

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 0°C to +125°C	014Z	$\pm 0.04\text{ }^\circ\text{C}$	+/- 0.1°C from -80°C to +140°C (+/- 0.05°C upon request)
From -55°C to +140°C	Routine HE		
From -90°C to +85°C	014ZFL		
From -70°C(*) to +140°C	Wide HE		
From -90°C to +85°C	Cold HE		

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
NanoVACQ 1Td	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	● ⁽¹⁾	
	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		
NanoVACQ 1Td Ex	1	Semi-rigid (316L SS)	D. 2 mm, L. from 100 mm to 1150 mm with tip D.2 or 2.5 mm	●	●
NanoVACQ 2Td	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	● ⁽¹⁾	
	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		
NanoVACQ 3Td	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		
NanoVACQ 1Tdi	1	1 connector (Fischer Connectors®)	Interchangeable probes specifications according to customer request		
NanoVACQ 2Tdi	2	2 connectors (Fischer Connectors®)			
NanoVACQ 3Tdi	3	3 connectors (Fischer Connectors®)			
NanoVACQ 1Tc-1Td	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	● ⁽¹⁾	
NanoVACQ 1Tc-2Td	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	● ⁽¹⁾	
NanoVACQ 1Tc-2Tdi	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.

⁽¹⁾ 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

Material	Logger body: 316L SS	
Dimensions of the logger body	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
Temperature sensor	Pt 1000 or Pt 100	
Memory capacity	48 000 acquisitions divided by number of measurement channels	
Memory capacity with BigMemory	294 500 acquisitions divided by number of measurement channels	
Acquisition rate	Programmable: minimum 1 second, maximum 59 minutes and 59 seconds	
Program duration	Programmable: days, hours, minutes	
Recording	Programmable start: by date, hour, minute or on temperature threshold	
Power	User replaceable battery pack	
Connectivity	USB wired interface to the PC	
ATEX compliance	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 3Tdi with
interchangeable
Teflon®PFA probes**



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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