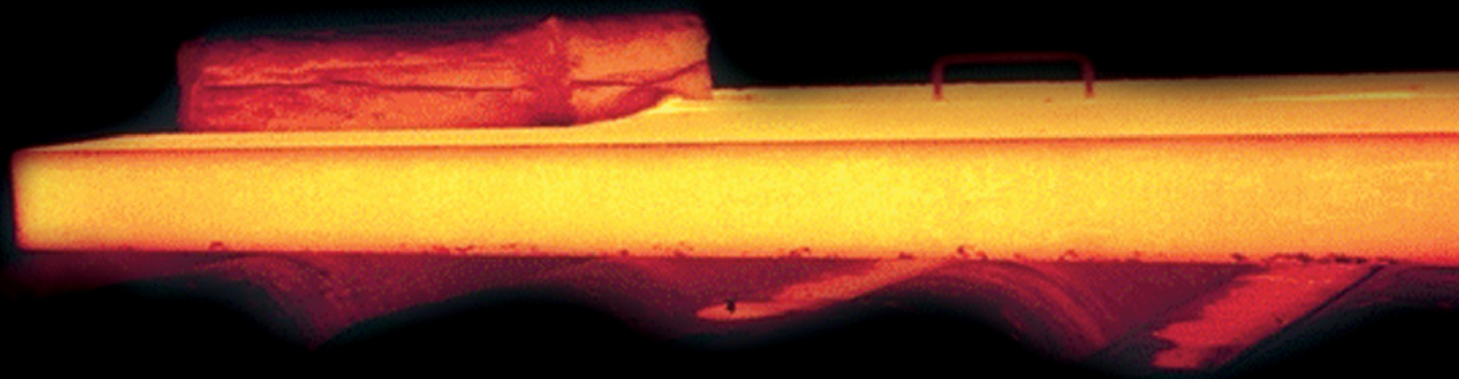


DATAPAQ

Furnace Tracker[®]

for complete high temperature profiling and surveying



A Fluke Company

DATAPAQ

Controlling your furnace is critical to the product quality your customers demand. For over twenty years Datapaq® has been the product of choice for temperature surveying equipment and analysis software. Known for exceptional quality, it's no surprise that the most recent Datapaq products meet and exceed the highest expectations for ease-of-use, ruggedness and accuracy.

Our latest innovations – Tpaq 21 and Q18 loggers, Survey Software, Floating Plate Technology, and RF Telemetry – enhance the basic Datapaq Furnace Tracker® system to make the industry's easiest, most cost effective solution for monitoring your heat treating process.

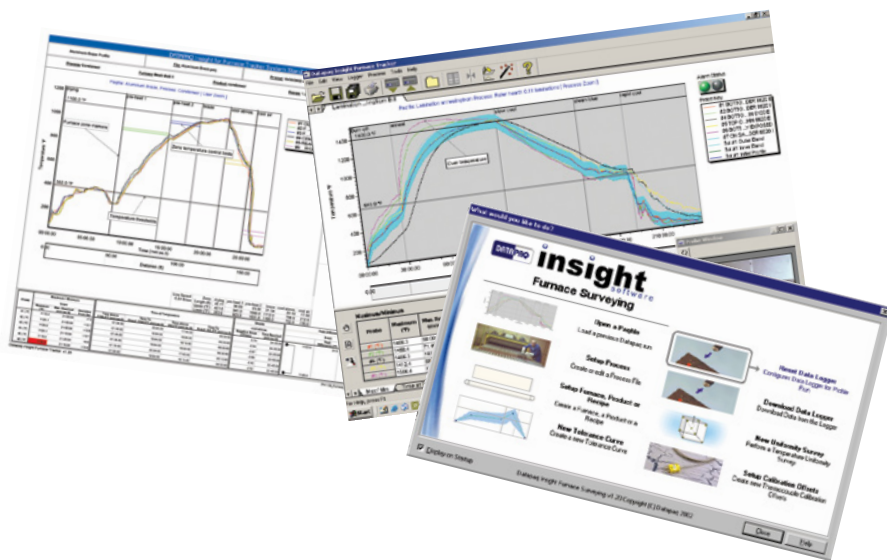


Datapaq Furnace Tracker System **The Industry's Most Durable Survey Equipment**

With up to 130,000 readings and unsurpassed accuracy, Datapaq data loggers perform without equal: programmable triggers, measurements up to 1370°C (2500°F), machined casings, and up to 20 channels. Add one of our wide range of rugged stainless steel thermal barriers, and you have a system to withstand the harshest environments. And with Insight Software to interpret the data, the combination is unbeatable. Real-time data acquisition for uniformity surveying is also an option!

Insight™ Software: **Easy ... Intuitive ... Powerful** **The Standard for Profiling Software**

Datapaq Insight software takes the data gathered by the data logger, quickly interprets that information, and instantly provides the analysis you need. Wizards guarantee all the profiling steps are completed, reducing training and set-up time. Use the alarm feature to alert you to potential faults. Simple tables let you 'drill down' for in-depth analysis of any parameter. Compatible with older Datapaq files and most hardware, Insight software provides seamless transition to the latest profiling technology.



Data Loggers **Tpaq21** **High accuracy and telemetry available**

Featuring 8 or 10 channels, a huge memory capacity, exceptional accuracy and excellent resistance to electrical noise, this data logger is the most stable, durable and flexible logger available. You can even program the logger to change the sampling interval for different segments of your process to get more precise data when you need it.

- 130,000 data readings
- Accuracy to $\pm .3^{\circ}\text{C}/.5^{\circ}\text{F}$
- Sampling intervals to 0.1 sec.
- Able to program variable time intervals.



Thermal Barriers

Ultimate Protection and Versatility

Datapaq offers the widest range of thermal barriers for use in a variety of furnaces and harsh environments. From a 40mm (1.6 inch) high barrier to a heavyweight barrier that can withstand 800°C (1475°F) for 20 hours, all barriers have high quality stainless steel casings. Most have 'black box' phase-change heat sinks for extra protection, while others rely on phased evaporation combined with ceramic insulation.



4000 Series

Rugged Quality and Economical

Two stage protection combines heat sink and microporous insulation.

4900 Series

Heat Treatment Profiling up to 1000°C (1832°F)

310 stainless steel and Floating Plate Technology® minimize barrier distortion in harsh environments.

4500/4600 Series

Furnance Survey solutions up to 1200°C (2192°F)

Designed for Vacuum furnace use combining high performance metal work, insulation and gas quench protection.

Slab and Billet Reheat Barriers

Tolerate High Temperatures for Long Durations

A unique evaporative water jacket, surrounded by composite insulation and contained in a high grade alloy steel frame, can protect a data logger up to 1250°C (2282°F) for 8 hours!

Aluminum Brazing (CAB) Barriers

Regular temperature profiling in vacuum furnaces without the problems caused by out-gassing

Thermal Protection Systems

for Quench and Age Hardening Applications

An internal water tight barrier allows the complete system to pass through a full quench, which renews its protection capability for the ensuing ageing process.

Custom Designed Thermal Barriers

Datapaq designs and manufactures specialty barriers for specific applications, including vacuum carburizing, long duration bright annealing and even circular rotating barriers for tube and pipe heat treatment.

Q18

Twice the datapoints, twice the accuracy and still less than 12.7mm (one-half inch) high.

- 6 channels
- USB connection
- 18,000 datapoints
- Telemetry ready

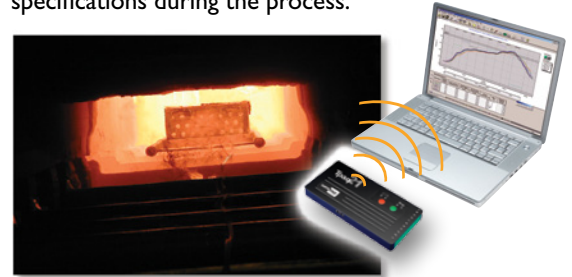


System Enhancements

Telemetry

Immediate Feedback for Setup and Problem Solving

Telemetry Profiling affords instant access to data vital for problem solving, and lets you assess the effects of changing furnace settings as the process progresses. The user can compare actual product temperatures to specifications during the process.

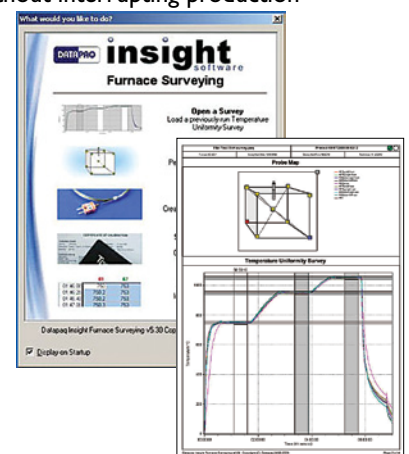


Furnace Temperature Uniformity Survey (TUS) Software Confirms Regulatory Compliance

The newest version of Insight proves compliance to required aerospace and automotive specifications and includes additional features to make conformity easy. Wizards help set up correction factors and save them for easy application to future surveys. The software also confirms that both data logger and thermocouple factors have been applied. Calculated Stability feature includes over-shoot alarm and three selectable alerts. Complete documentation is assembled and printed with one click. Password protection, as required, provides added security.

This software also compares controlling specification tolerances with survey results to determine furnace class, easily imports data from clipboard and combines it with an existing paqfile, and automatically calculates the time between the first and last thermocouple entering the lower tolerance band.

Additionally, Insight Software's Uniformity Survey package lets you efficiently survey furnaces quickly, inexpensively, without interrupting production – with complete documentation to satisfy latest AMS2750 and NADCAP TUS requirements.



Technical Specifications

Data Logger	TPaq21 - Normal Operating Temp		TPaq21 - High Operating Temp		Datapaq Q18
Part Number	TP2086	TP2016	TP2186	TP2116	DQ1860 / DQ1862
Number of Channels	8	10	8	10	6
Thermocouple Type*	K				K
Temperature Range	-190°C to 1370°C (-310°F to 2498°F)				-200°C to 1370°C (-328° to 2498°F)
Memory	130,000 datapoints				18,000 readings per channel
Sampling Interval**	0.1 sec to 50 min				0.05 sec to 10 min
Accuracy	± 0.3°C (± 0.5°F)				±0.5°C (±0.9°F)
Resolution	0.1°C (0.2°F)				0.1°C (0.1°F)
Data collection start	Start button, time, rising or falling temperature				Start/stop buttons, time or or temperature trigger
Battery Type	NiMH Rechargeable		VHT Lithium (BP0021)		NiMH Rechargeable
Battery Life***	340 hours (between charges)		250 hours		75 hours
Max Ambient					
Operating Temperature	70°C (158°F)		110°C (230°F)		85°C (185°F)
Number of LED's	4				4
Dimensions (H x W x L)	20mm x 98mm x 200mm (0.8" x 3.9" x 7.9")				12 x 106 x 150mm /20 x 57 x 165mm 0.5 x 4.2 x 5.9 in. /0.8 x 2.2 x 6.5 in.
Weight	0.5 Kg (1.1 lbs)				0.3 Kg (0.8 oz) / 0.3 Kg (0.6 oz)

* Model number shown is for type K thermocouples only. Other types (R,S,N,J) have different model numbers. ** Sampling interval dependent on number of channels selected, and use of telemetry. *** Max. battery life depends on sampling interval, operating temperature and use of RF telemetry

Thermal Barriers*	Datapaq Loggers			Height mm (inch)	Width mm (inch)	Length mm (inch)	Weight Kg (lb.)	Time at Temperature			
	Low Temp Tpaq21	High Temp Tpaq21	Q18					@ 500°C (932°F)	@ 600°C (1112°F)	@ 800°C (1472°F)	@ 1000°C (1832°F)
TB 2005	—	—	DQ1860	69 (2.7)	188 (7.4)	368 (14.4)	4 (8.8)	18 min	15 min	10 min	—
TB 4005 / 4905	X	X	DQ1860	124 (4.8)	249 (9.8)	503 (19.8)	11 (24.2)	1.5 hrs	—	1.0 hrs	48 min
TB 4012 / 4912	X	X	DQ1860	170 (6.7)	297 (11.7)	511 (20.1)	20 (44.1)	5.0 hrs	4.0 hrs	2.1 hrs	1.75 hrs
TB 4015 / 4915	—	—	DQ1860	99 (3.9)	246 (9.6)	508 (20)	9 (19.8)	1.4 hrs	70 min	50 min	40 min
TB 4021	—	—	DQ1860	41 (1.6)	173 (6.8)	229 (9.0)	2 (4.4)	8 min	7 min	—	—
TB 4026 / 4926	X	X	DQ1860	249 (9.8)	358 (14)	544 (21.4)	31 (68.3)	—	8.5 hrs	6.0 hrs	4.5 hrs
TB 4033 / 4933	X	X	DQ1860	300 (11.8)	406 (15.9)	584 (22.9)	43 (94.8)	—	10.5 hrs	8.5 hrs	7.5 hrs
TB 4056 / 4956	X	X	DQ1860	150 (5.9)	274 (10.7)	503 (19.8)	15 (33)	—	2.75 hrs	2 hrs	1.25 hrs
TB 4938	X	X	DQ1860	216 (8.5)	292 (11.4)	523 (20.5)	26 (57.3)	—	5.5 hrs	3.75 hrs	2.5 hrs
TB 4975	X	—	DQ1860	396 (15.6)	500 (19.6)	719 (28.3)	77 (169.8)	—	13 hrs	11 hrs	9.5 hrs

Aluminum Heat Treat / Quench

TB 4065	—	X	—	320 (12.6)	513 (20.2)	658 (25.9)	39 (86)	20 hrs @ 1022°F	—	—	—
TB 4101	—	X	—	211 (8.3)	450 (17.7)	610 (24)	31 (68.4)	10 hrs @ 1022°F	—	—	—

Cylindrical / Pipe

				(dia.)				@ 500°C (932°F)	@ 600°C (1112°F)	@ 800°C (1472°F)	@ 900°C (1652°F)
TB 4014	X	—	DQ1862	201 (7.9)	—	376 (14.8)	10 (22.1)	130 min	110 min	70 min	—
TB 4068	—	—	DQ1862	120 (4.7)	—	795 (31.3)	12 (26.5)	3.0 hrs	2.5 hrs	1.7 hrs	1.5 hrs
TB 4083	—	—	DQ1862	145 (5.7)	—	770 (30.3)	15 (33)	3.3 hrs	2.6 hrs	1.8 hrs	1.5 hrs

Slab / Billet Reheat

								@ 1000°C (1832°F)	@ 1100°C (2012°F)	@ 1200°C (2192°F)	@ 1250°C (2282°F)
TB 4272	—	X	—	300 (11.8)	574 (22.6)	686 (27)	66 (145.5)	11 hrs	10 hrs	9 hrs	8.5 hrs
TB 4066	—	X	—	249 (9.8)	249 (9.8)	551 (21.6)	21 (46.3)	3.5 hrs total duration at constant 1249°C (2280°F)			

Over 30 standard thermal barriers available. Datapaq has produced over 200 different styles of barriers. Special barriers can be ordered.

*4900 series is 310 stainless steel with Floating Plate technology.

Minimum computer specifications

- Microsoft Windows® 2000 or above recommended.
- 500 MHz processor
- 128 MB RAM
- Monitor resolution 1024 x 768, 256 colors
- 50 MB free hard disk space
- USB port for logger communication
- DVD Drive

THE DATAPAQ GUARANTEE

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

* Dependent on country.

The Worldwide Leader in Temperature Profiling



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