

See in real time what happens to your product during the heat treatment process.



Datapaq Furnace Telemetry systems use radio telemetry to monitor temperature information in real time. They are ideal to use in most continuous and batch furnaces. With telemetry you have instant access to data which speeds up problem solving. You can assess the effects of changes to furnace settings as the process progresses. Telemetry can also be used to carry out in-house temperature uniformity surveys.

What is temperature profiling?

Datapaq systems travel with your products through the furnace to monitor the true temperature of the product throughout the whole process. The stored data can then be analysed with Insight software, ensuring that you get the information you need to optimise your thermal profiles.



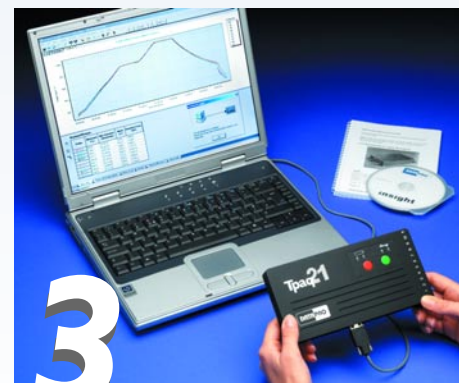
Easy to set up

Reset the data logger and connect the temperature measurement probes to your product. Place the logger inside the thermal barrier.



Send through process

Send the logger with your product through the furnace to record thousands of temperature readings.



Analyse

Use Insight software to see exactly what is happening inside your furnace.

Furnace Tracker System

Comprises a data logger, charger, thermal barrier, thermocouples, computer interface cable, Insight software, carry case and manuals.

Uncompromising Service. Guaranteed.

Each Datapaq system is supported with a full one-year warranty. Complementing the warranty, we offer a yearly service and recalibration contract, including free software updates and loan equipment, for guaranteed peace of mind.

- Suggested minimum computer requirements:
- Compatible with Windows™ 95 and above, but Windows™ 2000 or above recommended
 - Pentium II processor 300MHz
 - 128Mb RAM
 - 1024 x 768 display
 - 50Mb free hard disk space
 - Serial port or USB port for logger communications



www.datapaq.com

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Technical Specifications

Tpaq21 Data Logger

Model number*	Normal operating temperature		High operating temperature	
	TP2086	TP2016	TP2186	TP2116
No. of channels	8	10	8	10
Memory (data points)	130,000	130,000	130,000	130,000
Max. operating temp.	70°C	70°C	110°C	110°C
Measuring range	-190°C – 1370°C	-190°C – 1370°C	-190°C – 1370°C	-190°C – 1370°C
Accuracy	+/- 0.3°C	+/- 0.3°C	+/- 0.3°C	+/- 0.3°C
Resolution	0.1°C	0.1°C	0.1°C	0.1°C
Battery type	NiMH rechargeable	NiMH rechargeable	VHT Lithium	VHT Lithium
Max. battery life**	340 hours between charges	340 hours between charges	250 hours	250 hours
Sampling interval:				
No telemetry	0.1 sec – 50 mins	0.1 sec – 50 mins	0.1 sec – 50 mins	0.1 sec – 50 mins
Hardwired telemetry	1 sec – 50 mins	1 sec – 50 mins	1 sec – 50 mins	1 sec – 50 mins
RF telemetry	n/a	2 secs – 50 mins	n/a	3 secs – 50 mins
Communication	USB/RS 232	USB/RS 232	USB/RS 232	USB/RS 232

DP9064 Data Logger

Model no.	DP9064	DP9069 (slim)
No. of channels	6	6
Thermocouple	Type K	Type K
Measuring range	0°C – 1370°C	0°C – 1370°C
Max. operating temp.	70°C	70°C
Sampling interval	0.1 seconds – 60 minutes	0.1 seconds – 60 minutes
Accuracy	±1°C	±1°C
Resolution	0.1°C	0.1°C
Logging start by	Start button, temperature or time	Start button, temperature or time
Total memory	57,000 data points over 6 channels	57,000 data points over 6 channels
Battery type	NiMH Rechargeable	NiMH Rechargeable
Max. battery life**	100 hours	100 hours
Dimensions (H,W,L)	11.7mm x 106mm x 150mm	23mm x 57mm x 165mm

* Model number shown is for type K thermocouples only, other types have different model numbers
 ** Max. battery life depends on sampling interval, operating temperature and use of RF telemetry

Thermal Barriers

Thermal Barrier	Height (mm)	Width (mm)	Length (mm)	Weight (kg)	Time at temperature				
					200°C	400°C	600°C	800°C	1000°C
TB4915	104	247	529	9.5	3hr 20	1hr 50	1hr 10	50 min	40 min
TB4905	129	247	529	11.0	6hr	2hr	1¼ hr	1 hr	50 min
TB4956	154	275	529	15.5	8hr	4¼ hr	2¾ hr	2 hr	1¼ hr
TB4912	174	296	531	21.0	15½ hr	6½ hr	4hr	2 hr 5	1¼ hr
TB4938	217	291	522	26.0	18hr	9hr	5½ hr	3¾ hr	2½ hr
TB4926	254	358	563	32.0	24hr	12hr	8½ hr	6hr	4½ hr
TB4933	304	406	613	50	27hr	18hr	10½ hr	8½ hr	7½ hr
TB4101	210	450	610	43	10hr at 550°C				
TB4051	295	575	687	55	8hr (3hr ramp to 1250°C then 5hr @ 1250°C)				

Datapaq makes over 100 thermal barriers. Contact us with your process details to select the barrier specific to your application.

Thermocouple Probes

Type	Insulation	Max. Temp	Typical application
Heavy duty MI	K 3mm dia. MI Microbel Sheath	1300°C	Steel slab, billet reheat
Flexible MI	K 1.6mm dia. MI Microbel Sheath	1150 – 1200°C	All furnace applications
Ceramic braid	K Nextel 312	800 – 1000°C	Glass TV tubes
Light duty glass fibre	K Glass fibre	600 – 700°C	Glass windcreens
Heavy duty PTFE	K PTFE	265°C	Autoclave

All Datapaq thermocouples comply to ANSI MC96.1 Special Limits of Error.

Due to continuing product improvements, specifications are subject to change without notice.



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Furnace Tracker

...temperature profiling for metal and glass heat treatment



Data loggers

Datapaq data loggers are compact, rugged and accurate. They can record up to 130,000 data readings over 8 or 10 selectable channels, making them the most powerful data loggers available.

The data loggers are specifically designed to work in the high temperature environments found inside many furnace processes. These loggers will withstand high temperature, pressure and vacuum environments, and can transmit data in real-time by telemetry if required.

Data logger	No. of channels	Thermocouple type	Typical application
Tpaq21	8 or 10	K, N, R, S, B	All heat treatment applications
Datapaq 9000 - slim	6	K	Tube and pipe homogenising
Datapaq 9000 - standard	6	K	Glass windscreen bending

What are the benefits?

- ✓ **Optimise product quality**
 Confirm that all products achieve the required heat treatment to guarantee quality.
- ✓ **Improve productivity and efficiency**
 Eliminate rejects or rework. Maximise product throughput and minimise scrap costs.
- ✓ **Prove process control**
 Prove to yourself, your customers or regulatory bodies (ISO9000) that the heat treatment process is being performed in a controlled repeatable fashion day after day.
- ✓ **Rapid fault finding**
 When problems occur identify the cause and location of the problem promptly.

DATAPAQ *for complete* temperature profiling

In the high temperature metal and glass heat treatment industries, getting the temperature of the product exactly right is crucial to the quality of the finished product. Datapaq are the world leaders in temperature profiling systems for use in hostile environments. Our reputation is built on the quality of our products – renowned for their reliability, accuracy and rugged design to withstand the most hostile heat treatment processes.

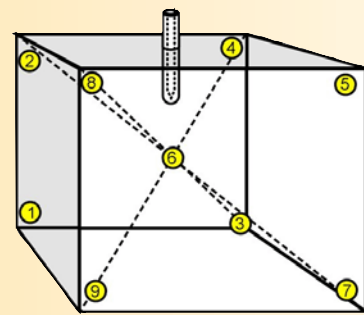
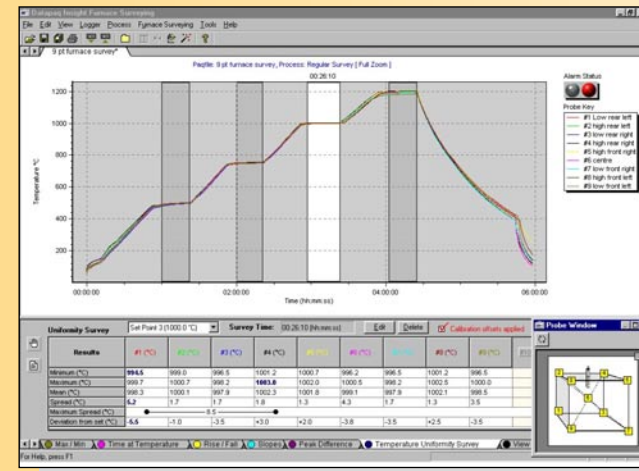
Insight software for profile analysis

Insight is the world's most comprehensive, yet easy-to-use software available for profiling furnaces, now available in eight languages. Use Insight Software to analyse your data and see graphically exactly what is happening to your product as it passes through the furnace.

Wizards guide even infrequent users step-by-step through the profiling process.

Analysis functions include max/min temperature, time at temperature, slope calculation, rise and fall and peak difference.

Analysis Alarms – Green for Go or Red for Stop. Alarms to highlight when a process has gone out of tolerance.



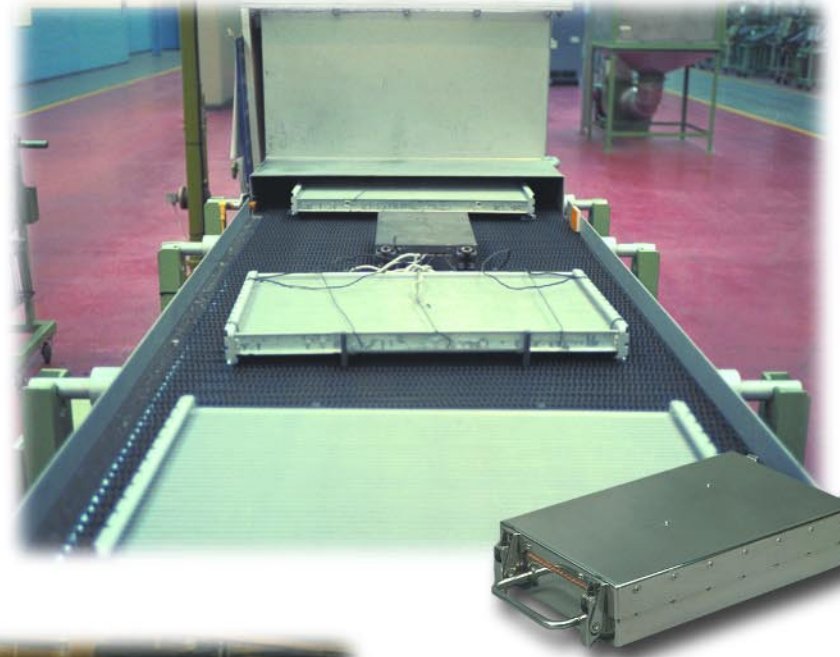
Carry out in-house temperature uniformity surveys

With a Datapaq Furnace Telemetry system and Insight Survey software, temperature uniformity surveys can be carried out in-house and in real-time. This means that large batch furnaces, which often have to be taken out of production for up to two days to survey, can now be surveyed quickly and easily, without major interruptions to production.

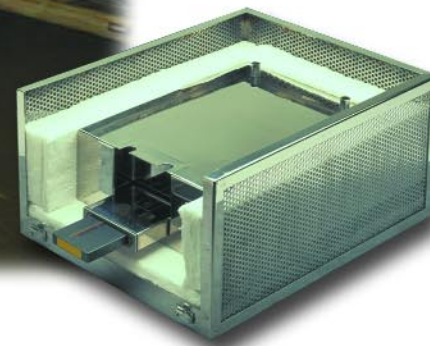
The logger and barrier are placed into a fixture that holds the thermocouples in a typical 9-point survey pattern. This can then be charged to the furnace in the same way as an ordinary load. Real time operation shows you when each survey level is complete. At the end of each survey, a two-page survey report detailing all the calculations and thermocouple corrections is automatically produced.

If you want to optimise product quality and prove it to your customers...

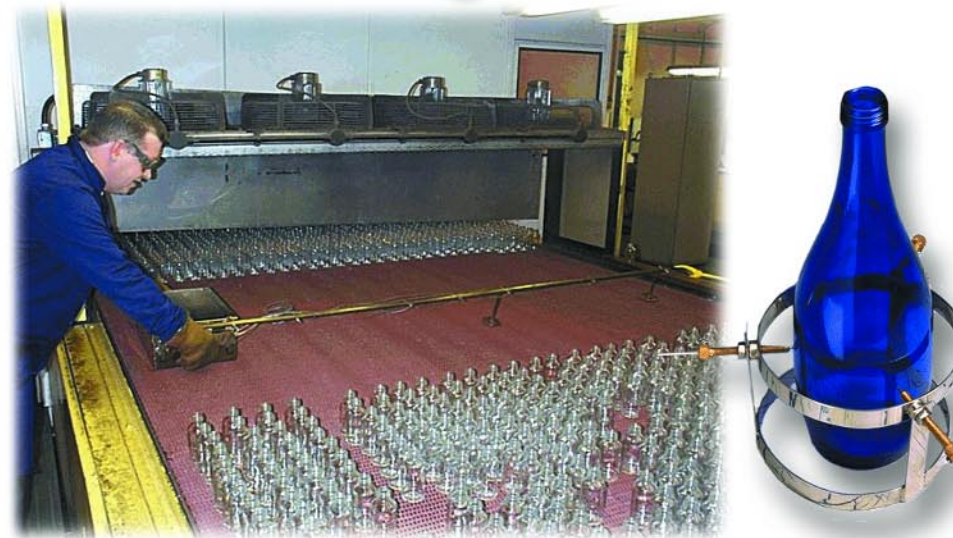
Use a Datapaq system in aluminium brazing applications where it is important to ensure the correct brazing temperature is achieved but not exceeded.



In processes involving a water quench such as solution treatment and age hardening of aluminium car parts, the quenching operation that happens in seconds, is critical to the eventual quality of the product. Datapaq thermal protection systems are designed to withstand the water quench as well as the furnaces.

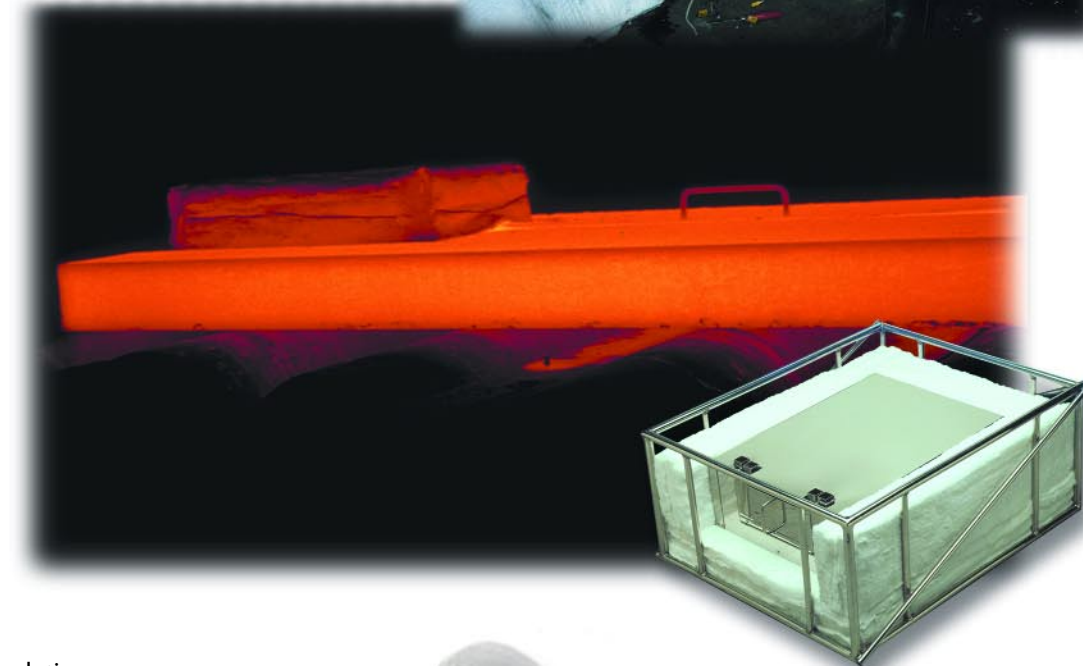


When annealing and decorating glass containers and crystal tableware it is important to ensure temperature uniformity across the lehr belt, throughout the process. Analysis with a Datapaq system will ensure that both the time at annealing point and rate of cooling meet required specifications.



In slab re-heat furnaces, it is vital to ensure that the slab is at the correct rolling temperature throughout its thickness.

Datapaq thermal protection systems are designed to keep the data logger at a stable operating temperature, while the temperature in the furnace environment may be in excess of 1300°C.



When annealing laminations for electric motors and transformers, it is important to ensure that every product in the basket reaches the correct annealing temperature. A Datapaq system, travelling with your products, will ensure that they meet specification through all stages of the annealing process, especially critical areas such as the time at annealing temperature and the rate of cooling.



Whatever your application, Datapaq have the solution

Datapaq specialise in harsh environments and design special thermal barriers for most applications including:

- ✓ Solution heat treatment
- ✓ Bright annealing of steel coils
- ✓ Brazing
- ✓ Homogenising steel pipes and tubes
- ✓ Glass annealing and decorating
- ✓ Frit sealing for TV tubes
- ✓ Billet and slab reheat
- ✓ Vacuum and pressure applications



... Datapaq are the world leaders in in-process temperature profiling systems for the harshest environments