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Introducing the New

Elcometer 215

OVEN TEMPERATURE PROFILING SYSTEM

Bluetooth®

USB

Elcometer 215
OVEN TEMPERATURE PROFILING SYSTEM

Oven profiling monitors oven and product temperatures, providing insight into curing conditions, helping to ensure coating quality, boost efficiency, reduce energy use, and support process certification.

Ensure Coating Quality
Optimise the oven set up to provide the appropriate cure profile for the coating/product combination to ensure the highest physical and cosmetic properties.

Improve Productivity & Efficiency
Reduce energy costs, curing times and streamline operations - no need to remove the gauge from the thermal barrier, simply connect to the ElcoMaster® App wirelessly via Bluetooth®.

Certify Your Process
Assure clients and regulators of your high standards with traceable oven profile reports that clearly verify the consistency and reliability of your process.

How it works...

In the powder coating industry, the new Elcometer 215 is crucial for ensuring a precise and consistent curing process. It continuously monitors both the temperature inside the curing oven and the surface temperature of the product, helping to guarantee that the powder coating adheres correctly without compromising the finish or causing damage.

1

Set Up

Set up the profile requirements in the free ElcoMaster® software app using the paint manufacturer's datasheet and send to the Elcometer 215 Oven Logger via USB or Bluetooth®.

2

Cure

Attach up to eight air or surface temperature thermocouples around your product to monitor the air and surface temperatures at key points during the cure process.

3

Analyse

Once cured the gauge will provide an instant pass/fail based on the collected data. You can then download all temperature data to ElcoMaster® allowing you to create professional temperature profile reports in seconds.

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Features & Benefits

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Ambient light sensor - used by the Elcometer 215 to increase battery life

Comms LED - indicates when data is being transmitted to or from the PC/Mobile device

Integrated magnets allow the gauge to be mounted outside the batch oven

Battery Door for 3 x AA batteries

Up to eight thermocouple probes* can be connected at any one time

Bluetooth® LED - indicates when Bluetooth® is linked to the ElcoMaster® App

Power/battery LED - indicates whether the gauge is powered by USB or battery and when the battery is low

Pass/Fail/Logging LED - provides instant feedback on gauge status

Each channel has a pass/fail LED indicator

Power ON/OFF & pause logging button

Start logging in a new batch & stop logging button

Dust and waterproof equivalent to IP6X

USB-C socket - protected by rubber cover

* Compatible Thermocouples: Type K, Type T, Type J, Type N , Type S, Type E, Type B, Type R

Ensure Optimum Cure & Quality

Time at Temperature

Coatings require a specific time at a set temperature to fully cure and achieve their intended properties (hardness, adhesion, gloss, etc.).

The Elcometer 215 accurately records the temperature profile of the powder coated product during the curing process, ensuring they reach and maintain the necessary temperature for the correct duration as specified by the powder manufacturer's cure schedule.

Prevent Under-Cure

Insufficient temperature or time at temperature leads to an under or partially cured coating which is soft, prone to scratching and poor adhesion for example, meaning it will not meet the expected quality. The Elcometer 215 provides clear evidence on whether the products experienced the required thermal cycle.

Prevent Over-Cure

Excessive temperature or time at temperature can also be detrimental, leading to discoloration, brittleness, and a loss of coating properties.

The Elcometer 215 identifies over-baking by providing a detailed temperature profile history.

Optimise Efficiency & Reduce Costs

Identify Hot and Cold Spots

Ovens can have uneven temperature distribution. The Elcometer 215 can map these variations, allowing operators to adjust airflow, conveyor speed & burner settings, or product placement to achieve the optimal set up for your powder coated product. This optimises energy consumption and ensures a consistent and uniform cure.

Optimise Line Speed

By understanding the actual time it takes for parts to reach cure temperature, manufacturers can optimise conveyor speeds, potentially increasing throughput without compromising quality.

Reduce Rework and Scrap

Consistent and proper curing minimises defects, reducing the need for costly rework or scrapping improperly coated products.

Maintain Quality & Traceability

Document the Cure Process

The Elcometer 215 provides a permanent record of the oven's temperature performance during the curing process. This documentation is crucial for quality control, internal audits, and demonstrating compliance with customer specifications.

Troubleshoot Coating Issues

If any coating defects arise, the temperature data can be analysed to help identify if the curing process was within the specified parameters, helping to understand and correct the root cause of the problem.

Ensure Consistency

By regularly profiling and setting up the oven for each product using oven temperature data loggers, you can ensure that the curing process remains consistent even with variations in product, batch size or ambient conditions.

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Intuitive & Powerful

Maximise coating quality and efficiency with the Elcometer 215 Oven Profiling System and intelligent ElcoMaster® Software App.

Simple to Set Up

Set up the profile requirements in ElcoMaster® Data Management Software using the Paint Manufacturer's Datasheet and send to the Elcometer 215 Oven Logger via USB or Bluetooth®.

Logger Setup Parameters
- Sample rate
- Trigger start
- Probe type

Paint Setup Parameters
- Paint description
  - Manufacturer
  - Upload datasheet
- Cure parameters
  - Min, mid, max cure temperature & time
  - Cure curve type
  - Cure temperature limits
  - Max absolute temperature above which damage occurs
  - Min crosslink temperature at which curing occurs

Product/Probe Plans
- Image import
- Probe placement by channel
- Identification name & image map marker
- Direction of travel
- Product description

Logger Profile Uploads
- Select logger setup
- Select paint setup
- Select product / probe plan
- Upload to gauge

Bluetooth® USB

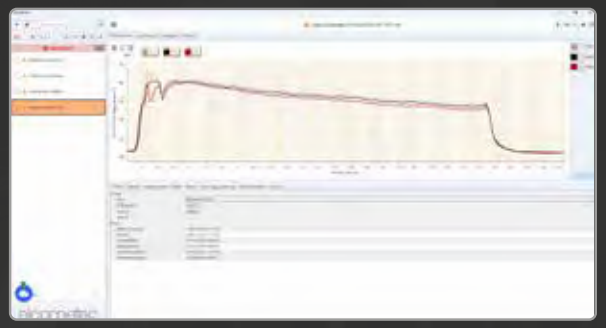
The Elcometer 215 Oven Logger is either placed into the thermal barrier (conveyor ovens) or attached to the outside of a batch oven using internal magnets.

When situated outside the batch oven, the Elcometer 215 offers real-time cure status monitoring. Using wireless Bluetooth® and a live reading mode, operators receive immediate notification of cure completion or failure.*

* Bluetooth® range can be affected by any obstruction between the gauge and software device (PC) as well as the type of Bluetooth® used within the software device (typically older devices will have reduced range).

Advanced Analysis

By providing detailed thermal profiles, the Elcometer 215, in conjunction with the ElcoMaster® data management software, free to download at www.elcometer.com, allows operators to optimise oven settings for each coated product, improving fuel efficiency and ensuring high quality finishes.



Details

- Graphs
- Temperature by channel
- Cure progress by channel
- Histogram
- Product
- Gauge
  - Type
  - PCB serial #
  - Serial #
  - User ID
- Batch
  - Name in gauge
  - User ID
  - Create date
  - Updated date
  - First reading date
  - Last reading date

Statistics

- Mean, maximum, minimum
- Standard deviation
- Coefficient of variation
- Peak difference (across all channels)
- Time of peak difference (other)

- Cure value
- Cure pass/fail
- Cure start time
- Cure finish time

- Time above max absolute temperature
- Maximum temperature status
- Time above crosslink temperature
- Time above max temperature
- Time above mid temperature
- Time above min temperature

Measurements

- Reading number
- Channel temperature
- Notes
- Photos
- Oven logger settings
  - Logger
    - Sample interval
    - Probe type by channel
  - Triggers
    - Start trigger
    - Stop trigger
  - Cure points (time/temperature)
- Paint Parameters
  - Date saved
  - Paint manufacturer name
  - Paint name & description
  - Max absolute temperature
  - Min crosslink temperature
  - Number of cure points
  - Curve type

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Analyse with ElcoMaster®

ElcoMaster® is the easy to use software application designed specifically for the set up and assessment of your oven & product temperature profile, generating professional reports in seconds.

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Oven Logger Set Up
Create and store unique oven profile setups, name each of the 8 channels, set sampling rates, number of batch runs, start/stop triggers and transfer them to the gauge.

Coating Parameters
Set up a library of individual paint types incorporating min, mid & max cure temperatures as well as the maximum absolute and minimum cross link temperatures.

Remote Stop/Start
Start or stop logging on the gauge via the ElcoMaster® App.

Live Reading Mode
View and store live readings directly in ElcoMaster® using Bluetooth® or USB.

Detailed Reporting
Import photos, data sheets & inspection notes to include in inspection reports.

Customisable Templates
Create your own comprehensive inspection profile - choose a gauge setup, paint parameter and product probe map from your library and assign them to your logger data, for customised professional reports.

Graphical Reporting
Standard temperature profile graph, cure process and individual profile/cure graphs combined with the product probe map are available as standard.

Coating Datasheets
Save a copy of the coating's data sheet as a permanent record.

Elcometer Cure Value
Using the industry accepted cure value calculation, the ElcoMaster® Software provides instant Pass/Fail information by comparing the production run temperature to the coating supplier's cure requirements.

Bluetooth® USB

All your measurement data in one place

From oven temperature profile to professional reports at the click of a button.
Combine all your coating measurement data into one professional report with ElcoMaster®.

Powder Coating Thickness

Material Thickness

Ambient Climatic Conditions

Gloss & Haze Measurement

Oven Data Logging

Coating Adhesion

Provide a comprehensive inspection report and win future contracts, whatever standard you work to:

- Qualicoat
- ISO9001
- CQ1-12
- QIB
- GSB

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Technical Features

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The Elcometer 215 acts as an objective and accurate witness to the curing process in a powder coating oven. It provides the critical data needed to ensure a high-quality, durable finish, optimise production efficiency, and maintain robust quality control, to meet the highest industry standards.

Technical Specification

Part Number	Description
G215-DL	New Elcometer 215 Oven Temperature Profiling System (includes thermal barrier)
T215-DL	New Elcometer 215 Oven Data Profiler
Measurement Range	-200°C to 1300°C (-328°F to 2372°F)
Operating Temperature	-20°C to 80°C (-4°F to 176°F) without thermal barrier
Accuracy	0°C to 500°C: ±0.5°C (32°F to 932°F: ±1.0°F) >500°C: ±1.0°C (> 932°F: ±2.0°F)
Resolution	0.1°C (0.2°F)
Channels	8
Sensor Type	Type K, Type T, Type J, Type N , Type S, Type E, Type B, Type R Thermocouples
Measurement Intervals	Adjustable from 1 per second to 1 per hour
Memory	1,000,000 readings
Multiple Run Capability	Up to 40 profile runs before returning to PC
Batches	Up to 40 sequential batches (25,200 readings per batch)
Display	LED's
Data Output	USB or Bluetooth®[1]
Calibration Certificate	Supplied as standard
Housing Material	Anodised Aluminium
Power Supply	3 x AA batteries or USB
Battery Life	150+ Hours
Gauge Dimensions	191 x 73 x 25mm (7.52" x 2.87" x 0.98")
Gauge Weight	464g (16.4oz)
Packing List	Elcometer 215 Oven Data Profiler, thermal barrier[2], ElcoMaster® software download card, USB cable, carry case[2], 3 x AA batteries and operating instructions

Easy to Use
- Ideal for testing powder coatings in batch or conveyor ovens
- Easy to set up and monitor via ElcoMaster® data management software
- Simple two button operation with easy to understand icons and colour LED's
- Integrated magnets to mount outside batch ovens

Efficient
- Measure up to 8 different temperatures at one time
- Variable measurement intervals from 1 per second up to 1 per hour, date, time, °C/°F
- Start and stop logging at pre-set termperature or time

Intelligent
- Identify instant pass/fail through main LED or via ElcoMaster®
- Record maximum temperature, Cure-Index figure and pass/fail for each channel
- Individual channel temperature compensation by channel for improved accuracy of ±0.5ºC

Powerful
- Stores up to 1 million readings in up to 40 batches
- Data storage for a full 7 hour shift, even at 1 reading per second
- Up to 150 hours battery life taking 1 reading per second on all channels or power via USB
- 2 Year manufacturer's warranty[3]

1. Bluetooth® range can be affected by any obstruction between the gauge and software device (PC) as well as the type of Bluetooth® used within the software device (typically older devices will have reduced range). For optimum Bluetooth® range when inside the thermal barrier, ensure that the software device is in the 'line of sight' of the thermocouple exit point of the thermal barrier.
2. Supplied with G215-DL Kit only.
3. The Elcometer 215 is supplied with a 1 year warranty against manufacturing defects. The warranty can be extended free of charge to 2 years within 60 days of purchase via www.elcometer.com.

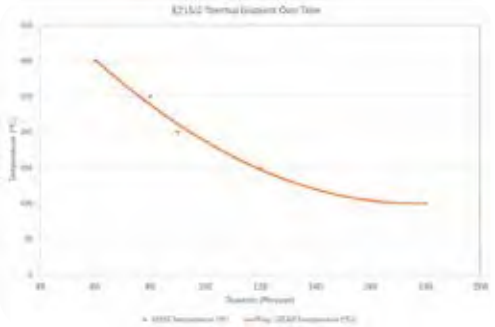
The Elcometer 215 Thermal Barrier is designed to ensure that the gauge electronics and batteries are protected from the high temperatures as it passes through the oven.

Powerful

- Robust thermal barrier for prolonged use at high temperature - run at 100°C (212°F) for up to 180 minutes or up to 300°C (572°F) for up to 60 minutes
- Wide range of K-type temperature probes with strong, highly flexible and easy to clean Teflon® coated cables

Thermal Barrier Specification

Thermal Barrier Characteristics	100°C (212°F) for 180 minutes 150°C (302°F) for 120 minutes 200°C (392°F) for 90 minutes 250°C (482°F) for 80 minutes 300°C (572°F) for 60 minutes
Dimensions (in thermal barrier)	336.3 x 252.6 x 112.5mm (13.24” x 9.94” x 4.43”)
Weight (in thermal barrier)	5.62kg (12.4lb)



Probes & Accessories

	1.5m (4’9”)	3m (9’8”)	6m (19’7”)
Clamp Air Probe	T21521275	T21521276	T21521277
Magnetic Air Probe	T21521287	T21521288	T21521569
Clamp Surface Probe	T21521278	T21521279	T21521280
Magnetic Surface Probe	T99921281	T99921282	T99921283
Combined Magnetic Clamp Air & Surface Probe	T21521284	T21521285	T21521286
Standard Thermal Barrier			T21533250

Clamp Air Probe

A clamp air probe, often located in channel 1, is the main trigger for oven processes. Its low thermal mass allows it to respond quickly to changes in oven temperature, initiating and halting operations based on the ambient heat around the product.

Clamp Surface Probe

Clamp surface probes accurately monitor the temperature of the product being coated, ideal for coated products with varying geometries or surfaces that are difficult to attach a magnetic probe to.

Magnetic Air Probe

Located in channel 1 as the main trigger for oven processes, its low thermal mass responds quickly to changes in oven temperature, initiating and halting operations based on the ambient heat around the product.

Magnetic Surface Probe

Magnetic contact probes monitor the heat within the thermal mass (product). Magnetic probes are useful to get into the centre of a product however these are only useful for ferrous powder coated products.

Combined Clamp & Magnetic Probe

The combined probe either measures the surface temperature by physical contact or measures the air when bent upwards. You can only use it either as an air sensor or surface sensor but not both at the same time.

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SLI0094 Issue 1