Tpaq21
8 and 10 channel – high accuracy data logger

130,000 data readings over 10 selectable channels make the Tpaq21 the most powerful, accurate and in-depth analysis tool available.

Variable sampling intervals and multiple event programming provides detailed analysis where heat treatment processes are followed by fast moving sections of the product temperature profile, such as gas or water quenches.

The Tpaq21 is equally at home in ceramics processes, such as brick and sanitaryware firing, where long duration runs at high ambient temperatures call for high memory capacity and rugged electronics.

Combined with a built in RF transmitter to see these processes in real time, this is an ideal data logger for all applications.

• Ten thermocouple channels for maximum data collection on each run

• Huge memory capacity: 130,000 data points for detailed process analysis

• Sampling intervals down to 0.1 seconds to collect maximum data in minimum time

• High accuracy: ±0.2°C (±0.4°F) for compliance to tight specifications

• Hot data protected by non-volatile memory or software warning, if reset is attempted before download

• USB and RS232 communication for rapid data download to laptops

• Radio Frequency (RF) telemetry or hard wired data acquisition for monitoring in real time with full analysis functions and alarms to alert, if the process is out of specification

• Four status LED's to show the exact logger activity after disconnecting from the computer

• Push start/stop buttons for easy user control

• Two battery types for operation in normal and high ambient temperatures

• Rugged industrial case and electronics allows operation in harsh furnace and kiln environments where dust, pressure or vacuum conditions occur

• 'Multiple events' allows sampling interval change during the run – ideal for water and gas quench processes

• Reset by start button after download for speed and simplicity

Confirm your furnace is in compliance with AMS 2750E NADCAP

The Datapaq® Insight™ Survey Software for Furnace Tracker® confirms compliance to all required specifications, plus additional features to make conformity easy.

AMS 2750E Requirements

• **Wizard-driven Setup Logger Connection Factors –** Set up factors and save them for easy application to future surveys. Prompts direct you to perform this required step.

• **Calculate Stability –** Over-shoot alarm and three selectable alerts tell you when stability is reached.

• **Correction Factors –** Software confirms both data logger and thermocouple corrections have been applied.

• **Complete AMS 2750E documentation –** One-click full report saves time while maintaining consistency.

• **Password Protection –** Meets required security requirement

• **Import from Clipboard –** Easily import control thermocouple data into survey paqfile.

• **Full Audit Trail –** Guaranteed traceability of data

SPECIFIC THERMOCOUPLE TYPES

	Measuring Range	Accuracy	Resolution	Socket Color	
Type K	-100°C* to 1370°C (-148°F to 2498°F)	±0.3°C (±0.5°F)**	0.1°C (0.2°F)	Green	
Type N	-100°C* to 1300°C (-148°F to 2372°F)	±0.4°C (±0.7°F)**	0.1°C (0.2°F)	Pink	
Type R	0°C to 1760°C (32°F to 3200°F)	±1.0°C(±1.8°F) @ 200°C (392°F) ±0.8°C(±1.4°F) @ 1000°C (1832°F)	0.1°C (0.2°F)	Orange	
Type S	0°C to 1760°C (32°F to 3200°F)	±1.0°C(±1.8°F) @ 200°C (392°F) ±0.8°C(±1.4°F) @ 1000°C (1832°F)	0.1°C (0.2°F)	Orange	
Type B	55°C to 1815°C (131°F to 3299°F)	±3.0°C (±5.4°F) @ 400°C (752°F) ±1.0°C (±1.8°F) @ 1500°C(2732 °F)	0.1°C (0.2°F)	Grey	
Type J	0°C to 800°C (32°F to 1472°F)	±0.2°C (±0.4°F)	0.1°C (0.2°F)	Black	

*Using sampling interval >0.8 seconds over range shown

** Contact Datapaq for accuracy at -100°C to -190°C (-148°F to -310°F)

SPECIFIC LOGGER TYPES

Operating Temperatures	Normal		High	
Model Number*	TP2086	TP2016	TP2186	TP2116
Number of Channels	8	10	8	10
Memory (data points)	130,000			
Maximum Operating	70°C (158°F)		110°C (230°F)	
Battery Type	NiMH rechargeable		VHT Lithium	
Maximum Battery Life**	340 hours between charges		250 hours	
Sampling Interval: No Telemetry / Hardwired Telemetry / RF Telemetry	0.1 sec - 50 mins / 1 sec - 50 mins / n/a	0.1 sec - 50 mins / 1 sec - 50 mins / 2 secs - 50 mins	0.1 sec - 50 mins / 1 sec - 50 mins / n/a	0.1 sec - 50 mins / 1 sec - 50 mins / 3 secs - 50 mins
Maximum Operating Pressure at 20°C (68°F)	20 bar/290 psi			
Minimum Operating Pressure at 20°C (68°F)	10^{-5} millibar			

*Model number shown is for type K thermocouples only, other types have different model numbers.

** Maximum battery life depends on sampling interval, operating temperature and use of RF telemetry.

Case Size (all loggers)
Length: 200 mm (7.8 in)
Width: 98 mm (3.8 in)
Height: 20 mm (0.7 in)

General Information
Logger Start By: Manual (button), temperature (rising or failing) or time

Programmable Events: Up to 8 sampling interval changes possible per run, trigger by rising or falling temperature after first event

Hot Data Protection: By non-volatile memory, and software warning if reset attempted before download

Communication: Via USB or serial port for laptop computers

Logger Reset: Possible after download by start button (uses same run parameters)

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Food Tracker®

Thermal Barriers

Not all food processes are equal. Every process has its own unique space, temperature, duration or environmental requirements (steam, submersion in water or oil). For this reason, the Food Tracker® system includes a choice of thermal barriers. Options vary from quick flash frying where the whole system is submerged, to long duration high temperature bakery processes. All Datapaq® barriers are designed and engineered to deliver maximum performance at a minimum weight and size.

TB5009

Non-submersible / short bake / roast processes

IP Rating	IP65				
Height	60 mm (2.4 in)				
Width	204 mm (8 in)				
Length	394 mm (15.5 in)				
Weight	4.4 kg (9.7 lbs)				
Heatsink	N/A				
Temperature	-100°C (-148°F)	100°C (212°F)	150°C (302°F)	200°C (392°F)	250°C (482°F)
Time (hours)	1.5	3.0	1.75	1.25	1.0

TB5010

Non-submersible / long bake / roast processes

IP Rating	IP65				
Height	100 mm (3.9 in)				
Width	219 mm (8.6 in)				
Length	393 mm (15.5 in)				
Weight	6.0 kg (13.2 lbs)				
Heatsink	TB1001 (1.0 kg / 2.2 lbs)				
Temperature	-100°C (-148°F)	100°C (212°F)	150°C (302°F)	200°C (392°F)	250°C (482°F)
Time (hours)	–	10	5.5	3.75	2.5

TB5011

Non-submersible / short bake / roast processes

IP Rating	IP65				
Height	40 mm (1.6 in)				
Width	195 mm (7.7 in)				
Length	384 mm (15.1 in)				
Weight	3.0 kg (6.6 lbs)				
Heatsink	N/A				
Temperature	-100°C (-148°F)	100°C (212°F)	150°C (302°F)	200°C (392°F)	250°C (482°F)
Time (minutes)	–	150	60	40	35

TB5016

Heavy duty / waterproof / ham cook / chill processes

IP Rating	IP67				
Height	120 mm (4.7 in)				
Width	206 mm (8.1 in)				
Length	401 mm (15.8 in)				
Weight	6.3 kg (13.9 lbs)				
Heatsink	TB1001 x 2 (2 x 1.0 kg / 2.2 lbs)				
Temperature	-100°C (-148°F)	100°C (212°F)	150°C (302°F)	200°C (392°F)	250°C (482°F)
Time (hours)	–	17	8	5	4

TB5815

Submersible / short fry / steam cook processes

IP Rating	IP67				
Height	40 mm (1.6 in)				
Width	178 mm (7 in)				
Length	398 mm (15.7 in)				
Weight	3.1 kg (6.8 lbs)				
Heatsink	N/A				
Temperature	-100°C (-148°F)	100°C (212°F)	150°C (302°F)	200°C (392°F)	250°C (482°F)
Time Air (minutes)	37	120	60	45	40
Time H$_2$O / Oil (minutes)	–	60	30	22	20

Optional Conveyor Dive Pin TB9704A x 2, Thermocouple Finger Screw TB9763

TB5816

Submersible / long fry / steam cook processes

IP Rating	IP67				
Height	65 mm (2.6 in)				
Width	240 mm (9.4 in)				
Length	393 mm (15.5 in)				
Weight	5.3 kg (11.7 lbs)				
Heatsink	TB9707 x 2 (2 x 0.4 kg / 0.9 lbs)				
Temperature	-100°C (-148°F)	100°C (212°F)	150°C (302°F)	200°C (392°F)	250°C (482°F)
Time Air (hours)	–	6.5	3.5	2.5	1.75
Time H$_2$O / Oil (hours)	–	3	1.5	1	0.75

Optional Conveyor Dive Pin TB9704A x 2, Thermocouple Finger Screw TB9763

TB5817

Pressure cook processes

IP Rating	IP67				
Height	105 mm (4.1 in)				
Width	150 mm (5.9 in)				
Length	360 mm (14.2 in)				
Weight	6.3 kg (13.9 lbs)				
Heatsink	TB1001 x 2 (2 x 1.0 kg / 2.2 lbs)				
Pressure	2 bar (29 psi)				
Temperature	-100°C (-148°F)	100°C (212°F)	150°C (302°F)	200°C (392°F)	250°C (482°F)
Time Air (hours)	–	14	7.5	4.5	3.5

TB9772 – Barrier Tray
(fitted with drive pins)

TB9800 – Hanging Hook

SC1157 – Box Spanner

ACCESSORIES

Barrier tray used in mesh belt applications with inclines to help transfer the equipment. Box spanner used on submersible barriers.

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Worldwide Service
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