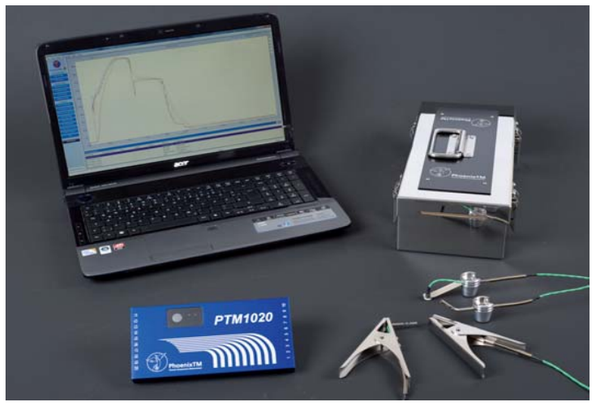
PhoenixTM
Phoenix Temperature Measurement

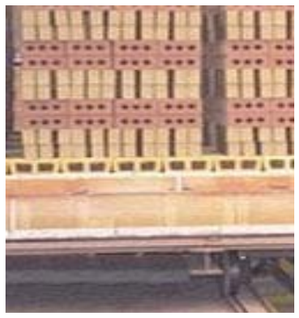
Temperature Profiling Systems

Where experience counts!

The preferred profiling system ...
... for all your quality assurance and process optimisation needs!

PhoenixTM
Phoenix Temperature Measurement





Thermal Barriers
PhoenixTM develop Thermal Barriers to suit specific applications; for example coating processes require Thermal Barriers to be free of all traces of silicone, whereas in the heat treatment industry, where Thermal Barriers are subject to high rates of heating and cooling, minimizing Thermal Barrier distortion is the main criteria. In other processes such as heat treating aluminium road wheels Thermal Barriers need to withstand full immersion in water from a high temperature.
PhoenixTM can also design Thermal Barriers to meet specific process conditions, such as steel reheat processes which require graded insulation layers to withstand the 1300°C temperatures within the furnace.
The many years experience of senior PhoenixTM personnel working within these industries is translated into the superior design of their Thermal Barriers for all heat treatment and finishing applications.

TS04 range (-150°C to 300°C)
Specifically designed for the finishing industry, the PhoenixTM TS04 Thermal Barrier range offer ease of handling and high thermal performance in a compact design. They are designed to accept the PhoenixTM 20 channel Data Logger and being built from silicone-free materials they are ideal for use in the automobile industry.
PhoenixTM can also design Thermal Barriers longer duration processes or where water spray may be part of the process.

TS05 range (up to 350°C)
Developed for the ceramic industry, the PhoenixTM TS05 series Thermal Barriers travel beneath the kiln car for a sustained period at moderate to high under car temperatures. Built from high grade stainless steel these Thermal Barriers use evaporative water technology to keep the Data Logger cool and protect against mechanical damage and the dusty environment of a ceramic kiln.

TS01 range (0°C to 800°C)
Developed for processes up to 800°C the PhoenixTM TS01 Thermal Barrier range is perfect for applications in the aluminium, glass and steel industries. Microporous insulation and a 'latent heat accumulator' or heat sink provide protection against the temperatures inside of the furnace. Made from high grade stainless steel, with an easy to replace thermocouple wear strip, the TS01 Thermal Barrier range is robust and durable.

TS02 range (0°C to 950°C)
Processes such as carburizing at temperatures up to 950°C, demand a Thermal Barrier which can withstand severe changes in temperature, pressure, and aggressive atmospheres.
Strengthened and reinforced at critical points to minimize distortion, PhoenixTM TS02 Thermal Barriers are designed to offer full protection to the Data Logger in demanding conditions.

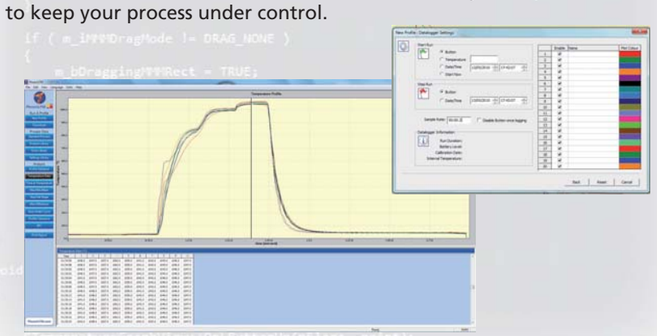
TS06 range (0°C to 1100°C)
Built for solution treatment and age hardening where high temperature and water quench are part of the process, the PhoenixTM TS06 Thermal Barrier range is designed to offer protection to the Data Logger from these conditions. These Thermal Barriers use the principle of evaporating water to keep the Data Logger cool in the furnace, and can re-fill in the quench to allow it to undergo a further heating period as is normal in aluminium or stainless steel solution treatment.

TS07 range (up to 1300°C)
In processes such as steel slab and billet reheat where temperatures are extreme and process times long; the PhoenixTM TS07 Thermal Barrier is the obvious choice. Manufactured from the highest specification materials and using graded insulation layers and evaporative water technology, these Thermal Barriers are built to withstand repeated use in these harsh environments.

PhoenixTM Data Loggers
At PhoenixTM we believe that data loggers for thermal profiling must be built to operate in the harshest environments while maintaining accuracy throughout their operating temperature range. All PhoenixTM Data Loggers include these important features:

- PhoenixTM Data Loggers are easy to use and require no complex keypad programming sequences.
- Accurate, logged data is stored securely in non-volatile memory.
- Electronic components are housed in a water resistant, tough machined aluminium case which is designed to minimize damage in the event of a catastrophic failure in a water quench process.
- PhoenixTM Data Loggers are designed to be maintained at local service centers, and use standard batteries.
- PhoenixTM Data Loggers can operate in both low vacuum and high pressure environments.

Thermal View Plus Software
PhoenixTM has developed a powerful software package to quickly and easily analyze data from your process. Screen layout is clear and using the enhanced control bar makes this a very easy, but powerful package to operate.
All results are saved in a database for easy access which can be organized in a logical manner using the multi column sorting facility. The analysis functions allow you to examine and assess all your critical process parameters in a fast uncomplicated way.
Process templates can be constructed so data can be overlaid against a backdrop which represents all physical points within your oven / furnace.
PhoenixTM software has all the essential functions you require to keep your process under control.



PhoenixTM Thermocouples
PhoenixTM offers thermocouples in many different designs, according to your product and process:

Temperatures up to 250°C: Triple wrapped PTFE/stainless steel braid/PTFE insulated type K thermocouples are normally specified. PhoenixTM thermocouples have a unique design of removable sensor (magnetic or clamp) so that when the insulated cable wears, it can be replaced without the need to buy a complete assembly. This results in high potential savings.

Temperatures above 250°C: mineral insulated (MI) type K thermocouples are specified. In this type of probe the thermocouple wires are insulated by compacted magnesium oxide and covered by a flexible Nicrobel sheath which offers protection against high temperatures (up to 1150°C), aggressive furnace atmospheres (e.g. carburizing), and electrical interference. Thermocouples are available in different lengths and diameters, although 1.6mm diameter is normally specified.

What is temperature profiling?

All industrial ovens or furnaces use thermocouples to control the zone temperatures. However these thermocouples measure only atmosphere temperature in their respective zones and do not indicate the true temperature of the product, which is vital to ensure the heat treatment specification is adhered to.

In many continuous furnaces it is difficult to measure the actual product temperature because this requires long thermocouples to be connected to the product and fed through the whole length of the furnace, which is both expensive and unsafe. 'Trailing' thermocouples are also less accurate as the test can only be carried out in a partially loaded furnace (due to the thermocouples trailing through), which may affect the measured temperature profile.

Infra red cameras can provide product temperatures, but they cannot provide an accurate profile through the furnace, or determine the temperature at the centre of the load as they measure only surface temperature.

PhoenixTM can provide a solution:

Our monitoring system travels through the furnace with the product, logging temperatures from up to 20 thermocouples connected to the product or distributed in the load to get an accurate thermal 'balance'. The system is easily placed on the line with the product causing less disruption and gives a more accurate picture of true product or load temperature. At the end of the profile run a powerful software package analyses the logged data to determine whether the specification has been met.

The profiling trials can be quickly carried out allowing you to resolve any furnace problems quickly, and to provide your customers with an assurance of a consistent process control.

PhoenixTM
Phoenix Temperature Measurement

PhoenixTM has evolved to bring innovation, quality and simplicity to the process of temperature profiling.

Temperature profiling products through a heat treatment, finishing, or firing process is achieved by attaching thermocouples to the critical points of the product, connecting these probes to a Data Logger, and by protecting the Data Logger with a Thermal Barrier, the whole system can travel through the heat treatment process together with the product. In this way the true product temperature is monitored and stored for later analysis.

Design of the monitoring system from the thermocouples, through to the Thermal Barrier is critical as this electronic measuring device is required to monitor product temperatures with a high degree of accuracy while resisting extremes of temperature, atmospheres, and pressure.

With over 60 years of combined temperature profiling experience,the senior PhoenixTM personnel have a deep understanding of all aspects of the design of products for these industries, and most importantly, have good knowledge of the processes in which they will be used.

Customers can be assured that temperature monitoring systems supplied by PhoenixTM will have true experience designed into them, will be built to the highest quality standards, but will also be easy for operators to use.

PhoenixTM Ltd

8, St Thomas Place
Cambridgeshire Business Park
Ely, Cambrigdeshire
CB7 4EX , UK

Tel.: +44(0)1353 233100
Fax.:+44(0)1353 968684
Sales@PhoenixTM.com
www.PhoenixTM.com

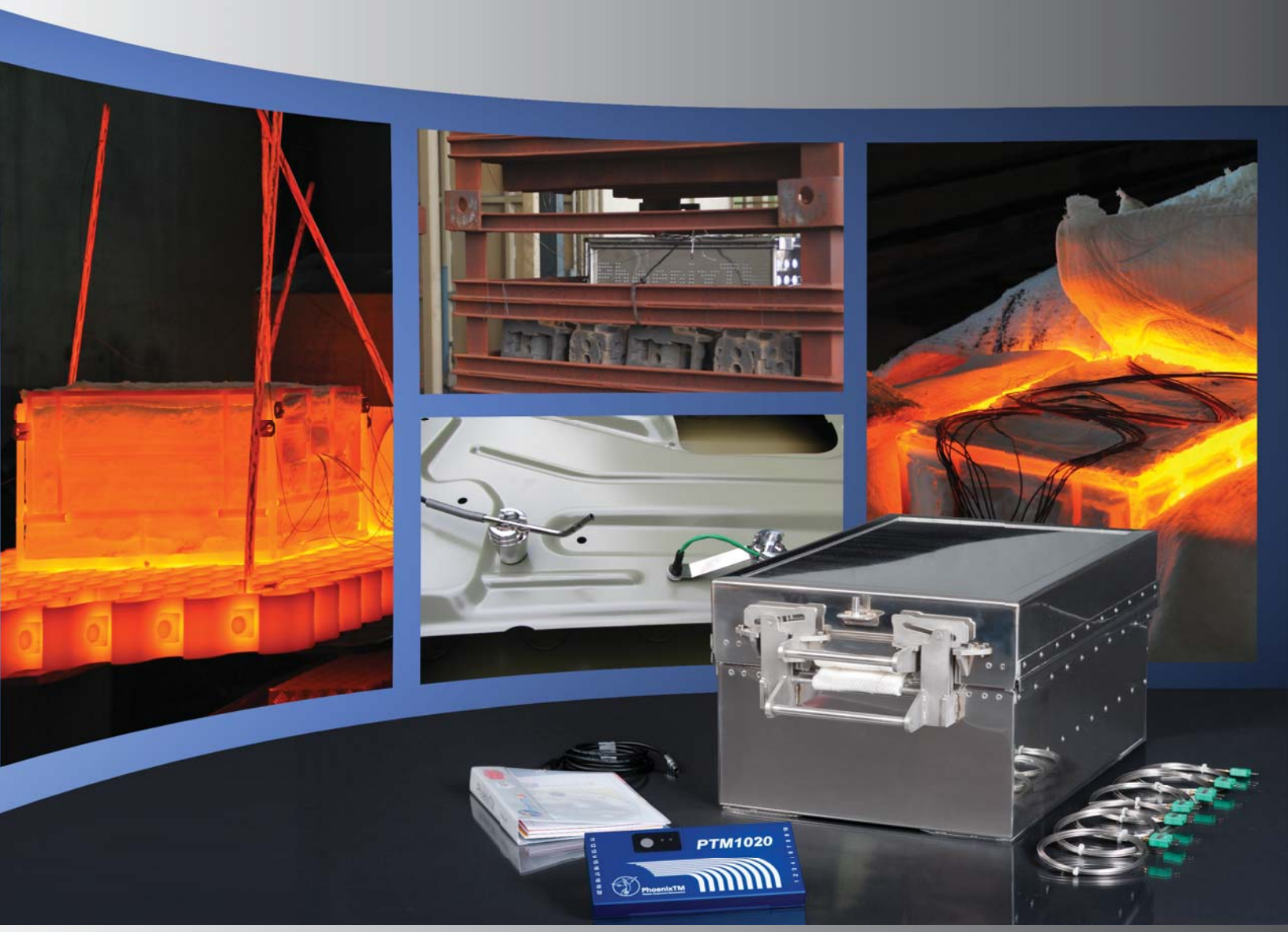
PhoenixTM GmbH

Zum Markt 33
32549 Bad Oeynhausen
Deutschland

Tel.: +49 5734 600442
Fax: +49 5734 600441
Info@PhoenixTM.de
www.PhoenixTM.de

PhoenixTM
Phoenix Temperature Measurement

Temperature Profiling Systems



... where experience counts!

PhoenixTM
Phoenix Temperature Measurement

PhoenixTM Data Loggers

At PhoenixTM we believe that data loggers for thermal profiling must be built to operate in the harshest environments while maintaining accuracy throughout their operating temperature range. All PhoenixTM Data Loggers include these important features:

- PhoenixTM Data Loggers are easy to use and require no complex keypad programming sequences.
- Accurate, logged data is stored securely in non-volatile memory.
- Electronic components are housed in a water resistant, tough, machined aluminum case to protect against moisture ingress. This acts together with the highly effective seals on a TS06 water quench barrier, to double the protection
- PhoenixTM Data Loggers are designed to be maintained at local service centers, and use standard batteries.
- PhoenixTM Data Loggers can operate in both low vacuum and high pressure environments
- PhoenixTM Data Loggers meet and exeed AMS2750 accuracy specification

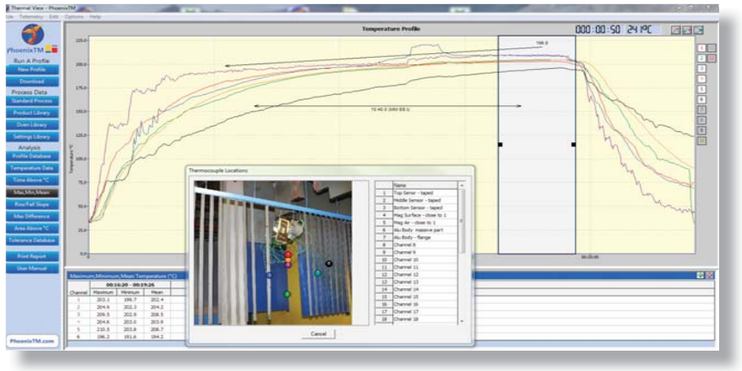
Standard batteries 300h duration, widely available

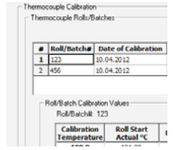
Realtime telemetry available

Robust and waterproof case

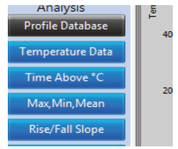
Thermal View Plus Software

PhoenixTM has developed a powerful software package to quickly and easily analyze data from your process. Screen layout is clear and using the enhanced control bar makes this a very easy, but powerful package to operate.
All results are saved in a database for easy access which can be organized in a logical manner using the multi column sorting facility. The analysis functions allow you to examine and assess all your critical process parameters in a fast uncomplicated way.
Process templates can be constructed so data can be overlaid against a backdrop which represents all physical points within your oven / furnace.
PhoenixTM software has all the essential functions you require to control and optimize your process.

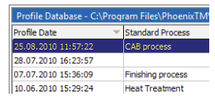




Comprehensive set of analysis tools - including AMS2750 reporting for furnace surveying



Easy and quick to operate - all main functions are located on main window



All data is stored in a database for quick sorting and archiving

PhoenixTM Thermocouples

PhoenixTM offers thermocouples in many different designs, according to your product and process:

Magnetic probes with replaceable sensors

Clamp probes with replaceable sensors

Open junction

High Temperature mineral insulated

300°C 570°F

600°C 1110°F

800°C 1470°F

1000°C 1830°F

1350°C 2460°F

1700°C 3090°F

TS04 Range

Specifically designed for the finishing industry, the PhoenixTM TS04 Thermal Barrier range offer ease of handling and high thermal performance in a compact design. They are designed to accept the PhoenixTM 20 channel Data Logger and being built from silicone-free materials they are ideal for use in the automobile industry. PhoenixTM can also design Thermal Barriers longer duration processes or where water spray may be part of the process.

TS06 Range

Built for solution treatment and age hardening where high temperature and water quench are part of the process, the PhoenixTM TS06 Thermal Barrier range is designed to offer protection to the Data Logger from these conditions. These Thermal Barriers use the principle of evaporating water to keep the Data Logger cool in the furnace, and can re-fill in the quench to allow it to undergo a further heating period as is normal in aluminum or stainless steel solution treatment.

TS01Range

Developed for processes up to 800°C / 1470°F the PhoenixTM TS01 Thermal Barrier range is perfect for applications in the aluminum, glass and steel industries. Microporous insulation and a 'latent heat accumulator' or heat sink provide protection against the temperatures inside the furnace. Made from high grade stainless steel, with an easy to replace thermocouple wear strip, the TS01 Thermal Barrier range is robust and durable.

TS02 Range

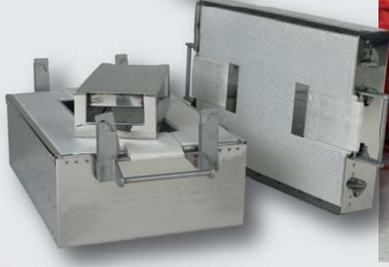
Processes such as carburizing at temperatures up to 1000°C / 1830°F, demand a Thermal Barrier which can withstand severe changes in temperature, pressure, and aggressive atmospheres.
Strengthened and reinforced at critical points to minimize distortion, PhoenixTM TS02 Thermal Barriers are designed to offer full protection to the Data Logger in demanding conditions.

TS07 Range

In processes such as steel slab and billet reheat where temperatures are extreme and process times long; the PhoenixTM TS07 Thermal Barrier is the obvious choice. Manufactured from the highest specification materials and using graded insulation layers and evaporative water technology, these Thermal Barriers are built to withstand repeated use in these harsh environments.

TS05 Range

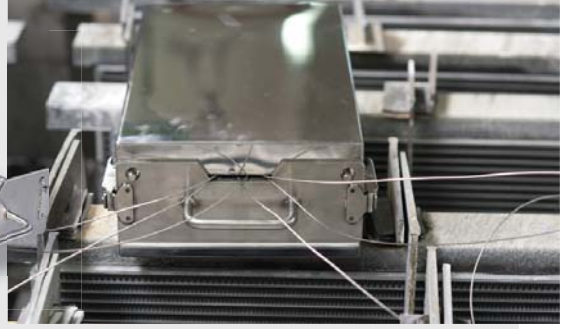
Developed for the ceramic industry, the PhoenixTM TS05 series Thermal Barriers travel beneath the kiln car for a sustained period at moderate to high under car temperatures. Built from high grade stainless steel these Thermal Barriers use evaporative water technology to keep the Data Logger cool and protect against mechanical damage and the dusty environment of a ceramic kiln.



Where experience counts!

TS08 Range

Built for brazing aluminum radiators and condensers for automobile air conditioning and cooling systems, these thermal barriers are designed to protect the data logger against the harsh conditions inside the brazing furnace. They have been designed so oxygen presence within the thermal barrier is reduced by maximising the amount of nitrogen in the insulation material. This minimises the formation of hydrofluoric acid which can damage the barrier insulation, and may be harmful to furnace components or braze quality.

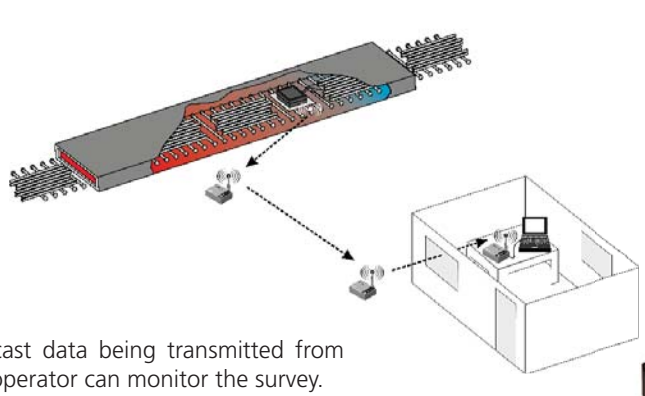


TS01 - Contact Firing

Monitoring the thermal profile of this process is therefore critical to the quality of the finished product, which is why the profiling system must be accurate, able to collect data at a fast rate, and should have the ability to withstand the repeated heating and cooling cycles when setting up or monitoring furnace performance. At less than 35oz. / 1 Kg, the PhoenixTM system is less than 75% of the mass of major competitive systems.

Telemetry

The PhoenixTM data logger can be equipped with a transmitter and high temperature antenna that allows it to collect temperature data from the process and store it within the data logger's memory, while simultaneously transmitting it to a receiver out-side the furnace.



A series of routers can pick up and re-broadcast data being transmitted from within a furnace, to a remote office where the operator can monitor the survey.

PhoenixTM
Phoenix Temperature Measurement

Temperature profiling products through a heat treatment, finishing, or firing process is achieved by attaching thermocouples to the critical points of the product, connecting these probes to a Data Logger, and by protecting the Data Logger with a Thermal Barrier, the whole system can travel through the heat treatment process together with the product. In this way the true product temperature is monitored and stored for later analysis.
Design of the monitoring system from the thermocouples, through to the Thermal Barrier is critical as this electronic measuring device is required to monitor product temperatures with a high degree of accuracy while resisting extremes of temperature, atmospheres, and pressure.
With over 60 years of combined temperature profiling experience,the senior PhoenixTM personnel have a deep understanding of all aspects of the design of products for these industries, and most importantly, have good knowledge of the processes in which they will be used.

PhoenixTM LLC.
4500 140th Avenue North, Suite 101
Clearwater, FL 33762, USA
Tel: 727 608 4314 info@phoenixtm.com
Fax: 727 538 4237

PhoenixTM Ltd, UK
sales@phoenixTM.com

PhoenixTM GmbH, Germany
info@phoenixtm.de

www.PhoenixTM.com

PhoenixTM
Phoenix Temperature Measurement

Classic Finishing System

For Paint and Powder Coating Processes

PROFILING SYSTEMS

PhoenixTM Thermal Profiling Systems are built for specific applications within a broad range of industrial processes, and care has to be taken in the design of the system to ensure all the requirements of the process are met. The paint finishing industry for example, requires the protective thermal barrier to be free of all traces of silicone.
All industrial processes requiring thermal profiling call for critical knowledge of both the process itself and how conditions within it can affect the performance of the profiling system components. PhoenixTM personnel have worked with these industries for many years and their experience is translated into the superior design of their thermal profiling systems for all industrial applications.

Classic Finishing System

Designed for the auto and auto parts industry, the PhoenixTM Classic Finishing System allows you to measure the exact temperature of your product with up to 20 thermocouples from a single data logger, as it passes through the curing oven. The silicone free design makes it perfect for use in coating applications, especially within the automobile industry.
The Classic Finishing System combines the TS04-113-1 thermal barrier, with a choice of either a 6, 10 , or 20 channel PTM1series data logger, and PhoenixTM Thermal View Plus software. Add to this system the range of PhoenixTM thermocouples with their unique removable sensors, and you have a robust, accurate, system which can be simply integrated into the quality procedures of a 'state of the art' automobile plant.

PhoenixTM GmbH
Zum Markt 33
32549 Bad Oeynhausen
Germany
Tel: +49 (5734) 600442 info@phoenixtm.de
Fax: +49 (5734) 600441 www.phoenixtm.de

PhoenixTM Ltd
8 St. Thomas Place,
Cambridgeshire Business Park,
Ely, CB7 4EX, UK
Tel: +44 (0) 1353 223100 sales@phoenixtm.com
Fax: +44 (0) 1353 968684 www.phoenixtm.com

PhoenixTM
Phoenix Temperature Measurement

The Classic Profiling System For the Automobile and Allied Industries

System Components:

- **Accurate and robust 6, 10, or 20 channel data logger powered by 'off the shelf AA' alkaline batteries**
- **Compact stainless steel thermal barrier, constructed only with silicone-free materials**
- **Full analysis software package**
- **Full range of thermocouples with unique sensor design(magnetic and clamp) allowing replacement of sensor only when insulation wears**

DATA LOGGER (CHOICE OF):

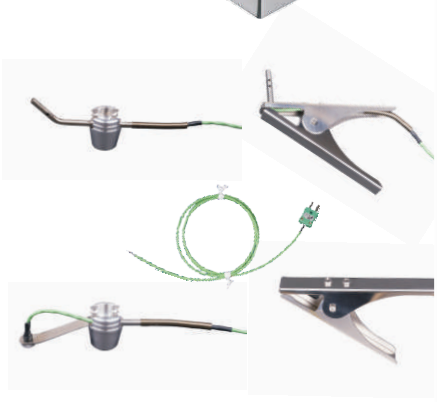
Model Number:	PTM1-006	PTM1-010	PTM1-020
No. of channels:	6	10	20
Thermocouple types:	K		
Measuring range:	-100 to 1370°C		
Accuracy:	±0.3°C		
Resolution:	0.1°C		
Memory total	200,000 data points NVM		
Max. operating temp:	+70°C		
Sampling interval:	Adjustable 0.5s to 1 hour		
Length:	200 mm		
Width:	98 mm		
Height:	20 mm		
Weight:	500 gm		

THERMAL BARRIER

Model Number:	TS04-113-1
Suitable Data Logger:	PTM1- Range
Suitable Heat Sink:	TS00-501
Thermal Duration at:	
100°C	10 hours
150°C	5.5 hours
200°C	3.2 hours
250°C	2 hours
300°C	1.5 hours
Length:	370 mm
Width:	185 mm
Height:	113 mm
Weight:	7.0 Kg

THERMOCOUPLES

Range of magnetic, clamp, or open junction thermocouples, to ANSI MC96.1 special limits specification. Operating temperature up to 265°C. PTFE insulated wires with stainless steel braid and final PTFE covering. Replaceable sensor design.



SOFTWARE

Thermal View Plus: SW15-ENG. A full function software package featuring enhanced analysis functions including Time above Temperature, Max/Min/Mean calculations, plus Slope calculations, Maximum difference, Area under Curve, Profile Tolerance etc. Full reporting facilities and Import/Export of data as standard.

Represented by:

www.phoenixtm.de www.phoenixtm.com

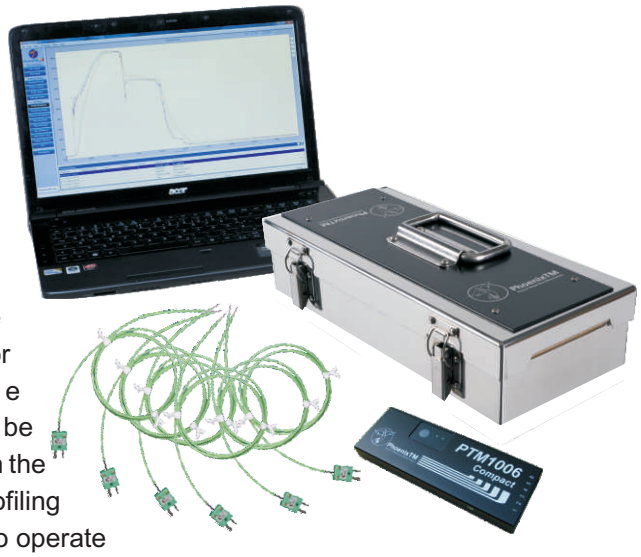
Where experienc

PhoenixTM
Phoenix Temperature Measurement

Compact Profiling Systems

For the Paint and Powder Coating Industry

PROFILING SYSTEMS



PhoenixTM Thermal Profiling Systems are built for specific applications within a broad range of industrial processes, and care has to be taken in the design of the system to ensure all the requirements of the process are met. The paint finishing industry for example, requires the protective thermal barrier to be free of all traces of silicone. In the heat treatment industry profiling systems must be designed to operate in harsh furnace environments and to resist high rates of heating and cooling with minimum distortion.

All industrial processes requiring thermal profiling call for critical knowledge of both the process itself and how conditions within it can affect the performance of the profiling system components. PhoenixTM personnel have worked with these industries for many years and their experience is translated into the superior design of their thermal profiling systems for all industrial applications.

Compact Finishing System

Designed for the finishing industry, the PhoenixTM Compact Finishing System measures the exact temperature of your product as it passes through the curing oven. The silicone free design makes it perfect for use in coating applications, especially within the automobile industry.

The Compact System combines the TS04-090-1 thermal barrier, the PTM1-006 Compact data logger, and PhoenixTM Thermal View software, together with a range of PhoenixTM thermocouples to give a robust, accurate, system which is competitively priced and ideal for everyday usage in the paint shop.

PhoenixTM GmbH
Zum Markt 33
32549 Bad Oeynhausen
Germany
Tel: +49 (5734) 600442 info@phoenixtm.de
Fax: +49 (5734) 600441 www.phoenixtm.de

PhoenixTM Ltd
8 St. Thomas Place,
Cambridgeshire Business Park,
Ely, CB7 4EX, UK
Tel: +44 (0) 1353 223100 sales@phoenixtm.com
Fax: +44 (0) 1353 968684 www.phoenixtm.com

PhoenixTM
Phoenix Temperature Measurement

Compact Profiling Systems For the Paint and Powder Coating Industry

PROFILING SYSTEMS

System Components:

- **Accurate and robust 6 channel data logger powered by 'off the shelf AA' alkaline batteries**
- **Compact stainless steel thermal barrier, constructed only with silicone-free materials**
- **Full analysis software package**
- **Full range of thermocouples with unique sensor design(magnetic and clamp) allowing replacement of sensor only when insulation wears**

DATA LOGGER

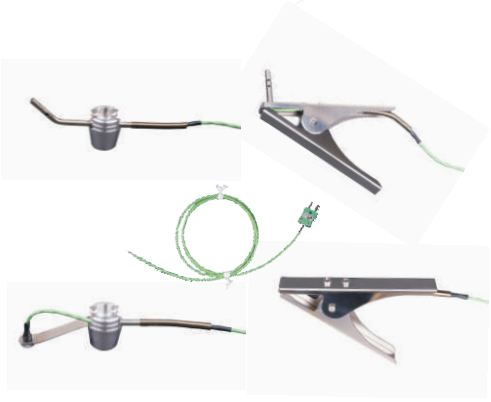
Model Number:	PTM1-006 Compact
No. of channels:	6
Thermocouple types:	K
Measuring range:	0 to 500°C
Accuracy:	±0.3°C
Resolution:	0.1°C
Memory total	200,000 data points NVM
Max. operating temp:	+70°C
Sampling interval:	Adjustable 0.5s to 1 hour
Length:	200 mm
Width:	70 mm
Height:	20 mm
Weight:	400 gm

THERMAL BARRIER

Model Number:	TS04-090
Suitable Data Logger:	PTM1-006 Compact
Suitable Heat Sink:	N/A
Thermal Duration at:	
100°C	2 hours 15 minutes
150°C	1 hour 25 minutes
200°C	1 hour
250°C	50 minutes
300°C	40 minutes
Length:	312 mm
Width:	161 mm (over catches)
Height:	90 mm
Weight:	5.0 Kg

THERMOCOUPLES

Range of magnetic, clamp, or open junction thermocouples, to ANSI MC96.1 special limits specification. Operating temperature up to 265°C. PTFE insulated wires with stainless steel braid and final PTFE covering. Replaceable sensor design.



SOFTWARE

Thermal View: SW05-ENG. Full analysis package with time above specified temperature, minimum and maximum temperature calculation and scrollable data viewing throughout the file

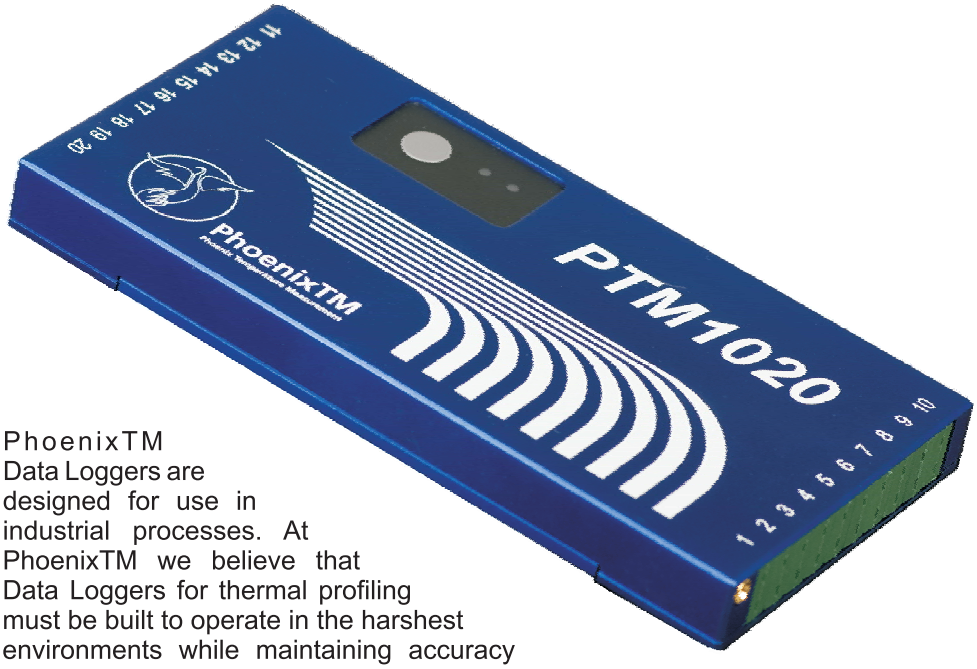
Represented by:

www.phoenixtm.de www.phoenixtm.com

Where experience counts!!

PhoenixTM
Phoenix Temperature Measurement

DATA LOGGERS



PhoenixTM Data Loggers are designed for use in industrial processes. At PhoenixTM we believe that Data Loggers for thermal profiling must be built to operate in the harshest environments while maintaining accuracy throughout their operating temperature range. PhoenixTM High Temperature Data Loggers include these important features:

- Ease of use. There are no complex keypad programming sequences, just a simple set up screen in the comprehensive software package supplied

.

- PhoenixTM Data Loggers are rugged and are able to operate in furnace conditions which may include high vacuum, high pressure, and high ambient temperature. A tough machined aluminium casing is able to mechanically protect the electronics in an industrial environment.

- PhoenixTM Data Loggers are designed to tolerate humid conditions in high temperature thermal barriers where moisture may be produced by internal condensation.

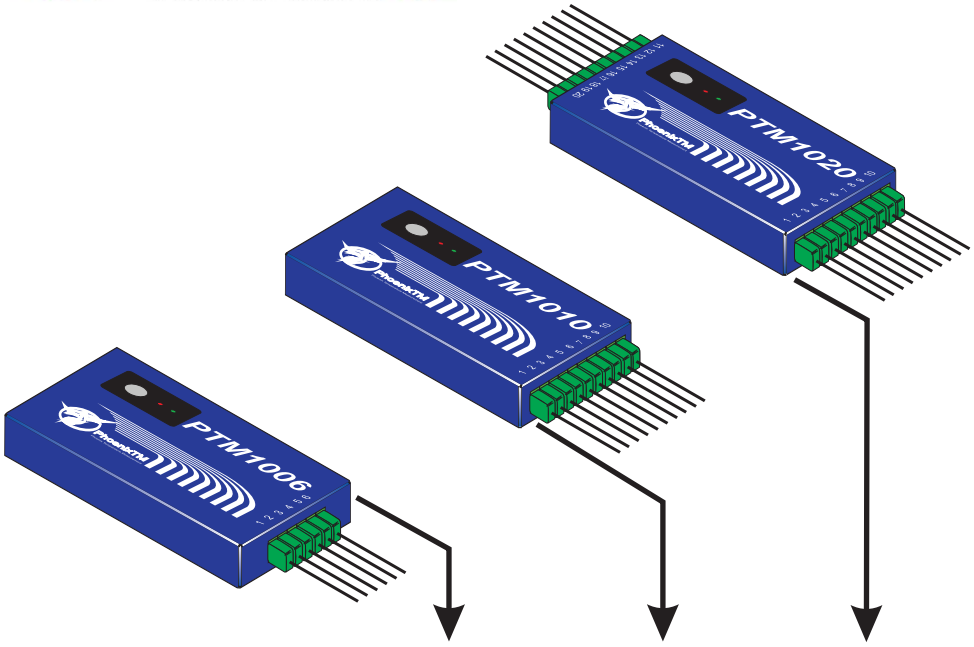
- PhoenixTM Data Loggers have been designed so that they can be easily serviced by local service centres. This avoids the necessity of shipping it back to Europe.

- PhoenixTM Data Loggers have been designed to use standard, off-the-shelf batteries, eliminating the need to stock expensive, overseas sourced batteries.

PhoenixTM GmbH
Zum Markt 33
32549 Bad Oeynhausen
Germany
Tel: +49 (5734) 600442 info@phoenixtm.de
Fax: +49 (5734) 600441 www.phoenixtm.de

PhoenixTM Ltd
8 St. Thomas Place,
Cambridgeshire Business Park,
Ely, CB7 4EX, UK
Tel: +44 (0) 1353 223100 sales@phoenixtm.com
Fax: +44 (0) 1353 968684 www.phoenixtm.com

PhoenixTM
Phoenix Temperature Measurement



DATA LOGGERS

DATA LOGGER SPECIFICATIONS

Model # (standard)	PTM1006	PTM1010	PTM1020
No. of channels	6	10	20
Thermocouple types	←	K	→
Measuring range	←	-100 to +1370°C	→
Accuracy	←	0.3°C	→
Resolution	←	0.1°C	→
Memory total	200,000 data points non-volatile memory		
Max. operating temp.	←	+70°C	→
Battery type standard	2 x 'AA' Alkaline replaceable batteries		
Max. battery life	←	Up to 300 hours*	→
Sampling interval	Adjustable from 0.5s to 1 hour		
Logger start by	Time, temperature, start button, or software		
Physical dimensions			
Length	←	200 mm	→
Width	←	98 mm	→
Height	←	20 mm	→
Weight	←	0.5 Kg	→

* depending on operating temperature and sampling interval

Note: As products are continually improved, specifications may be changed without prior notice.

Represented by:

www.phoenixtm.de www.phoemixtm.com

Where experience counts!!

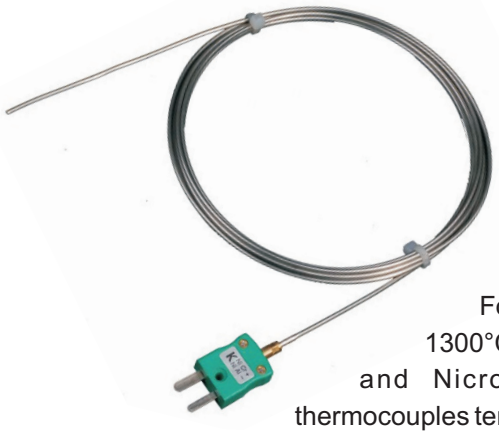
PhoenixTM
Phoenix Temperature Measurement

Thermocouples for all Thermal Profiling Applications

Magnetic and clamp probes with replaceable sensor for paint and powder coating

All PhoenixTM thermocouples are manufactured to the highest quality standards and conform to the ANSI 96.1 special limits specification. The thermocouple construction is designed to withstand rough handling, and the insulation material and plug terminations are colour coded to conform to the IEC584 standard.

For low temperature applications (up to 250°C), the type K, PTFE insulated wires are triple wrapped with stainless steel braid, and have a final overall PTFE insulation Thermocouples for the finishing industry have a unique design of removable sensor (magnetic and clamp) so that when the insulated cable wears, it can be replaced without the need to buy a complete assembly. This results in **high potential savings**



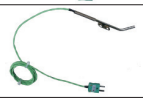
1.6 mm diameter MI probes for high temperature operations

For high temperature applications (up to 1300°C) PhoenixTM supply a range of Inconel and Nicrobel sheathed, mineral insulated, thermocouples terminated with a high temperature miniature plug. These thermocouples have an insulated hot junction to ensure maximum protection against electrical interference from heating elements within the furnace.

PhoenixTM GmbH
Zum Markt 33
32549 Bad Oeynhausen
Germany
Tel: +49 (5734) 600442 info@phoenixtm.de
Fax: +49 (5734) 600441 www.phoenixtm.de

PhoenixTM Ltd
8 St. Thomas Place,
Cambridgeshire Business Park,
Ely, CB7 4EX, UK
Tel: +44 (0) 1353 223100 sales@phoenixtm.com
Fax: +44 (0) 1353 968684 www.phoenixtm.com

Thermocouples and Spares Technical Specifications

Image	Designation	Part Number	Length	Construction	°C Max.
	Magnetic surface thermocouple	TC50-100-K-X (Note:'100' in part number is length in cms.)	Lengths from 1.0m to 3.0m	Has replaceable magnet, triple wrapped insulation, stainless steel braid, and outer PTFE insulation. Miniature Plug	265°C
	Magnetic air thermocouple	TC51-100-K-X (Note:'100' in part number is length in cms.)	Lengths from 1.0m to 3.0m		265°C
	Clamp surface thermocouple	TC52-100-K-X (Note:'100' in part number is length in cms.)	Lengths from 1.0m to 3.0m	Has replaceable clamp, triple wrapped insulation, stainless steel braid, and outer PTFE insulation. Miniature plug.	265°C
	Clamp air thermocouple	TC53-100-K-X (Note:'100' in part number is length in cms.)	Lengths from 1.0m to 3.0m		265°C
	Exposed junction thermocouple	TC54-100-K-X (Note:'100' in part number is length in cms.)	Lengths from 1.0m to 3.0m	Triple wrapped insulation, stainless steel braid, outer PTFE insulation	265°C
	Type K mineral insulated thermocouple	TC22-100-K (Note:'100' in part number is length in cms.)	Lengths from 1.0m to 3.0m	1.6mm Nicrobel sheath Insulated HJ miniature plug (Also available in Inconel)	1200°C Note: 1000°C for Inconel
	Type K MI ceramic industry thermocouple	TC32-100-K (Note:'100' in part number is length in cms.)	Lengths from 1.0m to 8.0m	3.0mm Nicrobel sheath Insulated HJ standard plug (Also available in Inconel)	1350°C
	Type K steel reheat MI thermocouple	TC34-100-K (Note:'100' in part number is length in cms.)	Lengths from 1.0m to 8.0m	3.0mm Nicrobel sheath, insulated HJ, miniature plug, flexible PFTE tail	1350°C
	Spare clamp for clamp surface thermocouple	TC00-052	N/A	High grade stainless steel clamp body, spring closure, no thermocouple. Element can be supplied separately.	N/A
	Spare clamp for clamp air thermocouple	TC00-053	N/A		N/A
	Replacement clamp surface sensor element	TC52-100-K (Note:'100' in part number is length in cms.)	Lengths from 1.0m to 3.0m	Type K, 7 strand, 0.2mm triple wrapped insulation, miniature plug termination, stainless steel braid, outer PTFE	265°C
	Replacement clamp air sensor element	TC53-100-K (Note:'100' in part number is length in cms.)	Lengths from 1.0m to 3.0m		265°C
	Spare magnetic thermocouple mount	TC00-050		Rare Earth, High Strength, Sintered Samarium Cobalt Magnet (SmCo)	N/A
	Replacement magnetic surface sensor element	TC50-100-K (Note:'100' in part number is length in cms.)	Lengths from 1.0m to 3.0m	Type K, 7 strand, 0.2mm triple wrapped insulation, miniature plug termination, stainless steel braid, outer PTFE	265°C
	Replacement magnetic air sensor element	TC51-100-K (Note:'100' in part number is length in cms.)	Lengths from 1.0m to 3.0m		265°C

Note: As products are continually improved, specifications may be changed without prior notice.

Represented by:

THERMOCOUPLES

Where experience counts!!

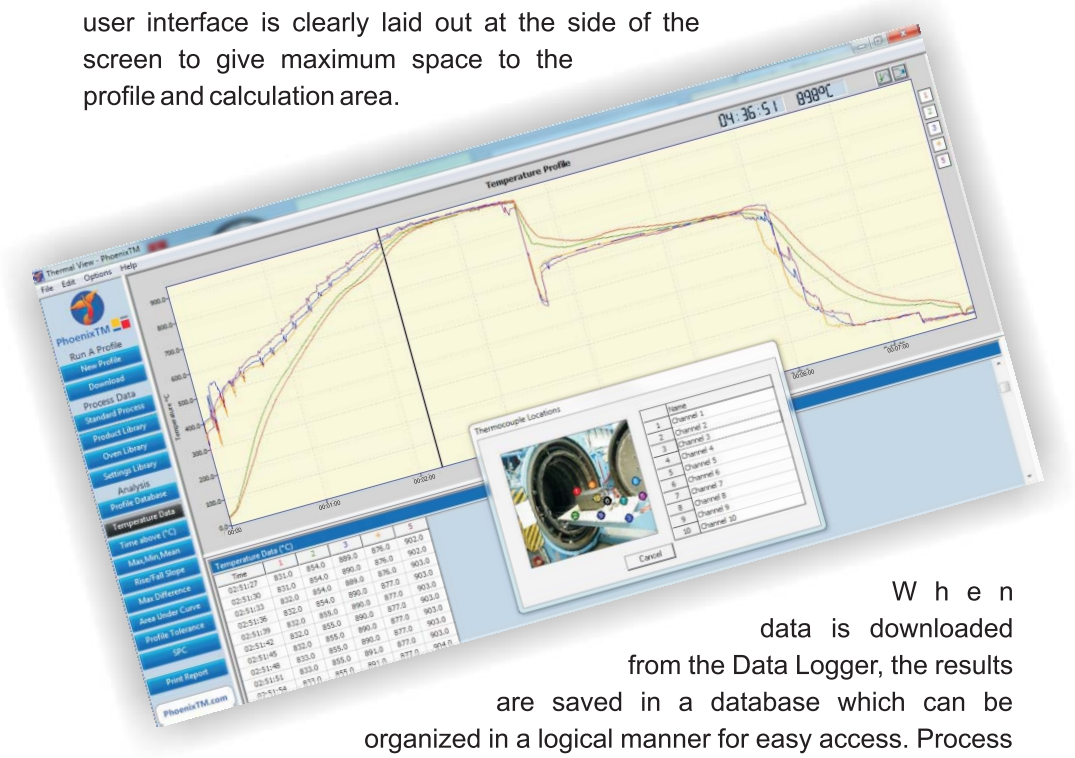
PhoenixTM
Phoenix Temperature Measurement

‘Thermal View’ Analysis Software

ANALYSIS SOFTWARE

PhoenixTM 'Thermal View' is a powerful, software package for analysing data from your process. Screen layout is clear, and using the enhanced control bar, it is a very easy package to operate, with all the analysis functions you will need.
Above all two key elements have been fundamental in the design of this software:

- Simplicity: many software packages have functions built in that benefit only a few users and complicate the package for the majority. We have stripped out any complicated features, and wherever possible have added ‘graphical interfaces to make Thermal View software intuitive, and easy to use.
- Clarity: the software screen has been laid out so users can see what is really important to them – the profile of their oven, furnace, or kiln. The user interface is clearly laid out at the side of the screen to give maximum space to the profile and calculation area.



When data is downloaded from the Data Logger, the results are saved in a database which can be organized in a logical manner for easy access. Process templates can then be constructed so the data can be overlaid against a backdrop which displays all physical points within your oven/kiln/furnace.
PhoenixTM ‘Thermal View’ software is available in two versions; a comprehensive package for finishing users, and a package with extra analysis features for heat treatment and ceramics users.
PhoenixTM software has all the essential functions you require to keep your process under control.

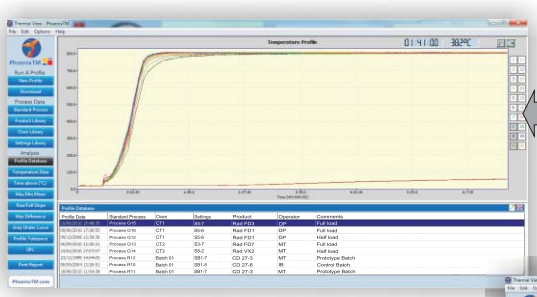
PhoenixTM GmbH
Zum Markt 33
32549 Bad Oeynhausen
Germany
Tel: +49 (5734) 600442 info@phoenixtm.de
Fax: +49 (5734) 600441 www.phoenixtm.de

PhoenixTM Ltd
8 St. Thomas Place,
Cambridgeshire Business Park,
Ely, CB7 4EX, UK
Tel: +44 (0) 1353 223100 sales@phoenixtm.com
Fax: +44 (0) 1353 968684 www.phoenixtm.com

PhoenixTM
Phoenix Temperature Measurement

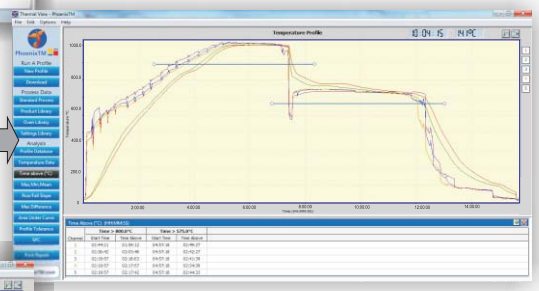
‘Thermal View’ Analysis Software - Key Screens

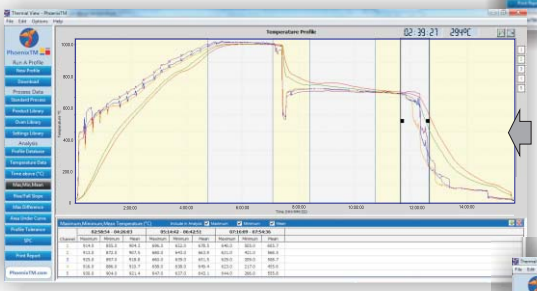
ANALYSIS SOFTWARE



Profile Database
Allows you to scroll through and select the profiles you want to analyse. Essential details of each profile are shown in columns in which the sort order can be selected for any three columns. This makes it easier to prioritize the order of your search.

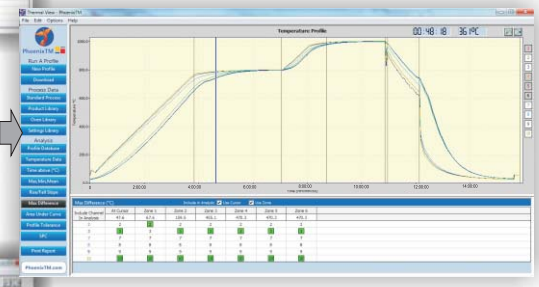
Time Above Temperature
This screen displays the time a product has spent above specific temperature levels. A unique ‘graphical interface’ allows you to ‘draw’ these temperature levels on the screen so calculations are only made within a specific time period. So in processes such as aluminium solution treatment, calculations can be made easily and accurately at the higher and lower temperature levels.

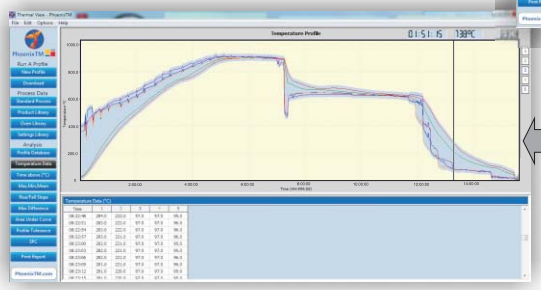




Max, Min, Mean
This screen displays the maximum, minimum, and mean temperature for a defined period in the process. Again using a graphical interface, discreet ‘inspection areas’ are created which can be dragged to any position and expanded to the specific region you need to examine.

Max Difference
This screen shows the maximum temperature difference between lowest and highest thermocouple readings either within the specific heating zones of an oven/furnace/kiln, or at a point within the process where the cursor is positioned. Thermocouples can be deselected to show only product or atmosphere temperatures.





Profile Tolerance
This screen examines the inner and outer limits of selected thermocouples in a profile. It allows you to set a tolerance zone around these limits which can then be stored in a database and overlaid future profiles to ensure the process is within tolerance.

Note: As products are continually improved, specifications may be changed without prior notice.

Represented by:

www.phoenixtm.de www.phoemixtm.com

Where experience counts!!