

# CERAMICS TILES BRICKS

**HIGH TECHNOLOGY  
DATA LOGGING SOLUTIONS**



# Ceramics Tiles Bricks

**TMI-Orion presents a full range of high technology data loggers designed for ceramics, tile and brick industries, measuring temperature, humidity, air flow and shrinkage in harsh environments during curing and drying processes.**

**TMI-Orion data loggers work with a dedicated software allowing visualization and data management.**

**TMI-Orion data logging solutions for the ceramics, brick and tile industries combine performance, reliability and lasting quality.**



## THE COMPANY

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 is able to create sophisticated solutions to meet technological challenges and to answer the needs of its customers demanding applications. Thanks to a high level of adaptability, TMI-Orion can also design customized solutions, in close cooperation with customers.



# INDUSTRIAL PROCESSES OF CERAMICS, TILES AND BRICKS INDUSTRIES

After clay extraction, the paste is shaped or cast to create objects. TMI-Orion solutions are used to monitor and optimize processes during drying and curing phases.

## DRYING

Drying is generally processed in a tunnel dryer or in chambers where the products are piled on carts and swept by hot air flow.

TMI-Orion solutions enable the manufacturer to operate the industrial drying process validation considering 2-level controls:

- Room: Air temperature, room humidity, air velocity

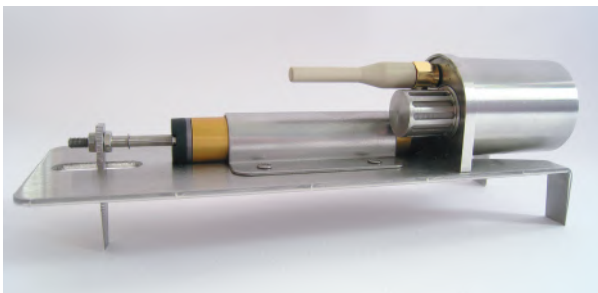
- Drying objects : dimensional variations (shrinkage percentage), internal temperature.

**TMI-Orion solutions combine data loggers, a communication interface and Qlever software platform.**

**The loggers mentioned below can be combined together to manage the process parameters.**

## Air temperature, room humidity and product shrinkage

### TMI-Orion solutions



*CeriDry FullRadio*

#### Data logger

CeriDry  
or High-T-Dry

#### Software

Qlever software platform  
+ Qlever Ceramics module

#### Connectivity

Wired interface  
or 2.4 GHz radio transceiver for real time transmission

## Air velocity and product/air temperature

### TMI-Orion solutions



*NanoVACQ Ad*

#### Data logger

NanoVACQ Ad or NanoVACQ Ad-Tc or NanoVACQ Ad-Td

#### Software

Qlever software platform  
+ Qlever Ceramics module

#### Connectivity

Wired interface  
or 2.4 GHz radio transceiver for real time transmission

## Temperature mapping in various points of the dryer

### TMI-Orion solutions



*VACQ xFlat 2.8*

#### Data logger

VACQ xFlat

#### Software

Qlever software platform  
+ Qlever Ceramics module

#### Connectivity

Wired interface  
or 2.4 GHz radio transceiver for real time transmission

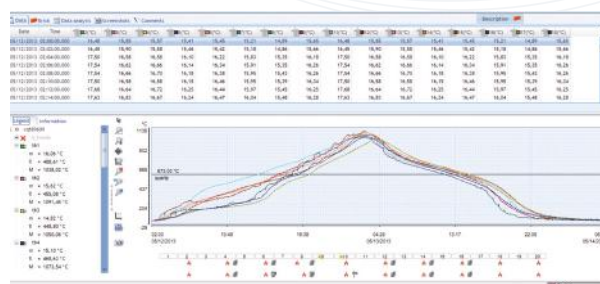


## CURING

After drying, the carts are sent to the tunnel kiln for curing and move through the kiln in successive pushes. During the curing phase and the progress of the carts, the temperature profile is carefully controlled.

The acquired time-stamped data must be related with the exact position of the controlled cart in the tunnel kiln.

The manufacturer then has to analyze the measured data and take corrective actions throughout the process to reach and maintain the expected quality.



*Curing thermal profile*

## Thermal profile mapping in various points of a cart load during the entire industrial curing cycle

Real time or after the process visualization of the data on the PC, with software description of the kiln and cart load configuration. 8 or 16 thermocouple probes are placed at different points of the cart while the VACQ III autonomous data logger, protected by a thermal shield, is fixed under the cart.

### TMI-Orion solutions



#### Data logger

VACQ III or VACQ III FullRadio

#### Software

Qlever software platform  
+ Qlever Ceramics module

#### Connectivity

Wired interface or 2.4 GHz radio transceiver

### Software

Qlever is a software solution for the acquisition, analysis and visualization of data measured by TMI-Orion autonomous 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.

- **Qlever:** Software platform dedicated to the management of one or several TMI-Orion data loggers. Set up and programming of TMI-Orion equipment, data collection, processing, analysis and display.

- **Qlever Lite:** Simplified software solution intended for managing a single wired TMI-Orion data logger. Cannot be combined with any of the software modules.

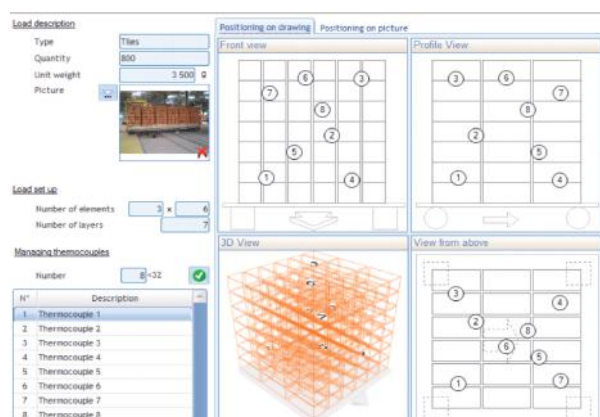
- **Ceramics module:**

**Kiln description:** Kiln length - number, length and duration of pushes

**Load description:** Positioning and 3D visualization of thermocouple probes

**Kiln configuration:** Position of burners, probes, fans...

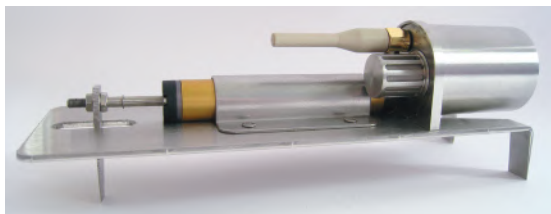
**Pushes and events management:** Cart thermocouple probes temperature visualization according to cart localization inside the kiln.



## TMI-ORION PRODUCTS PORTFOLIO FOR CERAMICS INDUSTRY

You will find here a choice of data loggers for ceramics industry processes : temperature, relative humidity, air velocity, shrinkage.

- **CeriDry, CeriDry FullRadio** : Air temperature, air humidity and shrinkage.



*CeriDry FullRadio*

- **CeriDry Split, CeriDry Split FullRadio** : CeriDry split in two parts, temperature and humidity data logger on one side, retractometer on the other side, for perfect flow of hot air.



*CeriDry Split*

- **NanoVACQ HT, NanoVACQ HT FullRadio** : Air temperature and air humidity



*NanoVACQ HT*

- **NanoVACQ Ad**: Remote anemometer
- **NanoVACQ Ad-Tc**: Air temperature + remote anemometer
- **NanoVACQ Ad-Td**: Air temperature with remote sensor + remote anemometer



*NanoVACQ Ad*

- **High-T-Dry, High-T-Dry FullRadio**: Air temperature with remote sensor (Max 250°C) + remote electronic retractometer placed inside a water thermal shield.



*High-T-Dry*

- **VACQ III, VACQ III FullRadio**: with 8 or 16 type K thermocouples connectors (Max 1300°C) placed inside a water thermal shield



*VACQ III with interconnection box*

- **VACQ xFlat, VACQ xFlat FullRadio**: with 16 type T or K thermocouples connectors.



*VACQ xFlat 2.8 FullRadio*

### Connectivity and accessories

- USB wired interface (for connection to the PC)
- 2.4 GHz radio transceiver connected to the PC (for Radio and FullRadio loggers)
- User replaceable batteries or battery packs.

### Services

- Calibration and adjustment of sensors: recommended every year
- After-sales services: metrology, repair, assistance, hotline
- Design of custom solutions (products and software)



## CERAMICS TILES BRICKS

