

# DATA SHEET

# TMI-Orion

# NanoVACQ

# Temperature



## Temperature measurement inside processes.

NanoVACQ Temperature is a data logger with one to three temperature sensors; some models are watertight under pressure up to 30 bar. Its ruggedness allows temperature measurement in harsh industrial environments.

There are many models available, answering most industrial needs. They vary by number and type of probes, temperature operating range, battery capacity.

## METROLOGY

Operating range	Batteries	Resolution	Uncertainty*
From -90°C to +140°C	Wide HE	$<\pm 0.04\text{ }^{\circ}\text{C}$	+/- 0.1°C from -80°C to +140°C (+/- 0.05°C upon request)
From -90°C to +85°C	Cold HE		
From 0°C to +125°C	014Z		
From -55°C to +140°C	Routine HE		
From -90°C to +85°C	014ZFL		

Each logger can be calibrated and adjusted at the temperature points corresponding to the user's needs.

*\*The specified uncertainties correspond to two standard deviations. The uncertainties are calculated taking into account the various significant error sources, including the calibration probes, the equipment, the environmental conditions, the influence of the logger, repeatability, etc...*

## FUNCTIONS

- Start set up: immediate or delayed
- Memory set up: stop at maximum capacity / loop writing
- Time stamped measurement data
- Battery level alert with Qlever software

## TECHNICAL SPECIFICATIONS

Model	Number of channels	Probe type*	Probe dimensions	Water tightness	ATEX compliant
NanoVACQ 1Tc	1	Rigid (316L SS)	D. 3 mm, L. up to 200 mm or D. hybrid 3 > 1.9 mm, L. 30 mm	●	
NanoVACQ 1Tc Ex	1	Rigid (316L SS)	D. 3 mm, L. up to 120 mm	●	●
NanoVACQ 2Tc	2	Rigid (316L SS)	D. 3 mm, L. up to 200 mm or D. hybrid 3 > 1.9 mm, L. 30 mm	●	



Model	Number of channels	Probe type*	Probe dimensions	Water tightness**	ATEX compliant
<b>NanoVACQ 1Td</b>	1	Semi-rigid (316L SS)	D. 2 mm, L. from 60 mm to 1150 mm with tip D.2 or 2.5 mm	●	
	1	1 rigid tip at the end of 1 flexible probe (Teflon® PFA)	D.3 or 3.4 mm, L. from 30 to 100 mm D.2.2 to 5 mm, L. from 100 to 1000 mm	● <sup>(1)</sup>	
	1	1 rigid tip at the end of 1 flexible probe (Viton®)	D.3 mm, L. from 20 to 100 mm D.5 mm, L. from 100 to 1000 mm		
<b>NanoVACQ 1Td Ex</b>	1	Semi-rigid (316L SS)	D. 2 mm, L. from 100 mm to 1150 mm with tip D.2 or 2.5 mm	●	●
<b>NanoVACQ 2Td</b>	2	Semi-rigid (316L SS)	D. 2 mm, L. from 60 mm to 1150 mm with tip D.2 or 2.5 mm	●	
	2	2 rigid tips at the end of 2 flexible probes (Teflon® PFA)	D.3 or 3.4 mm, L. from 30 to 100 mm D.2.2 to 5 mm, L. from 100 to 1000 mm	● <sup>(1)</sup>	
	2	2 rigid tips at the end of 2 flexible probes (Viton®)	D.3 mm, L. from 20 to 100 mm D.5 mm, L. from 100 to 1000 mm		
<b>NanoVACQ 3Td</b>	3	Semi-rigid (316L SS)	D. 2 mm, L. from 60 mm to 1150 mm with tip D.2 or 2.5 mm	●	
	3	3 rigid tips at the end of 3 flexible probes (Viton®)	D.3 mm, L. from 20 to 100 mm D.5 mm, L. from 100 to 1000 mm		
<b>NanoVACQ 1Tdi</b>	1	1 connector (Fischer Connectors®)	Interchangeable probes specifications according to customer request		
<b>NanoVACQ 2Tdi</b>	2	2 connectors (Fischer Connectors®)			
<b>NanoVACQ 3Tdi</b>	3	3 connectors (Fischer Connectors®)			
<b>NanoVACQ 1Tc-1Td</b>	2	1 rigid (316L SS) 1 semi-rigid (316L SS)	D. 3 mm, L. 30 mm or D. hybrid 3>1,9 mm, L.30 mm D. 2 mm, L. from 100 mm to 1150 mm with tip D.2 or 2.5 mm	●	
	2	1 rigid (316L SS) 1 rigid tip at the end of 1 flexible probe (Viton®)	D. 3 mm, L. 30 mm or D. hybrid 3>1,9 mm, L.30 mm D. 3 mm, L.20 to 100 mm D.5 mm, L. 100 mm to 1000 mm		
	2	1 rigid (316L SS) 1 rigid tip at the end of 1 flexible probe (Teflon® PFA)	D. 3 mm, L. 30 mm or D. hybrid 3>1,9 mm, L.30 mm D. 3 or 3.4 mm, L.30 to 100 mm D. 2.2 to 5 mm, L. 100 mm to 1000 mm	● <sup>(1)</sup>	
<b>NanoVACQ 1Tc-2Td</b>	3	1 rigid (316L SS) 2 semi rigid (316L SS)	D. 3 mm, L. up to 200 mm or D. hybrid 3 > 1.9 mm, L. 30 mm D. 2 mm, L. from 100 mm to 1150 mm with tip D.2 or 2.5 mm	●	
	3	1 rigid (316L SS) 2 rigid tips at the end of 2 flexible probes (Viton®)	D.3 mm, L. up to 200 mm or D. hybrid 3 > 1.9 mm, L. 30 mm D.3 mm, L. 20-100 mm D.5 mm, L. from 100 to 1000 mm		
	3	1 rigid (316L SS) 2 rigid tips at the end of 2 flexible probes (Teflon® PFA)	D.3 mm, L. up to 200 mm or D. hybrid 3 > 1.9 mm, L. 30 mm D.3 or 3.4 mm, L. from 30 to 100 mm D.2.2 to 5 mm, L. from 100 to 1000 mm	● <sup>(1)</sup>	
<b>NanoVACQ 1Tc-2Tdi</b>	3	1 rigid (316L SS) 2 connectors (Fischer Connectors®)	D. 3 mm, L. up to 200 mm or D. hybrid 3 > 1.9 mm, L. 30 mm According to customer request		

(\*) Probes to be chosen depending on the application. (\*\*) The non-watertight models must not be immersed or used in an autoclave.

<sup>(1)</sup> The Teflon®PFA flexible probes of the Td models are watertight. Do not immerse into oil or ethanol. This would damage the probes and make them non watertight.



## TECHNICAL SPECIFICATIONS

<b>Material</b>	Logger body: 316L SS	
<b>Dimensions of the logger body</b>	With battery pack 014Z	D.31 mm x H. 31 mm
	With battery pack Routine HE	D.31 mm x H. 39 mm
	With battery pack 014ZFL	D.31 mm x H. 125 mm
	With battery packs Wide HE and Cold HE	D.31 mm x H.70.2 mm
<b>Temperature sensor</b>	Pt 1000 or Pt 100	
<b>Memory capacity</b>	48 000 acquisitions divided by number of measurement channels	
<b>Memory capacity with BigMemory</b>	294 500 acquisitions divided by number of measurement channels	
<b>Acquisition rate</b>	Programmable: minimum 1 second, maximum 59 minutes and 59 seconds	
<b>Program duration</b>	Programmable: days, hours, minutes	
<b>Recording</b>	Programmable start: by date, hour, minute or on temperature threshold	
<b>Power</b>	User replaceable battery pack	
<b>Connectivity</b>	USB wired interface to the PC	
<b>ATEX compliance</b>	Refer to specific documentation	



**NanoVACQ 1Tc  
with hybrid probe**



**NanoVACQ 1Td with  
semi-rigid probe**



**NanoVACQ 1Td with  
threaded semi rigid probe**



**NanoVACQ 1Td with  
Teflon®PFA probes**



**NanoVACQ 2Td with  
Teflon®PFA probes**



**NanoVACQ 3Td with  
semi-rigid probes**



**NanoVACQ 2Tdi with  
interchangeable  
Teflon®PFA probes**



**Examples of NanoVACQ Temperature models.**



**NanoVACQ 1Tc-1Td  
with a rigid probe and a  
Teflon®PFA flexible probe**



**NanoVACQ 1Tc-2Tdi**



## AUTONOMY

The NanoVACQ Temperature is powered by a battery pack; its autonomy depends on the environment and the operational conditions of the application (extreme temperatures, electromagnetic disturbances, data acquisition and transmission rate).

As a result of the variety of environments and operational conditions, TMI-Orion does not guaranty the battery lifetime and recommends that the user determine the battery lifetime according to his own process conditions and experience.

## SOFTWARE AND RELATED PRODUCTS

**NanoVACQ Temperature is used with Qlever software.**

**Qlever software platform:** data acquisition, management and visualization of data from TMI-Orion data loggers. Qlever is installed on a PC and operates under Windows® Vista/7/8/10. Data transmission and visualization are done after the industrial process.

The NanoVACQ Temperature family of products also includes:

- NanoVACQ Temperature FullRadio for remote set up and real time radio data transmission.
- NanoVACQ Temperature radio for remote real time visualization of data.

## DELIVERABLES

**The NanoVACQ Temperature solution usually includes the following items:**

- The NanoVACQ Temperature data logger with a battery pack
- The NanoVACQ Temperature calibration certificate
- The NanoVACQ Temperature configuration and calibration file
- Qlever software (to be ordered separately)
- A USB wired interface to the PC - (to be ordered separately)
- A case for storage and transport (optional - to be ordered separately)
- An opening wrench for NanoVACQ Temperature (optional - to be ordered separately)

## SERVICES

**Maintenance:** TMI-Orion recommends annual preventative maintenance and calibration service for the replacement of o-rings, functional checking, calibration and adjustment.

**Accessories:** The battery packs, engineered by TMI-Orion, are replaceable by the user and are referenced in the documents available on our web site.

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