

Temperature data logger

NanoVACQ Temperature

Control of temperature inside cans, pouches, trays, containers, validation of autoclaves, pasteurization, ovens, dryers, freezers, freeze-dryers...

NanoVACQ is a temperature data logger enabling the use of 1, 2 or 3 sensors on the same logger, thus answering a lot of industrial needs.

NanoVACQ family (diameter 31mm, length from 31 to 125 mm) has various standard models that can vary in length or probe shape.



NanoVACQ 1Tc - NanoVACQ 2Tc

Ex Option

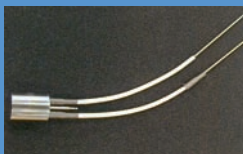


NanoVACQ 1Td - NanoVACQ 2Td
NanoVACQ 3Td

Ex Option



NanoVACQ 1Tc-2Td



NanoVACQ 1Tc-2Tdi



- 1 or 2 platinum sensors, at the end of a rigid probe (diameter 3 mm (or 3>1.9 mm for the hybrid model) and up to 100 mm long.

- ▶ NanoVACQ 1Tc is available with Ex Option for use in explosive environment.

- 1, 2 or 3 platinum remote sensors at the end of 1, 2 or 3 Viton flexible cables (diameter max 5mm, length to be determined between 100 and 1000 mm) or at the end of SS 316L semi-rigid probes (diameter 2 mm, length to be determined between 100 and 1000 mm). Viton probes are not suitable for autoclave use.

- ▶ NanoVACQ 1Td with semi-rigid probes is available with Ex option for use in explosive environment.

- 1 platinum sensor at the end of a rigid probe (Diameter 3 mm, length 30 mm) + 2 platinum sensors at the end of 2 Viton flexible probes (diameter max 5 mm, length to be determined between 100 and 1000 mm) or at the end of SS 316L semi-rigid probes (diameter 2 mm, length to be determined between 100 and 1000 mm). Viton probes are not suitable for autoclave use.

- 1 platinum sensor at the end of a rigid probe (diameter 3 mm, length up to 100 mm) + 2 platinum sensors at the end of 2 removable flexible probes. This device is not suitable for autoclave use.

For use inside autoclave, semi-rigid sheathed probe is recommended.

NanoVACQ Temperature



Operating range

- from -80°C to +140°C (and more with thermal shield)
- Batteries to be used depending on operation range and height of the logger (diameter 31 mm)

Operation range	From -80°C to +85°C	from -55°C to +140°C	from 0°C to +125°C	from 0°C to +140°C
Height 31 mm			014Z	
Height 39 mm		014ZF*		Routine
Height 125 mm	014ZFL			

To benefit of greater temperature ranges, it is possible to exchange batteries on the same device.

*Battery 014ZF is not recommended for sustained use at high temperature (ex: sterilization).

Metrology

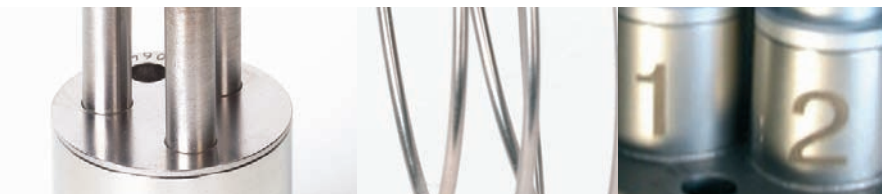
- **Calibration uncertainty:** +/- 0.1°C from -80°C to +140°C (+/-0.05°C upon request)
The uncertainties specified correspond to two standard deviation.
The uncertainties are calculated taking into account the various significant error sources, including the calibration probes, the equipments, the environmental conditions, the influence of the logger, repeatability, etc...
- **Resolution and noise:** 0.04°C
- Each logger can be calibrated and checked at the temperature points needed by the user.

Technical specifications

- **Dimensions:** diameter 31 mm, height from 31 mm to 125 mm depending on battery.
- **Water tightness:** up to 20 bar for the NanoVACQ (except for Tdi models). Flexible probes are not recommended for autoclave use.
- **External materials biocompatible and sterilizable:** 316L Stainless steel
- **Sensors:** Pt1000 or Pt100
- **Memory capacity:** 48 000 acquisitions divided by number of measurement channels.
- **Programmable acquisition rate:** minimum 1 second, maximum 59 minutes and 59 seconds.
- Programmable acquisition duration
- Programmable recording start by date, hour, minute or on temperature threshold.
- Battery replaceable by the user.
- Non volatile memory (EEPROM).

Software operating conditions

- Data transfer with a communication interface connected to the USB port.
- Operates under Windows® XP (SP3)/Vista/7



NOTA :

Annual maintenance is recommended for replacement of o-rings, calibration and adjustment.

Radio Option

Real time data

NanoVACQ Radio are autonomous transmitters/recorders equipped with sensors.

They have been developed to enable two functions: real time radio transmission of the data measured by the sensors and recording of the transmitted data. All the NanoVACQ Temperature are available with optional radio transmission except for 3Td model.



They are designed to support temperatures from -80°C to $+140^{\circ}\text{C}$.

- The body of the NanoVACQ Radio is 31 mm in diameter, its height is 45 or 132 mm.
- The NanoVACQ Radio antenna is removable from the body, its length can vary from 30 mm to 110 mm according to application. It allows data transmission by hertzian channel.
- The NanoVACQ Radio can be set up by the user. The operation mode of the device may be selected during programming:
 - Radio transmission of data without recording in memory.
 - Radio transmission of data while recording in the memory.

Radio transmission

- The frequency used by the radio transmitter is within ISM 2.4 GHz bandwidth (industrial, scientific or medical devices). This bandwidth can be used without licence.
- NanoVACQ radio loggers use the technology based on the IEEE 802.15.4 standard, which enables to manage various loggers in the same space with more frequent sampling.
- The receiving base station can be connected either directly by USB, or using a long distance connection RS485 type, or even using an Ethernet or Wifi connection.
- Various types of receiving antennas can be connected to the radio receiver according to loggers use.

Reach between transmitter and receiver

- 25 meters in clear field,
- For all applications, a preliminary test must be done to validate the hertzian transmission in the user's application.

Dimensions

- Body height of NanoVACQ Radio :
 - 45 mm (range -55°C to $+140^{\circ}\text{C}$)
 - 132 mm (range -80°C to $+85^{\circ}\text{C}$)