8	3	27/07/2017 08:46	25,61	44,6
9	4	27/07/2017 08:46	25,58	44,65
10	5	27/07/2017 08:46	25,58	44,87
11	6	27/07/2017 08:46	25,58	44,73
12	7	27/07/2017 08:47	25,59	44,71
13	8	27/07/2017 08:47	25,58	44,7
14	9	27/07/2017 08:47	25,55	44,71
15	10	27/07/2017 08:47	25,55	44,66
16	11	27/07/2017 08:47	25,56	44,69

Figure 27: Configuring the separator character in Excel

5.4. PDF FILE

The PDF file contains all the most important information, including logger configuration, alarms, statistics, graphs, and histograms.

The same information can be obtained from the zLogg Manager software. (*See section* ***4.0***) The automatically generated PDF file available in the data logger memory contains a report of the data in graph format only. The complete PDF file with data table can be generated and saved directly from the application. This PDF can be customized from the *Preferences / PDF* menu.

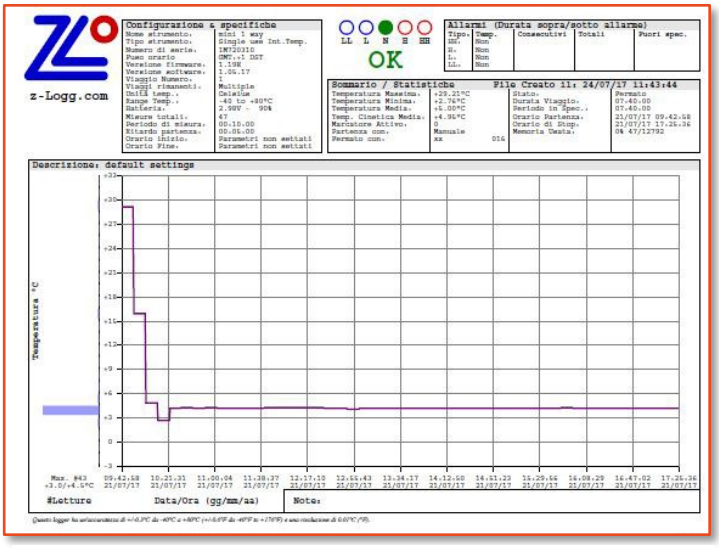


Figure 28: Example of PDF recordings

#	Trascorso	Ora	T°C	%RH
00001	000 00:00:00	26/07/2017 17:41:01	28.46	42.80
00002	000 00:00:05	26/07/2017 17:41:06	28.46	42.36
00003	000 00:00:10	26/07/2017 17:41:11	28.44	41.86
00004	000 00:00:15	26/07/2017 17:41:16	28.44	41.54
00005	000 00:00:20	26/07/2017 17:41:21	28.44	41.22
00006	000 00:00:25	26/07/2017 17:41:26	28.44	40.90
00007	000 00:00:30	26/07/2017 17:41:31	28.43	40.95
00008	000 00:00:35	26/07/2017 17:41:36	28.41	41.44
00009	000 00:00:40	26/07/2017 17:41:41	28.41	41.13
00010	000 00:00:45	26/07/2017 17:41:46	28.41	40.63
00011	000 00:00:50	26/07/2017 17:41:51	28.41	40.48
00012	000 00:00:55	26/07/2017 17:41:56	28.41	40.44
00013	000 00:01:00	26/07/2017 17:42:01	28.40	40.40
00014	000 00:01:05	26/07/2017 17:42:06	28.41	40.29
00015	000 00:01:10	26/07/2017 17:42:11	28.37	40.14
00016	000 00:01:15	26/07/2017 17:42:16	28.36	40.02
00017	000 00:01:20	26/07/2017 17:42:21	28.37	40.18
00018	000 00:01:25	26/07/2017 17:42:26	28.36	39.86
00019	000 00:01:30	26/07/2017 17:42:31	28.38	39.97
00020	000 00:01:35	26/07/2017 17:42:36	28.37	40.18
00021	000 00:01:40	26/07/2017 17:42:41	28.36	40.16
00022	000 00:01:45	26/07/2017 17:42:46	28.34	39.84
00023	000 00:01:50	26/07/2017 17:42:51	28.34	40.13
00024	000 00:01:55	26/07/2017 17:42:56	28.33	40.14

The information contained in the PDF file is the same as that available through the zLogg Manager software:

Alarms (Duration above/below alarm)				
Type:	**Temp.**	**Consecutive**	**Total**	**Out of spec.**
HH:	+10.00°C	00:00:00	00:01:00	6:41 p.m.
H:	+8.00°C	00:00:00	00:01:00	7:44 p.m.
L:	+2.00°C	00:00:00	00:01:00	04:45:00
LL:	+0.00°C	00:00:00	00:01:00	00:00:00

Type:	Very high (HH), High (H), Low (L), and Very low (LL)
Temp.:	Alarm threshold
Consecutive :	Consecutive delay
Total:	Total delay
Out of spec.:	Total out-of-specification duration

Summary / Statistics		**File Created on: 04/18/16 1:11:50 PM**	
Maximum temperature:	+7.14°C	Status:	Recording
Minimum temperature:	-21.38°C	Trip duration:	01d 10:37:00
Average temperature:	-8.27°C	Period in Spec.:	10:08:00
Average Kinetic Temperature	-8.67°C	Departure time:	04/17/16 12:25:07
Active Marker:	0	Stop time:	04/18/16 11:02:15
Start with:	Manual	Memory used:	4% 2077/48632
Stopped with:	Manual		

Maximum temperature:	Maximum temperature during the entire trip.
Minimum temperature:	Minimum temperature during the entire journey.
Average temperature:	Average temperature during the entire trip.
Average kinetic temperature:	MKT for the entire journey using the activation energy set during configuration.
Active marker:	Number of markers, manually activated by the user (*max. 8 markers*).
Start with:	How recording started:
	Manual: by pressing the Start button for 12 seconds
	Start Timer: automatic start with date and time.
	Temperature: automatic start at a set temperature.
Stopped with:	How recording ended:
	Manual: by pressing the Stop button for 12 seconds
	Memory full: the logger has reached its maximum capacity.
	Reset: the logger has been reset.
	Stop Timer: automatic stop with date and time.
Status:	Current status of the logger:
	Ready: The logger is configured and ready to record.
	Delayed start: The logger has been programmed and is currently counting down to the start of recording.
	Recording: The logger is recording.
	Stopped: The logger is no longer recording. End of trip.
Trip duration:	Total trip duration. Time elapsed between the first and last recorded values.
Period within specifications:	Time spent within alarm limits.
Departure time:	Start date and time of registration.
Stop time:	Date and time of end of recording. End of journey.
Memory used:	Percentage of memory used and number of values in memory / total memory.
Downloaded:	Date and time of data download from the logger.

6. MINI T, MINI T1, MINI TB & MINI TH

6.1. DESCRIPTION

The mini Tx V2 series data loggers are temperature or temperature/humidity data loggers with a large LCD display.
The devices are designed for monitoring temperature and humidity in industrial, food, and pharmaceutical applications.

These data loggers have all the features previously seen in the section dedicated to zLogg Manager software.

They can support different types of sensors depending on the model:

- XS mini T: Temperature (internal sensor)
- XS mini T1: Temperature (external sensor with mmcx connector)
- XS mini TB: Temperature (external PT100 sensor with mmcx connector)
- XS mini TH: Temperature & humidity
- XS Logger High Temperature: Temperature up to +130°C for pasteurizers

6.2. XS MINI T & MINI T1

✓ TECHNICAL SPECIFICATIONS:

Temperature measurement range	-40 °C … +80 °C
LCD operating measurement range	Mini T: -10 °C … +80 °C
Accuracy	Mini T: ±0.2°C [-10°C … +80°C] ±0.5°C [elsewhere] Mini T1: ±0.3°C [-10°C … +80°C] ±0.5°C [elsewhere]
Resolution	0.01 °C
Memory	48,000 readings
Sampling frequency	from 5 sec. to 24 hours
LCD display	Multifunction
Event marking	Yes, (press Start button for 2 seconds – max. 8 markings)
Temperature sensors	Internal or external with mmcx connector dxL = 4x80mm, cable L = 1m
Response time	Digital STS40 Internal: T90 < 15 min. in air NTC thermistor External: T90 < 7 min. in air
Security	Password protection (via software)
Power supply	3V lithium battery (CR2032)
IP protection	Mini T: IP65 Mini T1: IP65
External construction material	Polycarbonate
Mounting	Magnetic
Buzzer	Audible alarm when threshold is exceeded
Average battery life	Up to 2 years
Buttons	Start and Stop
Start options	Manual start with or without delay Auto Start with time and date Auto Start at a specific temperature with or without delay
Stop options	Auto Stop after a set time Auto Stop with date and time Manual stop
Warranty	2 years (excluding battery)
Dimensions/Weight	41 x 100 x 14 mm / 56 g with probe (70 g)
Certificates	Statement of Accuracy, CE, RoHS, REACH, EN12830
Code 70100503	Mini T (internal Digital STS40)
Code 70100513	Mini T1 (external NTC) with MMCX connector



Figure 29: Mini T



Figure 30: Mini T1

6.3. XS MINI TB

✓ TECHNICAL SPECIFICATIONS:

Measuring range Temperature	-200 °C … +200 °C
Accuracy	±0.3°C [-30°C … +120°C] ±0.5°C [-196°C … -30°C], ±1°C [elsewhere]
Resolution	0.01 °C
Memory	48,000 readings
Sampling frequency	from 5 sec. to 24 hours
LCD display	Multifunction
Event marking	Yes (press Start button for 2 seconds – max. 8 markings)
Temperature sensors	External PT100 with mmcx connector dxL = 4x80mm, cable L = 1m
Response time	T90 < 7 min. in air
Security	Password protection (via software)
Power	3V lithium coin cell battery
IP protection	IP65
External construction material	Polycarbonate
Mounting	Magnetic
Buzzer	Audible alarm when threshold is exceeded
Average battery life	Up to 2 years
Buttons	Start and Stop
Start options	Manual start with or without delay AutoStart with time and date AutoStart at a specific temperature with or without delay
Stop options	AutoStop after a set time AutoStop with date and time Manual stop
Warranty	2 years (excluding battery)
Dimensions/Weight	41 x 100 x 14 mm / 70 g
Certificates	Statement of Accuracy, CE, RoHS, REACH, EN12830
Code 70100533	Mini TB (external PT100 with MMCX connector)



Figure 31: Mini TB

6.4. XS MINI TH

✓ TECHNICAL SPECIFICATIONS:

Measuring range	-40 °C … +80 °C 0 … +100% RH
Accuracy	±0.2°C [-10°C … +80°C] ±0.5°C [elsewhere] ±3% RH (10% to 90% RH) @+25°C
Resolution	0.01 °C 0.01 % RH
Memory	48,000 readings
Sampling frequency	from 5 sec. to 24 hours
LCD display	Multifunction
Event marking	Yes, (press Start button for 2 seconds – max. 8 markings)
Response time	Digital SHT40 Internal: T90 < 15 min. in air
Security	Password protection (via software)
Power	3V lithium coin cell battery
IP protection	IP30
External construction material	Polycarbonate
Mounting	Magnetic
Buzzer	Audible alarm when threshold is exceeded
Average battery life	Up to 2 years
Buttons	Start and Stop
Start Options	Manual start with or without delay AutoStart with time and date AutoStart at a specific temperature with or without delay
Stop Options	AutoStop after a set time AutoStop with date and time Manual stop
Warranty	2 years (excluding battery)
Dimensions/Weight	41 x 100 x 14 mm/ 56 g
Certificates	Statement of Accuracy, CE, RoHS, REACH, EN12830
Code 70100523	mini TH with rubber shell



Figure 32: Mini TH

6.5 XS MINI 1 WAY T

✓ TECHNICAL SPECIFICATIONS:

Measuring range Temperature	-40 °C … +80 °C
Accuracy	±0.3°C [-10°C … +80°C] ±0.5°C [elsewhere]
Resolution	0.01 °C
Memory	45,000 readings
Sampling frequency	from 5 seconds to 24 hours (default 5 minutes)
Alarms	4, total and/or consecutive
Event marking	Yes, (press Start button for 2 seconds – max. 8 markings)
Response time	T90 < 7 min. in air
Display	No display. 5 LEDs in red, green, and blue
Buttons	Start and Stop
Power	Non-replaceable 3V lithium battery
Average battery life	Up to 1 year
IP protection	IP65 (mini 1-way T/TH with case) IP67 (mini 1-way)
PC connection	USB for data download
Start options	Manual start with or without delay AutoStart with time and date AutoStart at a specific temperature with or without delay
Stop options	AutoStop after a set time AutoStop with date and time Manual stop
Certificates	Statement of Accuracy, CE, RoHS
Dimensions/Weight	78 x 48 x 9 mm (16g)
Warranty	1 trip
Code 70101003	mini 1-way with thresholds on request, (pack of 10 pieces)
Code 70101013	mini 1-way with thresholds at +4°C (pack of 10)
Code 70101083	mini 1-way T with thresholds on request and protective case

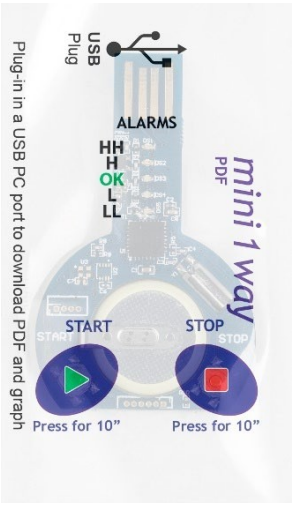


Figure 33: Mini 1Way

6.6 XS MINI 1 WAY TH

✓ TECHNICAL SPECIFICATIONS:

Measuring range	-40 °C … +80 °C 0 … +100% RH
Accuracy	±0.3°C [-10°C … +80°C] ±0.5°C [elsewhere] ±4% RH (10% to 90% RH) @+25°C
Resolution	0.01 °C 0.01 % RH
Memory	45,000 readings
Sampling frequency	from 5 sec. to 24 hours (default 5 minutes)
Alarms	4, total and/or consecutive
Event marking	Yes (press Start button for 2 seconds – max. 8 markings)
Response time	T90 < 7 min. in air
Display	No display. 5 LEDs in red, green, and blue
Buttons	Start and Stop
Power	Non-replaceable 3V lithium battery
Average battery life	Up to 1 year
IP protection	IP30
PC connection	USB for data download
Start options	Manual start with or without delay AutoStart with time and date AutoStart at a specific temperature with or without delay
Stop Options	AutoStop after a set time AutoStop with date and time Manual Stop
Certificates	Statement of Accuracy, CE, RoHS
Dimensions/Weight	78 x 48 x 9 mm (16g)
Warranty	1 trip
Code 70101073	mini 1-way TH with thresholds on request and protective case



Figure 34: Mini 1Way TH

6.7 XS MINI 1WAY LCD

✓ TECHNICAL SPECIFICATIONS:

Measuring range Temperature	-40 °C … +80 °C
Accuracy	±0.3°C [-10°C … +80°C] ±0.5°C [elsewhere]
Resolution	0.01 °C
Memory	20,000 readings
Sampling frequency	from 5 sec. to 24 hours
Alarms	4, total and/or consecutive
Event marking	Yes, (press Start button for 2 sec – max 8 markings)
Response time	T90 < 7 min. in air
LCD display	Multifunction
Buttons	Start and Stop
Power	Non-replaceable 3V lithium battery
Average battery life	1– 2 years (depending on use)
IP protection	IP67
PC connection	USB for data download
Start options	Manual start with or without delay AutoStart with time and date AutoStart at a specific temperature with or without delay
Stop options	AutoStop after a set time AutoStop with date and time Manual stop
Certificates	Statement of Accuracy, CE, RoHS
Dimensions/Weight	78 x 48 x 9 mm (16g)
Warranty	1 trip
Code 70101043	mini 1-way LCD with thresholds on request (pack of 10 pieces)



Figure 35: Mini 1-way LCD

6.8. XS LOGGER HIGH TEMPERATURE

✓ TECHNICAL SPECIFICATIONS:

Measuring range Temperature	-40 °C ... +130 °C
Accuracy	±0.2°C
Resolution	0.01 °C
Memory	45,000 readings
Sampling frequency	from 5 sec. to 24 hours
Alarms	4, total and/or consecutive
Sensors	2 STS40 digital temperature sensors
Response	T90 approx. 20 sec. in oil bath
Time accuracy	± 15 minutes/year
Power	BR2450A 3V lithium battery
Average battery life	Up to 2 years
IP protection	IP67
Material	SUS 304 stainless steel
PC connection	Magnetic USB connector for data download
Start options	Manual start via zLoggManager AutoStart with time and date AutoStart at a specific temperature with or without delay
Stop options	AutoStop after a set time AutoStop with date and time Manual stop with zLoggManager
Certificates	Statement of Accuracy, CE, RoHS
Dimensions / Weight	91.7 x 12.7 x 51 mm (250g)
Warranty	2 years (excluding battery)
Code 70100813	XS Logger High Temperature



Figure 36: XS High Temperature

6.9. LCD DISPLAY

The mini-XS series of data loggers uses a reflective LCD display with high contrast and viewing angle. The 14-segment display allows both digits and text to be shown dynamically.

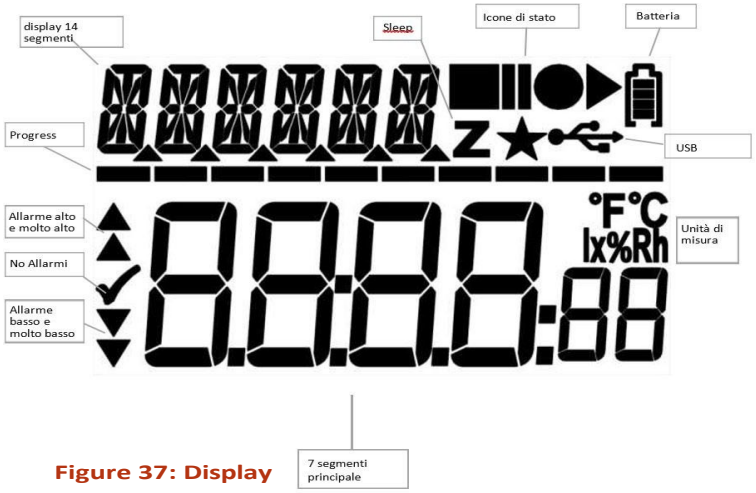


Figure 37: Display

6.10. LCD DISPLAY ICONS

The LCD screen contains icons to quickly inform the user about the current status of the data logger.

	**READY:**	Configured and ready to record. Press and hold the Start button for 12 seconds.
	RECORD:	Recording in progress.
	STOPPED:	Recording finished.

6.11. LCD DISPLAY SCREENS

The XS series of data loggers allows you to view various information on the LCD display by navigating between screens using the Start & Stop buttons.

READY / TEMP:

- Device waiting to start up or recording.
- Temperature with resolution to two decimal places, record, battery status & alarm status.

MAX / MIN / AVG / MKT:

- Maximum, minimum, average, and kinetic average statistics for the current recording.

AL EH / AL H / AL L / AL EL:

- Recording time in Extra High, High, Low, Extra Low alarm.

Number of recordings:

- Number of acquisitions in the current recording.

DATE/TIME:

- Current date and time of the device. Reprogram the device with the zLogg Manager software to update.

VBATT:

- Current battery voltage. NB: For correct operation, the battery must be replaced if < 2.6 V.

LMxxxxxx:

- Device serial number.

FIRMW:

- Current firmware version.

STS40 / NTC-E / SHT40 / RTD:

- Device sensor type.

N.B. The display on the NEW mini T and NEW mini TH models switches off when the sensor measures temperatures equal to or lower than -10°C. This protective measure for liquid crystals is necessary to prevent damage to the display. The data logger continues to acquire and store temperatures below -10°C, but the display will only reactivate when the last acquisition returns above the protection threshold of -10°C.

N.B. Using the zLogg Manager software, you can set the display of all models in the NEW mini Tx series to turn off after 1 hour of acquisition without stopping data recording. To reactivate the display, simply press one of the two buttons.
This setting allows for further battery savings during long-term acquisitions.

6.12. HOW TO CONFIGURE THE DATALOGGER STEP-BY-STEP

- Launch the **zLoggManager** software.
- Ensure that the **default parameters** (in the Settings section) are correct.
  - Language
  - Time zone
  - Temperature unit
  - Excel CSV separator
  - MKT Activation energy (default: 83 kJ/mole)
- **Connect the logger** to your computer via the USB port.
- The logger will be recognized and displayed in the **Data Logger / Files** section.
- Select the **configuration** tab
- Enter the **description** (Optional – default: default settings)
- Enable the check boxes for **alarm thresholds** if necessary
  - Set the alarm threshold
  - Set the consecutive alarm delay if necessary, or set it to zero to disable it
  - Set the total alarm delay if necessary, or set it to zero to disable it
- Set **the acquisition interval**.
- Set one or more recording **start** conditions:
  - Auto Start with date and time
  - Manual Start + delay
  - Auto Start at temperature + delay
- Set the recording **stop** condition
  - Auto Stop with date and time
  - Recording duration (Press the **Maximum** button to set the maximum capacity)
- Click on the **Configure** button.

The following Configuration message will appear on the logger's LCD screen.

✓ **The logger is configured and ready for use.**
You can now disconnect the logger from the USB port.

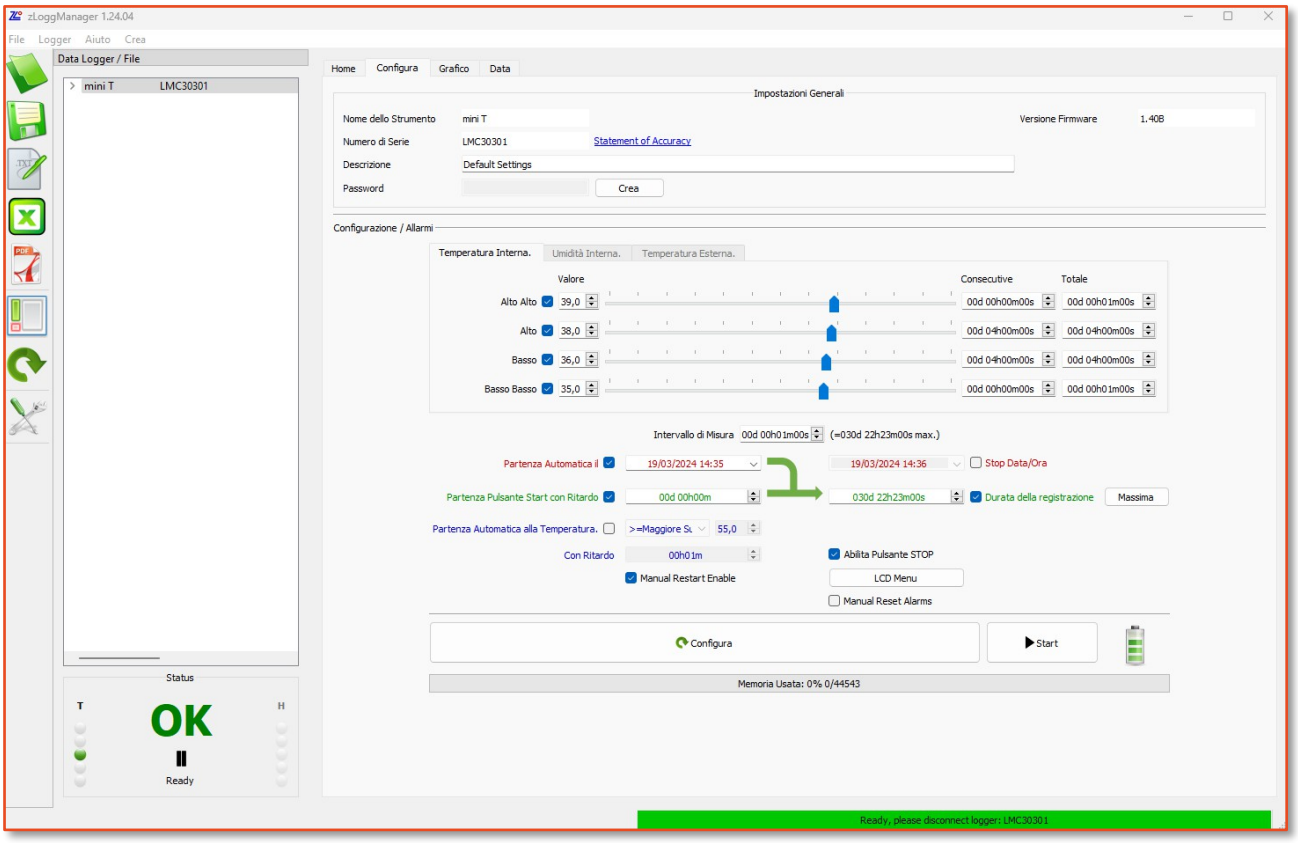


Figure 38: Configuration screen

6.13. HOW TO START RECORDING

- ✓ Make sure that the data logger has been configured and is in **READY** mode.
- ✓ If the data logger has been configured to start automatically with the date and time, the LCD screen will display **TIMER** instead of READY.
- ✓ Press and hold the **Start** button on the device for at least **10 seconds** until the data logger switches to **recording** mode. A bar will appear during this process.
  Alternatively, once configured, you can start recording by clicking the "► **Start**" button on the configuration screen (Figure 37).
- ✓ If the data logger has been configured with a delay, a countdown will appear on the display after which recording will start.
- ✓ The data logger is recording.

6.14. HOW TO READ AND DOWNLOAD DATA

The most relevant information is always available on the data logger's LCD screen in real time. Use the Start and Stop buttons to scroll through the various screens. (*see paragraph 6.5*)

To download the report to your computer, connect the logger and open the mass device that appears in Explorer (for Windows) or the device mounted directly and visible on the desktop (for MAC).

The following files will be available:

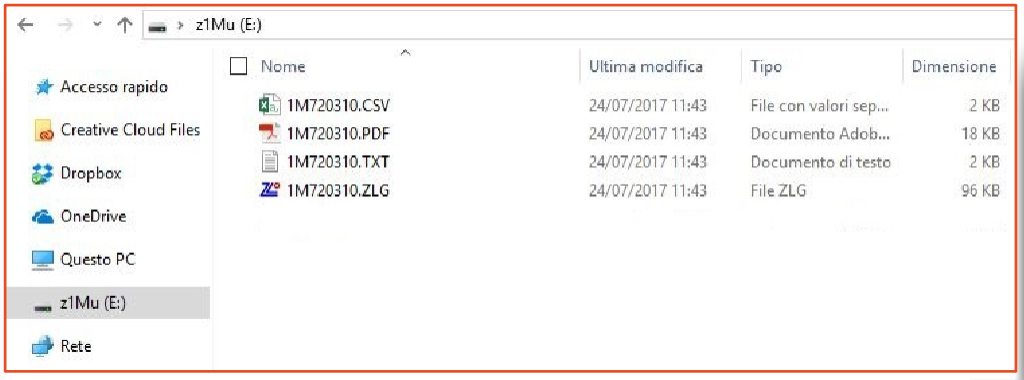


Figure 39: Files on the USB mass storage device

*.ZLG:	zLogg file, requires zLoggManager software
*.CSV:	Excel CSV files
*.TXT:	Text file
*.PDF:	PDF file

Alternatively, use the zLoggManager software to generate a complete PDF report. (*see previous sections 4, 5, and 6*)

6.15. HOW TO STOP RECORDING

- ✓ The logger is recording.
- ✓ Press and hold the **Stop** button for **at least 10 seconds** until the logger switches to Stop mode. A progress bar will appear during this process.
- ✓ The logger is now in **Stop** mode and is no longer recording.

7. USEFUL INFORMATION

7.1. DISPOSAL OF ELECTRONIC EQUIPMENT



Electrical and electronic equipment bearing this symbol cannot be disposed of in public landfills.

In accordance with EU Directive 2002/96/EC, European users of electrical and electronic equipment have the option of returning used equipment to the Distributor or Manufacturer when purchasing new equipment.

The illegal disposal of electrical and electronic equipment is punishable by a fine.