

Quick Reference Guide

Running a temperature profile

See the *EasyTrack3 User Manual*, and the *Insight Help system*, for full details of these procedures.

Reset the Logger

- If... **EITHER** you are making the first profile run with a new Datapaq ET3 logger, **OR** you want to change the reset conditions (e.g. sample interval or start trigger), first connect the logger to the PC and **reset the logger with Insight**.



Select sample interval.

Check battery status.

GREEN: OK
YELLOW: Caution
RED: Replace battery

With **auto start as the trigger**, data-recording starts as soon as you click OK and disconnect from the PC (connect probes before reset).

With **rising temperature** set, data-recording starts when the temperature of any probe rises to the specified value.

If required, set options for **run mode and SmartPaq** (Insight EasyTrack Professional only; see p. 2).

- After clicking OK, disconnect the logger from the PC.

2 Start Recording

- Attach thermocouples to the logger.
- If using **start button** to begin data-recording, press and hold it now, and the **green LED** flashes continuously to confirm that data is being recorded.

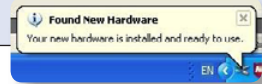


3 Assemble the System

- Place logger and heatsink in the thermal barrier.
- Fit the **barrier lid**, and secure all catches.

Install battery in the logger – See p. 4. Installing the Insight™ software

- Ensure you are logged into Windows in Administrator mode.
- Place the Insight DVD in the drive and follow the on-screen instructions. You will need your license number.
- Remove the DVD, and use the communications lead to connect the logger to a USB port on the PC; the red LED on the logger should flash five times. Drivers will then install automatically.



4 Collect data

- Attach probes to the product or test-piece.
- Send the system through the process and collect at exit.



WARNING

Wear heat-resistant gloves.

- Remove logger from the barrier and leave to cool.
- Press **stop** button.

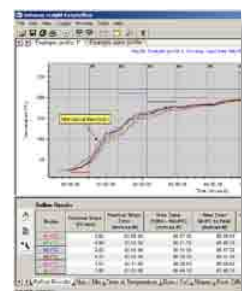
If **multiple run*** has been set (see p. 2), repeat from **stage 2**.

5 Download data

- Attach logger to the PC and select **download**.
- If using a **process file*** (see p. 3), select one when prompted.
- View the temperature profile and **save the data**.



Print a report.



Key functions of Insight EasyTrack software

Oven zone markers*

Threshold temperatures
For Time at Temperature analysis (View > Graph Options, and see p. 3).

Oven bar* (distance axis)
Shown when oven zones are set up (see p. 3).

Analysis Options
Specify parameters for the current analysis mode (see p. 3).

Edit probe names

Analysis Window
Use the tabs to select analysis modes (see p. 3). Data in red cells is out of tolerance.

Paqfile tabs* Open multiple profiles, and switch between them.

Probe toolbar* Click individual probes to remove them from the display and from the analysis.

Alarms
A 'fail' indicates out-of-tolerance analysis data (see p. 3) or problems during the run.

Mouse-operated zooming
Drag out an area to zoom into. The data grid and analysis then apply to that section of the data alone.

Memos Add comments: select Edit > Memos.

Movable splitter bar
Choose how much of the screen to devote to the graph or to the data.

Probe Window* Display a picture of your product, showing probe positions: select Process > Process Details.

See Insight's **Help** system for full details of these and many other functions.

Reset the logger

Before a profile run, set the data-collection parameters: sample interval, trigger mode and run mode (single-run or multiple-run*) (see below).

Download data

After a profile run, transfer collected temperature data from the logger to the PC (see p. 1).

Save the results

For future use, save the results of your profile run as a **paqfile**.

Print report

Print a comprehensive report of the data and its analysis. To customize* the report, select File > Print Options.

Email the results

Send the profile results as an email. In case the email recipient does not have Insight, the email contains a link to download free **Paqfile Viewer** software with which to view the temperature profile.

Wizards*

Select a wizard to guide you, step by step, through the process of...

- **Resetting** the logger.
- **Downloading** data.
- Creating a **Datapaq Value** file containing details of a cure schedule (see p. 3).

Help

In any dialog, press the **Help** button for information specific to the operation you are performing.

Mouse right-click

Right-click on the graph to show a menu of commonly used options (those available for *EasyTrack Professional* are shown at right). Options include:

Overlay Overlay additional temperature profile(s) on the same graph for direct comparison.

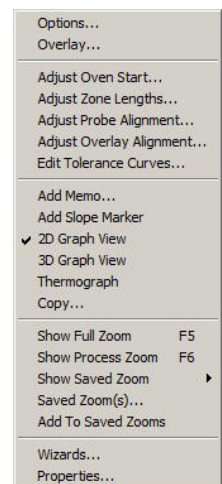
Adjust Oven Start

Reposition the markers for oven start in a paqfile.

Add Slope Marker Ctrl-drag ends of the marker arrow to change its angle and position.

Copy Export a paqfile's data to the Windows clipboard – as text or as spreadsheet data.

Zoom Zoom into different parts of the temperature profile.



Using multiple-run mode* – Collect data for up to three runs before downloading.

1. When resetting the logger (p. 1), select multiple run. Trigger mode must be start button or temperature.
2. After each run, press **stop** button, then trigger next run.
3. Download data as usual (p. 1) after all runs are complete.

Using SmartPaq* – Get instant pass/fail quality assurance on removal from the oven.

1. When resetting the logger, click the SmartPaq button to set pass/fail criteria.
2. At the end of the run, the SmartPaq LED on the logger shows **green** for pass, **red** for fail.

* Feature available in Insight EasyTrack Professional only.



The analysis options

See Insight's **Help system** for full details of using the analysis modes.

Datapaq Value

Datapaq Value Insight compares the coating manufacturer's recommended curing time/temperature with the actual time/temperature values experienced by the product, and generates an **index of cure** which indicates the degree of compliance.

First... Input cure-schedule information from your coating supplier:

- Click the Options button , or use the Datapaq Value Wizard* .

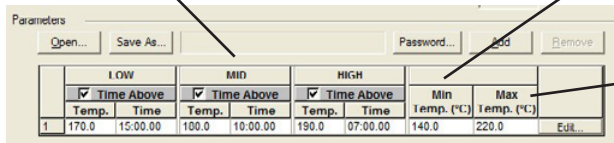
Then... Assess the Datapaq Value obtained during a profile run:

- Generally, **near 100** indicates **cure OK**
- Significantly **less than 100** indicates **under-cure**
- Significantly **greater than 100** indicates **over-cure**

Three coating cure schedules (low, mid and high Time at Temperature settings).

Temperature at which curing (cross-linking) starts.

Temperature above which coating damage is possible.



	LOW		MID		HIGH		Min Temp. (°C)	Max Temp. (°C)
	Temp.	Time	Temp.	Time	Temp.	Time		
1	170.0	15:00:00	100.0	10:00:00	190.0	07:00:00	140.0	220.0

From quality-assurance tests, find the range of Datapaq Values (e.g. 80–140) which gives you acceptable coating cure-quality. Datapaq Value then becomes a rapid means of ensuring that the process is in control.

View Data

View Data Display the raw temperature data for any point in the profile.

- Click on the probe-trace of interest.
- Drag the vertical bar to the appropriate position and read time and temperature information.

* Feature available in Insight EasyTrack Professional only.

For each analysis mode, click on the **Options button** in the Analysis Window to **select parameters** for that analysis.

Maximum/Minimum

Max / Min Analyze the **maximum and minimum temperatures** achieved by each probe.

Time at Temperature

Time at Temperature Calculate the time at which a threshold temperature is reached, and the time for which the product was at, or above, that temperature.

In **EasyTrack Professional**, you may also analyze:

- **Rise/fall** (rates of heating and cooling).
- **Peak difference** between probes.
- **Area under curve**.

Alarms

Alarms Details of **alarms** which are triggered: out-of-tolerance analysis results*, logger going over temperature, low battery, or invalid measurements.

Specify the details of your process

In **EasyTrack Professional**, use the **Process Details dialog** to set the details of your process and to quickly save and apply new sets of parameters.

Click...



...to open the dialog

Add and remove zones to match your oven.

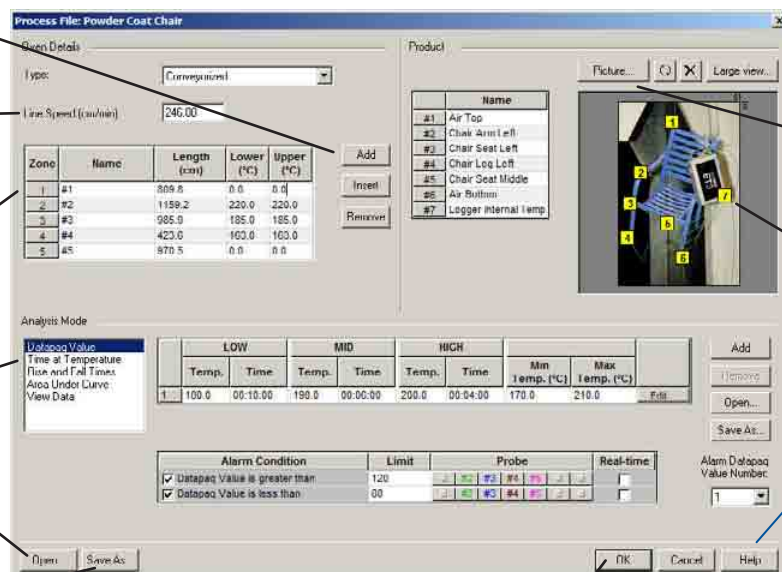
If oven type is set to 'Conveyorized', always set the line speed.

Enter the oven's settings so that these can be shown on the graph to aid interpretation. Each oven zone can be given a name.

Select each analysis mode one at a time to change the analysis parameters and alarms (see above, and the Help system).

Select **Open** to browse to an existing process file.

Save the details as a process file which can then be applied quickly to the data for any profile run. Choose the **whole** of the process details, or just those relating to the **oven**, the **analysis** or the **product**.



The dialog box shows settings for 'Process File: Powder Coat Chair'. It includes sections for 'Oven Details' (Type: Conveyorized, Line Speed: 246.00), 'Product' (a list of probe locations and a picture of the product with yellow markers), 'Analysis Mode' (with checkboxes for Datapaq Value, Time at Temperature, Rise and Fall Times, and Area Under Curve), and 'Alarm Condition' (with checkboxes for Datapaq Value greater than and less than limits).

Insert a picture of the product for information.

Drag the yellow probe markers on the diagram.

Anywhere in Insight, fully-detailed context-sensitive help is always just a click away.

Click OK to apply all the details shown in the dialog to the data from the profile run.

Batteries and LEDs

The logger's battery

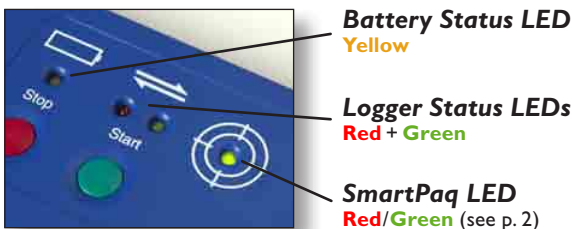
The ET3 logger requires a 9V PP3 (MNI604 or 6LR61) **alkaline** battery. Datapaq recommends Duracell, Varta or other quality batteries.

Do not use zinc-carbon or zinc-chloride batteries, rechargeable batteries, batteries that may have been used previously, or batteries outside their shelf life.

Even when the battery is removed, data stored in the logger will not be lost.

Battery status LEDs

Yellow	Meaning
Off	Battery has at least 20% of full charge.
Flashing every second	Battery has 20% or less of full charge. Data-recording cannot start until battery is replaced.



Logger status LEDs

Red	Green	Meaning
Red and green LEDs each give 5 flashes, alternating with each other		Logger successfully reset.
Red and green LEDs flash continuously, alternating with each other, at sample interval *		Logger awaiting trigger (in most situations, except as below).
Red and green LEDs continuously give double-flash together, every 5 seconds		Logger awaiting trigger for 2nd or 3rd run in multiple-run mode (see p. 2).
On	Flashing at sample interval *	Logger awaiting trigger, but one or more of the input channels is open circuit.
Red and green LEDs flash together, at sample interval *		All probes are above trigger temperature, and thus data-recording cannot be triggered by rising temperature. Reset temperature trigger (see p. 1).
Off	Flashing at sample interval *	Logger acquiring data.
Flashes 5 times	Off	Occurs when connection is made between logger and a working PC, using communications lead.
Flashing every 5 seconds	Off	Logger has data in memory which has not been downloaded. (Logger will power-off after 5 mins.)
2 quick flashes every second	Off	Logger too hot to start logging (after pressing start button).
Flashing every second	Off	Internal error. (Logger will power-off after 5 mins.)

* Flashing interval will actually fall in range 0.5–5 s.

Fitting batteries

1. On the rear of the logger, press on the battery-compartment door and slide it open.
2. Remove the old battery, and place a new alkaline battery into the compartment, observing polarity.
3. Slide the battery-compartment door back into place.



Saving battery life

The logger will power itself down (all LEDs off) five minutes after the **stop** button has been pressed if the data is not downloaded.

To **power down** the logger manually, press the **stop** and **start** buttons simultaneously and hold them for 5 seconds: all four LEDs flash together, once.

To **power up** the logger, either plug in the communications lead or (to start a profile run) press the **start** button. If the logger has data in memory that has not yet been downloaded, pressing the **start** button will not start a new run or delete data but will simply power the logger up; the **red** LED will then flash every 5 seconds to indicate that data needs to be downloaded. If in **multiple-run mode** (see p. 2) and 1–2 runs have been performed, the **start** button will start logging.

For full details of the use and specifications of the ET3 logger, see the **EasyTrack3 User Manual**.

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