

TECNO CALIB

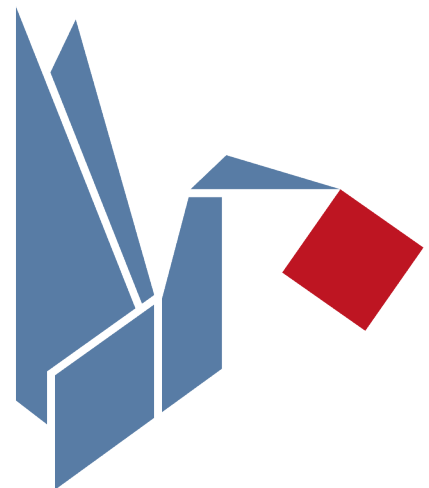
Calibration software for Tecnosoft loggers and sensors

User's Manual

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tecnosoft
WE DELIVER DATA





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Introduction

TecnoCalib is the software program used to create and upload calibration files for Tecnosoft loggers and sensors. The process is easy:

- start the loggers with their proper software and interfaces;
- make the calibration process and record data from the reference devices (thermometers, hygrometers etc.): you can also track down them manually indicating the exact time of the reading;
- download the loggers with their proper interface and software and upload the acquisition file in the TecnoCalib software and type in values from the reference devices;
or
- directly download data using the TecnoCalib software;
- create a match file and send it to Tecnosoft (CCD format);
- wait for the calibration file from Tecnosoft (TCD format);
- upload the calibration file into proper logger.

Compatible devices

Following the list of the devices currently supported by the TecnoCalib software and the supported accessories.

<i>Data loggers& Sensors</i>	<i>Communication bays</i>
SterilDisk series	DiskInterface HS
S-Micro series	DiskInterface HS Mini
S-MicroW series	DiskInterface USB
S-Radio	Smart Sensor USB interface
PressureDisk (temperature only)	
Temperature Smart Sensors	
Discontinued models still supported in TecnoCalib: PasteurDisk series, PasteurCyl, SterilCyl, PasteurCyl Jumbo, SterilCyl Jumbo, PasteurDisk Jumbo, SterilDisk Jumbo, PasteurCyl Radio, SterilCyl Radio, S-Disk J	

System Requirements

Hardware

Description	Minimum Requirements
Operating System	Windows 10
Processor (CPU)	Core i3
RAM	4 GB
Free USB Ports	2
Hard disk free space	2 GB

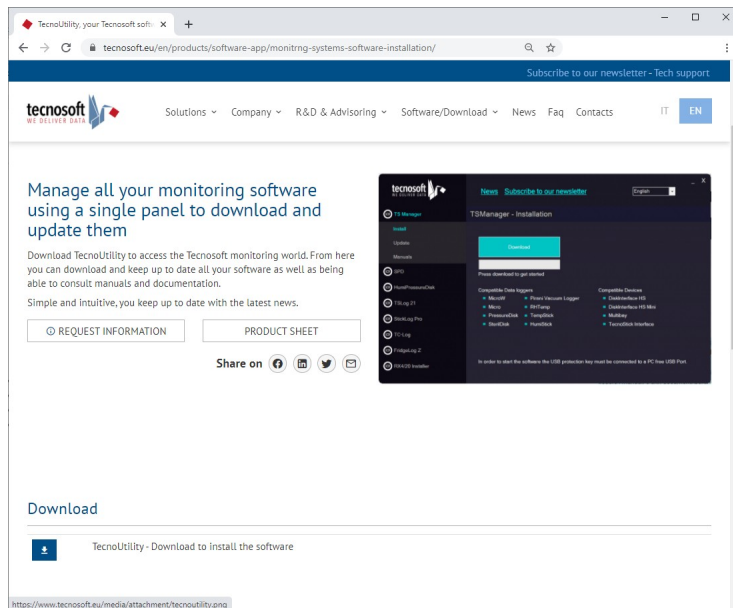
Software

Item	Minimum version
.NET Framework	4.0

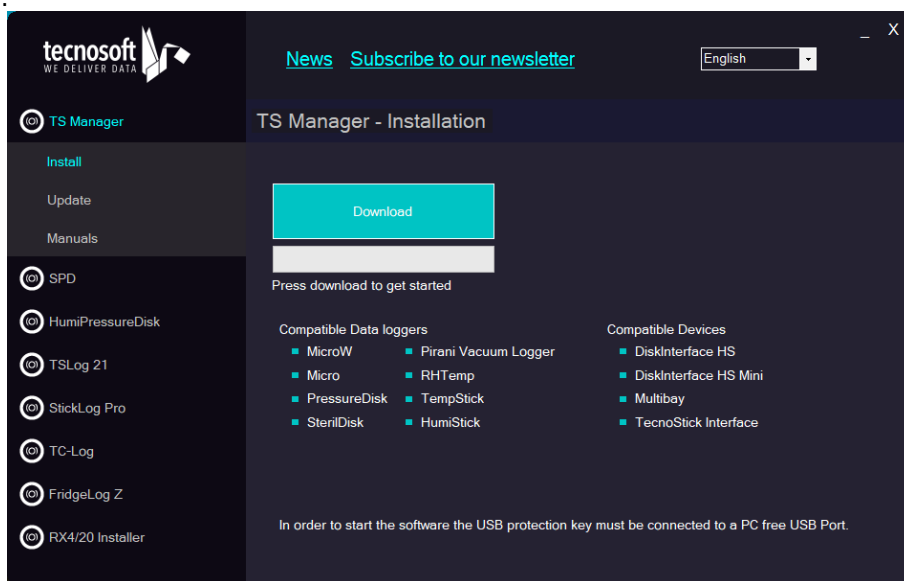
Installation

Where to get the software

All Tecnosoft software are available through the *TecnoUtility* Windows app from Tecnosoft. Just open your browser and digit tecnosoft.eu in the URL's bar. Once the website is open, choose **Software/Download** and then scroll down to select *TecnoUtility*. Click on it and download the software by clicking on the **Download to install the software** link under the *Download* section to start downloading the software.



Once download is complete just double click on the file to open *TecnoUtility*. Select **Tecno Calib** and then **Install** and click **Download** to start downloading and installing the software. If the software is already installed click on **Upgrade** to check if there is a new version.



Note: in case you have installed the software in a folder different from the default one, you have to indicate the installation folder in order to check for updates.

Follow below instructions according to the type of installation you wish to perform.

Installation pre-requisites

The installation of Tecno Calib requires the installation of some additional components; if these are not already present on the system they will automatically be requested to be downloaded and installed before it actually installs Tecno Calib. The component pre-requisites are:

- Microsoft .NET Framework

USB protection key

To be able to run Tecno Calib, you will need the USB protection key supplied with the software, and insert it in a USB slot on the PC. This must be plugged from the moment the program is started.

The USB protection key does not require any driver to be installed and also contains a code that holds the software version and may be requested by Tecnosoft in order to activate additional software modules or new program features and updates.

Note: your license is connected to key so be sure to keep it safe and not loose it!



Devices and accessories

All the data loggers that are currently compatible with Tecno Calib connect to the PC by means of different connection bays that you can see at p. 5.

The first operation that needs to be done is to connect the interface to a free USB port. Drivers should have already been installed during software installation.

Connecting the interfaces

You may have received your interface with the loggers, with the Tecno Calib software or separately. Each interface comes with a USB cable: connect the cable to the interface and then to a free USB port on the PC.

As soon as the device is connected to the PC, Windows will automatically detect it and will start installing the drivers, if not already installed.

Connecting the devices

The data loggers must be inserted in the interface in a particular manner, depending on the logger and the interface: if you connect the device incorrectly it will simply not be able to communicate with the PC, however there is no risk of damage to the device.

For loggers using the DiskInterface HS, DiskInterface HS Mini and Universal Multibay in general, the side of the data logger on which the serial number is engraved should face down and be placed on the base of the interface. In the case of cylindrical data loggers, where the laser marking I on the side, the probe tip should always be directed towards the top and be inserted in the fork.

See the images below to see how the data logger should be connected (not all loggers are shown) for correct communication with the software.



When using the TecnoStick Interface for TempStick and HumiStick, insert the flat par

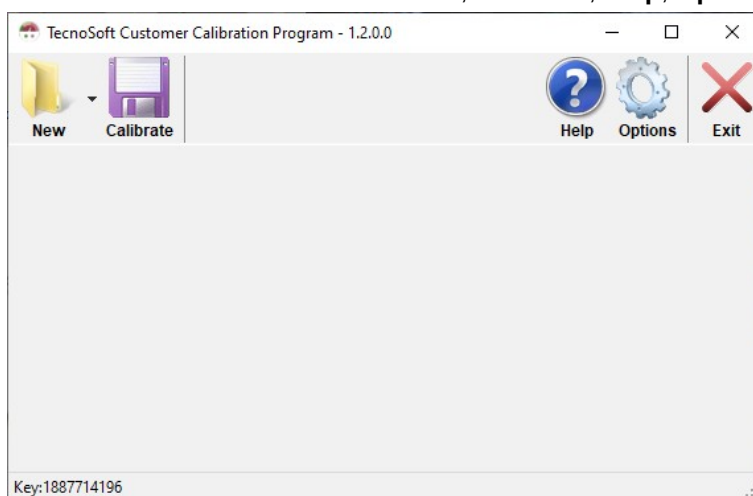
Basic Operations

Launching the Program

Once the installation is complete, double click on the **TecnoCalib** icon on the desktop to start the program, alternatively navigate to **Start – Program Files** (or **All the Programs**, if you're using *Windows XP*) – **TecnoSoft - TecnoCalib – TecnoCalib**.

The Main Window

The top part of *Main Window* holds the function buttons: **New**, **Calibrate**, **Help**, **Options**, **Exit**.



Online Help

Click on the **Help** button to open the PDF manual. Browse through the pages to obtain more information on the program functions.

Exit the program

To exit the program just click on the **Exit** button.

Configuration

Click on the **Options** button to open the *Options* window, where you may set the program parameters. Here you can set standard parameters and information for your certificate so you don't have to write them again each time. If a field is filled here, it will appear filled also during certificate creation. Select the tab you want to complete.

Certificate Details

Here are the description for each field in this tab.

Calibration equipment

- *Type*: the type of equipment used to calibrate such as thermostatic bath, thermostatic chamber etc.
- *Name*: the name of the equipment, you can write the model and brand
- *Accuracy*: the accuracy of the calibration equipment
- *Notes*: some notes

Reference Instrument

- *Type*: the type of the reference instrument, such as thermometer, multiplexer etc.
- *Name*: the name of the reference instrument, you can write the model and brand
- *Certificate Number*: the number of the calibration certificate for this instrument
- *Certificate Authority*: the body who issued the certificate
- *Certificate Date*: date of issue of the certificate
- *Accuracy*: the accuracy of the reference instrument
- *Notes*: some notes

Certification Authority

These fields must be filled if the body who is making the calibration is a certification authority:

- *Name*: the name of the certification authority
- *Number*: the name of the certification authority

Calibrated From

Type here the details of the company or person who made the calibration:

- *Name*: the name of the calibrator
- *Address 1*: first line of the address
- *Address 2*: second line of the address
- *ZIP code*: postal code
- *City*: city of the calibrator
- *Province*: province of the calibrator
- *State*: state of the calibrator
- *Country*: country of the calibrator
- *Phone*: phone number of the calibrator
- *Fax*: fax number of the calibrator
- *Web*: website of the calibrator
- *E-Mail*: e-mail account of the calibrator
- *VAT*: VAT number of the calibrator

Notes

Type here some additional notes.

Operator

Name of the person who performed the calibration process.

Mission path

Browse here the folder from where to search for the acquisition files automatically.

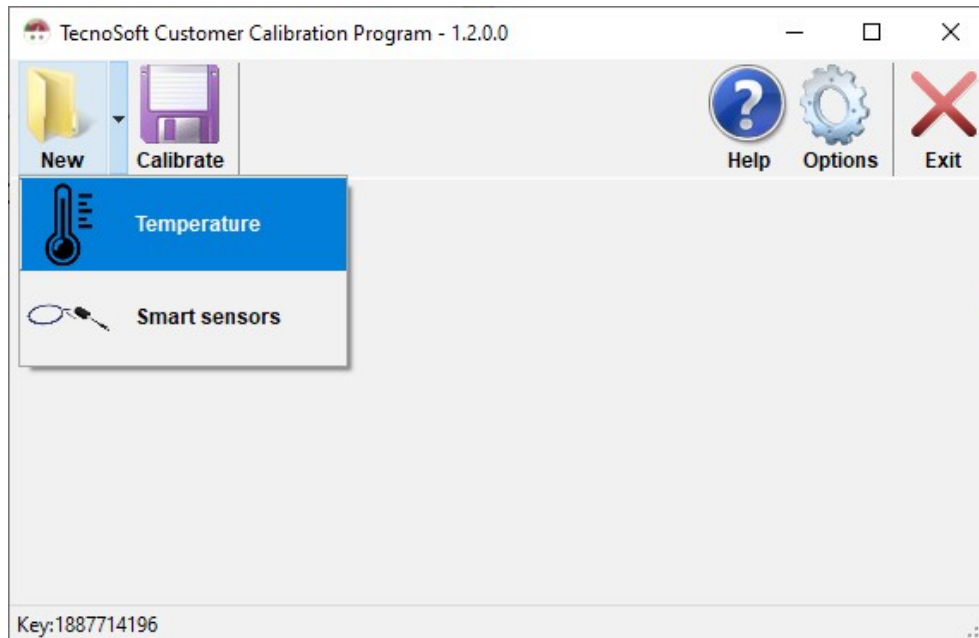
General

Certificates

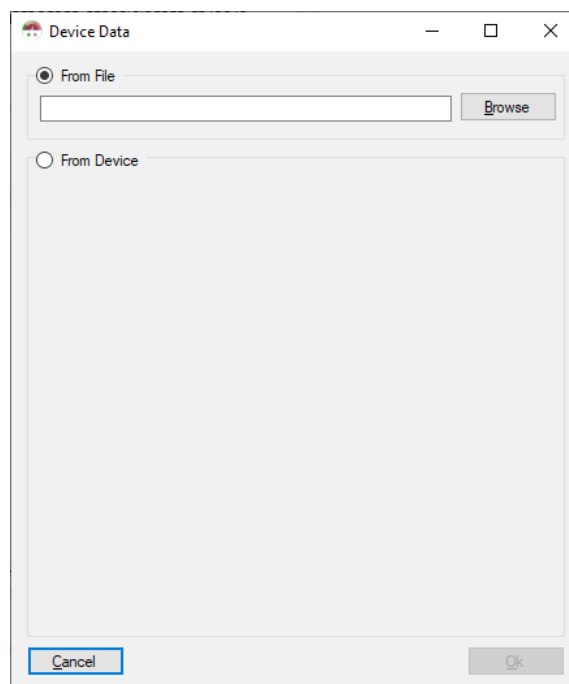
- *Certificate folder*: click *Browse* to select the folder where the certificates in PDF format must be saved.
- *Skip Reference Delta Error*: check this option if you want to be able to calibrate a sensor even if the difference from the reference is higher than 5°C. It is useful when you calibrate points outside the previous calibration range.
- *Skip 5 Points Minimum Request*: enable this option if you want to use less than 5 points to calibrate you sensor.

Loading mission data from data loggers

Click on **New** and then on **Temperature** in the *Main Window*.



Here you can choose to load a file from the SPD software or download data directly from a device.



From File

Click on **Browse** and select the folder and the file you want to load. Click on **Open** and then on **Ok** to load these data.

From Device

Select *From Device* after you have connected the DiskInterface to the PC and inserted the logger in it. The window will display some information on the connected data logger:

- Type of logger, serial number and calibration expiration date (if this line is red, either the calibration is expired or in its last month of validity)

- Temperature value
- Battery status (if this line is red the battery is very low)

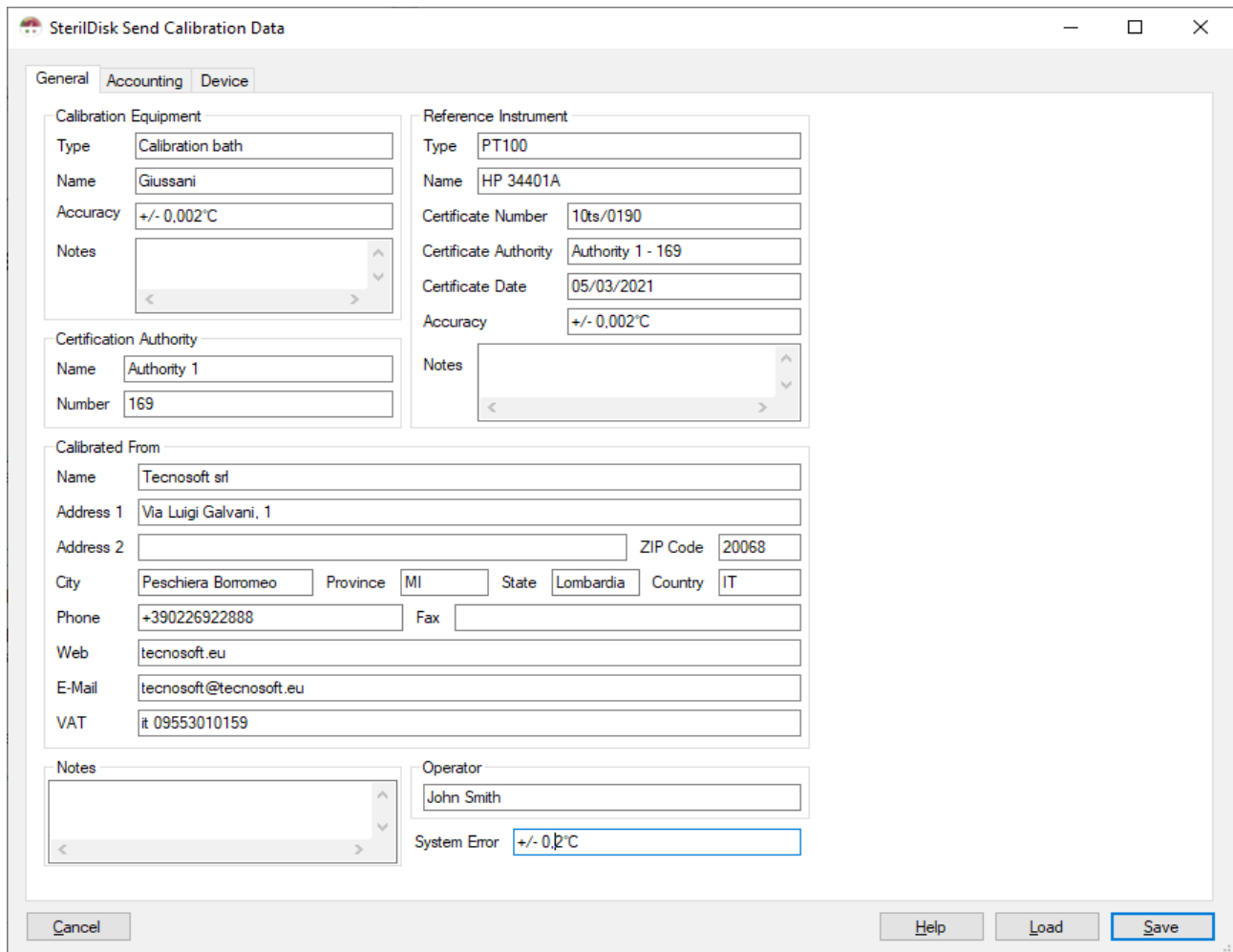
Press **Ok** to start downloading data.

Input calibration data for data loggers

Make sure that the loaded data are correct and are from a calibration process. You can see it by the “steps” the mission graph will have in the *Device* tab.

General

Here you will find all the details for the certificate that you should already have filled in the *Setup* window. You change and update them from here, anyway.



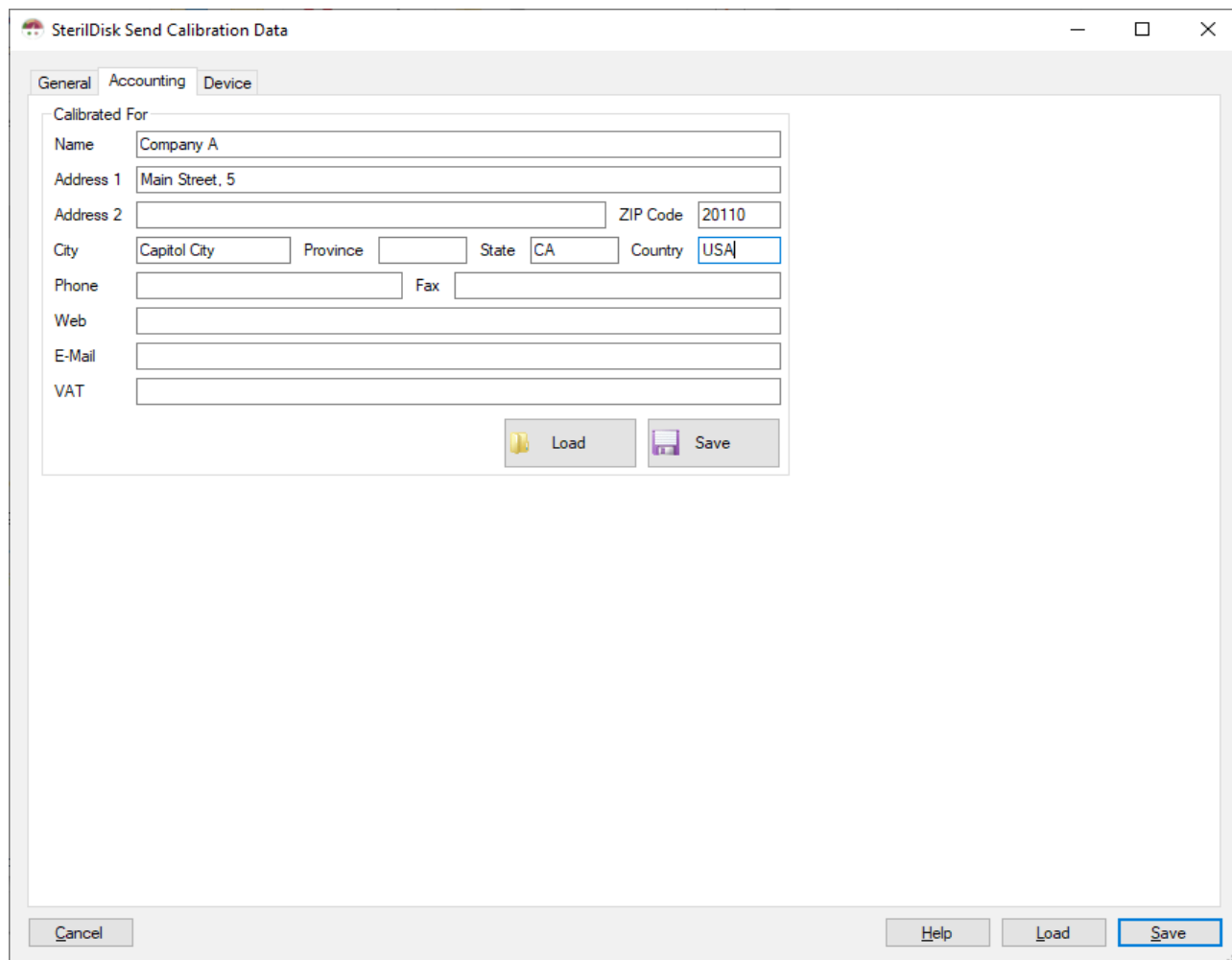
The image shows a software window titled "SterilDisk Send Calibration Data". It has three tabs: "General", "Accounting", and "Device". The "General" tab is active. The window is divided into several sections for data entry:

- Calibration Equipment:**
 - Type: Calibration bath
 - Name: Giussani
 - Accuracy: +/- 0,002°C
 - Notes: (text area)
- Reference Instrument:**
 - Type: PT100
 - Name: HP 34401A
 - Certificate Number: 10ts/0190
 - Certificate Authority: Authority 1 - 169
 - Certificate Date: 05/03/2021
 - Accuracy: +/- 0,002°C
 - Notes: (text area)
- Certification Authority:**
 - Name: Authority 1
 - Number: 169
- Calibrated From:**
 - Name: Tecnosoft srl
 - Address 1: Via Luigi Galvani, 1
 - Address 2: (empty)
 - ZIP Code: 20068
 - City: Peschiera Borromeo
 - Province: MI
 - State: Lombardia
 - Country: IT
 - Phone: +390226922888
 - Fax: (empty)
 - Web: tecnosoft.eu
 - E-Mail: tecnosoft@tecnosoft.eu
 - VAT: it 09553010159
- Notes:** (text area)
- Operator:** John Smith
- System Error:** +/- 0,1°C

At the bottom of the window, there are four buttons: "Cancel", "Help", "Load", and "Save". The "Save" button is highlighted with a blue border.

Accounting

Type here the data of the *Customer* for whom you are performing the calibration, if there is one. After you have filled the fields, click on **Save** to save these data in an XML file that you can later load by clicking on the **Load** button.

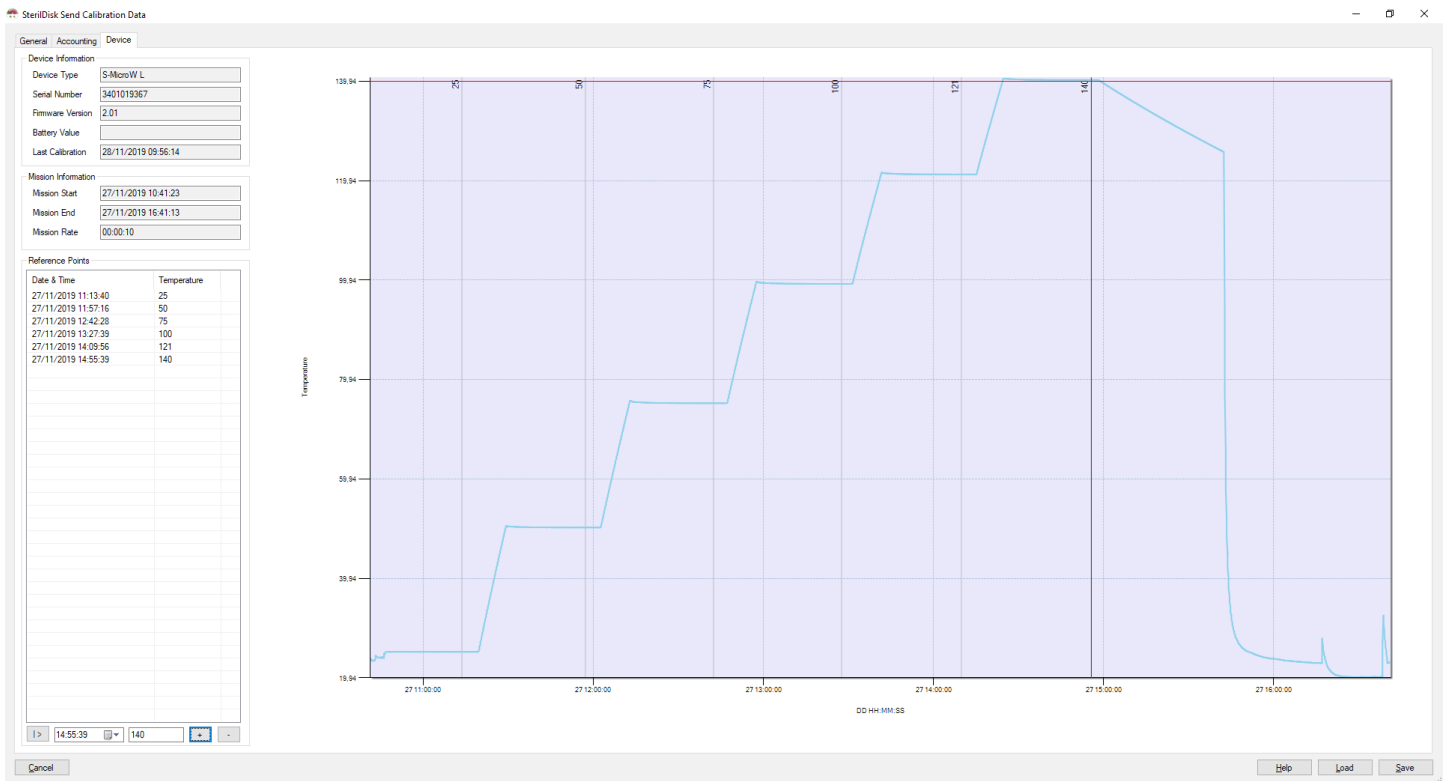


The image shows a software window titled "SterilDisk Send Calibration Data". It has three tabs: "General", "Accounting", and "Device". The "Accounting" tab is selected. Inside the tab, there is a section titled "Calibrated For" containing several input fields: "Name" (with "Company A"), "Address 1" (with "Main Street, 5"), "Address 2", "ZIP Code" (with "20110"), "City" (with "Capitol City"), "Province", "State" (with "CA"), "Country" (with "USA"), "Phone", "Fax", "Web", "E-Mail", and "VAT". Below these fields are two buttons: "Load" (with a yellow disk icon) and "Save" (with a purple disk icon). At the bottom of the window, there are three buttons: "Cancel", "Help", and "Save" (which is highlighted with a blue border).

Field	Value
Name	Company A
Address 1	Main Street, 5
Address 2	
ZIP Code	20110
City	Capitol City
Province	
State	CA
Country	USA
Phone	
Fax	
Web	
E-Mail	
VAT	

Device

Here you see the graph of the data. In the *Reference Points* you can input the data from the reference instrument. To do so, click on the graph where you want to set the matching point between the recorded data and the reference data. Choose a place where the data are still for some time. Then click on the ► button (bottom left corner) to put the cursor on an exact acquisition and then type in both the exact time when you took the value from the reference instrument and the value from the reference instrument and click on +. The new reference value will be added to the list. To remove a value, select it and click on -.



Save the reference file (CCD)

Click on **Save** to save a file with all these data in a CCD file. Send it to Tecnosoft by email to calib@tecnosoftdl.eu to get a TCD file for calibration. You can also load a TCD file here, by clicking on **Load**.

Calibrating a data logger

When you get the TCD file from Tecnosoft, insert the logger in the interface connected to the PC, click on **Calibrate** from the *Main Window*, load the TCD file and click on **Ok** and the device will be calibrated.

In order to properly upload calibration data in a device you must use the same device (serial number) from which the acquisitions come from and the same USB hardware key.

The screenshot displays the 'SterilDisk Calibrate' software window. On the left, a 'Device' panel shows a photo of a black data logger and its details: A4U5UACX, STERILDISK, 1000001001, 06/11/2010, 30.18 °C, and 2.53 V. The main area is titled 'Certificate' and features the TecnoSoft logo and contact information. Below this, a 'Calibration Certificate' section contains fields for 'Customer Data' and 'Device Data'. The 'Device Data' field is populated with: Instrument: Temperature Data Logger, Manufacturer: Tecnosoft, Model: SterilDisk, and Serial Number: 1000001001. There are also empty fields for 'Calibrated From' (containing 'TecnoSoft') and 'Calibration Instrumentation'. At the bottom, a table with four columns is partially visible: 'Reference Temperature', 'Calibrated temperature', and 'Error'. The window includes standard Windows window controls and a 'Close' button at the bottom right.

Reference Temperature	Calibrated temperature	Error
-----------------------	------------------------	-------

If you want to customize your certificate, ask to Tecnosoft.

Calibration procedure for temperature data loggers

Calibration is a delicate process requiring good instrumentation and skilled people.

Instrumentation

You will need:

- a calibration bath with fluid (water or silicon oil). Dry blocks are less stable and accurate;
- a primary calibration certificate is necessary for the reference thermometer.

Procedure to follow with Tecnosoft data loggers

1. Use a PC, possibly with time calibrated with an official time standard (i. e. <http://www.time.gov/timezone.cgi?UTC/s/0/java>)
2. Start the data loggers with an acquisition rate of 30 seconds. Use the PC with the time standard to start the acquisition.
3. Put the loggers in the calibration bath using appropriate stainless steel holdings according to the calibration bath.
4. Put the reference thermometer probe close to the sensing point of the data logger. Many errors are due to the different depth of the data logger probe and the reference thermometer. Also horizontal different positions can cause errors.
5. Set the first temperature on the calibration bath controller.
6. Wait for the stability. For our purposes a bath starts to be stable when the reference temperature is stable within $\pm 0.1^{\circ}\text{C}$ in 10 minutes.
7. Wait for at least 20 minutes and read the reference thermometer; read the time from the PC with the official time standard and write the values.
8. Wait for at least 2 minutes before changing setting.
9. Set the second calibration temperature on the calibration bath controller.
10. Repeat points 6, 7, 8.
11. Repeat points 5 to 10 for the other temperature points. A total of 4/5 points are suggested.

Temperature Smart Sensor calibration procedure

The following procedure describes how to calibrate a temperature Smart Sensor. You'll need a Smart Sensor USB interface to connect Tecno Calib program to the Smart Sensor. Disconnect the Smart Sensor from its device and connect it to the interface for the real time data acquisition through Tecno Calib.

More than one Smart Sensor can be connected to Tecno Calib using one USB interface for each Smart Sensor. For the whole duration of the calibration process the Smart Sensors must be connected to PC with Tecno Calib running. Once the calibration window in the software is stopped and closed no more data can be added to the logs.

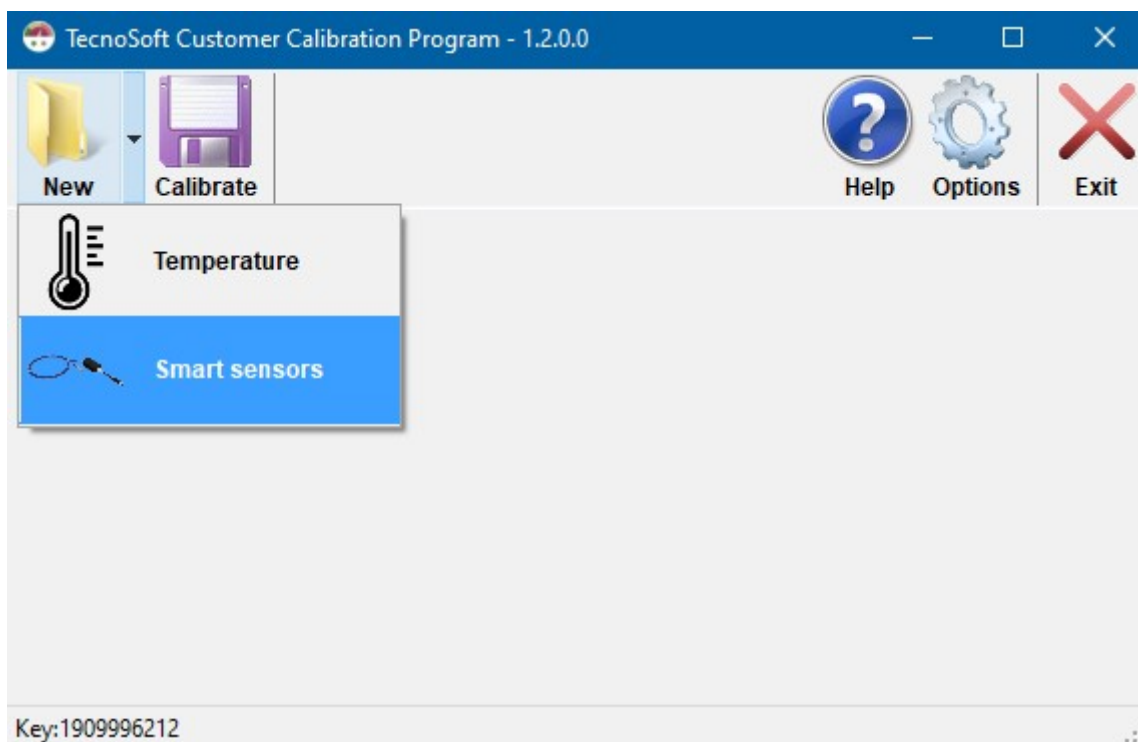
After the real time calibration process has ended the resulting CCD files must be saved and sent by mail to calib@tecnosoftdl.eu. You'll get the TCD file to upload into the Smart Sensor to adjust its calibration curve with the new data.

The writing of calibration parameters must be done with one Smart Sensor at a time. The program will match the serial number of the TCD file and the connected Smart Sensor.

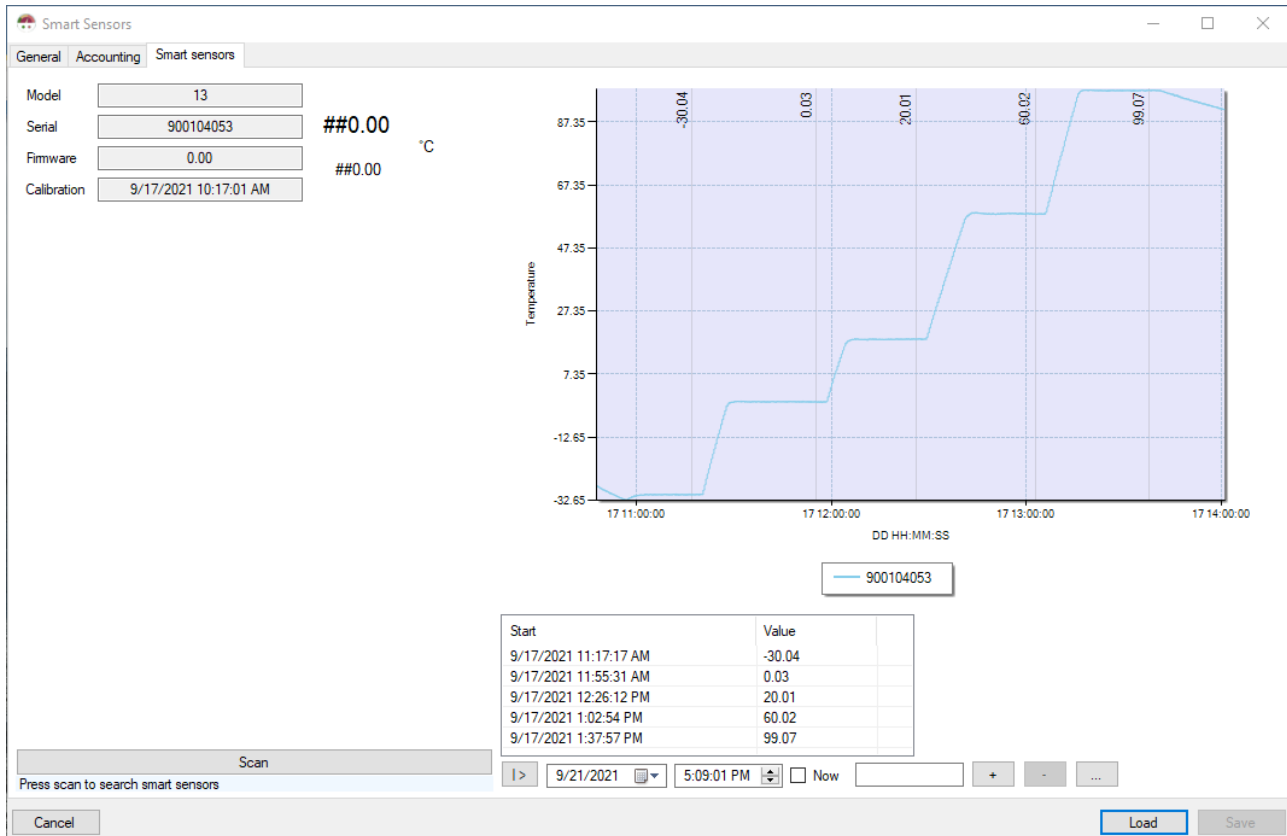
During real time calibration or at the end you must provide the reference temperature values. At least 4 reference points must be provided.

Real time data acquisition

Connect one Smart Sensor to each interface. Select **New - Smart Sensors** in the main window.



Tecno Calib will start scanning each interface and will show all Smart Sensors connected. A real time graph will be shown for each Sensor.



The system will automatically record data from all connected Smart Sensors.

On the left panel you will find all Smart Sensors and on the right the curve for each of them.

You must fill the reference points. At least 4 points must be provided.

To add a point in real time check the *Now* option and digit the reference temperature in the field on the right. You can also input reference points at the end of the process filling in the correct date and time and relative temperature.

At the end of the process press the **Save** button. One or more, depending on how many smart sensor are connected), CCD files will be generated.

The calibration process can not be stopped and restarted.
CCD files must be sent by email to calib@tecnosoftdl.eu.

Smart Sensor calibration

When the TCD file are received you can calibrate the Smart Sensor. Only one Smart Sensor can be calibrated at a time. Connect only one Interface with a Smart Sensor connected.

Click on Calibrate button and select the corresponding TCD file. Tecno Calib will check for serial number matching.

Click Write calibration to upload calibration parameters and generate certificate.

SmartSensor Calibrate

Model

13

Serial

900104028

Firmware

1.2

Calibration

7/5/2021 10:49:11 AM

27.52

1.1055457

Scan

SEARCHING SMART SENSOR ON PORT COM10

Cancel

Write calibration

Troubleshooting

Sometimes I can't connect to any logger

There can be several causes for a communication problem (interface not found, TecnoCOM Port TimeOut, ecc.).

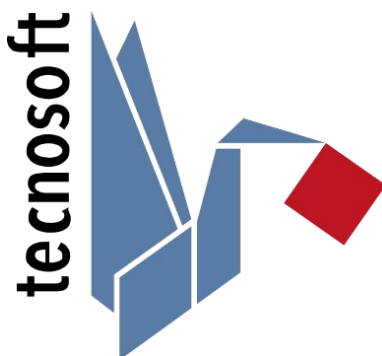
Be sure that the interface is inserted correctly, that the cable is correctly inserted in the PC and that the logger is correctly inserted in the interface (or in the adapter if it is a cylinder logger).

Be sure the drivers are installed correctly, from the Control Panel of Windows – System – Hardware – Device manager: if the interface name is next to an attention sign, it means the drivers are not installed correctly.

If you changed the port to which the interface was connected to, you will have to install the drivers again.

Check you have selected the USB port in the Configuration of the SPD.

It might happen that the USB drivers of the *Disk Interface* are in conflict with some other drivers or applications installed on the PC. If you face a communication error, try to disconnect the Interface and re-connect it again to the PC and try to communicate again. If it should fail, please contact TecnoSoft technical centre.



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