



# TMI Data Logging & Data Acquisition



The Old School House, Stoneyford,  
Co Kilkenny, R95KD68  
t: 056 7700800 f: 056 7700924  
e: info@irishpowerandprocess.com  
w: www.irishpowerandprocess.com

## INTRODUCTION

TMI-Orion has been a world leader in the design and manufacture of high-level solutions for measurement, validation, quality control and process control in harsh environments since 1994.

TMI-Orion offers a wide range of real time and wireless 2.4 GHz data loggers, and a software platform for the management and visualization of process data. Thanks to its 20-year strategy of scientific research and industrial development, the company has the ability to create sophisticated solutions to meet technological challenges and to answer the needs of its customers' demanding applications.

The autonomous loggers designed to be placed inside process with ability to transmit the data in real time to a PC.

## NanoVacq

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.



## PicoVacq

PicoVACQ Temperature is a very small data logger for temperature measurement in applications that require a compact sensor, such as vials & IV bags. These autonomous data loggers are designed to be inside a process, with a specialised battery design allowing the user to have adjusted ranges tailored to suit the application.

It can be equipped with one or two platinum sensors, at the end of rigid, semi rigid or flexible probes.

Examples of PicoVACQ Temperature models



PicoVACQ 1T



PicoVACQ 1Tc with different probes



PicoVACQ 1Tc with a thread and an O-ring



PicoVACQ Tc-Td with a semi-rigid probe



PicoVACQ 1Td with a threaded semi-rigid probe



PicoVACQ 1Td with a rigid parallel probe



PicoVACQ Long 1Td with Teflon® probe

## Food

TMI-Orion presents a full range of high-tech data loggers designed for the food processing industry, measuring temperature, pressure, air flow, rotation, deformation during the thermal cycles combined with performance, reliability, and lasting quality.



Validation of thermal processes in the food industry is related to both sanitary requirements and creating quality products in terms of taste and texture. This involves the validation of sterilization and pasteurization cycles as well as the control of different industry specific manufacturing processes.

- Sterilization Validation
- Cooking Control
- Packing Deformation
- Rotation Speed Measurement
- Pasteurization Validation
- Microwave Processes
- Bakery Cooking/Roasting/Drying

Our range of temperature dataloggers covers temperatures from  $-90^{\circ}\text{C}$  to  $140^{\circ}\text{C}$ . Beyond  $+140^{\circ}\text{C}$ , a thermal shield is necessary.

Sensors are Pt100, Pt1000 or thermocouples for high temperature data loggers. The probes have various forms and dimensions.

Sensors can be internal to the logger, placed at the end of a rigid probe 10 to 100 mm long, or at the end of a flexible or semi-rigid probe, up to 1 meter long.

Depending on the models, you can choose loggers with 1 to 16 measurement channels.

## Pharma

TMI-Orion offers a high-tech range of solutions for measuring temperature, pressure, humidity, in a variety of processes in hospital and pharmaceutical industries that combines performance, reliability and lasting quality including:

- Steam sterilization
- Ethylene oxide sterilization
- Depyrogenation
- Freeze-drying
- Mapping of climatic and thermostatic chambers,
- Freezers, cold rooms, etc...
- Spray
- Washing-disinfection

You will find a choice of loggers covering temperatures from  $-90^{\circ}\text{C}$  to  $140^{\circ}\text{C}$ . Beyond these limits, a thermal shield is necessary to measure temperatures up to  $+1200^{\circ}\text{C}$ .

Sensors are Pt100, Pt1000 or thermocouples. The probes have various forms and dimensions.



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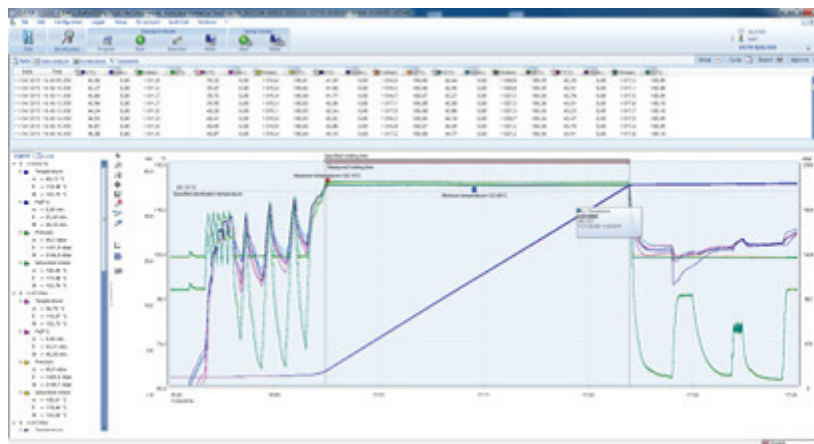
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## Software



TMI-Orion data loggers work with a dedicated software for visualization and data management in compliance with the regulations and norms FDA 21 CFR Part 11 dedicated to the management of one or several TMI-Orion data loggers.

Qlever is a software solution for the acquisition, analysis and visualization of data measured by TMI-Orion data loggers. Qlever is the general platform of our software offering. It operates alone or in combination with one or several industry specific software modules including:

### Pharma module - Compliant with FDA 21 CFR Part 11

Meets the requirements of the pharmaceutical industry. Dedicated to all thermal cycle analysis. An extensive measurement report with statistical calculations detailed by cycles and steps.

### Autoclave validation module

Intended for analysis and validation of humid heat sterilization cycles and vacuum test. Data treatment and presentation in an extensive validation report in compliance with ISO 17665 / EN 13060 / EN 554 / EN 285.

### Washing-disinfection module

Meets the requirements of the industry. Intended for analysis and validation of washing and disinfection cycles. Data treatment and presentation in an extensive validation report in compliance with ISO 15883.

### Mapping module

Intended for climatic and thermostatic chambers - or any kind of thermal regulation devices such as rooms, ovens, autoclaves - characterization and checking of temperature and humidity. Data treatment and presentation in an extensive compliance report with FD X15-140 / IEC 60068.3.11.

### Calibration module

Dedicated to TMI-Orion temperature and humidity loggers calibration process: calibration, adjustment, checking and editing of a report. Available with a library of drivers, to communicate with a variety of calibration equipment: baths, ovens, reference probes. Delivers a calibration and adjustment report. Expert mode, Automatic mode and Manual mode available.