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UNI EN ISO 9001:2008
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SISTEMA DI GESTIONE QUALITÀ CERTIFICATO

UNI EN ISO 9001:2008 certified
Certificate n. 17733

TECNOSOFT CATALOGUE

GUIDE TO TECNOSOFT SYSTEMS AND THEIR APPLICATION

Tecnosoft systems for temperature and humidity monitoring find application in all kind of fields where such controls are required, from food market to pharmaceutical industry, to logistic and warehouses control, to transport and environment monitoring. Our solutions are designed at the root with one application in mind, so to give the best performance when applied for that specific application but can be easily used and configured for any application you have in mind.
Here is a list of our systems and their most common applications, but you always may find a new way to use them for your own needs. All the devices are provided (some on request) with a calibration certificate.

TempNFC – per temperatura in trasporti, frigoriferi, ambienti

Sistemi	Applicazioni	Vantaggi
TempNFC Single Use Smartphone / Tablet Android con NFC App TempNFC	Transport monitoring Fridges monitoring Environment control	No PC or accessory needed Immediate data sharing Small Size Single Use – no reverse logistic cost

TempStick standard – for temperature in environments, transport, fridges

System	Applications	Advantages
TempStick / TempStick Probe TecnoStick Interface StickLog Pro software	Transport monitoring Fridges monitoring Food/liquid monitoring at their core (probe versions) Environment control	Small Size High Accuracy (with calibration certificate) No extra battery costs (10 years internal battery)

TempStick SRI – for temperature in transport but also environments, fridges

System	Applications	Advantages
TempStick / TempStick Probe SRI StickLog Pro software	Transport monitoring Fridges monitoring Food/liquid monitoring at their core (probe versions) Environment control Warehouses and stockhouses	Small Size High Accuracy (with calibration certificate) No extra battery costs (10 years internal battery) Portable interface with MKT calculation (no need for a PC for download and program)

HumiStick – for temperature and humidity in environments, fridges, transport

System	Applications	Advantages
HumiStick TecnoStick Interface StickLog Pro software	Transport monitoring Environment control Warehouses and stockhouses	Small Size Calibration certificate No extra battery costs (10 years internal battery)

HumiStick SRI – for temperature in transport but also environments, fridges

System	Applications	Advantages
HumiStick SRI StickLog Pro software	Transport monitoring Fridges monitoring Environment control Warehouses and stockhouses	Small Size No extra battery costs (10 years internal battery) Portable interface with MKT calculation (no need for a PC for download and program)

DLHT – for temperature humidity in laboratories, environments, fridges

System	Applications	Advantages
DLHT DLHT software *or* FridgeLog software (ask for availability)	Environment control Laboratories control Pharmaceutical purposes	Calibration certificate User replaceable batteries Display with current data, all saved data, graphs Local alarms 21 CFR Part 11 software

FridgeLog basic – for temperature and humidity in environments, fridges

System	Applications	Advantages
TempStick / TempStick Probe / HumiStick FLI FridgeLog software	Fridges monitoring Warehouses and Logistic centres Continuous monitoring	Small Size High Accuracy (with calibration certificate) No extra battery costs (10 years internal battery) HACCP software with ISO management Thermal history for each fridge (data appended one after the other)

FridgeLog Z wireless – for real time temperature and humidity in environments, fridges

System	Applications	Advantages
ZED T / ZED IT + Intelligent Sensors Syrinx FridgeLog Z software GSM USB modem	Fridges monitoring Warehouses and Logistic centres Continuous monitoring	High Accuracy (with calibration certificate) User replaceable 1.5V commercial batteries IP67 case HACCP software with ISO management Thermal history for each fridge (data appended one after the other) Wireless transmission with possibility of email and SMS alarms (with TAS and GSM) Bidirectional transmission: retrieve data in case of lost transmissions Easy and quick recalibration with the Intelligent Sensors Radio bridge between the Zeds to extend communication range

TSR – for real time temperature in environments, fridges

System	Applications	Advantages
TempStick Radio USB Radio Receiver TSR software + Radio Configuration Interface	Fridges monitoring Laboratories HACCP	High Accuracy (with calibration certificate) High life batteries Immediate control with local alarms

Radio Printer – Radio Printer USB – for real time temperature in transport, environments, fridges

System	Applications	Advantages
TempStick Radio Radio Printer / Radio printer USB TSR software (for Radio Printer USB only) + Radio Configuration Interface	Fridges monitoring Laboratories monitoring Pharmacies Restaurants and Catering, HACCP Transport control	High Accuracy (with calibration certificate) High life batteries Immediate control with local alarms Immediate data printing Easy and quick recalibration with the Intelligent Sensors Export data on PC (Radio Printer USB only)

Pasteurisation processes - for temperature up to 100°C

System	Applications	Advantages
PasteurDisk Jumbo / P-Micro / P-Micro L / P-Micro XL DiskInterface HS SPD software	Pasteurisation processes monitoring (up to 100°C)	High Accuracy (with calibration certificate) High life batteries (user replaceable) Food grade devices Different kind of probes No need to cool it down after each process, no time limit at highest temperature Fitting tool for any food package Pasteurisation Units calculation Multi-graph analysis

Pasteurisation processes wireless – for temperature up to 100°C in single pasteuriser

System	Applications	Advantages
P-Radio DiskInterface HS USB Radio Receiver SPD software	Pasteurisation processes real time monitoring (up to 100°C)	High Accuracy (with calibration certificate) High life batteries (user replaceable) Food grade devices Different kind of probes Fitting tool for any food package No time limit at highest temperature Real time monitoring Pasteurisation Units calculation Multi-graph analysis Local alarms Use many loggers in a single pasteuriser

Pasteurisation processes wireless – for temperature up to 100°C in multi pasteurisers

System	Applications	Advantages
P-Radio DiskInterface HS USB or Ethernet Radio Receiver Process Monitor software (Lite and Pro version)	Pasteurisation processes real time monitoring (up to 100°C)	High Accuracy (with calibration certificate) High life batteries (user replaceable) Food grade devices Different kind of probes Fitting tool for any food package No time limit at highest temperature Real time monitoring Pasteurisation Units calculation Multi-graph analysis Monitor many pasteurisers at once Alarms on each pasteuriser when end of process approaches (Pro version only)

Sterilisation processes - for temperature up to 140°C

System	Applications	Advantages
SterilDisk / SterilDisk Jumbo / S-Micro / S-Micro L / S-Micro XL DiskInterface HS SPD software	Sterilisation processes monitoring (up to 140°C)	High Accuracy (with calibration certificate) High life batteries (user replaceable) Food grade devices Different kind of probes Resist to high pressure No need to cool it down after each process, no time limit at highest temperature Fitting tool for any surface F0 calculation Multi-graph analysis Use many loggers in a single autoclave

Sterilisation processes wireless – for temperature up to 140°C in single autoclave

System	Applications	Advantages
S-Radio DiskInterface HS USB Radio Receiver SPD software	Sterilisation processes real time monitoring (up to 140°C)	High Accuracy (with calibration certificate) High life batteries (user replaceable) Food grade devices Different kind of probes Resist to high pressure No time limit at highest temperature Real time monitoring Fitting tool for any surface F0 calculation Multi-graph analysis Use many loggers in a single autoclave

Sterilisation processes wireless – for temperature up to 140°C in multi autoclaves

System	Applications	Advantages
S-Radio DiskInterface HS USB or Ethernet Radio Receiver Process Monitor software (Lite and Pro version)	Sterilisation processes real time monitoring (up to 140°C)	High Accuracy (with calibration certificate) High life batteries (user replaceable) Food grade devices Different kind of probes Resist to high pressure No time limit at highest temperature Real time monitoring Fitting tool for any surface F0 calculation Multi-graph analysis Monitor many autoclaves at once Alarms on each autoclave when end of process approaches (Pro version only)

TS Manager – temperature and pressure for autoclaves, pasteurisers, retorts, washer disinfectors validation

System	Applications	Advantages
SterilDisk / SterilDisk Jumbo / S-Micro / S-Micro L / S-Micro XL PressureDisk 05 / PressureDisk / PressureDisk V DiskInterface HS TS Manager software	Validation of autoclaves, retorts, washer disinfectros Validation of sterilisation and pasteurisation processes Sterilisation and pasteurisation processes monitoring	High Accuracy (with calibration certificate) High life batteries (user replaceable) Food grade devices Different kind of probes Resist to high pressure No need to cool it down after each process, no time limit at highest temperature F0 calculation Multi-graph analysis Completely 21 CFR Part 11 compatible Useful features for autoclave validators

TEMPNFC

FOR ANDROID DEVICES WITH NFC

PUSH A BUTTON TO START TEMPNFC

SHIP YOUR GOODS

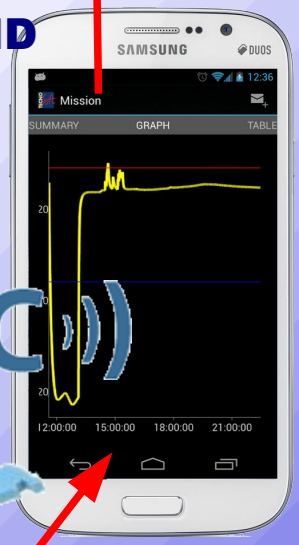
DELIVER THROUGHOUT THE WORLD

IMMEDIATELY SHARE YOUR DATA

TECNOCLOUD

DOWNLOAD DATA WITH YOUR ANDROID SMARTPHONE OR TABLET

NFC



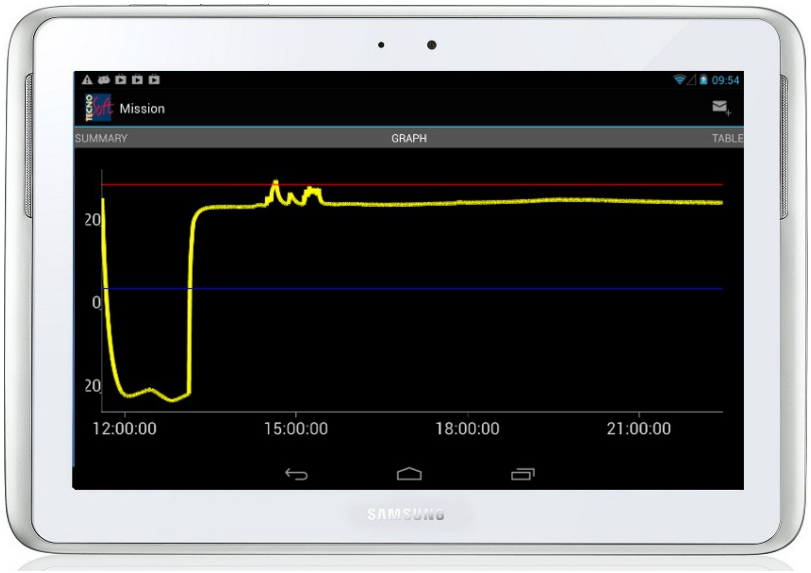
Tracking of:

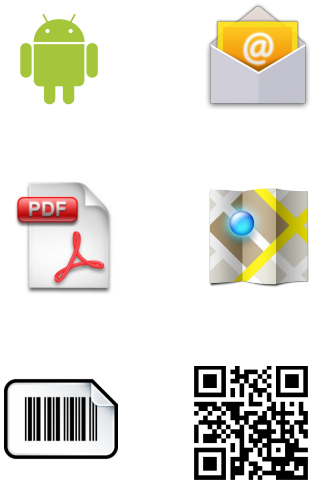
- **Time and Temperature**
- **Bar Code and QR Code**
- **GPS Positioning (at starting and stopping)**

Tecnosft srl

Temp NFC

Temperature data logger for NFC capable Android devices – Download the readings with your Smartphone or Tablet and instantly share the information with anyone





You can now manage temperature monitoring using a Smartphone or a Tablet and INSTANTLY share the readings you downloaded.

This is TempNFC from Tecnosoft, temperature data logger for transports and cold chain monitoring, available in 3 versions:
- TempNFC: reprogrammable data logger reusable with no limits;
- TempNFC Single Use: disposable data logger;
- TempNFC Calib: reprogrammable data logger till calibration expiration date, reactivable with the recalibration, to be sure you don't use not calibrated devices.

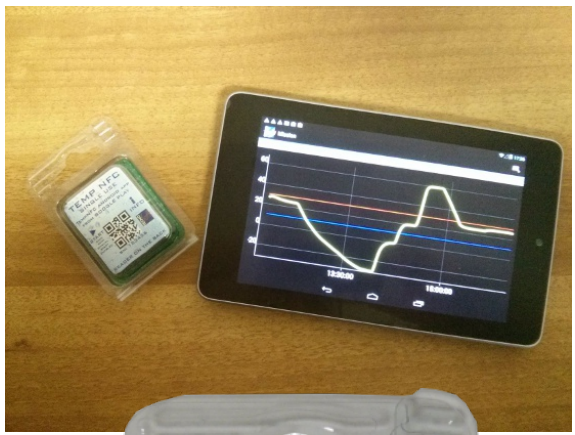
Download the App, manage your loggers, share the information and focus only on your tasks.

Applications

- Temperature controlled shipping
- Ambients, fridges and cold rooms

Features

- Start and download using NFC enabled Android devices (**App on Google Play**)
- Long life battery enclosed; 10 year shelf life in standby
- Manual start option by means of the Start button
- Mission **status LED and button** (running, stopped, OK, alarm)
- Real time checks against alarm thresholds and transport duration; MKT calculation is done on the App
- **Bar Code and QR Code** scan of the items being monitored in the shipment
- **Geolocalization** of the start and stop positions, saved with the mission data
- View Readings in graphical or tabular format
- Create mission templates to quickly start the devices, without entering settings every time
- Additional Information: sender, receiver, operator, notes etc.
- Automatically send PDF reports to the email address set by the person sending the goods
- Synchronization with the **Tecnosoft Cloud**
- Optional **Accredia (NIST equivalent) traceable calibration certificate** on one or more calibration points



Applications

Healthcare

Pharma

Food

Laboratory

Communication

NFC

Technical Data

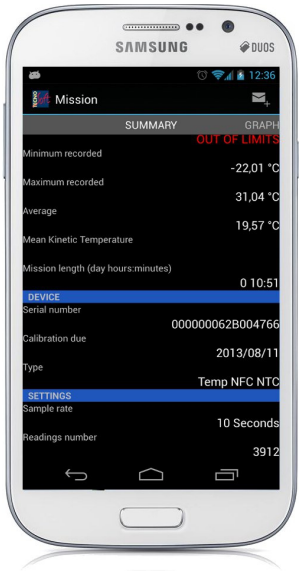
Dimensions	60 X 15 X 73 mm (W x H x L) (L = 90 mm including the eyelet)
Temperature range	-30°C ÷ 60°C
Temperature resolution	0.01° C
Temperature accuracy	± 0.5°C excluding certificate; ± 0,2°C including Accredia traceable certificate
Number of acquisitions	3912 (this may diminish according to the amount of notes/additional info)
Acquisition rate	From 1 second up (in steps of 1 second)
Start/Stop	Start: Immediate, delayed or manual (via button) / Stop: via App or after preset duration
Battery life	3 millions of acquisitions or 10 years (if LED are in function life might be shorter)
Communications/Buttons	NFC; start button, status button, 2 LEDs for status and alarm notification
Protection degree	IP65
Compliant with	CE, FCC, RoHS, RAEE

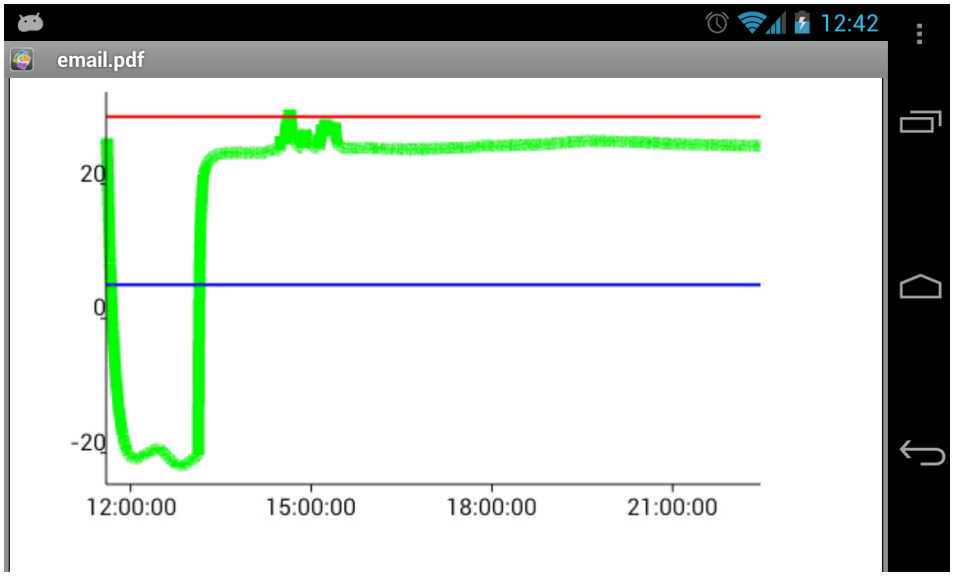
Android App - general features

Data management	Data stored in internal memory, SD Card, Dropbox; share via email
Data display	Graph, table, mission parameter summary, PDF
Information input	Via display keyboard, voice, Barcode/QR Code reader

Android App - versions comparison

Features	Lite	Pro	Enterprise
Free on Google Play	✓	✗	✓ Cloud subscription required
Start / Data download	✓	✓	✓
Mission status	✓	✓	✓
PDF via email	✓	✓	✓
Table / Graph	✗	✓	✓
Mission archive	✗	✓	✓
Profiles management	✗	✓	✓
Statistics / MKT	✗	✓	✓
Optional info on start	✗	✓	✓
BarCode/QRCode Scanning	✗	✓	✓
Cloud functions	✗	✗	✓





Visit tempnfc.com to view a list of compatible devices.

TEMPSTICK, TEMPSTICK PROBE

Miniaturized temperature data logger for fridges, cells, incubators, warehouses and transports

The ideal data logger for a safe, accurate monitoring through quick and easy solutions thanks to the wide range of choice of software and interfaces available, designed for specific applications.

System

Data loggers can be used with two different software:
- **StickLog Pro**, with TecnoStick Interface or SRI (portable interface), for an easy and quick monitoring: start the devices, do your monitoring mission, download data and analyse them. For transports and more;
- **FridgeLog**, with FLI portable interface, for continuous monitoring of fridges, warehouses, supermarkets, laboratories.

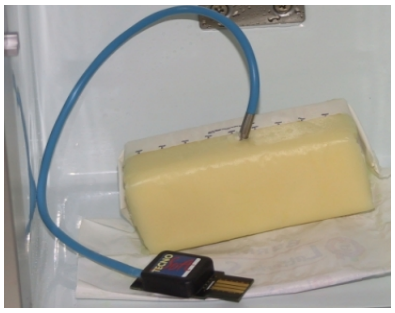
In both software analysis is made using the **MKT** formula.

Versions

The available versions are:
- **Standard**: TempStick with internal temperature sensor;
- **Probe**: TempStick with external sensor with cable stainless steel AISI food grade probe, submersible; rounded or pointed probe of 30 or 80 mm. **High response time**.

For TempStick **Standard** and **Probe** the **stand by function** is enabled: start the logger and then, using the metallic clip, set it to a stand by status. In this way you can send many pre-programmed loggers to the sender of the products without providing him with the software and the interface. Before sending the goods he will just have to remove the clip to start the acquisitions.

TempStick Probe



Applications

- Monitoring of temperature controlled transports.
- Warehouses mapping and monitoring.
- Supermarkets monitoring (fridges, ovens and fridge cells).
- Monitoring of laboratory of analysis (fridges, freezers, incubators).
- Environment mapping and monitoring (buildings, houses).

Pro

- High accuracy and precision.
- Easy to use with SRI and FLI portable interfaces.
- External probe to reach core temperature.
- Compliant with **HACCP** and **EN12830** regulations.
- MKT formula implemented, for quick data analysis, also on SRI and FLI.
- Provided with **calibration certificate** Accredia (NIST equivalent) traceable (on demand).
- TempStick Probe can be provided calibrated at **low and high temperatures (below -80°C, up to 200°C, probe only)**.
- Long life battery.

TempStick ready for shipment

Remove the metal clip to start acquisition according to the parameters programmed

Fields of application

Healthcare

Pharma

Food

Laboratory

Transports

Interface Communication

USB

Technical features

Model	Standard	Probe
Dimensions	50 X 22 X 10 hh (mm)	
Probe		cable BU, TF, 30 cm standard length, probe 30 or 80 mm, diameter 4 mm, rounded or pointed
Probe material	AISI316L stainless steel (food grade)	
Temperature range	-30 °C ÷ +65 °C	-40 °C ÷ +90 °C (probe only) -80 °C ÷ +200 °C (probe only; ask)
Temperature resolution	0,03 °C	
Temperature accuracy	± 0,25 °C with calibration certificate / ± 1 °C without calibration certificate	
N. of acquisitions	2.730	
Acquisition step	From 1 every minute up to 1 every 255 minutes	
Battery	10 years or 3 millions of acquisitions	
Communications	TecnoStick Interface, SRI, FLI	

Software

Type	StickLog Pro	FridgeLog
Operating systems	Windows XP, Vista, 7, 8 (32, 64 bit)	
Data management	Missions sorted by starting date and logger serial number	Continuous monitoring sorted by monitoring point with data append
Data analysis	Graph (with zoom) and table (exportable into Excel) and report printing with all data	
MKT and Parameters	Automatic calculation of the MKT and possibility to set thresholds and validity criteria	
Languages	Italian, English, German	Italian, English

External probes for TempStick Probe

	Code	Description	Available probes
	02	AISI stainless steel probe with handle, 28 cm	BL
	03	AISI stainless steel probe, rounded, 30 mm	BU, WH, TF
	04	AISI stainless steel probe, rounded, 80 mm	BU, WH, TF
	05	AISI stainless steel probe, pointed, 30 mm	BU, WH, TF
	06	AISI stainless steel probe, pointed, 80 mm	BU, WH, TF

Cable types

	Code	Description	Available sensors
	BL	Black rubber cable, max 2 metres	02
	BU	food grade rubber blue cable, 30 cm standard	03, 04, 05, 06, 07
	TF	Teflon food grade cable for temperatures from -80°C to 200°C according to requested device; 2 mm diameter, 30 cm standard	03, 04, 05, 06, 07

TEMPSTICK® Radio System

Wireless Temperature Data Logger

The ***TempStick® Radio*** wireless sensor is a temperature radio recorder that can be used in combination with different systems and software. It acquires the temperature values through its sensor, available also with cable, and send the data to a radio receiver that can communicate with the PC directly with the USB port or through a network with an Ethernet connection. It works also with the ***Radio Printer***, the portable device with printer that work without software and PC.

Pro:

- radio transmission, no more cables and real time control of the data;
- compact and accurate;
- can be used in multiple system for many applications;
- with sensor and external cable, all food grade.

Applications:

- stock houses and warehouses
- laboratories
- fridges/freezers
- transports
- other temperature sensitive environments compliant with ISO 9001 standards.

Sensors are waterproof, as the cables.
All units can be calibrated and delivered with their calibration certificate, necessary for ISO 9001 compliance.
Standard calibration validity is of one year.

Transmission:

- reliable, with data control;
- no possibility of wrong data;
- range up to 200 meters in open space, 80 meters in closed environment (transmission range depends also on walls and material of the walls themselves. Iron and steel obstacles might reduce the transmission range).

Sensors and transmitter:

- each transmitter has its unique identification number, as the radio;
- sensors are easy to install and place where you need to control temperature;
- software can manage a big number of sensors and transmitters;
- possibility to have the configuration interface (to set rate of transmission).

Technical Features

TempStick® Radio	
Size	6,5 X 5 X 4,5 cm
Electronics Temperature Range	-20 °C ÷ +60 °C
Sensor Temperature Range	-40 °C ÷ +90 °C *
Resolution	0,03 °C
Accuracy	±0,25 °C with calibration certificate Standard calibration certificate: -10°C, 0°C, 10°C, 25°C, 50°C (other temperatures available on demand) ±1 °C without calibration certificate **
N° acquisitions	Acquisitions storage on PC Hard Drive
Acquisition interval	From 1 reading every 3 seconds to 1 reading every 255 minutes
Battery	Factory replaceable
Autonomy	More than 500.000 acquisitions/transmissions - more than 10 years with standard use (24 acquisitions per day)
Mission length	Depending on the Hard Drive free memory
Protection degree	IP68 probe; IP67 case; IP40 connectors

* Depends on cable and sensor. Effective range is within calibration points interval and is 100°C for maximum resolution
** post production data without calibration

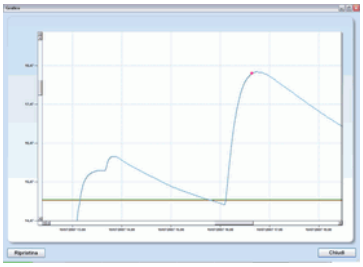
The Systems

The ***TempStick Radio*** works with the following systems and software:

TSR

TSR with USB Radio Receiver (basics system)	
Operating systems	Windows 2000, XP, Vista
Data management	Database organized on sensor's serial number and start date of the mission
Data display	Graph (with zoom) and table (exportable in Excel) and data printing in reports
Multi-graph	Up to 4 graph can be displayed simultaneously
Alarms	Visual and sound alarms on set thresholds (different for each sensor)
Communication	USB for the Radio Receiver and for the TempStick Radio Interface; Radio 433 MHz
Radio Range	250 meters in open space; in closed environment depends on many variables and obstacles
Languages	English, Italian

FridgeLog with ***WTMC***



Radio Printer

Temperature probes

The series of Tecnosoft external temperature probes is large and can satisfy every application. Along with the standard temperature probe, water resistant, in rubber, there are different types of food grade probes. They can be applied and are compatible with all Tecnosoft data loggers with external probe and can be matched with different types of cables.

Compatible dataloggers

	TempStick Probe Food Grade, TempStick²
	TempStick Radio
	Temperature Intelligent Sensor

Cable types

BL – used for metallic probe, 28 cm long, with rubber handle

Description	Black rubber cable
Probes available	02
Cable size	Ø: 3,2 mm

BU – standard cable (when no specific cable is requested, this cable will be used)

Description	Blue rubber cable food grade
Probes available	03, 04, 05, 06
Cable size	Ø: 4,0 mm

WH – useful when a very thin cable is needed

Description	Teflon whit cable food grade
Probes available	03, 04, 05, 06
Cable size	Ø: 1,2 mm

TF – useful for high (up to 200°C) and low (up to -80°C, Intelligent Sensors only) temperature

Description	Teflon whit cable food grade
Probes available	03, 04, 05, 06
Cable size	Ø: 1,9 mm

Probe types

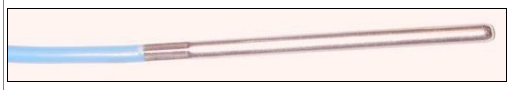
02 – Description: Food Grade probe with handle

Probe size	Ø: 4 mm - Length: 275 mm
Probe material	Stainless steel AISI 316L
Handle length	15 cm
Cables available	BL
Cable length	Up to 2 mt
Temperature range	-40°C ÷ +90°C

03 – Description: Food Grade probe short rounded

Probe size	Ø: 4,4 mm - Length: 30 mm
Probe material	Stainless steel AISI 316L
Cables available	BU, WH, TF
Cable length	Standard: 30 cm – up to 5 mt on demand
Temperature range	-80°C ÷ +200°C (depends on cable chosen)

04 – Description: Food Grade probe long rounded

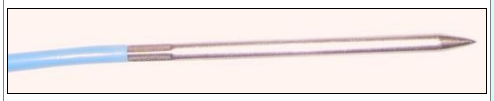


Probe size	Ø: 4,4 mm - Length: 80 mm
Probe material	Stainless steel AISI 316L
Cables available	BU, WH, TF
Cable length	Standard: 30 cm – up to 5 mt on demand
Temperature range	-80°C ÷ +200°C (depends on cable chosen)

05 – Description: Food Grade probe short pointed

Probe size	Ø: 4,4 mm - Length: 30 mm
Probe material	Stainless steel AISI 316L
Cables available	BU, WH, TF
Cable length	Standard: 30 cm – up to 5 mt on demand
Temperature range	-80°C ÷ +200°C (depends on cable chosen)

06 – Description: Food Grade probe long pointed



Probe size	Ø: 4,4 mm - Length: 80 mm
Probe material	Stainless steel AISI 316L
Cables available	BU, WH, TF
Cable length	Standard: 30 cm – up to 5 mt on demand
Temperature range	-80°C ÷ +200°C (depends on cable chosen)

General characteristics of the probes:

- constant time higher than the internal sensor;
- each probe can come with a calibration certificate with SIT traceability;
- temperature monitoring directly at the core of the product with the Food Grade probe;
- water resistant;
- possibility to keep the electronics external and download data and program missions without moving the data logger with the SRI (for TempStick only).



SRI

Portable interface for Tempstick and HumiStick data loggers

Thanks to the ***Starter&Reader Interface*** you no longer need a PC in order to program and download readings from Tecnosoft range of TempStick and HumiStick data loggers.

This interface is equipped with a graphic and alphanumeric display. After programming it once and for all using a PC, it may immediately start data logging missions for TempSticks and HumiSticks devices. The same interface may then be used to download the data from the loggers and/or to view the acquisition in graphical or tabular form directly on the display.

There is more: ***Starter&Reader Interface*** has sufficient memory capacity to store over 300 missions. They may be downloaded later to a PC via its USB connection, to be then stored in a database.

The ***Starter&Reader Interface*** is particularly suited for monitoring products during temperature controlled transports.
Operators in logistics need to to know instantly whether the transport has been carried out correctly or not, both when sending or when receiving goods. However, in many centers it may be difficult to find a PC at hand: that's where the portable interface helps.
The ***Starter&Reader Interface*** will automatically calculate a quality index for the transport mission and display whether the shipment should be accepted or not.
By developing the **Validation Criteria** with **MKT** (Mean Kinetic Temperature, a standard international formula with evaluation of the temperature curves) for transports, Tecnosoft has tackled the traditional control methods, based solely on conservation thresholds, as they do not provide precise and complete information.
There is no need to analyze the data for every acquisition, savings are secured, as trained personnel is no longer required to be on site upon arrival of the goods.

Starter&Reader Interface is supplied with replaceable batteries, it is compact, robust and easy to use: it simplifies the task whilst improving product quality.

Starter&Reader Interface is available can be programmed as:

- full ***Starter&Reader Interface*** for programming and reading the data loggers;
- ***Starter Interface*** for programming the data loggers only;
- ***Reader Interface*** for reading the data loggers only.

Starter&Reader Interface features:

- configures and/or reads the data of TempStick and HumiStick data loggers;
- configuration of the interface by means of PC software (StickLog Pro) and an USB connection cable;
- programming logging missions by selecting pre-configured parameters for the product or category of products being monitored;
- reading of the data loggers and automatic calculation of the **Validation Criteria** with **MKT** for the transport with immediate display of results (Accept/Reject transport);
- visualisation of all the mission data (mission parameters, data logger serial number, acquired readings in graph or table format);
- Graphic and alphanumeric LCD display;
- storage of readings from over 300 data logging missions that may then be transferred to PC;
- 6 key keyboard: 4 direction keys to select menu items and scroll to view the acquired readings in the graph or spreadsheet, 1 Select key, 1 Cancel/Exit key;
- replaceable batteries: uses two AA pencil batteries, 2 x 1.5 V.

HumiStick

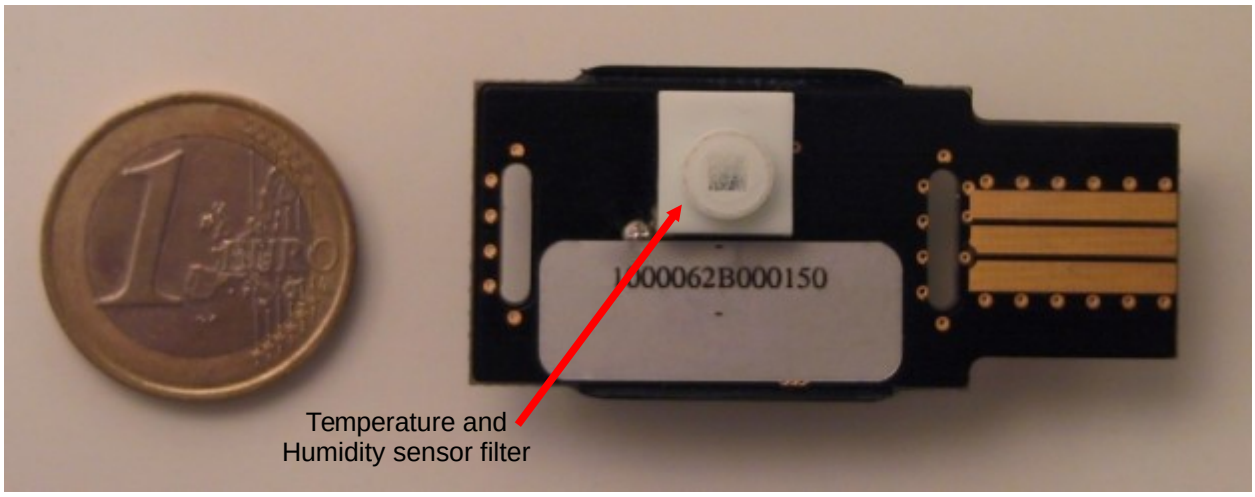
For temperature, humidity, dew point and heat index measurement

Humistick is a temperature and humidity data acquisition system made up of the Humistick data logger, a USB interface and a software program for PC.

System

Data loggers can be used with two different software:
- **StickLog Pro**, with TecnoStick Interface or SRI (portable interface), for an easy and quick monitoring: start the devices, do your monitoring mission, download data and analyse them. For transports and more;
- **FridgeLog**, with FLI portable interface, for continuous monitoring of fridges, warehouses, supermarkets, laboratories.

In both software analysis is made using the **MKT** formula.



Applications

- Monitoring of temperature and humidity controlled transports.
- Warehouses mapping and monitoring.
- Monitoring of laboratory of analysis (fridges, freezers, incubators).
- Environment mapping and monitoring (buildings, houses).

Pro

- Easy to use with SRI and FLI portable interfaces.
- External probe to reach core temperature.
- Compliant with **HACCP** and **EN12830** regulations.
- MKT formula implemented, for quick analysis, on SRI and FLI too.
- Provided with **verification of calibration certificate** Accredia (NIST equivalent) traceable (on demand).
- Long life battery.

Fields of application

Healthcare

Pharma

Food

Laboratory

Transports

Interface Communication

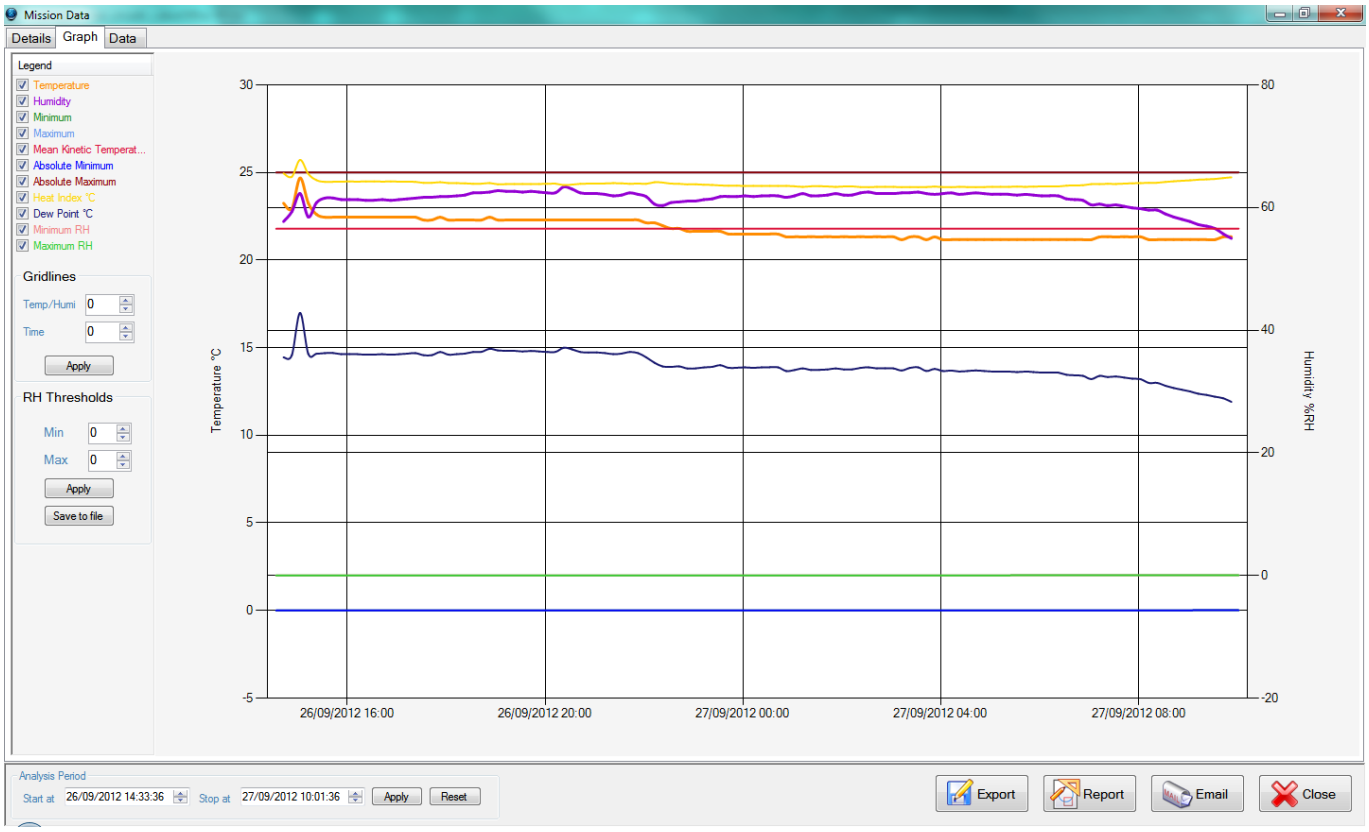
USB

Technical Data

Dimensions	50 X 22 X 15 hh (mm)
Temperature range	-20°C ÷ +65°C
Temperature resolution	0,2°C
Temperature accuracy	±0,4°C from +5°C to +40°C ±1°C from -20°C to +65°C
Humidity range	5% ÷ 95% (non condensing)
Humidity resolution	0,1% RH
Humidity accuracy	±3% from 20% to 80% RH ±4% from 5% to 95% RH
Number of acquisitions	1365
Acquisition rate	From 1 every minute up to 1 every 255 minutes
Battery life	10 years or 3 millions of acquisitions
Communications	TecnoStick Interface, SRI, FLI
Protection degree	IP50
	30 seconds; conditions:1/e (63%) in slowing moving air (0,03 m/s) with no teflon filter

Software

Type	**StickLog Pro**	**FridgeLog**
Operating systems	Windows XP, Vista, 7, 8 (32, 64 bit)	
Data management	Missions sorted by starting date and logger serial number	Continuous monitoring sorted by monitoring point with data append
Data analysis	Graph (with zoom) and table (exportable into Excel) and report printing with all data	
MKT and Parameters	Calculation of the MKT, thresholds on temperature and humidity, calculation of dew point and heat index	Automatic calculation of the MKT and possibility to set thresholds and validity criteria
Languages	Italian, English, German	Italian, English



Product Code:
ts03hs

2.0

DLHT

Temperature and humidity data logger with display

The ***DLHT (Data logger Humidity&Temperature)*** is a temperature and humidity recorder with an LCD display that enables to immediately check the data. Advanced features and enhancements make it an extremely versatile instrument also for the **ISO** and pharmaceutical certifications.

Pro

- 21CFR Part 11 compatible software;
- graphic and alphanumerical LCD display;
- LED and sound alarms for temperature and humidity can be set by the operator;
- display actual temperature and humidity, all data recorded in table and graph and all occurred alarms;
- long life batteries (2 years with standard use);
- replaceable batteries: 2 X AA 1,5 V.

Applications

- monitor temperature and humidity during transports;
- control in chemical labs;
- control in the pharmaceutical and food industry;
- environment monitoring;
- energy saving long-time monitoring.

Humidity and temperature sensor

The ***DLHT*** shows the actual temperature and humidity of the sensor: it's easy to know what's going on in the room.

High resolution graphic and alphanumerical display

Low battery alarm led

Temperature thresholds alarm led

Cancel/Escape key

Directional keys for menu item selection and graphic scroll

Confirmation key

Available connections:
- USB 2.0 for PC connection

The System

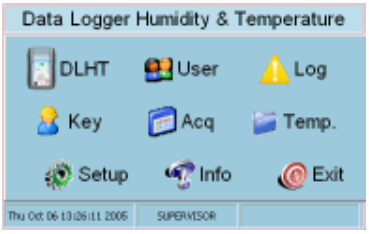
The system is made up by:

- ***DLHT*** temperature and humidity data logger;
- ***DLHT*** software.

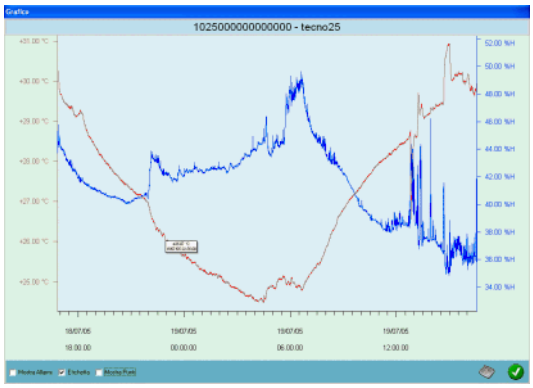
Technical Features

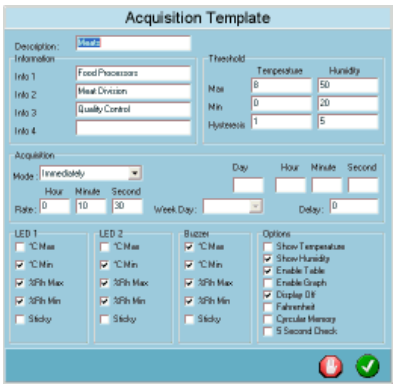
DLHT	
Size	6,8 X 11 X 2,7 cm
Temperature range	-20 °C ÷ +60 °C
Temperature resolution	0,25 °C
Temperature accuracy	±0,4°C from +5°C to +40°C ±1°C from -20°C to +65°C
Humidity range	0% ÷ 100%
Humidity resolution	0,1% RH
Humidity accuracy	±3% from 10% to 90% ±4% from 0% to 100%
N° acquisitions	500.000
Acquisition interval	From 1 every 5 seconds up
Batteries	2 replaceable batteries AA 1.5 Volts
Battery life	2 years with standard use
Connections	USB connection to the PC

The ***DLHT*** can have a calibration certificate SIT (NIST equivalent) traceable: the certificate guarantees the accuracy of the internal temperature and humidity sensor.



DLHT Software	
Operating Systems	Windows 2000, XP
Data management	Database organized on data loggers' serial number (unique for each DLHT) and description (customizable)
Protections	Multi-user and multi-level software with password and login (administrator, advanced and standard users)
Data display	Graph (with zoom) and table (exportable into Excel) and report of all the data printing
Parameters	Temperature and humidity thresholds can be set for the alarms, along with hysteresis
CFR21 Part 11 compatible	Data cannot be changed; all operations recorded and associated to the user for traceability
Languages	English, Italian





E-Log Alarm System

Sending alarm system for the DLHT datalogger

The ***E-Log Alarm*** software, that works in background, reads the data acquired by the ***DLHT*** connected via USB to the PC itself and, when the thresholds sets with the ***DLHT*** software are overpassed, the ***E-Log Alarm*** send an alarm email to the given addresses.

Pro

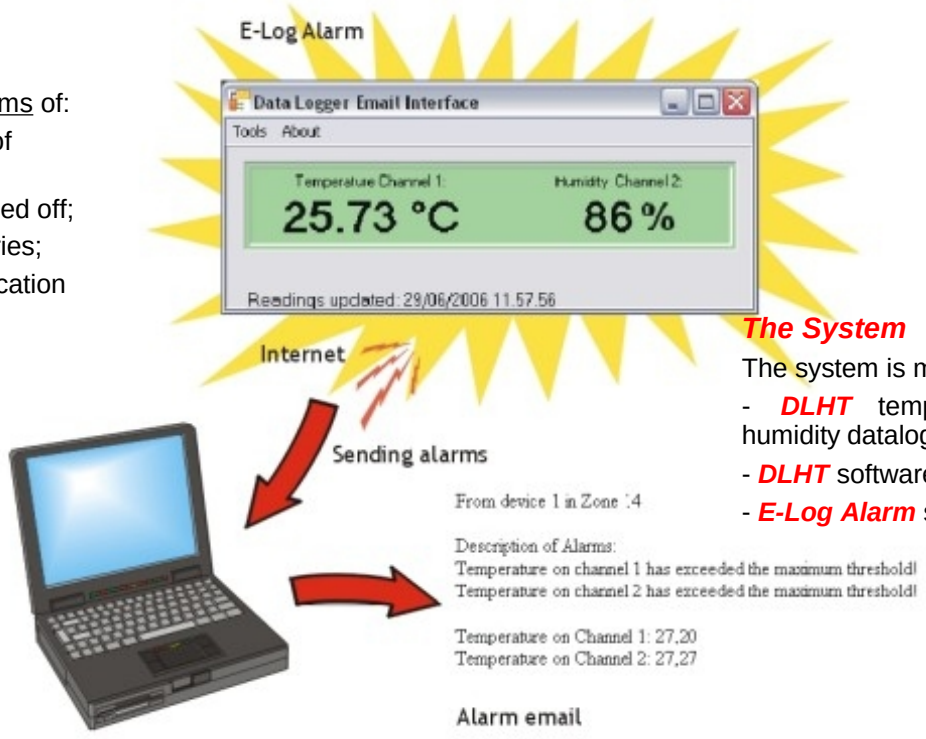
- constant control on temperature and humidity;
- immediate email alarm of data out of thresholds or data back within thresholds;
- data are stored in the memory of the ***DLHT*** anyway;
- 21CFR Part 11 compliant software (***DLHT***).

Applications

- Data Elaborating Centres constant control of temperature and humidity;
- on line control of temperature and humidity in rooms and environments.

Sends alarms of:

- data out of thresholds;
- alarm called off;
- low batteries;
- communication stopped.



The System

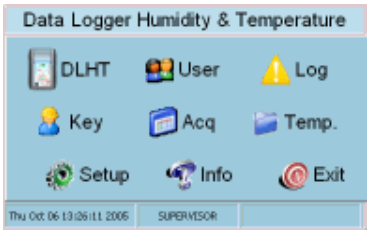
The system is made up by:

- ***DLHT*** temperature and humidity datalogger;
- ***DLHT*** software;
- ***E-Log Alarm*** software.

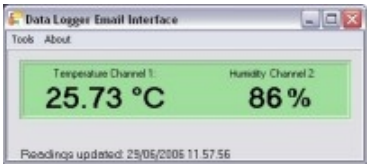
Technical Features

The ***DLHT*** can have a calibration certificate: the certificate guarantees the accuracy of the internal temperature and humidity sensor.

DLHT	
Size	6,8 X 11 X 2,7 cm
Temperature range	-20 °C ÷ +60 °C
Temperature resolution	0,25 °C
Temperature accuracy	±0,5°C at +25°C ±1°C from 0°C to +60°C
Humidity range	0% ÷ 100%
Humidity resolution	±2% (from 10% to 90%)
Humidity accuracy	0,1% RH
RH stability	<1%/year
N° acquisitions	500.000
Acquisition interval	From 1 every 5seconds to 1 every 255 minutes
Batteries	2 replaceable batteries AA 1.5 Volts
Battery life	2 years with standard use
Connections	USB connection to the PC



DLHT Software	
Operating Systems	Windows 2000, XP
Data management	Database organized on data loggers' serial number (unique for each) and description (customizable)
Protections	Multi-user and multi-level software (administrator, advanced and standard users)
Data display	Graph (with zoom) and table (exportable into Excel) and report of all the data printing
Parameters	Temperature and humidity thresholds can be set for the alarms, along with hysteresis
21CFR Part 11 compliant	Data cannot be changed; all operations recorded and associated to the user for traceability.
Languages	English, Italian



E-Log Alarm Software	
Operating Systems	Windows 2000, XP
Functions	Email alarm sent when the DLHT connected via USB to the PC records data out of thresholds
Parameters	All email parameters can be set (POP, SMTP, login, password). Alarms can be sent to multiple addresses
Languages	English

FRIDGELOG system

Temperature and Humidity Monitoring System with standard and wireless loggers

The FridgeLog software is the core of this system that shares both standard and wireless loggers (with the FridgeLog Z version), with real time monitoring and advanced features for data management.

All Tecnosoft devices may be requested with a calibration certificate Accredia traceable.

The wireless System

- ZED T and ZED IT wireless sensors;
- Syrinx Ethernet Receiver;
- FridgeLog Z software.

The standard System

- TempStick and HumiStick data loggers;
- FLI portable interface, PC independent;
- FridgeLog software.

Real Time Alarms

The FridgeLog Z allows to get real time alarms at limit exceeding and can be integrated with the TAS module for advanced alarms, with indication of the point alarmed, the kind of alarm and values recorded:

- local alarms on PC;
- email alarms;
- SMS alarms (with GSM modem connected to the PC).

In this way you'll always be in control of your monitored sites.

Applications

- temperature and humidity monitoring in fridges of supermarkets;
- temperature and humidity monitoring in fridge cells;
- temperature and humidity monitoring in stock houses and warehouses
- temperature and humidity monitoring in every continuous process.

Pro

- advanced data management with centres and monitoring points;
- data downloaded to the interface during the periodic control of the fridges and expiring goods (with TempStick and HumiStick with the FLI);
- automatic download of data to the PC (with wireless system);
- immediate Non Conformity notification;
- Non Conformities management according to the ISO standards.

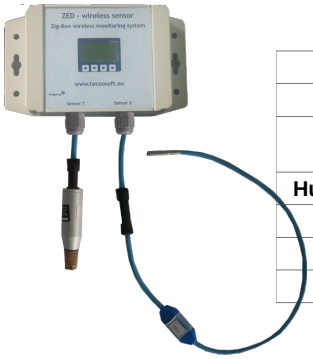
* **Mean Kinetic Temperature**: international standard formula per evaluation of the temperature curves in dynamic processes that considers also biological characteristics of the monitored goods.

Technical Features

The TempStick is available also in the Probe version, with external sensor in food grade material.

TempStick and HumiStick	
Size	50 X 22 X 10 mm
Temperature range	-30 °C ÷ +65 °C
Temperature resolution	0,03 °C
Temperature accuracy	+/- 0,25 °C with calibration certificate; +/- 1 °C without calibration certificate
Humidity resolution	0,1% RH
Humidity accuracy	±3% da 10% a 90% ±4% da 0% a 100%
Acquisition interval	From 1 per minute to 1 every 255 minutes
Battery life	10 years or 3.000.000 acquisitions

FLI	
Size	6,8 X 11 X 2,7 cm
N° missions in memory	300
Battery and battery life	2 AA 1,5 V batteries; 2 years
Connections	USB, TempStick, HumiStick
Features	Display, actual temperature displayed, one button to start and download missions, MKT calculation



ZED T / ZED IT + Intelligent Sensor	
Temperature Range (Unit / Sensor)	-20 °C ÷ +60 °C / -40 °C ÷ +90 °C (other ranges available)
Temperature Resolution / Accuracy	0,03 °C±0,25 °C with calibration certificate
Humidity Range (Intelligent Sensor only)	0% ÷ 100% RH
Humidity Resolution / Accuracy	0,1% RH / ±3% RH
Transmission interval	From 1 reading every 15 seconds up
Battery	User replaceable (2 X 1,5 V)

Syrinx Receiver	
Connections	- ZigBee protocol for wireless sensors connection - Ethernet connection for communication with the PC - several USB mounted
Alarms	Email and SMS (GSM and SIM not included)
Radio transmission range	350 meters in open space; in closed environment depends on obstacles
Accessories	AC 9-12 V power supply and Ethernet cable included; repeaters and Ethernet Access Points

FridgeLog and FridgeLog Z Software	
Operating Systems	Windows XP, Vista, 7
Data management	Database organized on branches, fridges and data loggers (each one with its unique serial number)
Protections	Multi-user and multi-level software (administrator and standard users)
Data display	Graph (with zoom) and table (exportable into Excel) and report of all the data printing
Parameters	Temperature and Humidity thresholds of correct conservation can be set
MKT	Mean Kinetic Temperature formula implementation for evaluation of the recorded data
Quality management	Non Conformities and linked Corrective Actions filling, according to ISO standards
Data sharing	Data shared with other users and branches and the administrator of the central network
Languages	English, Italian

TAS (Tecnosoft Alarm System)

Software for acoustic, email and SMS alarms with Tecnosoft systems

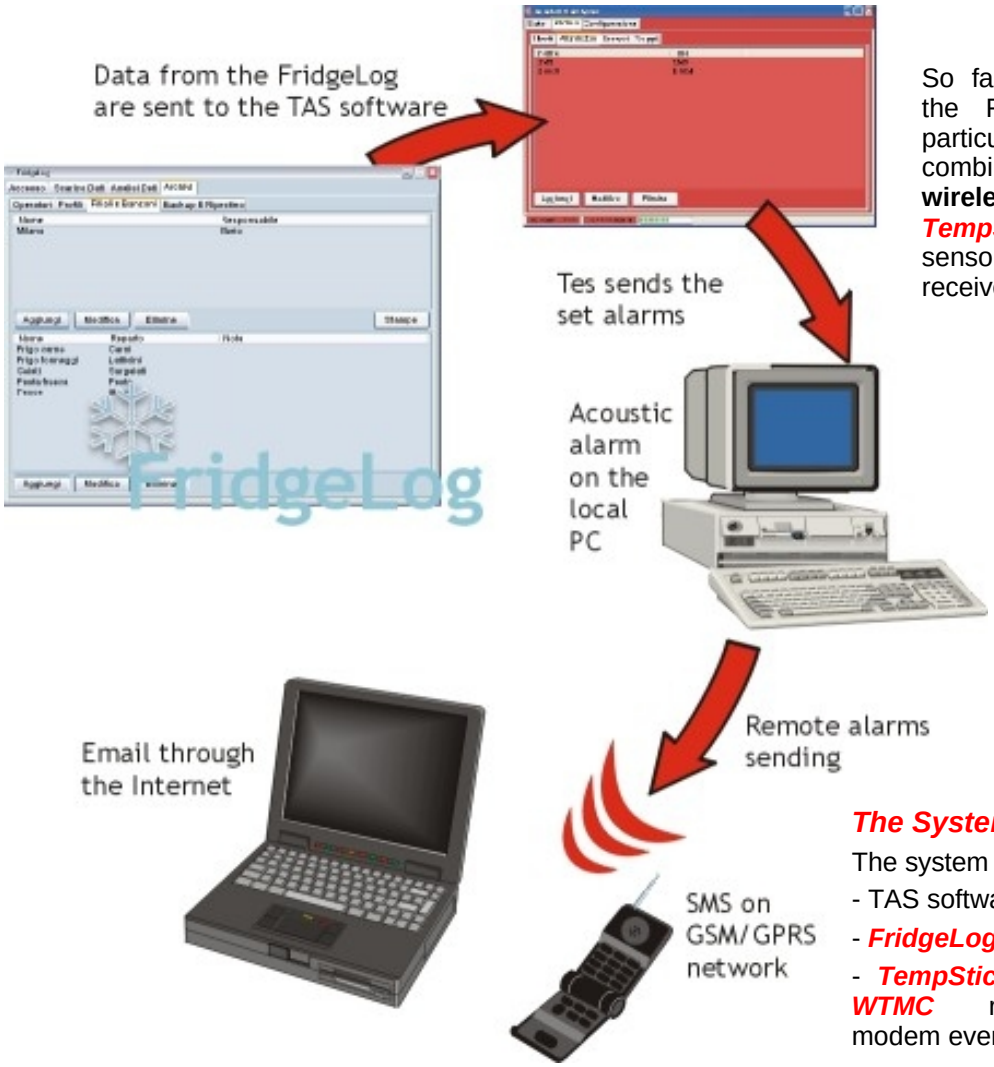
The TAS (Tecnosoft Alarm System) software module is a program that can be interfaced with some software dedicated to Tecnosoft monitoring and logging systems and enables **alarms** on set thresholds. It is particularly indicated for real time data acquisition systems, like the wireless ones.

Pro

- data always under control;
- possibility to create units groups for one alarm (for example, 3 sensors in the same room send a group alarm);
- high number of options and customization possibilities;
- local alarms (acoustic) and remote alarms (email, SMS).

Applications

- temperature monitoring in fridges in supermarkets;
- temperature monitoring in fridge cells;
- temperature monitoring during transports.



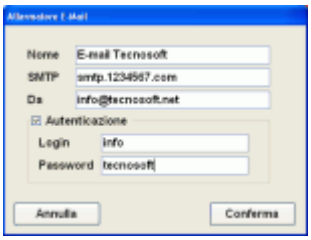
So far **TAS** works with the FridgeLog system, particularly in combination with the **wireless** equipment, the ***TempStick Radio*** sensors and the WTMC receiver.

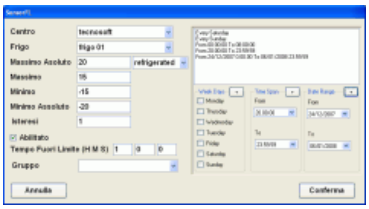
The System

The system is made up by:

- TAS software module;
- ***FridgeLog*** software;
- ***TempStick Radio*** sensor, ***WTMC*** receiver, GSM modem eventually.

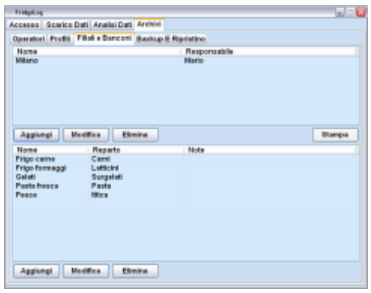
Technical Features





TAS Software	
Operating Systems	Windows 2000, XP, Vista
Interfaceable software	FridgeLog, WTLS
Possible alarms	Acoustic (WAVE file) on local PC, Email (all email parameters – POP, SMTP, login and password – available), SMS (receiver and central service number to be set, GSM modem required)
Alarms parameters	- alarm/fridges association - maximum and minimum threshold - hysteresis - alarm delay - periods can be excluded from alarms (week days, day hours, range of days)
Data sharing	Data can be easily shared with other users and can be copied from one PC to another
Languages	Italian

WTMC Receiver	
Size	13 X 13 X 3,5 cm
Display	Internal display for configuration by the operator
Acquisition rate	From 1 every 5 seconds to 1 every 255 minutes
Power source	External power supply AC 9-12 V.
Connections	- Radio connection for communication with the TempStick Radio - Ethernet connection for communication with the P
N. of sensors	Receives up to 32 sensors
Radio type	433 MHz
Radio transmission range	250 meters in open space; in closed environment depends on many variables and obstacles
Accessories	Power supply included; possibility to connect up to 4 Intelligent Sensors



FridgeLog Software	
Operating Systems	Windows 2000, XP, Vista
Data management	Database organized on branches, fridges and data loggers (each one with its unique serial number)
Protections	Multi-user and multi-level software (administrator and standard users)
Data display	Graph (with zoom) and table (exportable into Excel) and report of all the data printing
Parameters	Temperature thresholds of correct conservation temperature can be set
MKT	Mean Kinetic Temperature formula implementation for quick evaluation of the recorded data
Quality management	Non Conformities and linked Corrective Actions filling, according to ISO standards
Data sharing	Data can be easily shared with other users and branches and the administrator of the central network
Languages	English, Italian

INTELLIGENT SENSORS OEM VERSION

Intelligent Sensors for OEM Customers, installers, manufacturers

For all manufacturers of fridges or any other machine and equipment requiring certificated sensors, there is a revolutionary solution: the **OEM Intelligent Sensor**! Maximum compatibility (the data is digital), easy to install, no time wasting for recalibration procedure, low cost, reliable and accurate.

Applications

- OEM sensors for fridges, fridge cells, freezers;
- OEM sensors for fridge trucks (with wireless transmission too);
- OEM sensors for any machine needing control.

Temperature Intelligent Sensor

Temperature and humidity Intelligent Sensor

Fields of application

Pharma

Food

Transport

Pro

- Calibration data digitally saved inside the sensor.
- Immediate recalibration of the system without any configuration or installation needed (plug&play system: you send to your Customers the new calibrated sensor, they unplug the one with the expired calibration, connect the new one and send back to you the other).
- Easy recalibration: no need to uninstall the whole device for recalibration (sensor and unit), just disconnect the uncalibrated sensor and connect the calibrated one.
- Time saving: you never loose a single minute of monitoring, since you receive the new calibrated sensor BEFORE unplugging the old one (that will be sent back to us).
- Easy to use: no configuration needed. The system recognizes automatically the sensors connected.
- Sensors are food grade.
- Possibility to have wireless transmission of the data.
- **Development kit** available with: 1 temperature Intelligent Sensor, 1 temperature and humidity Intelligent Sensor, 1 USB cable for PC connection, 1 demo software + its sources, communication protocols.

Technical Data

Temperature range	-40 °C ÷ +90 °C (other ranges available)
Temperature resolution	0,03 °C
Temperature accuracy	±0,25 °C
Humidity range	0% ÷ 100% RH
Humidity resolution	0,1% RH
Humidity accuracy	±3% RH
Communications	USB, Serial (RS232 or other), wires w/out connector

Product Code:
ts04itdevkit

INTELLIGENT SENSORS

Immediate recalibration of your monitoring systems of temperature and humidity

Temperature Intelligent Sensor *with Radio Node: electronics of the sensor is incorporated in the cable.*

Pros

- Easy reclibration: no need to uninstall the whole device for recalibration (sensor and unit), just disconnect the uncalibrated sensor and connect the calibrated one.

- Time saving: you never loose a single minute of monitoring, since you receive the new calibrated sensor BEFORE unplugging the old one (that will be sent back to us).

- Easy to use: no configuration needed. The system recognizes automatically the sensors connected.

Applications

- Monitoring of food or pharmaceuticals stores and stockehouses.

- Monitoring of fridges subjected to periodical calibration.

- Monitoring of temperature controlled transports.

There is the possibility to have the Intelligent Sensors for **OEM installation**: every producer of machines where a sensor is needed (fridges, fridge cells, refrigerated trucks, ovens etc.) can implement Intelligent Sensors in it and give their Customers a device that can be easily and quickly recalibrated, with a higher accuracy and a low cost service (just switch the two sensors).

Tecnosoft developed a completely new method of data logging, with a new generation of devices: the ***Intelligent Sensors***, much more then simple sensors.
The idea of an intelligent sensor is based on the fact that its parameters (serial number etc.) and the calibration data are stored electronically in a circuit installed on its cable. In this way you can connect to a reading device or directly to your PC, several intelligent sensors of different kind and they will all be recognized for what they are and what they are able to read (temperature or temperature and humidity), along with their calibration data. Then, readings are communicated in different way to the final user: with a direct PC connection, through the Ethernet, wireless via radio.

System

Intelligent Sensors are used connected to Radio Nodes, the wireless module able to send data via radio to any Tecnosoft receiver: USB Radio Receiver for TSR system, Radio Printer for the same system and WTMC for the FridgeLog system. The Radio Nodes are managed by the Radio Starter software, freely downloadable from Tecnosoft website.

All Intelligent Sensors come with a SIT (NIST equivalent) traceable calibration certificate.

Temperature and humidity Intelligent Sensor *connected to the Radio Node.*

Fields of application

Healthcare

Pharma

Food

Laboratory

Interface Communication

USB

wireless

Technical Data

Dimensions Radio Node	6,5 X 5 X 4,5 cm
Temperature range Radio Node	-20 °C ÷ +60 °C
Temperature range	-40 °C ÷ +90 °C (other ranges available)
Temperature resolution	0,03 °C
Temperature accuracy	±0,25 °C
Humidity range	0% ÷ 100% RH
Humidity resolution	0,1% RH
Humidity accuracy	±3% RH
Transmission rate	From 1 reading every 3 seconds up
Battery life	More than 500.000 acquisitions/transmissions. Factory replaceable
Communications	USB (Radio Configuration Interface), Wireless (RF 433 MHz)

Systems

TSR	TSR software, Radio Starter software, USB Radio Receiver, Radio Configuration Interface
FridgeLog	FridgeLog software, Radio Starter software, WTMC, Radio Configuration Interface
Radio Printer	Radio Printer, Radio Printer USB, TSR software (Radio Printer USB only), Radio Starter software, Radio Configuration Interface

*The **temperature and humidity Intelligent Sensor** can be connected to the Radio Node directly or by mean of a cable.*

Product Code:
ts11istxxyy
ts11ist200xxyy
ts11ist-80xxyy / ts11isth
ts11rn
2.1

TSR System

Wireless Temperature Monitoring System

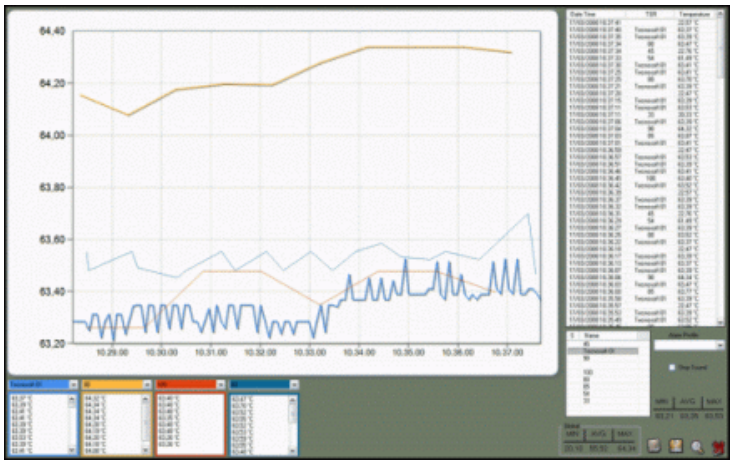
The ***TSR System*** is the simplest solution for your applications that need a real time monitoring. No special skill required, no complicated configuration to deal with: just set the transmission rate on your ***TempStick Radio*** units, place them in the desired spot, plug the ***USB Radio Receiver*** to your PC and start the ***TSR*** software. You'll immediately see data coming through and you can view up to 4 graphs on screen and receive alarms from all the sensors transmitting.

Pro:

- radio transmission, no more cables and real time control of the data;
- quick and easy installation;
- alarm setting for each sensor:
- different kind of cables and probes available.

Applications:

- stock houses and warehouses;
- laboratories;
- fridges/freezers;
- pharmacies;
- other temperature sensitive environments compliant with ISO 9001 standards.



Sensors are waterproof, as the cables.
All units can be calibrated and delivered with their calibration certificate, necessary for ISO 9001 compliance.
Standard calibration validity is of one year.

Transmission:

- reliable, with data control;
- no possibility of wrong data;
- range up to 250 meters in open space, 80 meters in closed environment (transmission range depends also on walls and material of the walls themselves. Iron and steel obstacles might reduce the transmission range).

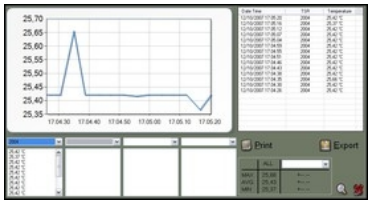
Sensors and transmitter:

- each transmitter has its unique identification number, as the radio;
- sensors are easy to install and place where you need to control temperature;
- software can manage unlimited sensors and transmitters;
- no USB drive installation for the ***USB Radio Receiver***;
- configuration interface (to set rate of transmission) available.

Technical Features

TempStick® Radio	
Size	6,5 X 5 X 4,5 cm
Electronics Temperature Range	-20 °C ÷ +60 °C
Sensor Temperature Range	-40 °C ÷ +90 °C *
Resolution	0,03 °C
Accuracy	±0,25 °C with calibration certificate Standard calibration certificate: -10°C, 0°C, 10°C, 25°C, 50°C (other temperatures available on demand) ±1 °C without calibration certificate **
N° acquisitions	Acquisitions storage on PC Hard Drive
Acquisition interval	From 1 reading every 3 seconds to 1 reading every 255 minutes
Battery	Factory replaceable
Autonomy	More than 500.000 acquisitions/transmissions - more than 10 years with standard use (24 acquisitions per day)
Mission length	Depending on the Hard Drive free memory
Protection degree	IP68 probe; IP67 case; IP40 connectors

* Depends on cable and sensor. Effective range is within calibration points interval and is 100°C for maximum resolution
** post production data without calibration



TSR	
Operating systems	Windows 2000, XP, Vista
Data management	Database organized on sensor's serial number and start date of the mission
Data display	Graph and table (exportable in Excel) and data printing in reports
Multi-graph	Up to 4 graph can be displayed simultaneously
Alarms	Visual and sound alarms on set thresholds (different for each sensor)
Communication	USB for the USB Radio Receiver and for TempStick Radio Interface (for unit configuration and programming); Radio 433 MHz
Languages	English, Italian

USB Radio Receiver	
Software	TSR
Size	6,5 X 5 X 4,5 cm
Antenna	External (provided with the USB Radio Receiver)
Communication	USB (no driver installation required), cable provided
Transmission Range	250 mt open space, 80 mt closed environment (transmission range may be affected by obstacles of different nature)



Radio Printer and Radio Printer USB

Wireless Receiver with Printer and Alarms for Temperature Monitoring

The ***Radio Printer*** is a wireless system for temperature monitoring and control. It is made up by one or more temperature sensor-transmitters, like the ***TempStick Radio*** or the ***Intelligent Sensor*** with the ***Radio Node***, and a radio receiver, the Radio Printer itself. It has everything it needs to work and doesn't require any PC or software: the display allows to configure the sensors and the printer to print easily and quickly all the stored data.

Pro

- no need of a PC nor software;
- graphic and alphanumerical LCD display;
- LED and sound alarms for thresholds set by the operator;
- display values for each sensor and all data recorded;
- rechargeable batteries and external power supply;
- USB version with data download on USB pen-drive and import on the TSR software, with graph, table, report printing and MS Excel exporting (SLK format).

Applications

- stock houses and warehouses monitoring;
- fridges and fridge cells monitoring;
- environment monitoring;
- computer rooms control;
- laboratories monitoring;
- transport monitoring;
- catering services;
- HACCP compliance temperature monitoring;
- ISO compliance temperature monitoring.

Thermal printer (customizable front logo on printed reports)

Configuration display

Keyboard for display menu control

Status Leds

Connections:
- external power
- external antenna (optional)
- USB (only on the Radio Printer USB)

Radio Printer F0

This version of Radio Printer works with the SterilCyl Radio and PasteurCyl Radio loggers and is USB only. It can be used for pasteurisation and sterilisation processes monitoring through the special antenna for autoclaves and pasteurisers (to be installed inside them to get maximum communication): it calculates in real time the F0 / PU value (parameters such as Z and N values can be set by the user) and gives you alarms on them or on reached temperature. Data can be then exported in the USB pen drive and imported in the SPD software for analysis and printing.

Technical Features

Radio Printer	
Size	20 X 17,6 X 8,6 cm
Weight	1.00 Kg
Display	Graphic and alphanumeric with selection menu
LED	Led indicating status (external power, low battery, alarms, printer status)
Printer	Thermal printer for data printing (customizable logo)
Keyboard	6 keys keyboard (OK, ESC, 4 directional keys) + PRN and paper Feed button
Acquisition Mode	– Non-stop monitoring with print on demand – Non-stop monitoring with print at intervals – Non-stop monitoring with print at set times – Transport monitoring with print on demand
Print Mode	– Summary print (Max, Min, Average) – Detailed print (all the data for each sensor)
Memory	134.800 acquisitions (to share among the paired sensors)
Alarms	Programmable alarms on set temperature thresholds; alarm for memory full
Power source	Re-chargeable internal battery. Can be connected to the cigar lighter of the vehicle
Connections	Radio connections for communication with the ***TempStick Radio*** or the ***Intelligent Sensor*** + ***Radio Node***; serial for logo changing; USB for pen-drive (on Radio Printer USB only)
Radio Printer USB	Download data on a **USB pen-drive** and import them on the PC with the TSR software; display data in table and graph, print them in reports and export them in MS Excel format (SLK)
N. of sensors	Receives up to 32 sensors
Radio type	433.92 MHz (external antenna available)
Radio transmission range	250 meters in open space; in closed environment depends on many variables and obstacles
Accessories	Battery charger included, available also for the cigar lighter
Power	14 ÷ 18 vcc. - 3.5 A Max
Language	English, Italian, German, Portoguese

TempStick Radio	
Size	6,5 X 5 X 4,5 cm
Unit Temperature Range	-20 °C ÷ +60 °C
Sensor Temperature Range	-40 °C ÷ +90 °C
Resolution	0,03 °C
Accuracy	±0,25 °C with calibration certificate ±1 °C without calibration certificate
Transmission interval	From 1 reading every second up
Battery (Radio)	Factory replaceable
Autonomy	More than 500.000 acquisitions/transmissions - more than 10 years with standard use (24 acquisitions per day)

Intelligent Sensor (temperature only) + Radio Node	
Size (Radio Node)	6,5 X 5 X 4,5 cm
Radio Node Temperature Range	-20 °C ÷ +60 °C
Sensor Temperature Range	-40 °C ÷ +90 °C
Resolution	0,03 °C
Accuracy	±0,25 °C with calibration certificate
Transmission interval	From 1 reading every second up
Battery (Radio Node)	Factory replaceable
Autonomy	More than 500.000 acquisitions/transmissions - more than 10 years with standard use (24 acquisitions per day)

Note: to start TempStick Radio or Radio Node you'll need the Radio Configuration Interface and the Radio Starter software (free for download from Tecnosoft web site).

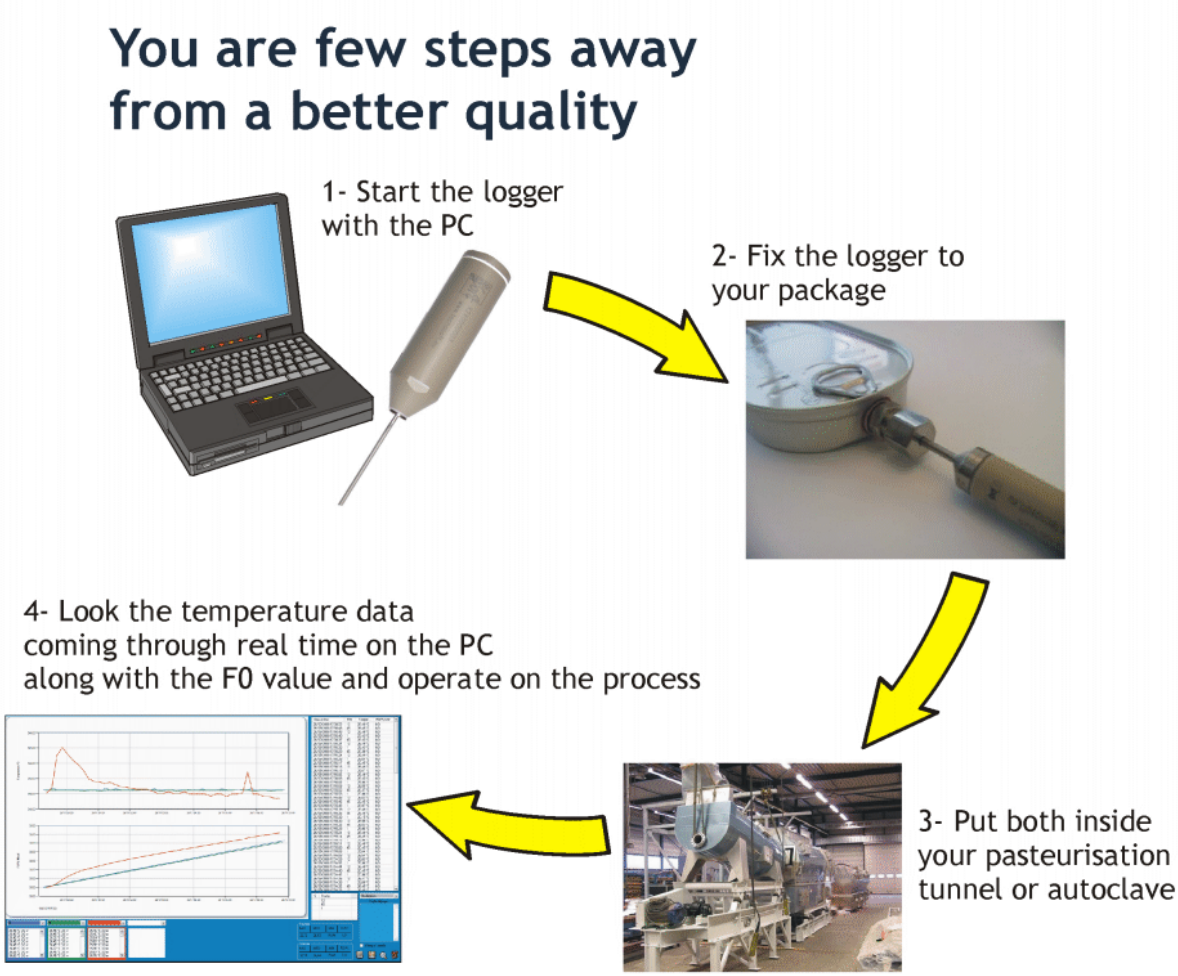
Monitor the quality of your products in real time

With our wireless loggers for pasteurisation, sterilisation and cooking processes

Tired of assembling and disassembling wired probes in your autoclave or pasteurisation tunnel before and after every cycle? Confused on which parameters need to be met, on which machine settings need to be configured, by the baffling results that your monitoring system churns out? If you really want to improve the quality of your products, avoiding unnecessary thermal stress, whilst saving time, energy and, consequently, money, our ***SterilCyl Radio*** (140°C) and ***PasteurCyl Radio*** (100°C) wireless data loggers are the solution to your needs.

Features

- monitor temperature at the core of the product: food grade probe with a fast response time;
- the datalogger travels with the product: no cables to snap or get tangled inside the autoclave or pasteurisation tunnel;
- no installation required: start it up data will immediately appear on the PC;
- unlimited number of probes: use all the devices you need and compare the data in real time;
- real time F0 and PU (pasteurisation units) calculation;
- data is always kept safe: apart from being transmitted, data is also stored in the logger's memory;
- Quick and easy PC connection: no need to open the device, just position them on the USB interface.



Technical Characteristics

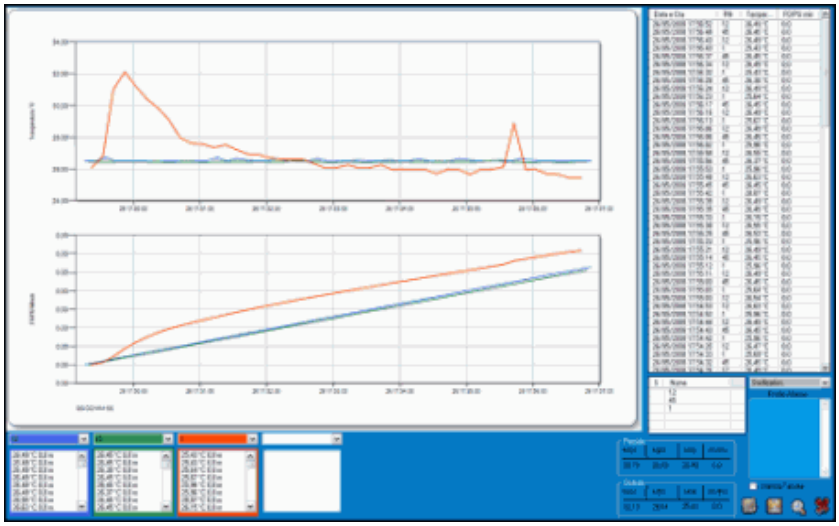
Both ***SterilCyl Radio*** and ***PasteurCyl Radio*** are supplied with an SIT traceable calibration certificate (NIST equivalent).

Flexible probes of various lengths available.

PasteurCyl Radio and SterilCyl Radio	
Size	132 X 35 diameter (mm) Probe: from 20 to 1000 X 3 diameter (mm)
Material	Peek and stainless steel AISI316L (completely Food Grade)
PasteurCyl Radio Temperature range	0 °C ÷ +100 °C
SterilCyl Radio Temperature range	0 °C ÷ +140 °C
Resolution	0,04 °C
Accuracy	± 0,3 °C with calibration certificate
N° acquisitions	15000
Acquisition interval	From 1 every second to 1 every 255 minutes
Battery life	2 years with standard use (replaceable)
Protection degree	IP68
Radio	433,92 MHz

The system

Software SPD for data management: upper graph displays temperature, lower graph shows F0/PU data. A table showing data being received from all units is shown on the right. Alarms can be generated on a specific temperature and F0/PU value. Customized reports printing and Excel file data export.



DiskInterface to start the data logger and download data.

USB Radio Receiver to receive data wirelessly.

PASTEURDISK AND STERILDISK STANDARD, PROBE, JUMBO

High temperature data loggers, for sterilisation and pasteurisation processes

SterilDisk (140°C) and ***PasteurDisk*** (100°C) data loggers make easy the monitoring of temperature during sterilization and pasteurization and are the solution for any food producer, pharmaceutical company and laboratory of analysis and more.

System

The loggers can be used with two different software:
- **SPD**, for quick and simple monitoring: start the devices, do your mission, download data and analyse;
- **TS Manager**, for deep analysis and control: a **FDA 21 CFR Part 11 compatible software** with multi-level access and reports according to regulations. Designed for autoclave validation, from pharmaceutical / medical to laboratories, dentists and food.

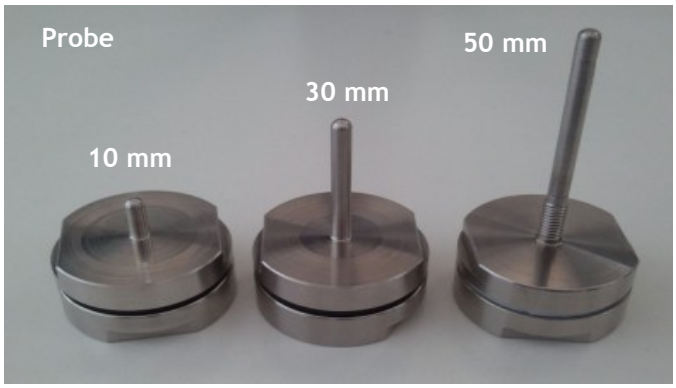
Versions

There are three versions available:
- **Standard**: simple disk;
- **Probe**: disk with external sensor of 10 mm, 30 mm, 50 mm length, 4 mm diameter; the 50 mm has a threaded part to screw the probe on different surfaces. High response time;
- **Jumbo**: **bigger memory and extended battery life**, with external sensor of 20, 60, 100, 125 mm length (or on demand), 3 mm diameter or 100 mm length and 5 mm diameter. **Higher response time**.

All the loggers are connected to the PC by means of the USB DiskInterface (Jumbo uses a special adapter).

Different probe lengths give you the possibility to always **reach the core of your product** and get a fast response time, important for short processes.

Use several of these loggers to map your autoclave or pasteurisation tunnel and then to check every process you make.

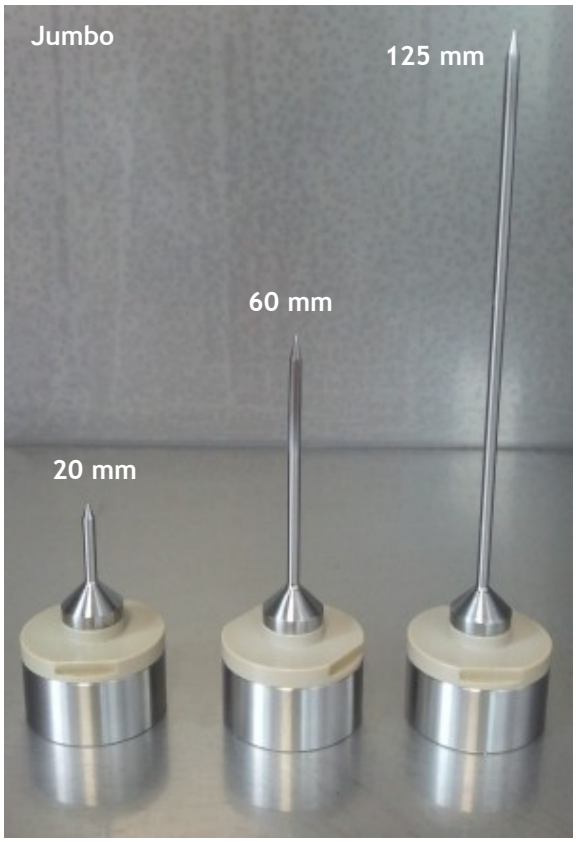


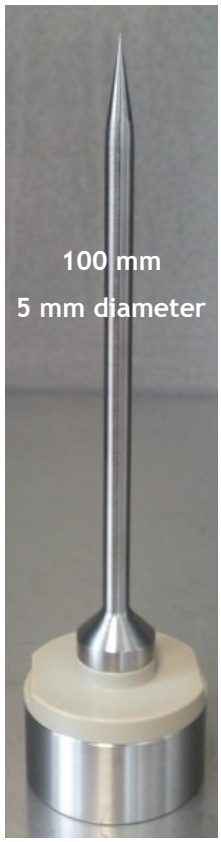
Applications

- Temperature monitoring of sterilisation and pasteurisation processes.
- Autoclave validation according to 21 CFR Part 11 regulations.

Pros

- High accuracy and precision.
- Long battery life and with the Jumbo version is even extended.
- Completely food grade and submersible.
- Printed reports compliant with health regulations and ISO (data are not editable in the software).
- F0 and PU calculation.
- Provided with **calibration certificate** Accredia traceable (SterilDisk and PasteurDisk standard on demand).
- Can be fixed to food package and surfaces with the ***Fastening System*** (only for Probe 50 mm and Jumbo versions).
- **Supports extended calibration (SterilDisk Jumbo - 40°C)**.
- **BATTERY IS USER REPLACEABLE**.





Fields of application

Healthcare

Pharma

Dentists

Food

Laboratory

Interface Communication

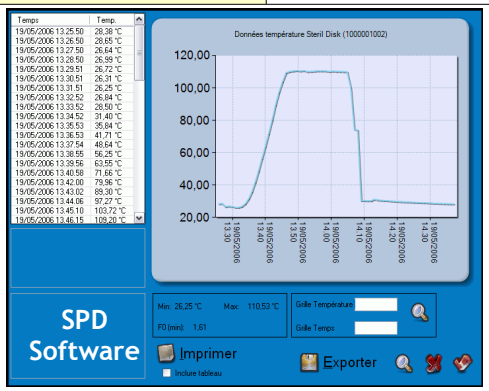
USB

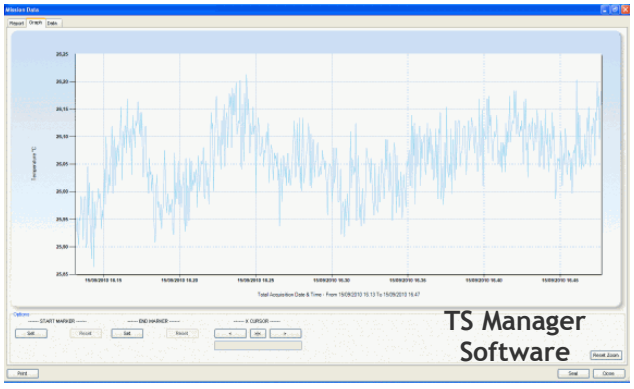
Caratteristiche tecniche

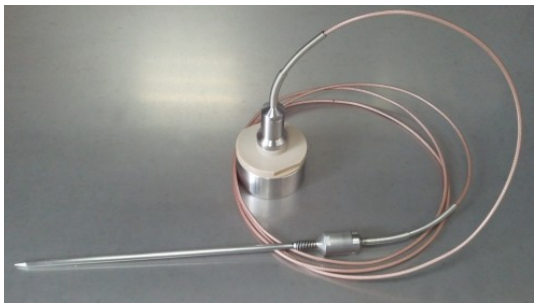
Model	Standard	Probe	Jumbo
Dimensions	18 h X 36 Ø (mm)	18 h X 36 Ø (mm)	22+13 probe base h X 35 Ø (mm)
Probe		10, 30, 50 h X 4 Ø (mm)	20, 60, 100, 125 h or on demand X 3 Ø (mm) or 100 h X 5 Ø (mm); flexible and bendable probe available too
Materials	Stainless steal AISI316L (completely Food Grade)	Stainless steal AISI316L (completely Food Grade)	Stainless steal AISI316L + Peek (completely Food Grade)
Temperature range	PasteurDisk: 0°C ÷ +100°C - SterilDisk: 0°C ÷ +140°C (up to 10 bar)		
Temperature resolution	0,01°C		
Temperature accuracy	± 0,2°C (within calibration range: 25°C ÷ +125°C)		
Number of acquisitions	15.000	15.000	120.000
Acquisition rate	From 1 every second up		
Battery life	**user replaceable** 16 DAYS IN CONTINUOUS AT 1 SECOND* *Equal to +1.400.000 acquisitions		**user replaceable** 100 DAYS IN CONTINUOUS AT 1 SECOND* *Equal to +8.000.000 acquisitions
Protection degree	IP68		
Communications	USB DiskInterface	USB DiskInterface	USB DiskInterface + adapter

Software

Type	SPD	TS Manager
Operating Systems	Windows XP, Vista, 7 (32, 64 bit)	
Data management	Missions sorted by start date and logger serial number	Missions filtered by start date, logger type, serial number, customer/instrument validated and much more
Data display	Graph (with zoom) and table (exportable into Excel) and report of all the data printing	
Multi-graph display	Two or more missions can displayed on a single graph	
F0 and Parameters	Automatically calculates the F0 and the Z and N parameters of the formula can be set	
Languages	Italian, English, French, Spanish, German	Italian, English







PasteurDisk Jumbo and SterilDisk Jumbo can come also with a **special flexible cable (50 cm standard, 1 m max) with rigid probe at the end**. There is also a bendable probe version, with a metal bendable probe (15 cm standard) with a rigid probe (60 mm length) at the end of it. With the flexible probes it is possible to use these devices also in places where there is not enough space to put the logger on or inside the the product's package.

Product Code:
ts01pd/c/p/p10/p30
ts01sp/c/p/p10/p30
ts01pdj1/2/3/d/5
ts01sdj1/2/3/d/5

PASTEURCYL AND STERILCYL JUMBO AND RADIO

High temperature data loggers (100°C and 140°), also with radio transmission

All versions of ***SterilCyl*** (140°C) and ***PasteurCyl*** (100°C) temperature data loggers have been developed for the different applications in the monitoring of temperature during sterilisation and pasteurisation processes. They can be adopted in the food, pharmaceutical/medical and laboratory fields easily.

System

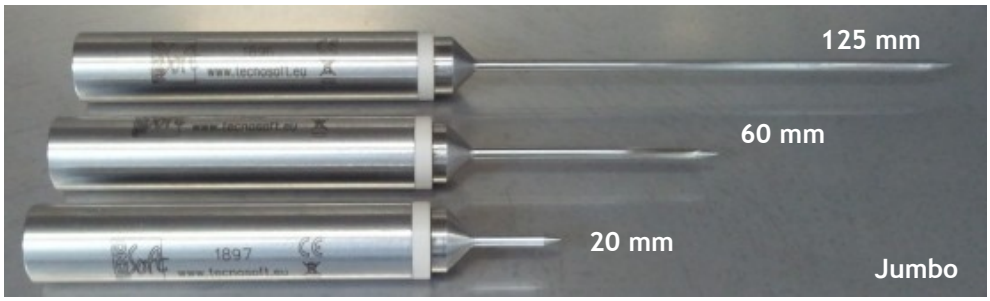
The loggers can be used with two different software:
- **SPD**, for quick and simple monitoring: start the devices, do your mission, download data and analyse; receive data in real time via radio;
- **TS Manager**, for deep analysis and control: a **FDA 21 CFR Part 11 compatible software** with multi-level access and reports according to regulations. Designed for autoclave validation, from pharmaceutical / medical to laboratories, dentists and food.

Versions

The available versions are:
- **Jumbo**: cylinder with **bigger memory and extended battery life**;
- **Radio**: **real time monitoring** of temperature in autoclave and pasteurisation tunnels. No cable to be used and no hole to be made on the instrument wall, watch data coming directly on your PC screen.

All loggers are connected to the PC by means of the USB DiskInterface using special adapters.

Different probe lengths (20, 60, 100, 125 mm X 3 mm diameter or 100 mm X 5 mm diameter) give you the possibility to always **reach the core of your product** and get a **fast response time**, important for short processes.

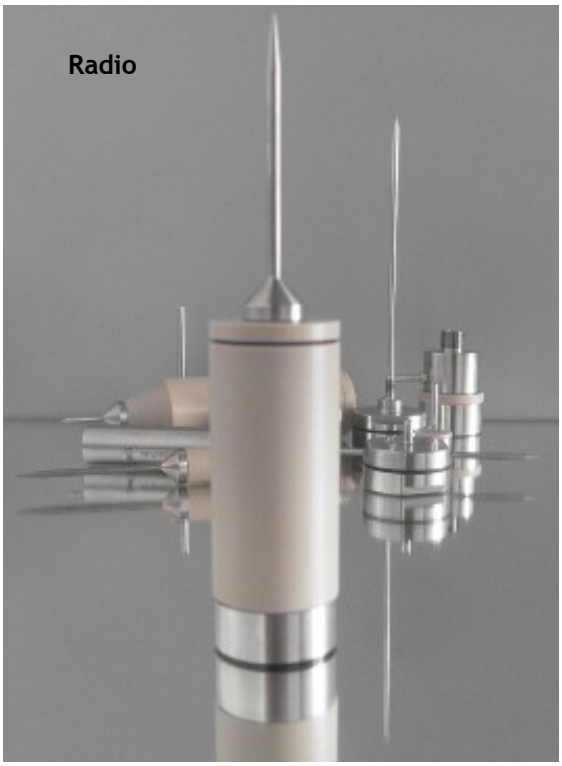


Applications

- Temperature monitoring of sterilisation and pasteurisation processes.
- Autoclave validation according to 21 CFR Part 11 regulations.
- Temperature monitoring during meat and ham cooking.

Advantages

- High accuracy and resolution.
- Long battery life and with Jumbo version is even extended.
- Completely food grade and submersible.
- Printed reports compliant with health regulations and ISO (data are not editable in the software).
- F0 and PU calculation.
- Provided with **calibration certificate** Accredia (NIST equivalent) traceable.
- Can be fixed to food package and surfaces with the ***Fastening System***.
- **Can be calibrated for low temperatures (-40°C Jumbo only)**.
- **BATTERIES ARE USER REPLACEABLE**.



Fields of application

Healthcare

Pharma

Dentists

Food

Laboratory

Interface Communication

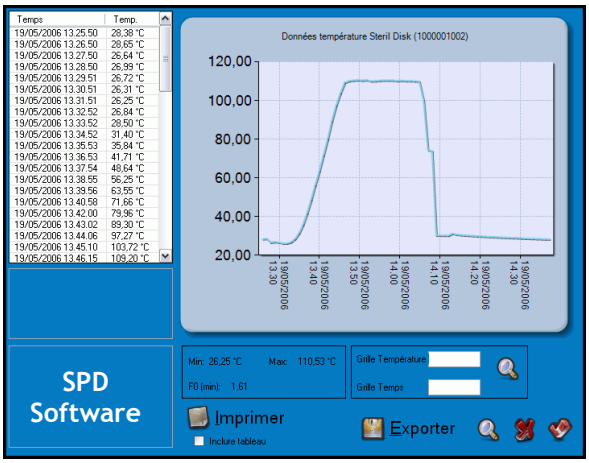
USB

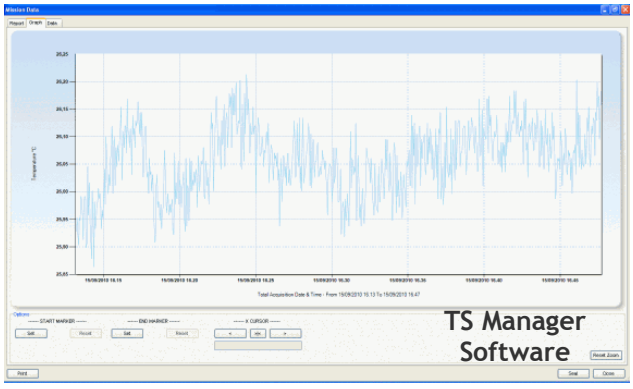
Technical Data

Model	Jumbo	Radio
Dimensions	100 h X 18 Ø (mm)	76 h X 30 Ø (mm)
Probe size	20, 60, 100 125 h or on demand X 3 Ø (mm) or 100 h X 5 Ø (mm); flexible and bendable probes available	
Material Standard/Probe	Stainless steal AISI316L + Peek (completely Food Grade)	
Temperature range	PasteurCyl: 0°C ÷ +100°C – SterilCyl: 0°C ÷ +140°C (up to 5 bar)	
Temperature resolution	0,01°C	
Temperature accuracy	± 0,2°C (within standard calibration range: +25°C ÷ +125°C)	
Number of acquisitions	120.000	
Acquisition rate	From 1 every second up	
Battery life	**user replaceable** 170 DAYS IN CONTINUOUS AT 1 SECOND* *Equal to +13.600.000 acquisitions	**user replaceable** 45 DAYS IN CONTINUOUS AT 1 SECOND* *Equal to +3.800.000 acquisitions
Protection degree	IP68	
Communications	USB DiskInterface + adapter	USB DiskInterface + adapter USB Radio Receiver

Software

Type	SPD	TS Manager
Operating Systems	Windows XP, Vista, 7 (32, 64 bit)	
Data management	Missions sorted by start date and logger serial number; real time monitoring with radio transmission	Missions filtered by start date, logger type, serial number, customer/instrument validated and much more
Data display	Graph (with zoom) and table (exportable into Excel) and printed report of all the data	
Multi graph display	Two or more missions can displayed on a single graph	
F0 and parameters	Automatically calculates the F0 and the Z and N parameters of the formula can be set	
Languages	Italian, English, French, Spanish, German	Italian, English

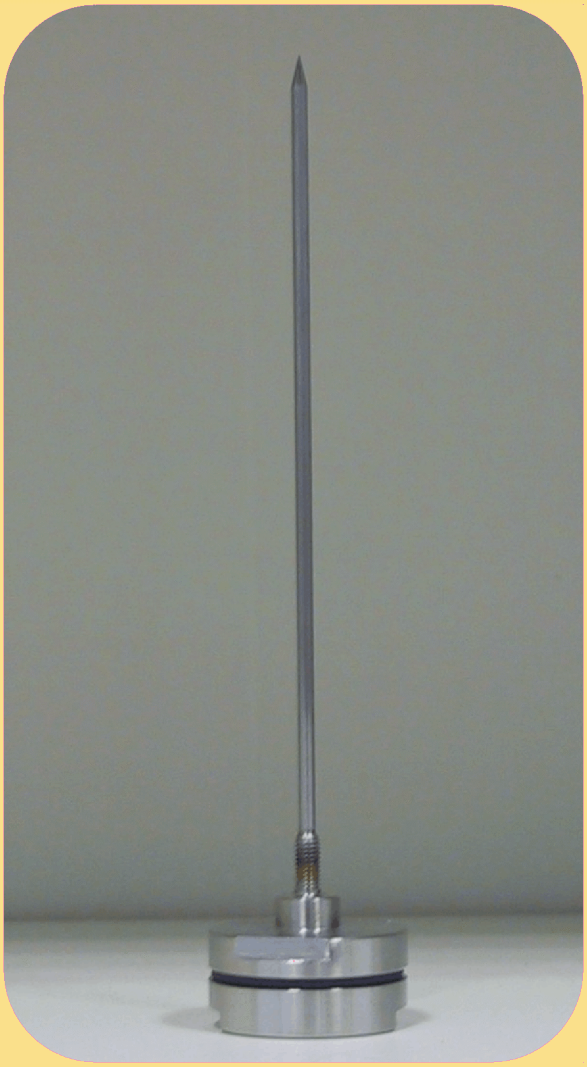




PasteurCyl and SterilCyl can come also with a special **flexible cable (50 cm standard, 1 m max)** with rigid probe at the end. There is also a bendable probe version, with a **metal bendable probe** (15 cm standard) with a rigid probe (60 mm length) at the end of it. With the flexible probes it is possible to use these devices also in places where there is not enough space to put the logger on or inside the the product's package.

PasteurDisk Can and SterilDisk Can

PasteurDisk and SterilDisk temperature data logger with probes of different length for monitoring cans and tins of various size



Applications

The main applications for this type of logger are in the food field but it can be used with benefit also in the pharmaceutical and medical field:

- pasteurisation and sterilisation of beverages in can (beer, cider, soda);
- pasteurisation and sterilisation of canned food, placing the logger external or internal (you may ask probes length on demand);
- temperature monitoring of bottles, from beverages to wine;
- temperature monitoring during processes that demands a high response time of the sensor.

System

PasteurDisk and SterilDisk are the Tecnosoft loggers for high temperature, up to 100°C and up to 140°C. Along with the standard disk version and the Probe version, with external probe of 50 mm length and 4 mm diameter, there is also the "Can" version, specifically designed for cans. To reach the cold spot, placed nearly at 20 mm from the base of the can, there are new different probes available: diameter is now of 3 mm, for a fastest response time, and the different lengths allow to cover all the standard size of cans and tins. The probe is placed on a small basis at the centre of the disk of the device main body and this system, thanks to a probe threaded part of 10 mm, it has been designed to be applied on the dome on the base of cans: in this way the logger will be placed on the bottom part of the can itself and won't affect too much the overall height of the can. Placed like this, the can, with the logger on top, will be able to go through machines and tunnels for pasteurisation and sterilisation.

The data loggers can be provided with a calibration certificate traceable to a national reference.

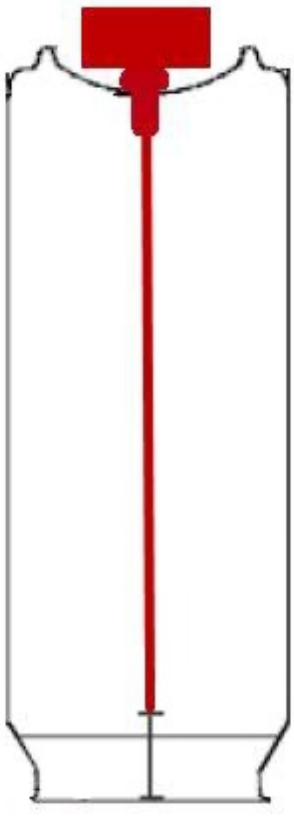
The probe can be fixed using the Fastening System from Tecnosoft: using particular threaded rivets the probe can be applied even on a closed can.

Technical Data

Body dimensions	17 h (mm) X 36 Ø (mm) (probe excluded)
Probe dimensions	95 (330 ml can), 130 (440ml can), 148 (500 ml can) h (mm) X 3 Ø mm other lengths on demand
Material	AISI316L stainless steel food grade
Temperature range	**PasteurDisk Can** 0°C ÷ 100°C - **SterilDisk Can** 0°C ÷ 140°C
Temperature resolution	0,01°C
Temperature accuracy	± 0,1°C (within calibration range: +25°C ÷ +125°C)
Number of acquisitions	20.200
Acquisition rate	from 1 each second
Battery life	**user replaceable** 16 DAYS IN CONTINUOUS AT 1 SECOND* ***Equal to +1.400.000 acquisitions - at high or low temperatures battery life will decrease**
Accessories	DiskInterface HS; fastening system for fixing on food packaging

Software

Type	**SPD**	**TS Manager**
Operating Systems	Windows XP, Vista, 7, 8 (32, 64 bit)	
Data management	Missions sorted by start date and logger serial number	Missions filtered by start date, logger type, serial number, customer/instrument validated and much more
Data visualization	Graph (with zoom) and table (exportable into Excel) and report of all the data printing	
Multi-Graph	Two or more missions can displayed on a single graph	
F0 and parameters	Automatically calculates the F0 and PU and the Z and N parameters of the formula can be set	
Languages	Italian, English, French, Spanish, German	Italian, English, German



Products Code:
ts01pdds/m/l / d
ts01sdds/m/l / d

Fastening System for food packages

A system for fixing high temperature dataloggers to cans, tins, lids etc.

Tecnosoft has all the solutions to your temperature monitoring requirements, not only by providing you with high accuracy data loggers, but also with accessories that cater for specific uses and applications.

This patented fastening system can be applied to cans, metal lids, tins and other containers and allows you to insert the probes of our pasteurisation and sterilisation data loggers in the receptacle at the desired depth. In this manner you will monitor the temperature at the core of the product without altering its mass, thus obtaining optimum readings. This system is easily implemented and may also be applied to pressurized cans, such as those used for beer: this allows you to set up a “dummy can” and re-use it several times to monitor your process. The readings can be taken directly off the dummy unit without having to disconnect it from the can, thanks to a PC interface equipped with special clips.

Features

- simple installation;
- can be applied to any type of can, lid or container;
- can also be applied to pressurized cans; the product will not leak out during the monitoring process;
- no need to remove the logger from the can when downloading readings to the PC, thanks to the dedicated interface with clips;
- a single logger for different containers: simply adjust the probe depth.

The System

The system is made up of:

- riveting tool;
- threaded insert;
- locking nut;
- temperature data logger.

The range of applications catered for by the new Fastening System for Tecnosoft temperature data loggers; for reliable and improved monitoring of food processes employing different types of containers and materials, including pressurized cans.

Dataloggers compatible with the system

The ***Fastening System*** can be used with most of the sterilisation and pasteurisation data loggers from Tecnosoft: the list below shows compatible devices and how the system may be employed.

SterilDisk Probe & PasteurDisk Probe	
Tools needed	Riveting tool, threaded inserts (M 5)
Compatible Probes	The loggers come with a standard, compatible probe
Features	The threaded part of the probe is screwed into the threaded insert

SterilCyl & PasteurCyl SterilCyl Radio & PasteurCyl Radio	
Tools needed	Riveting tool, threaded inserts, locking nut
Compatible Probes	3 mm diameter, any length (minimum 40 mm)
Features	- Possibility to adjust the depth of the probe - May be used on pressurized cans - may be connected to the PC without disassembling the logger from the product being monitored

One System, Many Solutions

SterilDisk Probe & PasteurDisk Probe	
Probe	Diameter 4.2 mm Length 50 mm
Threaded part	M 5

The SterilDisk/PasteurDisk probe is fully inserted and screwed into the threaded insert inside the can (or lid).

Applications

There are many possible applications, from monitoring canned products to jars for jams or other foodstuffs. The probe measures temperature at the core of the product and responds quickly: simply download the data and check the temperature curve.

With this fastening system there is no need to place the logger inside the jar or can and therefore it is much easier to identify it after the process. It may be removed from the product without losing the contents and you do not have to clean the data logger itself, apart from the probe.

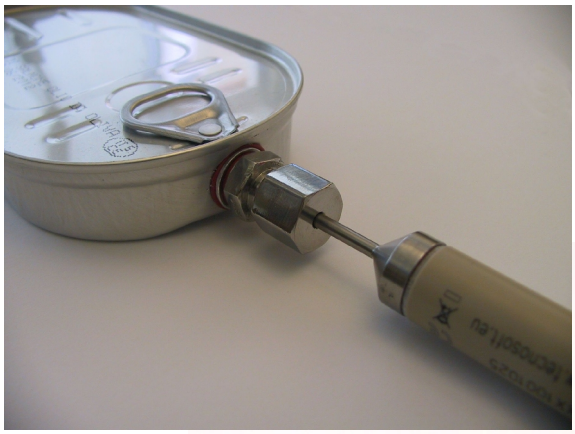
F0 and PU (pasteurization units) are automatically computed by the SPD software to give you an immediate indication of the validity of your process.

You can choose between the PasteurDisk (100°C) and SterilDisk (140°C) according to the maximum temperature of your process. Both can withstand high pressure and are entirely food grade.

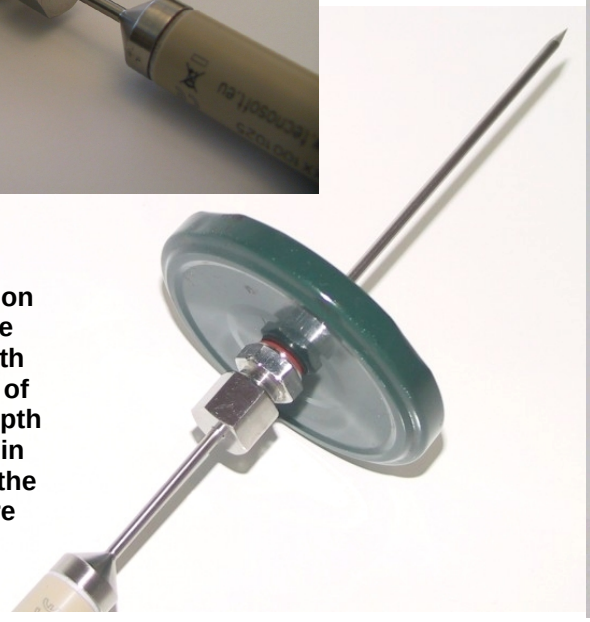
Where to position the Fastening System

The Fastening System can be mounted on any type of surface, be it flat like that of a lid or curved like that of the tin shown below. Moreover, it can be used in pressurized cans.
Monitoring the temperature in pressurized cans, such as beer or soda cans, may be a daunting task: in order to monitor the temperature in conditions as close to actual as possible, you need to have the right amount of product in the can,at the correct pressure and also the product must not leak during the process. The Fastening System from Tecnosoft grants you all this and more: you can keep your own dummy can, and re-use it several times, without having to remove the logger when reading data.
Preparing the can is simple: drill a hole on the back (Some product will exit this hole so simply refill the can until it holds the right amount of product. Place the threaded insert, with its o-ring, in the hole and secure it with the riveting tool provided in the kit. Place the locking nut and all its components on the probe of the logger and screw it into the threaded insert, adjusting the depth of the probe as required. If you use the SterilCyl or PasteurCyl Radio just sit at your PC and view the data in real time as it is received over the wireless link.

SterilCyl & PasteurCyl	
Probe	Diameter 3 mm Length 60, 125 mm or on demand
Locking Nut	Yes



SterilCyl **fitted on a tin of canned fish; shows use of the locking nut and the threaded insert on a sharply curved surface**



SterilCyl **fitted on a lid using the locking nut with the possibility of adjusting its depth inside the jar, in order to reach the product's core**

Adjusting the depth of the probe with the Locking Nut

The locking nut is used to fix the 3mm diameter Probe of the SterilCyl, PasteurCyl, SterilCyl Radio and PaseurCyl Radio to the Fastening System at the desired depth. It may be applied to lids, cans, containers and on almost every type of surface. This means that with a single logger you can monitor different types of product, since you can regulate the depth of the probe inside the container (as shown in the pictures below).

This operation is quick, simple and allows perfect monitoring of the temperature of your products after which you may adjust your process parameters according to the measurements obtained. By means of a special interface with clips you don't even have to remove the logger from the container to download the data.

The Fastening System and the locking nut can be used on the 3 mm diameter Probe of the SterilCyl/PasteurCyl family of data loggers.

The threaded insert and the locking nut are supplied, along with the Fastening System tools.

Purchase one logger with a Probe of the right length for all your requirements: you can use it on any type of container, simply adjusting its depth thanks to the Locking Nut.

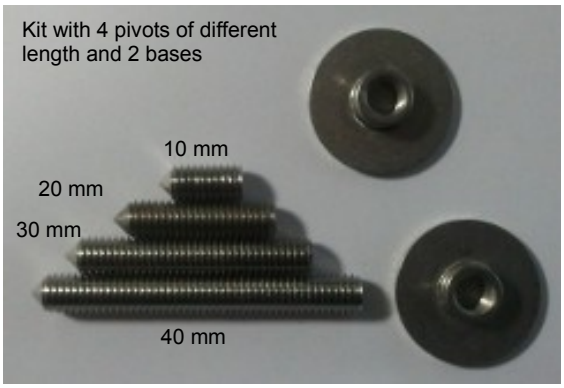
SterilCyl Radio & PasteurCyl Radio	
Probe	Diameter 3 mm Length 60, 125 mm or on demand
Locking Nut	Yes
Wireless Transmission	Yes

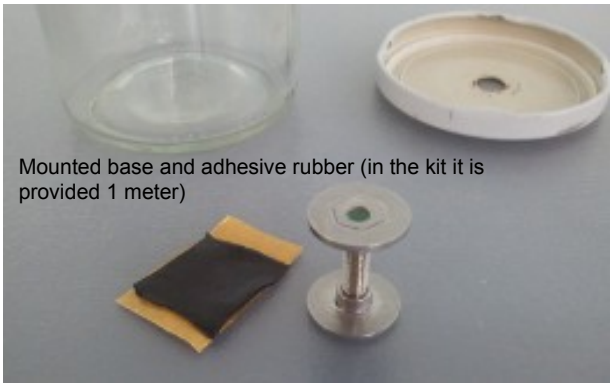
Fitting base

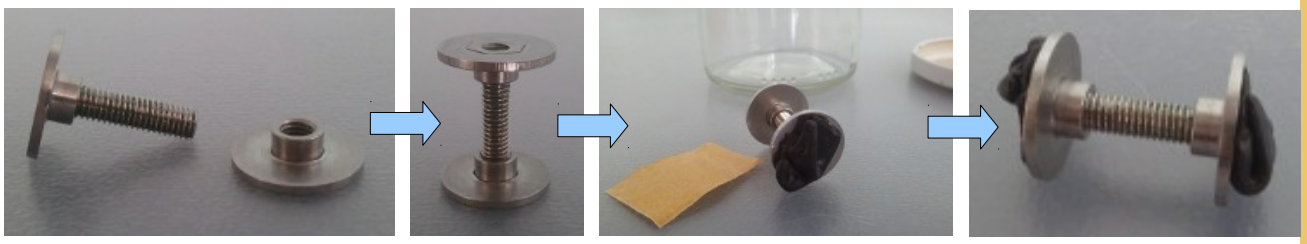
Internal fitting system for high temperature data loggers for jars, cans, tins, bottles, vials and other types of packages

System

The fitting base can be used on any high temperature data logger from Tecnosoft, but PasteurCyl Radio and SterilCyl Radio due to their size. Kit is made up by a series of pivots of different length to which two bases are screwed on: one is fixed to the package wall and on the other the logger is placed. Fixing is made using a special adhesive rubber, that can be removed easily but it is very strong, also at high temperatures. This rubber can be used to fix the logger directly to the package walls too.







All types of loggers can be fixed.

Fields of application

Healthcare

Pharma

Food

Base can be fixed on the bottom, on the walls or on the cap of the package.

The logger can also be fixed directly to the walls of the package.

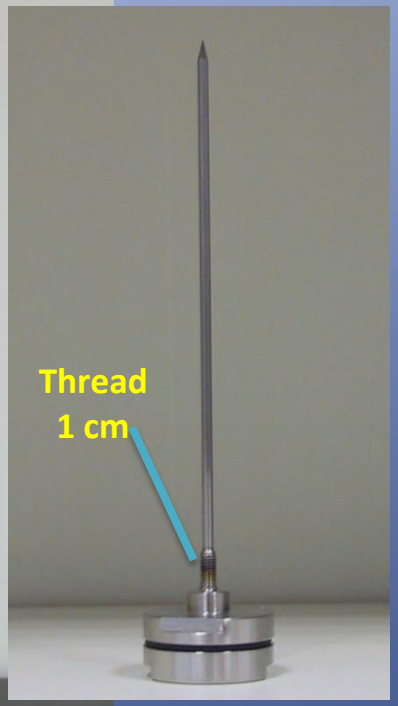
Temperature monitoring in bottles with SterilDisk Can

Possibilities:

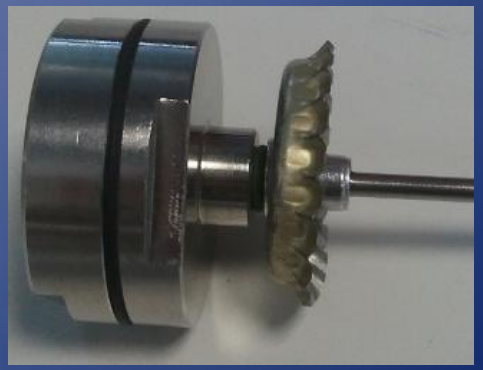
1- If you can fix the crown cap AFTER having fixed the logger, you can use:

A- Copunterbolt, screwed on the threaded part of the probe

B – Locking nut, to adjust depth (point must stay 2 cm from the bottom)



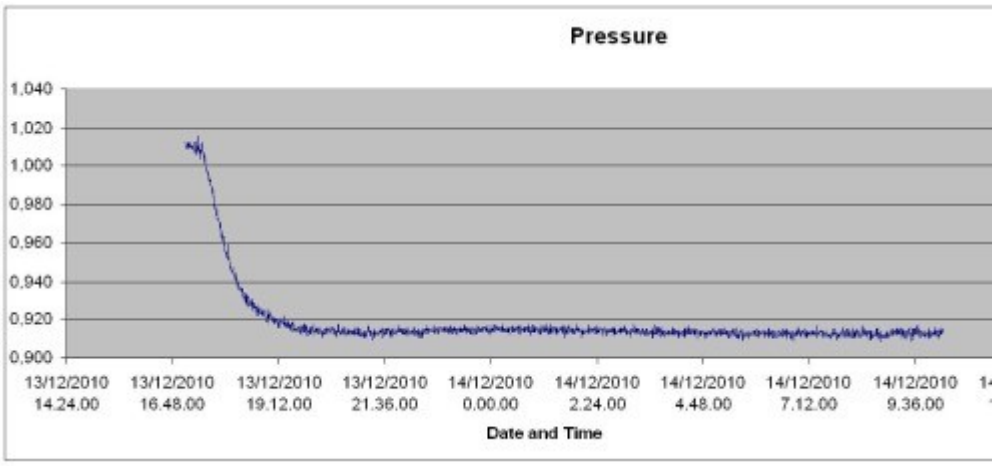
2- If you cannot fix the crown cap AFTER having fixed the logger on it, use the the fitting systems to fix a threaded rivet on the cap and then screw on it the probe

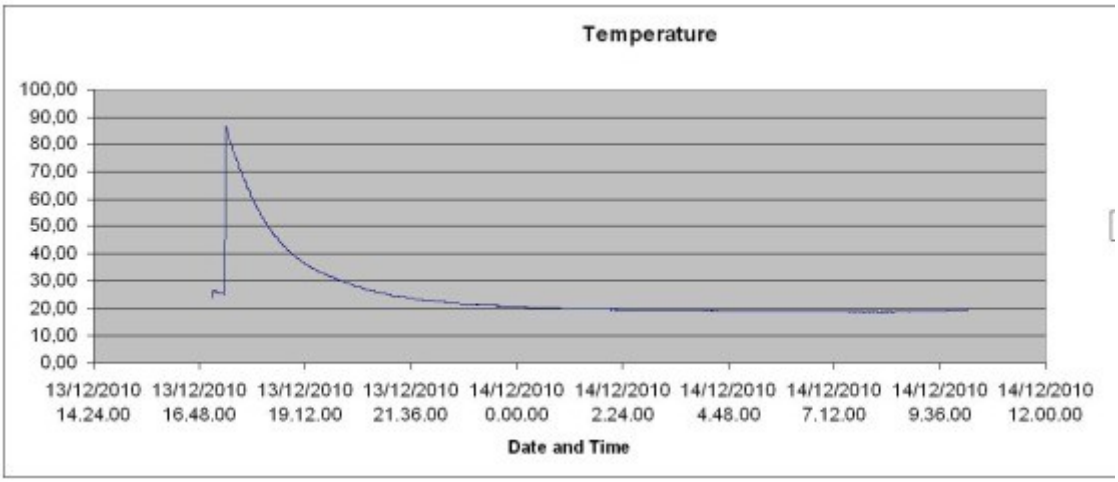


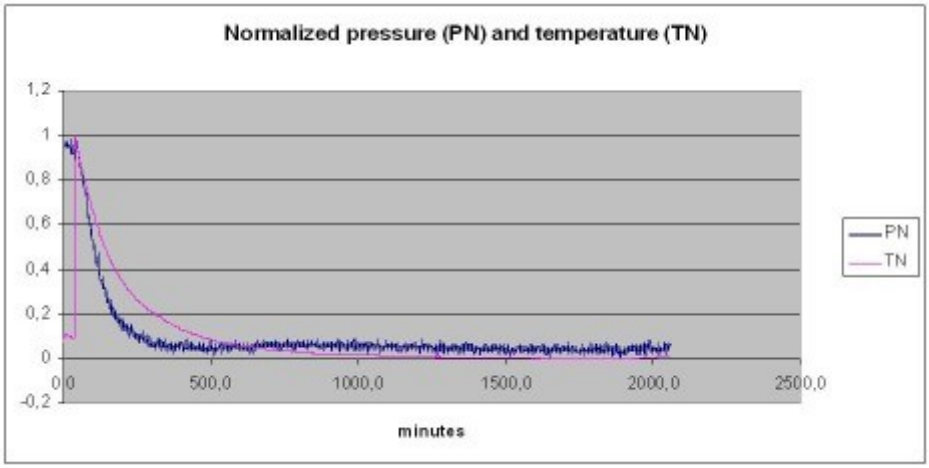
TEMPERATURE AND PRESSURE MONITORING IN PLASTIC BOTTLES PRODUCTION

The use of pressure and temperature data loggers can demonstrate how good is the cap closure.
The setup of the test is very simple:
You have a bottle, a cap a temperature data logger and a pressure data logger.

Place the pressure logger on the cap, drop the temperature logger in the bottle, fill the bottle with hot water at 90°C, leaving some air and screw the cap on the bottle. Leave the bottle at ambient temperature or in a fridge: the bottle will crush as the internal temperature decreases.
Once opened and downloaded the loggers you get the data:







The drop of pressure from 1,010 to 915 and the stable pressure level with stable temperature allows to verify the cap seal.
The comparison of the measured pressure with the one calculated according the Boyle law for an indeformable bottle can define the crush index of the bottle.
The measured pressure while unscrewing the cap permits to verify the sealing of the cap until the tamper evident ring is fully detached from the cap.
Other applications regard the measure of the internal pressure of bottles or cans during transport or storage in function of temperature.

P-RADIO & S-RADIO

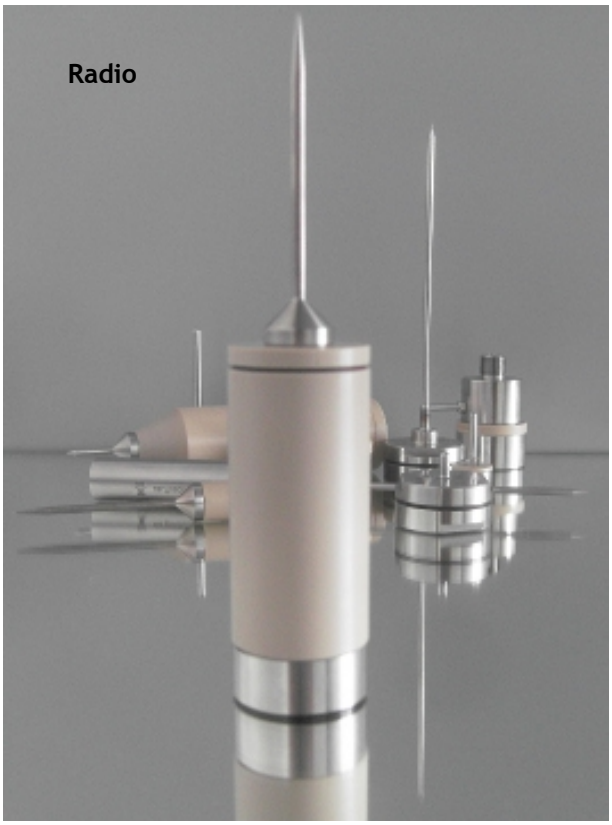
High temperature data loggers (100°C and 140°), with real time wireless transmission

S-Radio (140°C) and ***P-Radio*** (100°C) temperature data loggers have been developed for real time temperature monitoring during sterilisation and pasteurisation processes. They can be adopted in the food, pharmaceutical/medical and laboratory fields easily.

System

The loggers can be used with different software:
- **SPD**, for quick and simple monitoring: start the devices, do your mission, receive data in real time via radio
- **TS Manager**, for deep analysis and control: a **FDA 21 CFR Part 11 compatible software** with multi-level access and reports according to regulations. Designed for autoclave validation, from pharmaceutical / medical to laboratories, dentists and food
- **Process Monitor**: for wireless loggers in the food field, with possibility of multi retorts / autoclaves monitoring, also with Ethernet receiver* and alarms on set temperature and F0 value. Complete reports with lot number, notes etc.

All loggers are connected to the PC by means of the DiskInterface HS (SPD software included). Devices can also record data in their memory to be download at the end of the process.



Different probe lengths (20, 60, 100, 125 mm X 3 mm diameter or 100 mm X 5 mm diameter) give you the possibility to always **reach the core of your product** and get a **fast response time**, important for short processes.

Available also with flexible and metal semi-rigid bendable probe.

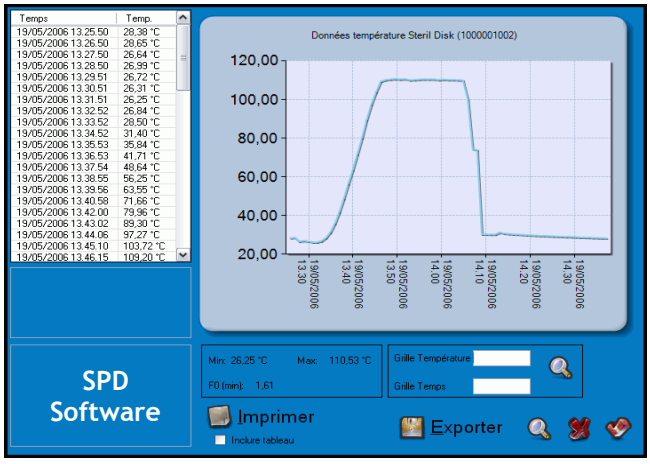
Possibility to be fixed on several surfaces with the ***Fastening System*** and the ***Locking Bolt***.

Advantages

- High accuracy and resolution.
- Long battery life and with Jumbo version is even extended.
- Completely food grade and submersible.
- Printed reports compliant with health regulations and ISO (data are not editable in the software).
- F0 and PU calculation.
- Provided with **calibration certificate** Accredia (NIST equivalent) traceable.
- **Can be calibrated for low temperatures (-20°C)**.

Applications

- Temperature monitoring of sterilisation and pasteurisation processes.
- Autoclave validation according to 21 CFR Part 11 regulations.
- Temperature monitoring during meat and ham cooking.



Fields of application

Healthcare

Pharma

Dentists

Food

Laboratory

Interface Communication

USB

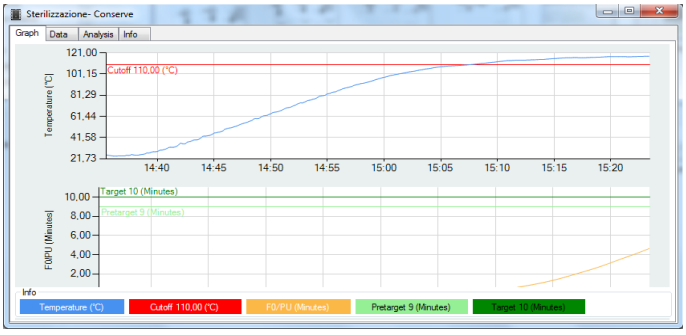
433 MHz

Technical Data

Model	Radio
Dimensions	76 h X 30 Ø (mm)
Probe size	20, 60, 100 125 h or on demand (175 mm max) X 3 Ø (mm) or 100 h X 5 Ø (mm); flexible and bendable probes available
Material Standard/Probe	Stainless steal AISI316L + Peek (completely Food Grade)
Temperature range	P-Radio: 0°C ÷ +100°C - S-Radio: 0°C ÷ +140°C (up to 5 bar)
Temperature resolution	0,01°C
Temperature accuracy	± 0,2°C (within standard calibration range: +25°C ÷ +125°C)
Number of acquisitions	120.000
Acquisition rate	From 1 every second up
Battery life	+3.800.000 acquisitions @ 25°C - Battery life might be less if exposed to high (+90°C) and low (-20°C) temperatures for extended periods
Protection degree	IP68
Communications	USB DiskInterface HS (SPD software included) + USB Radio Receiver

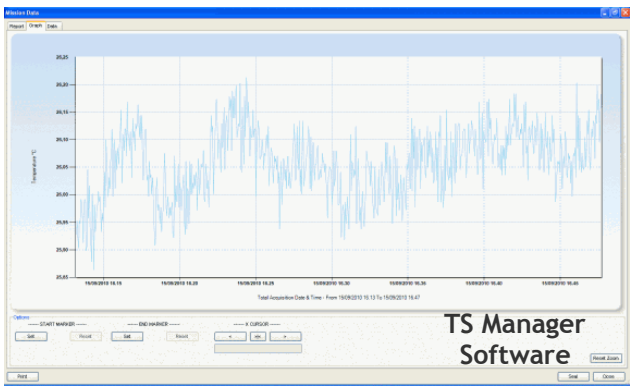
Software

Type	SPD	TS Manager	Process Monitor
Operating Systems	Windows XP, Vista, 7, 8 (32, 64 bit)		
Data management	Missions sorted by start date and logger serial number; real time monitoring with radio transmission	Missions filtered by start date, logger type, serial number, customer/instrument validated and much more	Missions sorted by start date and logger serial number; real time monitoring with radio transmission
Data display	Graph (with zoom) and table (exportable into Excel) and printed report of all the data		
Multi graph display	Two or more missions can displayed on a single graph		
F0 and parameters	Automatically calculates the F0 and the Z and N parameters of the formula can be set		
Languages	Italian, English, French, Spanish, German	Italian, English, German	Italian, English



Process Monitor

Devices can come also with a special **flexible cable** or **with semi-rigid metal probe**, with rigid probe at the end. With the flexible and bendable probes it is possible to use these devices also in places where there is not enough space to put the logger on or inside the the product's package.



Product Code:
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ts01prf1/2/3/4/5/d
ts01prb1/d
ts01sr1/2/3/4/5/d
ts01srf1/2/3/4/5/d
ts01srb1/d

P-MICRO & S-MICRO (STANDARD, L AND XL)

THE AUTOCLAVE DATALOGGERS WITH THE SMALLEST VOLUME EVER (STANDARD)!

Miniaturized data loggers for monitoring sterilisation and pasteurisation processes, entirely in food grade material

BECAUSE SIZE DOES MATTER

The ***S-Micro*** (140°C) and ***P-Micro*** (100°C) data loggers, with their L and XL versions, now make temperature monitoring in sterilization and pasteurization processes even simpler, thanks to their reduced dimensions that make them the monitoring device for autoclaves with the smallest volume in the world.

System

The loggers can be used with two types of software:
- **SPD**, for quick and easy monitoring: start the devices, run your process, download data and analyse;
- **TS Manager**, for thorough analysis and control: an **FDA 21 CFR Part 11 compatible software** with multi-tiered access and reports in conformance with the regulations. Designed for autoclave validation, from pharmaceutical/medical to laboratories, dentists and food.

Main features

Apart from its tiny size there are many other important features of the Micro logger series:
- high accuracy and precision: with an accuracy of **± 0,1°C** these devices can be employed in any application involving food, pharmaceuticals, validation, laboratory and medical field;
- fast response time thanks to the 3 mm diameter probe;
- low battery consumption for an extended battery life;
- very easy to deploy in any type of package.

Versions

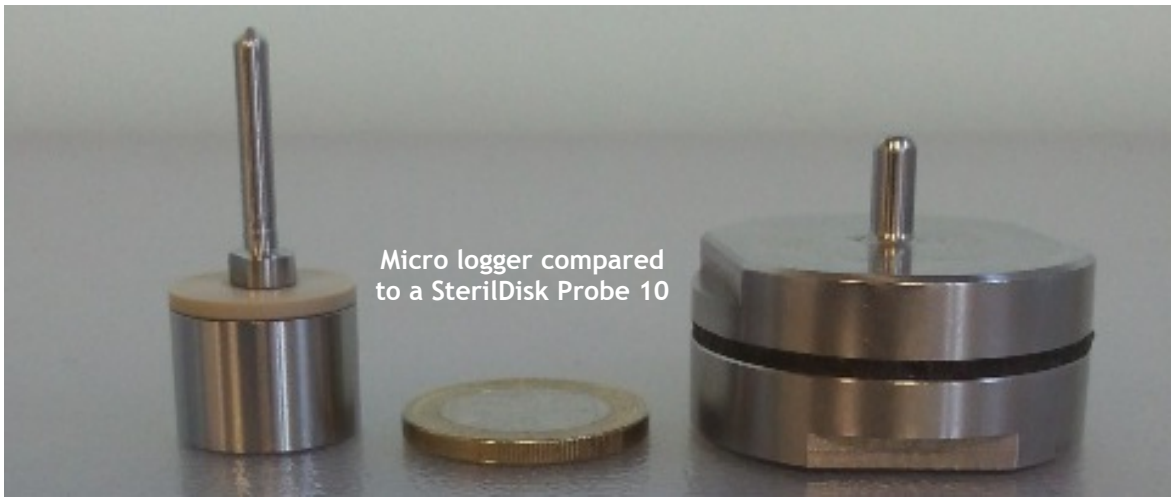
- Standard: 17 mm diameter X 14 mm, the smallest logger for autoclave.
- Micro L: 17 mm diameter X 39 mm, extended battery life, possibility of extended calibration (-40°C).
- MicroXL: 17 mm diameter X 64 mm, extended battery life, possibility of extended calibration (-40°C).

Applications

- Temperature monitoring of sterilisation and pasteurisation processes.
- Autoclave validation according to 21 CFR Part 11 regulations.

Advantages

- Entirely food grade and submersible.
- Printed reports compliant with health regulations and ISO (data cannot be edited using the software).
- F0 and PU calculation.
- Supplied with an ACCREDIA traceable **calibration certificate** (standard calibration: +25°C ÷ +125°C).
- **USER REPLACEABLE BATTERY.**



Fields of application

Healthcare

Pharma

Dentists

Food

Laboratory

Interface Communication

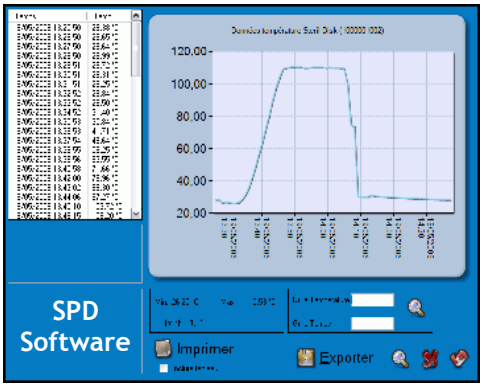
USB

Technical features

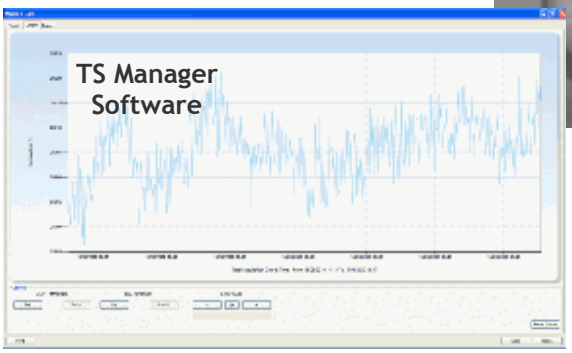
Type	Standard	Micro L	Micro XL
Dimensions (probe excluded)	14 h X 17 Ø (mm)	39 h X 17 Ø (mm)	64 h X 17 Ø (mm)
Probe	20, 60, 100, 125 h X 3 Ø (mm) - other lengths available on request		
Materials	Stainless steal AISI316L + Peek (completely Food Grade)		
Temperature range	P-Micro: 0°C ÷ +100°C - S-Micro: 0°C ÷ +140°C (up to 5 bar)		
Temperature resolution	0,01°C		
Temperature accuracy	± 0,1°C (in the standard calibration range)		
Number of acquisitions	20.225		
Acquisition rate	Programmable from 1 every second upwards		
Battery life	**user replaceable** MORE THAN 6 DAYS AND 12 HOURS IN CONTINUOUS AT 1 SECOND* *Equal to 560.000 acquisitions	**user replaceable** 135 DAYS IN CONTINUOUS AT 1 SECOND* *Equal to +10.000.000 acquisitions	**user replaceable** 230 DAYS IN CONTINUOUS AT 1 SECOND* *Equal to +17.000.000 acquisitions
	Battery life might be less if exposed to high (+90°C) and low (-20°C) temperatures for extended periods		
Protection degree	IP68		
Communications	USB DiskInterface + adapter		

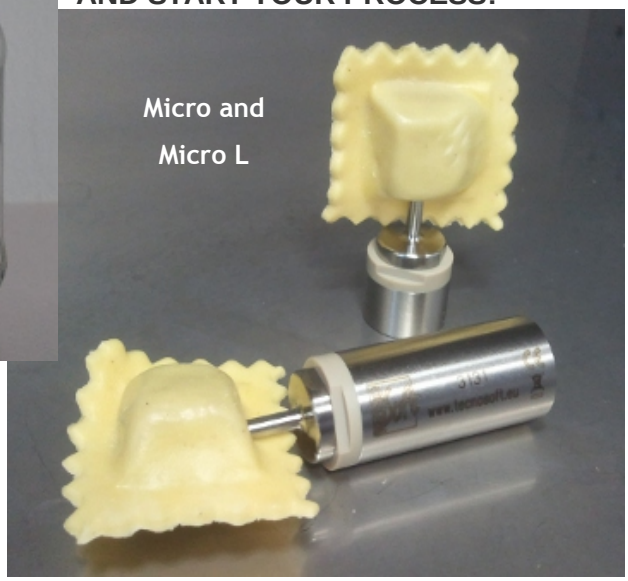
Software

Type	SPD	TS Manager
Operating Systems	Windows XP, Vista, 7, 8 (32, 64 bit)	
Data management	Missions sorted by start date and logger serial number	Missions filtered by start date, logger type, serial number, customer/instrument validated and much more
Data visualization	Graph (with zoom) and table (exportable into Excel) and report printout of the data	
Multi-Graph	Two or more missions can displayed on a single graph	
F0 and parameters	Automatically calculates the F0; the Z and N parameters of the formula can be set	
Languages	Italian, English, French, Spanish, German	Italian, English, German



NO NEED TO DRILL ANY LIDS, NO NEED TO MODIFY YOUR PRODUCT PACKAGING: PROGRAM THE DATA LOGGER, PLACE IT IN YOUR PRODUCT AND START YOUR PROCESS!

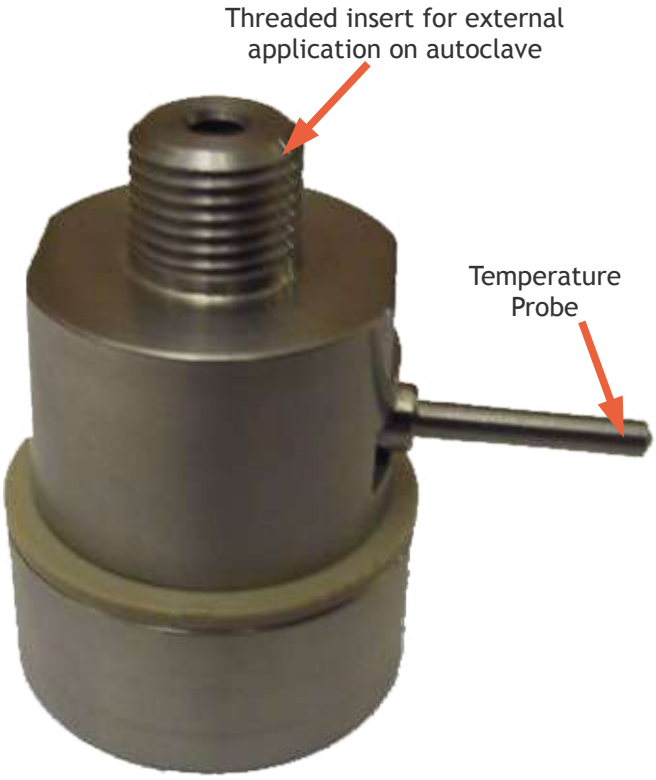




P-Micro and S-Micro are easily employed in the food industry: they can be used in packages, containers, jars or loosely inside pasteurisers to monitor the product temperature at its core, for example in freshly filled-pasta.

PRESSUREDISK

Temperature and pressure logger for autoclaves with validation software compatible with FDA 21 CFR Part 11 regulations



The System

The PressureDisk is a data logger for temperature and pressure monitoring, in particular in autoclave, since it resists up to 140°C. It can be provided alone or in a kit made by the TS Manager software, compatible with FDA 21 CFR Part 11 regulations, and one or more temperature loggers (the software can manage all of your devices). All can log up to 140°C and resist up to 5 bar of pressure and can be used to map the autoclave and check it is working well. All devices are in food grade material and are submersible, so that they can be used easily also in the food industry. With the TS Manager system it is possible to validate autoclaves by professional validators.

PressureDisk is rugged, with a user replaceable battery that can work for several sterilisation cycles; the temperature sensor is on a radial probe while the pressure one is inserted in a threaded insert with a ½ Gas that can be screwed on standard receptacles on autoclaves.

Applications

- Validation of autoclaves or other instruments that need verification of pressure control.

- Internal pressure monitoring of food and non-food packaging during sterilisation process.

- Monitoring of sterilisation and pasteurisation processes.

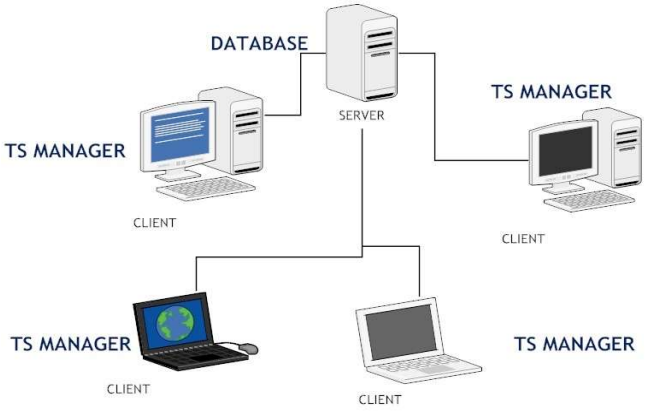
- Ambient temperature and pressure monitoring.

Validation

The TS Manager system is particularly indicated for autoclaves validators, since it allows to manage a Customer database, with the list of each instrument for each Customer.

Being FDA 21 CFR Part 11 compatible it can be easily implemented in every monitoring and validation process, being compliant to law and international regulations.

For example, it can be used to validate autoclaves in hospitals, in analysis laboratories, in dentists office or among tattooers and piercers.



Fields of application

Healthcare

Pharma

Dentists

Food

Interface Communication

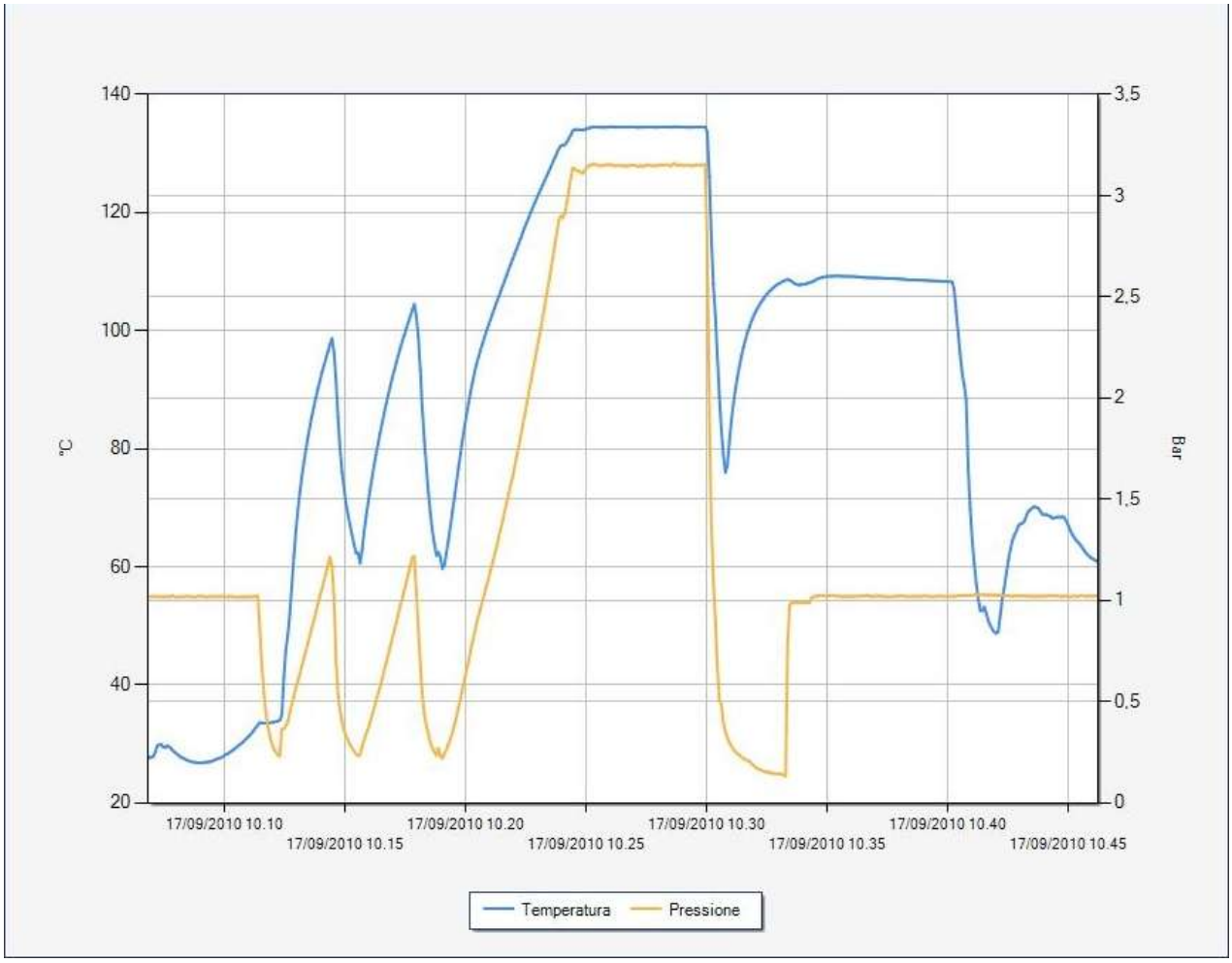
USB

Technical Data

Dimensions	Diameter max: 35 mm; hh: 43,22 mm; threaded insert ½Gas: 11 mm; temperature probe length: 23 mm, temperature probe diameter: 3 mm
Material	Stainless steel AISI316L, Peek: food grade
Temperature range	0°C ÷ 140°C; other intervals on request
Temperature resolution	0,02°C
Temperature accuracy	+/-0,2°C
Pressure range	10 mbar ÷ 5000 mbar absolute (calibration: 10-4000 mbar)
Pressure resolution	2 mbar
Pressure accuracy	15 mbar
Number of acquisitions	60576 (date, time, temperature, pressure)
Acquisition rate	From 1 acquisition every second up
Battery life	2 years with 10 seconds acquisition rate for 5 hours a day - **user replaceable**
Accessories	DiskInterface, adapter

Software

Operating Systems	Windows XP, Vista, 7 (32 e 64 bit)
Data management	Database SQL client/server, data saved per mission, mission templates management, mission and customers archive (for validators)
Data display	HTML Report, graph with zoom and markers, table with statistics and analysis, export into Excel
Compliant with	FDA 21 CFR Part 11 compatible
Languages	English



Tecnosoft Validation &
Monitoring Solutions

TS MANAGER

Validation system for autoclave, compatible with FDA 21 CFR Part 11 regulations

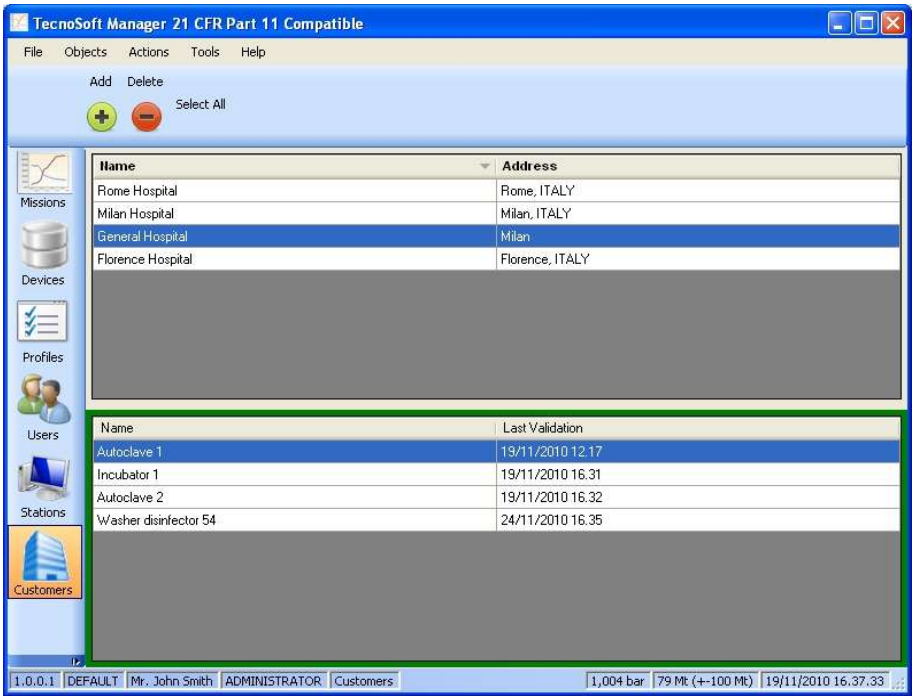
A Complete System for Thermal Validation

The TS Manager is a complete solution developed by Tecnosoft for all who need to monitor temperature in autoclaves, pasteurisers and in general high temperature processes and want to validate the process itself. It is based on the software with the same name, TS Manager, which is compatible with FDA 21 CFR Part 11 regulations, and all of high temperature Tecnosoft devices, along with the PressureDisk for **temperature and pressure monitoring**. All of them can work **up to 140°C** and resist at least **up to 6 bar** of pressure and can be used to map the autoclave and check if it is working well. All devices are made of food grade materials and are submersible, so that they can be used easily also in the food industry. With the TS Manager system it is possible to **validate equipment and processes** by professional validators.

The Software

The TS Manager software has been developed with two main ideas: being **21 CFR Part 11 compatible** and being a "must-have" **resource for all validators** of autoclaves, incubators, pasteurisers and general equipment in the healthcare and food industry. So, it has all the features requested by the FDA regulations and other features that let the user manage all his/her validation for the different Customers.

Its intuitive interface puts in your hands a powerful tool but very easy to use. Create your database of Customers and Instruments to validate, create validation profiles to analyse the processes, start your loggers and then download them and check all data collected.



Process Analysis

Setup Loggers

Starting a monitoring mission is quick and simple: put the logger in the DiskInterface already connected via USB and just press *Start*. The software will automatically recognize the type of logger connected and will show its status. Proceed and choose the profile to use to analyse your data. Profiles are set of parameters such as acquisition rate, start delay, kind of analysis (F0, Overkilling, PU etc.). Here you can assign also a Customer and an Instrument you are going to validate (autoclave, pasteuriser etc.). In the next step the logger will be programmed and you can assign also the use you are currently making of it (validation, test, production control etc.).

Data Analysis

TS Manager offers you several tools to analyse your data. A complete **HTML report** is displayed with all the details from your process: type of analysis, result, logger used, user who programmed and downloaded it, all data acquired. The **Graph** has zoom feature, vertical and horizontal markers to set points for analysis both on temperature and pressure (you can define a portion of graph to analyse and calculate span between max and min, time span etc.). You can also customize the grid of the graph easily. The **Data** tab allows for a quick reading of all the data, statistics such as max, min and average and the profile analysis, like F0 calculation and result according to expected values. You can also export data to Excel format file.

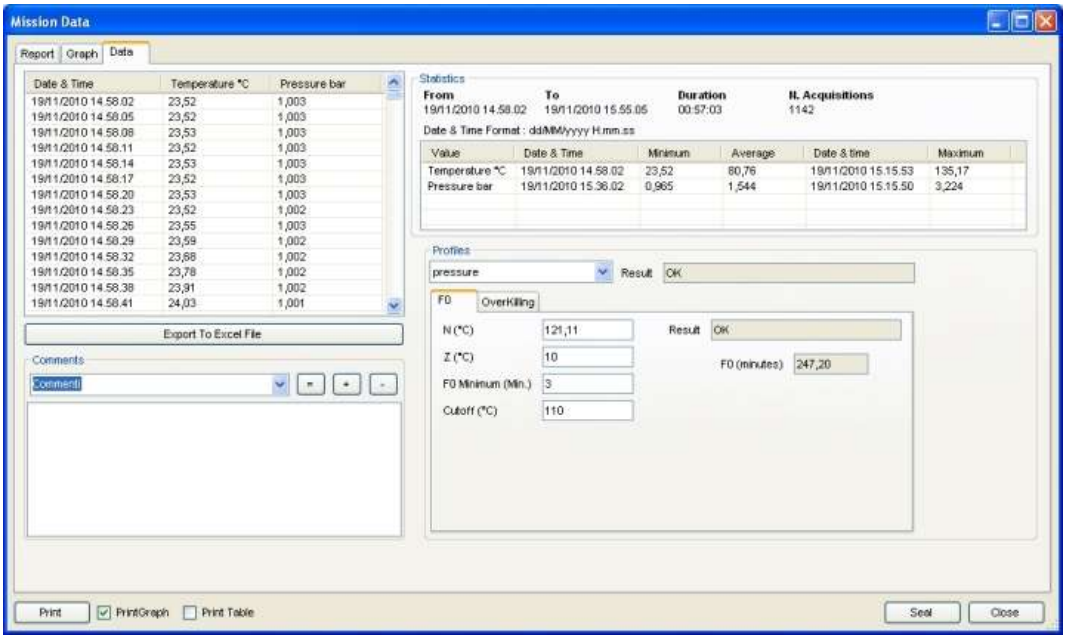
Printed Report

TS Manager lets you print **complete reports of your processes**, with header image of your company and all the useful data to track the mission. You can choose to print graph, data table. Reports are printed according to regulations and can be signed on each page by the validator or the user.

Set vertical and horizontal markers for your analysis and statistics, zoom in the graph in the most important phases of the current process, customize the grid according to your needs. You have plenty of options in the graph tab and all are user-friendly and quick to set. The **Seal** function is used to close an analysis and avoid possible further modifications to it.

Finding a mission is extremely easy thanks to a large set of filters.

Quickly scroll through all the data acquired (date, time, temperature and pressure, eventually), look at the mission's statistics, like number of acquisitions, duration, maximum, minimum and average values for temperature and pressure. Export all the data, not only the acquisitions, but also all mission's details, to an Excel file. Analyse the data acquired using the chosen profile or select other profiles from the drop down-list. Add comments: create custom comments and load them automatically, to save time and create quick reports.

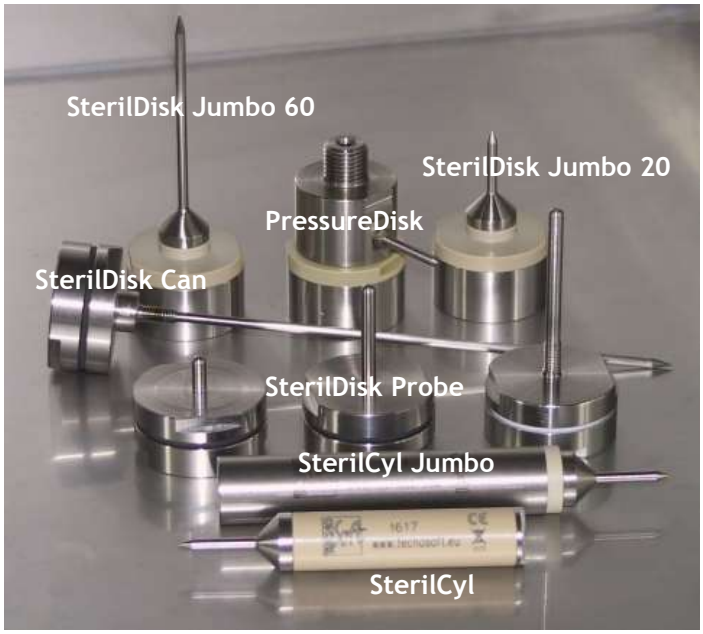


Software Features

Operating Systems	Windows XP, Vista, 7 (32 e 64 bit)
Data management	Database SQL **client/server** installation or stand-alone, data saved per mission (start and stop of acquisitions); available archives: mission templates (**profiles**), missions, **customers and instruments** (for validators), users (with **login, password, permissions** and validity period), stations (PCs where the software is installed), devices (list of all devices connected and used for validation), **activity log** (registry with all the activities of the software, with who's done what information); **filters** on: Customers, Instruments, date of mission start, user/station which started/stopped the mission, profile on analysis used at mission start, device used for validation/monitoring
Data presentation	**HTML report** (exportable), **graph with zoom** and vertical/horizontal markers, table with **statistics** (max, min, average) and analysis (**F0, PU, overkilling**), export into **Excel**, **report printing**
Compliant with	**FDA 21 CFR Part 11** compatible: users have login, password and permissions, data cannot be edited, devices cannot be tampered, database hacks checking feature for auditors, Audit option, Sealing feature for analysis on data (avoid further changes), all actions recorded in the log, printed reports
Languages	English, Italian

The devices

The TS Manager systems can be used with the PressureDisk and all devices for high temperature from Tecnosoft. All the loggers are made in food grade material (stainless steel AISI 316L and PEEK), are IP68, resist up to 140°C and 5 bar. Each device has been studied for specific applications and therefore has different feature. Choose the logger that best fit your application, either being it a pharmaceutical/medical or a food application. The system is provided in an elegant case with all devices, cables, accessories, software and **calibration certificates**.



Applications

The are devices of different size, shape and performances available for any kind of application.

Helthcare, Medical, Pharmaceutical	Food & Beverages
Autolcave	Pasteuriser - Autoclaves
Steam sterilisation	Retorts
Incubators	Cooker/Cooler
Stability Chambers	Freezer
Stockhouse/Warehouse	Smoke house
Cold Storage	Fridge / Fridge Cell

Fastening System

There probes can be fitted to different type of packages. Flexible probes available too

Healthcare, Medical, Pharmaceutical	Food & Beverages
Bottles	Cans
Pouches	Bottles
Tubes & Syringes	Pouches
Ampoules	Jars
Vials	Trays

Technical Data

Material: Stainless steel AISI316L, Peek (food grade) - **Acquisition rate**: From 1 acquisition every second up
Temperature range: Pasteur- 0°C ÷ 100°C; Steril- 0°C ÷ 140°C (other ranges available)
Temperature resolution: 0,02°C - **Temperature accuracy**: +/-0,2°C
Pressure range (PressureDisk): 10 mbar ÷ 5000 mbar abs. - **Pressure resolution**: 2 mbar - **Pressure accuracy**: 15 mbar
Accessories: DiskInterface, adapter (for all but PastuerDisk/SterilDisk and PasteurDisk/SterilDisk Can)

		Dimensions Diameter X Height (mm)	Probe size D X H (mm)	N. acquisitions	Battery life
	**PasteurDisk SterilDisk**	36 X 17	-	15000	2 years with standard use - **user replaceable**
	**PasteurDisk SterilDisk Probe**	36 X 17	4 X 10, 30, 50	15000	2 years with standard use - **user replaceable**
	**PasteurDisk SterilDisk Can**	36 X 17	3 X 82, 117, 135	15000	2 years with standard use - **user replaceable**
	**PasteurCyl SterilCyl**	15 X 70	3 X 20, 60, 125	15000	2 years with standard use
	**PasteurDisk SterilDisk Jumbo**	35 X 35	3 X 20, 60, 125	120000	4 years with standard use - **user replaceable**
	PasteurCyl SterilCyl Jumbo	18 X 100	3 X 20, 60, 125	120000	4 years with standard use - **user replaceable**
	**PressureDisk**	35 X 54,22	3 X 23	60576	2 years with standard use - **user replaceable**

Loggers Comparison

Explanation: stars (*) are given according to the performance of the logger for that specific feature.

	Dimensions	Battery Life	User replaceable	Response Time	Applications
PasteurDisk/SterilDisk	***	*	Yes	*	Limited height in conveyer belt; small packaging
PasteurDisk/SterilDisk Probe	***-*	*	Yes	**	Higher response time than PasteurDisk and SterilDisk
PasteurDisk/SterilDisk Can	***-**	*	Yes	***	For cans of all size, always reach the cold spot, easy fitting
PasteurCyl/SterilCyl	****	*	Yes	***	Limited height or reduced space; small packaging; fast response time
PasteurDisk/SterilDisk Jumbo	**	***	Yes	***	For intense use, exceptional battery life and memory
PasteurCyl/SterilCyl Jumbo	*	***	Yes	***	For intense use, exceptional battery life and memory
PressureDisk	**	**	Yes	***	Choose this if you need to monitor pressure too

All loggers are provided with a **calibration certificate** SIT (NIST equivalent) traceable. Calibration is made on different points of temperature and temperature / pressure for the PressureDisk.
If you need special calibration points, ask for availability.