



**Phoenix<sup>TM</sup>**  
Phoenix Temperature Measurement

# HTS06 Systems

For aluminum heat treatment processes



*...where experience counts!*

# Phoenix<sup>TM</sup> HTS06 Systems for Aluminum Processes

## Data Logger

Phoenix<sup>TM</sup> data loggers are designed for use in harsh industrial environments. The electronics are protected by a robust, water resistant, machined aluminum case. Cold junction compensation with feedback error detection and noise reduction ensures accurate and reliable data. Optional two way RF telemetry is available, allowing real time data analysis and for the data logger to be reset and downloaded remotely. All loggers are shipped with a factory calibration certificate traceable to national standards. Optional certification to UKAS (UK) or DKD (Germany) can be supplied if required. For convenience and future reference, a copy of the original calibration certificate and the calibration data are stored within the data logger and can be accessed as required.



Type	PTM1-206HT, PTM1-210HT, PTM1-220HT*	
No. of channels	6,10 or 20	
Thermocouple type	K or N	
Measurement range		
Type K:	-148°F - +2498°F	-100°C - +1370°C
Type N:	-148°F - +2372°F	-100°C - +1300°C
Accuracy	± 0.5°F	± 0.3°C
Resolution	0.2°F	0.1°C
Max operating temperature	230°F	110°C
Battery type	2 x replaceable Lithium (AA)	
Sampling rate	Adjustable from 0.2 second to 1 hour	
Memory	Up to 3.8M data points, non-volatile memory	
Start trigger	Time, temperature, start button or software	
PC connection	Hard wire or Bluetooth	
Dimensions	0.79"x3.85"x7.87"(h x w x l) 20 x 98 x 200mm	

Real time monitoring of solution reheat, quench and ageing processes in one run.



Auto catch up allows data from quench once RF signal re-established after quench.

Robust and waterproof housing for reliable use in hostile environments



Up to 1000 hours measurement time



\*Thermal barrier available with compression fittings only

Bluetooth PC connection  **Bluetooth<sup>™</sup>**

## 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.

## Phoenix<sup>TM</sup> 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 analyzes 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.





## TS06 Thermal Barriers

Built for solution treatment and age hardening where high temperatures and water quenching are part of the process. 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 these processes. During the quench a water tight seal is maintained by using heavy duty gaskets and stainless steel compression glands around the thermocouples. Thermal barriers designed for 10 channel data loggers come with a new innovative thermocouple gasket seal option.

TS06 range performance:

Type	TS06-215-6	TS06-215-5	TS06-240-4	TS06-310-1	TS06-400-1
930°F (500°C) / h	10.0	13.0	13.5	24.0	51.5
1020°F (550°C) / h	8.5	11.0	11.5	20.0	40.0
1110°C (600°C) / h	7.5	9.0	9.5	16.0	32.0
Height " / mm	8.5 / 215	8.5 / 215	9.5 / 240	12.2 / 310	17.7 / 400
Width " / mm	17.7 / 400	18.6 / 472	19.7 / 500	18.6 / 472	26.0 / 660
Length " / mm	20.5 / 520	25.2 / 640	20.5 / 520	25.2 / 640	32.9 / 835
Weight lb / kg	55.1 / 25.0	84.9 / 38.5	83.8 / 38.0	130.1 / 59.0	216.1 / 98.0



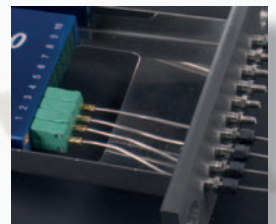
### Rubber Gasket Seal (Data loggers 6 & 10 Channel)

- Unique bi-directional IP67 sealing of thermocouples protects data logger in the water quench.
- Efficient Thermocouples Set-up:
  - Installed quickly and easily
  - Can be fitted in coiled state
  - Can be removed and reused reducing costs
  - No small fiddly components or tools



### Compression Fitting Seal (Data loggers 6, 10 & 20 Channel)

- Stainless steel compression fittings secure thermocouples and protect against water ingress.



Following a water quench a further 10 hours duration is possible in an age hardening furnace at 392°F (200°C).

"Easy fit" insulation frame for quick system assembly.



Need a thermal barrier to suit your application? Tell us your requirements and if it's possible we'll design and manufacture it for you! We are constantly developing and looking forward to any new challenge.

## Thermocouples

For temperatures from 482°F (250°C) to more than 1832°F (1000°C) mineral insulated thermocouples are generally the first choice. The thermocouple wires are insulated by magnesium oxide and protected by a high grade alloy sheath. For special applications we can supply thermocouples with other insulation materials.

Thermocouples can be mechanically held, or retained in holes to record temperatures at critical points.



Type K or N mineral insulated thermocouples in 1/16" and 5/64" (1.5 and 2.0mm) diameter.

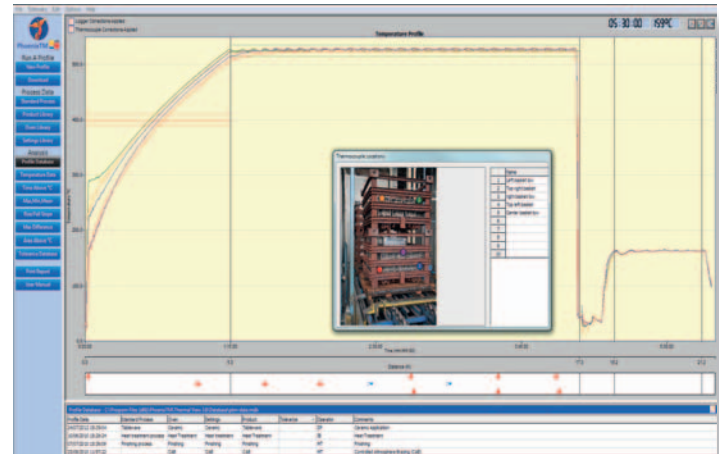
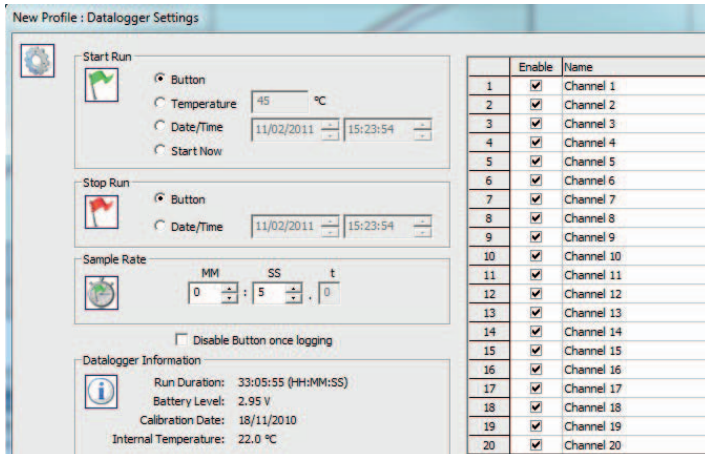


# Thermal View Plus

The easy way to get a perfect result!



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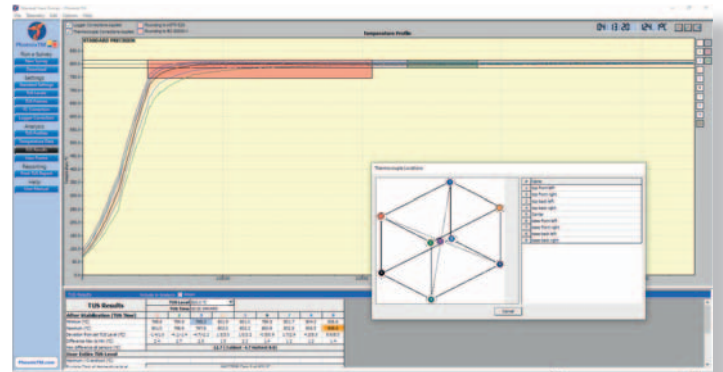
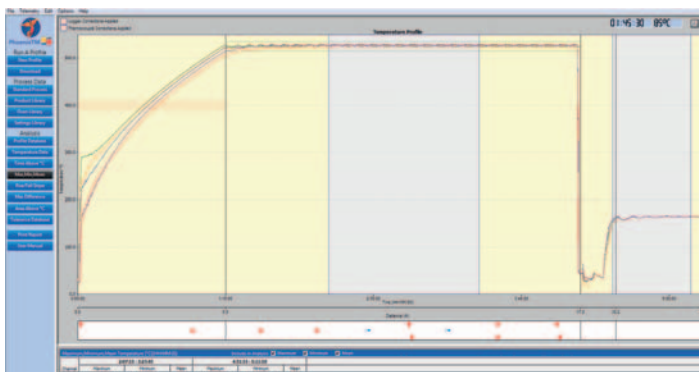


Simply enter:

- How to start the data logger
- The rate at which data is to be collected
- The number of thermocouples to be used.

For regular measurements these can be set with one mouse click or pressing the data logger start button.

The temperature profile is displayed in the graphics window of the Thermal View software. Thermocouple profiles can be switched on or off individually and you can zoom in for more detailed analysis.



Comprehensive analysis tools are located on the left side of the screen for single click analysis and report generation. Data import and export in both .csv and PhoenixTM formats are available allowing electronic transfer of process data.

- Max Temperature by Zone
- Time above Temperature
- Ramp up and Quench Rates

A separate software package, "Thermal View Survey" is available for surveying furnaces to AMS2750 requirements. Featuring thermocouple and data logger correction factors, user defined TUS levels and tolerances, View Frame analysis, overshoot search, data import / export, printed AMS2750 report. Contact us for a demo version!



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