TMI-Orion

CERAMICS
TILES
BRICKS

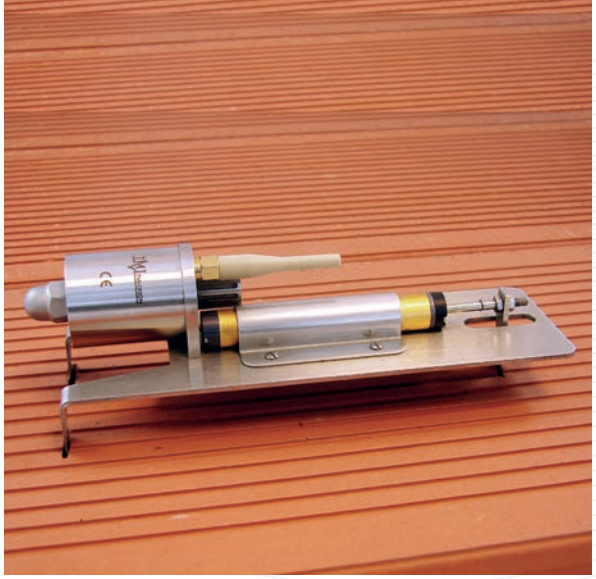
HIGH TECHNOLOGY
DATA LOGGING
SOLUTIONS

TMI TMI-ORION

www.tmi-orion.com

TMI-Orion

Ceramics
Tiles
Bricks



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

TMI-Orion data loggers work with Qlever software which allows 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 temperature solutions for measurement, validation and quality 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, then cured inside kilns. 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:

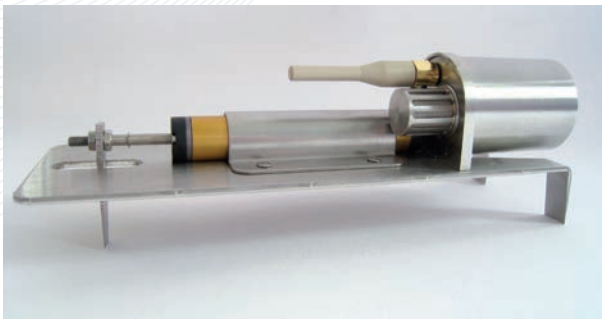
- Room: Air temperature, room humidity, air velocity
- Drying objects : dimensional variations (shrinkage), internal temperature and mass loss.

TMI-Orion solutions combine embedded 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, CeriDry Split, CeriDry Mini Split
or High-T-Dry

Software
Qlever software platform

Connectivity
Wired interface (CeriDry, CeriDry Split, CeriDry Mini Split and High-T-Dry)
or 2.4 GHz radio transceiver for real time transmission (CeriDry, CeriDry Split)

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

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

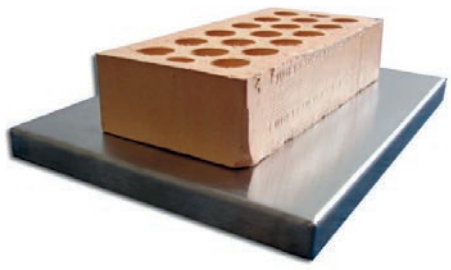
Data logger
VACQ xFlat

Software
Qlever software platform

Connectivity
Wired interface
or 2.4 GHz radio transceiver for real time transmission

Temperature and mass loss measurement during the drying process

TMI-Orion solutions



DryBal

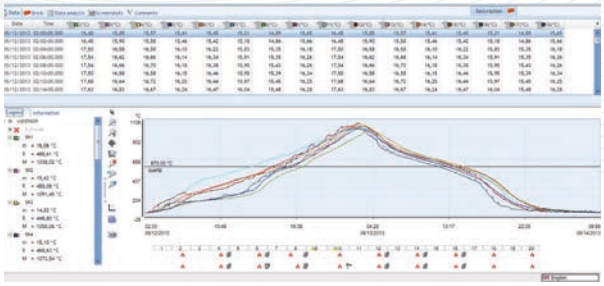
Data logger
DryBal

Software
Qlever software platform

Connectivity
Wired interface

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 the Ceramics module.

- **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.

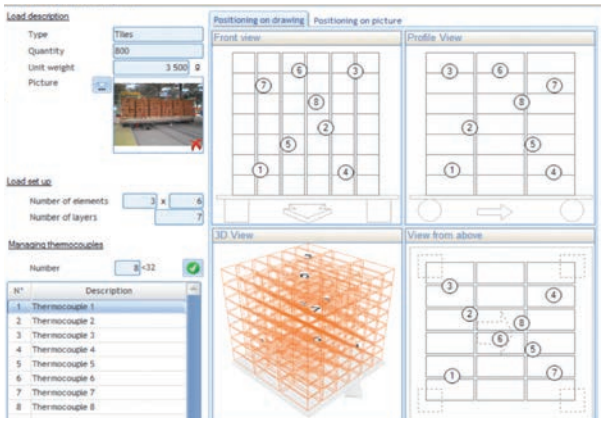
- **Ceramics module:**

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…

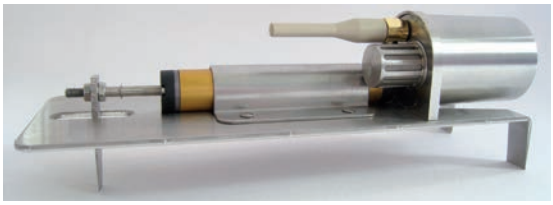
Pushes and events management: Visualization of the thermocouple temperature on the cart, according to its location inside the kiln.



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 and mass loss.

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



CeriDry FullRadio

- **CeriDry Split, CeriDry Split radio, 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 radio, 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:** Air temperature with remote sensor (Max 250°C) + remote electronic retractometer placed inside a water thermal shield.

High-T-Dry

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

VACQ xFlat 2.8 FullRadio

- **DryBal:** temperature and mass up to 5 kg or 30 kg.

DryBal

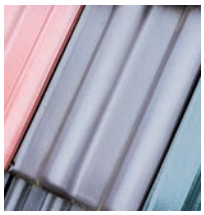
Visit **www.tmi-orion.com** for information on other TMI-Orion products and list of business partners.

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)



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