

# MultiPaq 21

## Quick Reference Guide


*All you need to know to profile your cook/chill process quickly and easily*



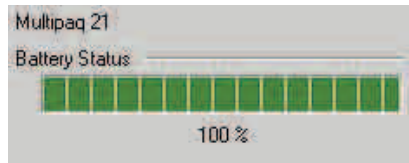
### Program data logger

Connect PC to logger via communications interface (CI) cable, aligning the red dot. Communication between logger and PC is confirmed by 5 flashes of the red LED. Run the Food Tracker<sup>®</sup> Insight<sup>™</sup> software.

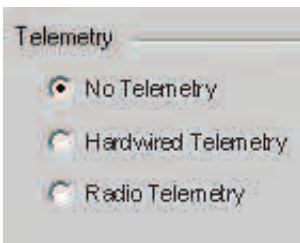


 Press reset icon

Check battery status. If battery needs charging, connect wall cube power supply via communication cable.



Select number of channels (probes) used. Note: Channel 9 can only be used with a humidity sensor. Click numbered button to select/deselect probe.

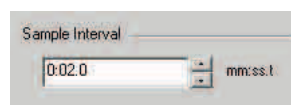


Select operating mode:

- ← Download data after run.
- ← Data read via communication cable direct from logger during the run.
- ← Data transferred to the PC software from the logger via RF telemetry link.

*Example:  
3 probes and a humidity sensor  
have been selected*

Select sample interval:  
Temperature measurement    Minimum = 0.5 sec  
RF Operation                    Minimum = 2.0 secs  
Humidity                         Minimum = 2.0 secs



Check memory calculator:  
Does the number of probes and sample interval give you enough data logging time to fulfil the process duration?



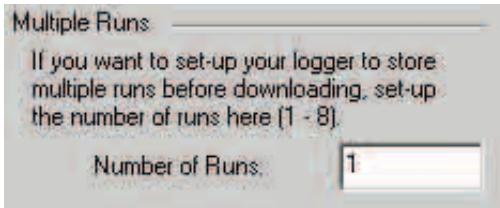
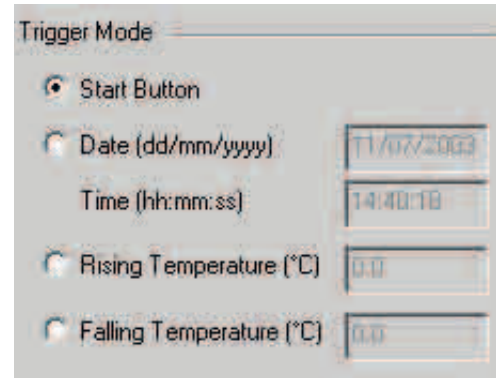
Select the trigger mode for profile run:

Logging starts at the point the green start button is pressed and held for 2 secs.


Logging starts at time defined against PC clock.

Starts logging at defined temperature recorded by probe 1 (make probe 1 an air probe so start occurs on entry into the oven).

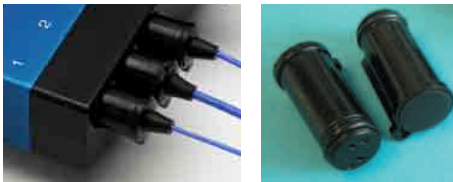
As above, but triggered by falling temperature entering the chiller/freezer.



Permits the logger to be programmed to perform up to 8 runs without the need to download data between each run.

Press  to finish resetting the logger

Check LED sequences (see logger status). With the exception of no trigger, the LED lights should flash alternately Red/Green indicating that it is awaiting the trigger selected.



Connect thermocouples to the logger as selected on the reset screen. If a channel is unused, insert a blanking plug to guarantee waterproofing.

## Place the logger inside the thermal barrier

Carefully trail the probes out of the barrier via the exit port. If using a submersible barrier refer to the troubleshooting section.



Remember: if using start button trigger, press & hold green start button (2 secs). Confirm the green LED is flashing at sample interval.

Replace barrier lid and lock the catches. Insert probes into product or oven at required locations. Place on conveyor or on product rack and run through the oven. At the end of the oven, retrieve the system.

**WARNING!**  
WEAR HEAT-RESISTANT GLOVES

Wipe or hose down the barrier if dirty, then dry off before removing the lid.

Remove the logger from the barrier. Check the logger LED sequence (LED should still be flashing green to show continued logging).

Stop the logger by pressing the red stop button.



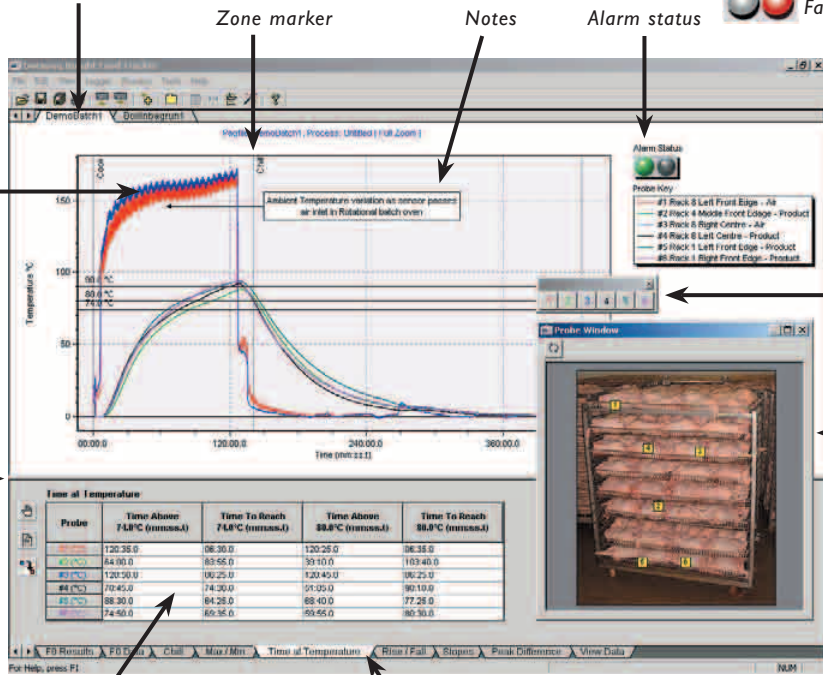
Connect to the PC running Food Tracker Insight software and download the profile run.



# Key functions of insight software



Paqfile tab - open multiple paqfiles together



Splitter bar resize view

Probe toolbar

Probe location image

Analysis data cells - displayed in red if data fails alarm criteria

Analysis tabs

Probe	Time Above 74.0°C (minutes)	Time To Reach 74.0°C (minutes)	Time Above 88.0°C (minutes)	Time To Reach 88.0°C (minutes)
#1 (°C)	120:38.0	06:30.0	120:25.0	06:33.0
#2 (°C)	44:00.0	03:55.0	39:10.0	103:40.0
#3 (°C)	120:30.0	100:25.0	120:45.0	06:25.0
#4 (°C)	70:45.0	74:30.0	51:05.0	90:10.0
#5 (°C)	88:30.0	84:28.0	88:40.0	77:28.0
#6 (°C)	74:50.0	69:35.0	58:55.0	90:30.0

**Reset Data Logger pre-run**

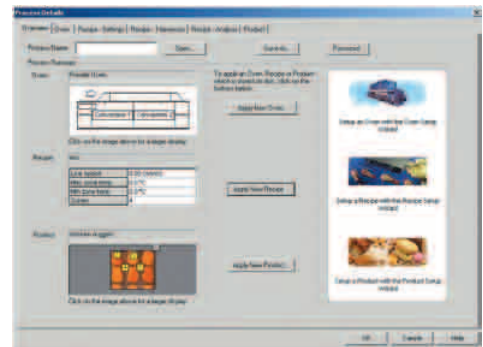
**Download Data from logger to PC post-run**

**Download Plus**  
Download Data, Select Process File, AutoSave Data and AutoPrint...  
...from one single button press.

**Wizards**  
For key software functions, wizards are available to guide you step by step through the necessary software operation. Use advanced features with confidence and ease (eg. setting up Download Plus)



**Process Files**  
Create template files that describe your cook/chill processes (Oven, Recipe, Product). Apply to downloaded data to document the profile completely and allow data to be interpreted fully against the process.  
Set up file just once to avoid repeating data input after each run, making operation quicker and easier.

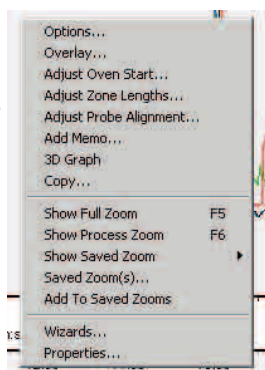


**Analysis Options**  
For each analysis set-up Analysis parameters and Alarm conditions.

**Probe Names** describing location of probes on the product.

**Print**  
Use Print options to configure the information printed whether Full Report, Graph Only, or Raw Data.  
For the Full Report select which information is included. Check report format with Print Preview before actually printing a hard copy.

**Right Click Mouse**  
Right click the mouse button to access many useful functions rapidly. For example Overlay Results files or Tolerance curves efficiently and easily to see whether your oven is changing over time.



**Help Button**  
On any dialogue, press the Help button for information specific to the operation you are performing.

# Analysis... Convert raw data into meaningful information that will improve your process.

Monitor and confirm your HACCP critical cook / chill control points



## Max/Min Temperature

Calculate the maximum temperature and time achieved for each probe location on the product measured.



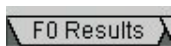
## View Temperature Data

Display the product/air temperature at any point in the process. Click the left-hand mouse button on the trace of interest. Move the cursor bar with mouse to appropriate position and read time and temperature information. Print raw data or export if appropriate.



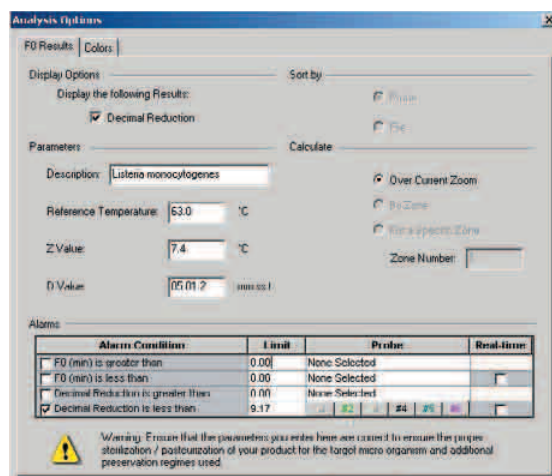
## Time at Temperature Data

Calculate the time at which a product reached a specified temperature, and the dwell time the product was held at, or above that temperature. Click on the Options button to select multiple threshold temperatures.



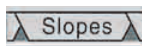
## F<sub>0</sub> Results Data

Calculate effective kill 'lethality' of the cook/pasteurization process to accurately prove cook safety. Input the theoretical reference temperature and Z values and decimal reduction time for the micro-organism of interest (e.g. *Listeria Monocytogenes*). The software will automatically calculate using the complete profile data the accurate F<sub>0</sub> value and/or corresponding number of decimal reductions of the micro-organism population.



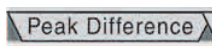
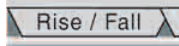
## Chill / Freeze Rate Data

Post cook, calculate exactly how quickly your product cools between critical temperatures as required by regulatory bodies such as the USDA / LACOTS.



## Slopes and Rise/Fall

Use Slopes and Rise/Fall time analysis functions to calculate rate of heating or cooling within the process.



## Peak Difference

Determine the peak difference temperature between probes to identify differential heating or hot and cold spots within the oven.



## Alarms

Analyse from the profile data what Alarm conditions were triggered so allowing quick and easy analysis of what the failure conditions were for the process.

# Battery status / Charging status

<b>Yellow LED</b>	<b>Meaning</b>
On	Wall cube connected to logger - charger power on
Off	Wall cube disconnected or charger power off
Flashing (every second)	Low battery - recharge immediately



<b>Red LED</b>	<b>Meaning</b>
On	Battery fast charging - battery recharged in 2.5 hours
Off	Not being charged - wall cube disconnected or power is off, or battery is fully charged
Flashing (every second)	Slow charging prior to fast charge - very flat battery, or battery too hot/cold

# Logger status

<b>Red</b>	<b>Green</b>	<b>Meaning</b>
5 flashes alternating with the green LED	5 flashes alternating with the red LED	Logger has been successfully reset.
Flashing, alternating with green, LED at sample interval	Flashing, alternating with red LED, at sample interval	Logger is awaiting trigger (e.g. temperature trigger)
Flashing with green LED	Flashing with red LED	Probe temperature is above trigger point, and logger cannot trigger (or below trigger point for falling triggers)
Off	Flashing at sample interval (5 sec max)	Logger is acquiring data
Double flash (0.3secs on, 0.3 secs off, 0.3 secs on) with green LED every 5 secs	Double flash (0.3 secs on, 0.3 secs off, 0.3 secs on) with red LED every 5 secs	Logger is waiting for next run to be started (only occurs in multiple run mode)
Flashes 5 times (1 per second)	Off	Communication established between logger and PC (only occurs when communication cable is connected to PC)
Flashes every 5 seconds	Off	Logger has data in memory, which has not been downloaded
Flashes 1 per second	Off	Logger internal error - contact Datapaq

# Testing thermocouples



To test the working performance of thermocouples, carry out the following test (nb. this test is not viewed as an alternative to calibration but will highlight faulty probes prior to a run and prevent wasted time and effort discovering that a probe was not working at the end of a profile run).

1. Connect the logger to the PC via the communications cable
2. Connect the thermocouples to be tested
3. From the reset screen, select:
  - Hardwired telemetry
  - Number of probes being tested
  - 0.5 sec sample interval
  - Start button trigger

Press OK

4. Follow the instructions on the software screen.
5. Once recording and viewing data live on the screen, and in the 'View temperature data' analysis tab, measure reference temperature sources and confirm that the readings are close to those expected.



*Example:*

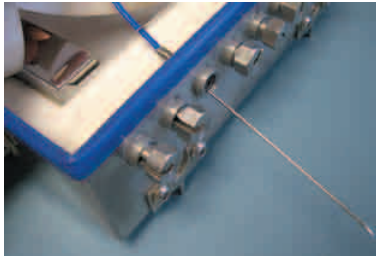
*Freshly boiled water      Temperature approaching 100°C (212°F)*

Faulty probes will give values significantly different to these values and should be replaced.

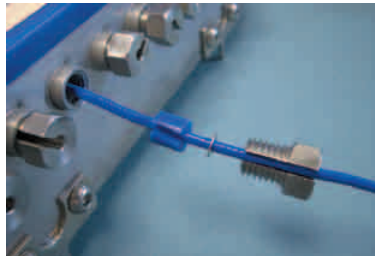
# Thermal Barriers

TB5815 / TB5816 / TB5817 - barriers that can be submerged, or where conditions (steam, moisture) are extreme.

Follow these steps:



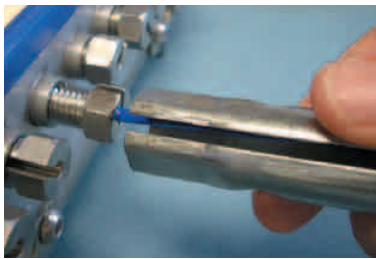
**1** Feed probe through barrier probe port



**2** Fit probe seal and finger screw to cable (check probe seal selection below)



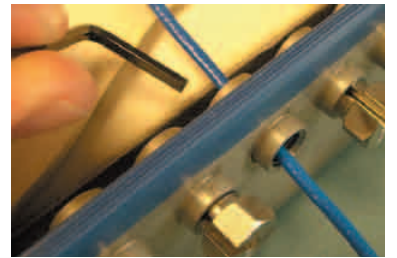
**3** Insert seal and engage finger screw



**4** Tighten connection using box spanner SCI157







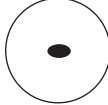


**5** If no probe is used, insert a blank seal



**6** To replace a probe, first remove the existing probe seal with an allen key

## Probe seal selection

To guarantee the waterproofing of a barrier in submersible applications, confirm that you use the correct probe seal for the probe type being used. Match seal colour to the probe type.

 MI probe 	 Core & short needle probe 	 Standard needle probe 	 No probe
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## Fluke Process Instruments

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### EMEA

Cambridge, UK  
Tel: +44 1223 652 400  
[sales@flukeprocessinstruments.co.uk](mailto:sales@flukeprocessinstruments.co.uk)

### Americas

Derry, NH, USA  
Tel: +1 603 537 2680  
[sales@flukeprocessinstruments.com](mailto:sales@flukeprocessinstruments.com)

### China

Beijing, China  
Tel: +86 10 6438 4691  
[sales@flukeprocessinstruments.com.cn](mailto:sales@flukeprocessinstruments.com.cn)

### Asia East and South

India Tel: +91 22 2920 7691  
Singapore Tel: +65 6799 5596  
[sales.asia@flukeprocessinstruments.com](mailto:sales.asia@flukeprocessinstruments.com)

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1/2017 m-paq21-qrg-e-v1a

