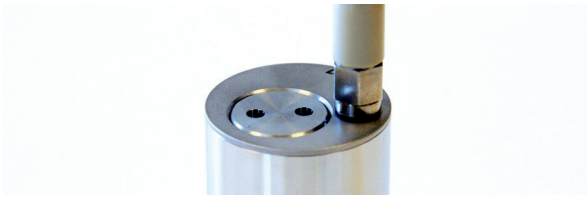
DATA SHEET

TMI-Orion

NanoVACQ Pressure and Temperature FullRadio



Real time wireless simutaneous measurement of pressure and temperature.

NanoVACQ Pressure and Temperature FullRadio is a data logger equipped with 1 pressure sensor and up to 2 temperature sensors on the same logger, answering the needs of many industrial processes.

The NanoVACQ Pressure and Temperature FullRadio models are described below and can vary by probe shape and length.

NanoVACQ Pressure and Temperature FullRadio is equipped with a 2.4 GHz radio transceiver as the unique communication interface. In addition to its data logger functionalities, it is designed for remote set up and radio data transmission, in real time or after the process, through a TMI-Orion radio transceiver connected to a PC. The PC is equipped with Qlever platform for logger setup and process data collection, management and display.

METROLOGY

Pressure operating range	Temperature operating range	Batteries	Resolution	Temperature calibration uncertainty*	Pressure calibration uncertainty*
From 30 mbar to 5 bar, 15 bar or 30 bar from -55°C to 140°C **Possibility of higher pressure**	**From -55°C to +85°C**	014ZFL	Temperature 0.008°C Pressure 0.8 mbar (5 bar) 2.6 mbar (15 bar)	Temperature ± 0.1°C from -55°C to +140°C (± 0.05°C upon request)	• ± 10 mbar from 0°C to 140°C and from 30 mbar to 5 bar • ± 12 mbar from 0°C to 140°C and from 30 mbar to 15 bar • Unspecified from -30°C to 0°C • Not functional from -55°C to -30°C
	From -55°C to +140°C	Radio HE			
	From -55°C to +140°C	Wide HE			
	From -55°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…*

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FUNCTIONS

- Radio set up, start and reading of data
- 2.4 GHz bidirectional radio communication
- Radio transceiver set up: transmission duration and rate (1 per hour to 1 per second)
- Start set up: immediate or delayed
- Memory set up: stop at maximum capacity or loop writing
- Real time or after the fact radio data transmission
- Time stamped measurement data
- Battery level alert with Qlever software

TECHNICAL SPECIFICATIONS

Model	Number of external channels	Internal temperature probe*	Pressure probe type	External temperature probe type	Temperature probe dimensions	Water tightness
NanoVACQ PT Fullradio	1	●	1 piezoresistive			●
NanoVACQ PT-Tc Fullradio	2	●	1 piezoresistive	Rigid (316L SS)	D. 3 mm, L. up to 200 mm	●
					Hybrid diameter 3 mm >1,9 mm L. 30 mm	
NanoVACQ PT-Td Fullradio	2	●	1 piezoresistive	Semi-rigid (316L SS)	D. 2 mm, L. from 100 mm to 1000 mm	●
				1 rigid tip at the end of 1 flexible deport (Teflon®)	D.3 mm, L. from 30 to 100 mm D.from 2.2 to 5 mm, L. from 100 to 1000 mm	●
				1 rigid tip at the end of 1 flexible deport (Viton®)	D.3 mm, L. from 20 to 100 mm D.5 mm, L. from 100 to 1000 mm	

** Internal platinum temperature sensor for pressure sensor compensation*

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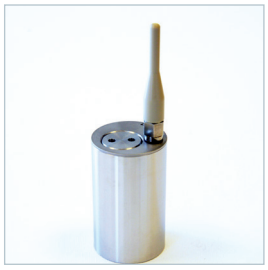
TECHNICAL SPECIFICATIONS

Material	Logger body: 316L Stainless steel	
Dimensions of the logger body	With Radio HE battery pack	D.31 mm x H.52.2 mm
	With 014ZFL battery pack	D.31 mm x H.129 mm
	With Wide HE battery pack	D.31 mm x H. 76 mm
	With Cold HE battery pack	D.31 mm x H. 76 mm
Pressure	Piezoresistive	
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	1 Hz	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	2.4 GHz bidirectional radio transceiver and embedded 2.4 GHz radio transceiver module	
Connectable antenna models for NanoVACQ Pressure and Temperature FullRadio(*)	Standard	length 49 mm, medium range - line of sight: 25 meters
	Short	length 25 mm, short range - line of sight: 15 meters
	Long	length 79 mm, long range - line of sight: 30 meters
	Remote	see our web site for accessories and options

(*) A preliminary test is recommended to validate the hertzian transmission in the user's application.



NanoVACQ PT FullRadio

NanoVACQ PT-Tc FullRadio

NanoVACQ PT and PT-Tc FullRadio and radio transceiver

Examples of NanoVACQ Pressure and Temperature FullRadio models

NanoVACQ PT-Tc FullRadio

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RADIO-FREQUENCY COMMUNICATION

- 2.4 GHz ISM band (frequency range 2.405 GHz to 2.475 GHz) / Can be used without license / Universal band for industrial, scientific and medical devices with low radio transmission power / Maximum radiated power +5 dBm (3,2 mW).
- Radio transmission range depends on the environment.
- TMI-Orion 2.4 GHz bidirectional radio protocol, based on IEEE 802.15.4 standard / 14 RF channels for the user / Able to manage several pieces of equipment connected in star configuration in the same space.

AUTONOMY

The NanoVACQ Pressure and Temperature FullRadio is powered by a battery pack; its autonomy depends on environment and operational conditions of the application (extreme temperatures, radio range, 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 Pressure and Temperature FullRadio is used with Qlever software platform and a TMI-Orion radio transceiver.

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 or in real time.

TMI-Orion radio transceiver: this transmitting device connects to the PC in order to ensure radio link with the NanoVACQ Pressure and Temperature FullRadio. Several antennas are available to optimize radio communications in the operational environment.

DELIVERABLES

The NanoVACQ Pressure and Temperature FullRadio solution usually includes the following items:

- The NanoVACQ Pressure and Temperature FullRadio data logger with a battery pack
- A TMI-Orion radio transceiver (to be ordered separately)
- The NanoVACQ Pressure and Temperature FullRadio calibration certificate
- The NanoVACQ Pressure and Temperature FullRadio configuration and calibration file
- Qlever software (to be ordered separately)
- A transport case (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 documentation available on our web site.

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