

## NanoVACQ Humidity

A platform for multiple solutions, under permanent technologic evolution.

Control of temperature and humidity in your processes...

With its diameter of 31 mm, NanoVACQ is a platform enabling the use of **3 sensors on the same logger**, thus answering a lot of industrial needs.

Designed for "clean" industry as well as "heavy" industry, NanoVACQ can be equipped with temperature and humidity sensors...



**NanoVACQ HT 80°C** : 1 internal Pt1000 temperature sensor  
1 capacitive humidity sensor

**NanoVACQ HT 140°C** : 1 internal Pt100 temperature sensor  
1 capacitive humidity sensor

**NanoVACQ HT-Tc** : 1 capacitive humidity sensor  
1 internal Pt100 or Pt1000 temperature sensor  
1 Pt100 or Pt 1000 temperature sensor at the end of a rigid probe  
diameter 3mm and length to be determined between 20 and 120 mm

**NanoVACQ HT EX 80°C** : Adapted to an explosive environment, like ethylen oxide sterilization.

### Metrology

- Operation range:
  - In temperature : - from -30°C to +80°C or at +140°C depending on the needs
  - In relative humidity : - from 2 % to 98 %HR
- Calibration uncertainties:
  - In temperature : +/- 0.1°C from 0°C to 140°C (0.05°C upon request)
  - In relative humidity : from 3 to 4 %HR from 2 % to 98 %HR.

The uncertainties correspond to two standard deviations.  
The standard uncertainties are calculated taking into account the various significant error sources, including calibration sensors, equipments, environmental conditions, the influence of the logger, repeatability, etc...
- Resolution :
  - In temperature : 0.02°C
  - In humidity : 0.05 %HR
- Annual checkup and recalibration are recommended.
- Each logger can be calibrated and checked at the temperature points needed by the users.

---

#### Technical specifications

- External material biocompatible and sterilizable: 316 L stainless steel
- Dimensions: diameter 31 mm, overall height from 55 mm.
- Sensors:

Temperature	Pt1000 ou Pt100
Humidity	capacitive
- Memory capacity: 48 000 acquisitions divided by the number of measurement channels
- Programmable acquisition rate: from 1 second to 59 minutes and 59 seconds
- Programmable acquisition duration.
- High autonomy battery.  
Power supply block replaceable by the user.
- Non volatile memory (EEPROM).

---

#### Software operating conditions

- Data transfer with a communication interface connected to the serial or USB port.
- Operates under Windows® 98/Me/NT/2000/XP

**Option FM** : The model 80 mentioned above is the only one available with optional radio transmission.

**NanoVACQ FM** autonomous transmitters/recorders equipped with sensors. They have been developed to enable two functions: real time radio transmission of the data given by the sensors and recording of the transmitted data.

They are designed to support temperatures from -30°C to +80°C.

- The body of the NanoVACQ FM is 31 mm in diameter, its height is 61mm depending on the autonomy needed.
- The NanoVACQ FM antenna is unpluggable from the body, its length is 185 mm and it is protected by an insulating material. It allows data transmission by hertzian channel.
- The NanoVACQ FM can be set up by the user. The operation mode of the device may be selected during set up:
  - Radio transmission of data without recording them in memory.
  - Recording the data without radio transmission.
  - Radio transmission of data while recording them in the memory.

#### NanoVACQ FM radio transmission:

- The frequency used by the radio transmitter is within ISM 433MHz bandwidth (industrial, scientific or medical devices).  
This bandwidth can be used without licence if the power is inferior to 10mW.
- NanoVACQ FM transmits within this bandwidth with a power between 8 and 10mW on 50 ohms.
- The modulation of the radio transmission is of frequency modulation type (FM) and the hertzian transmission speed is of about 4800 bauds.
- The electronic parts enabling radio transmission are operational for temperatures between -80°C and +150°C.

Reach between transmitter and receiver:

- 25 meters in clear field,
- 5 meters in air, for range  $-30^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$  in industrial environment,

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

Dimensions of NanoVACQ FM :

- Body height of NanoVACQ FM : 61mm (range  $-30^{\circ}\text{C}$  à  $+80^{\circ}\text{C}$ )

