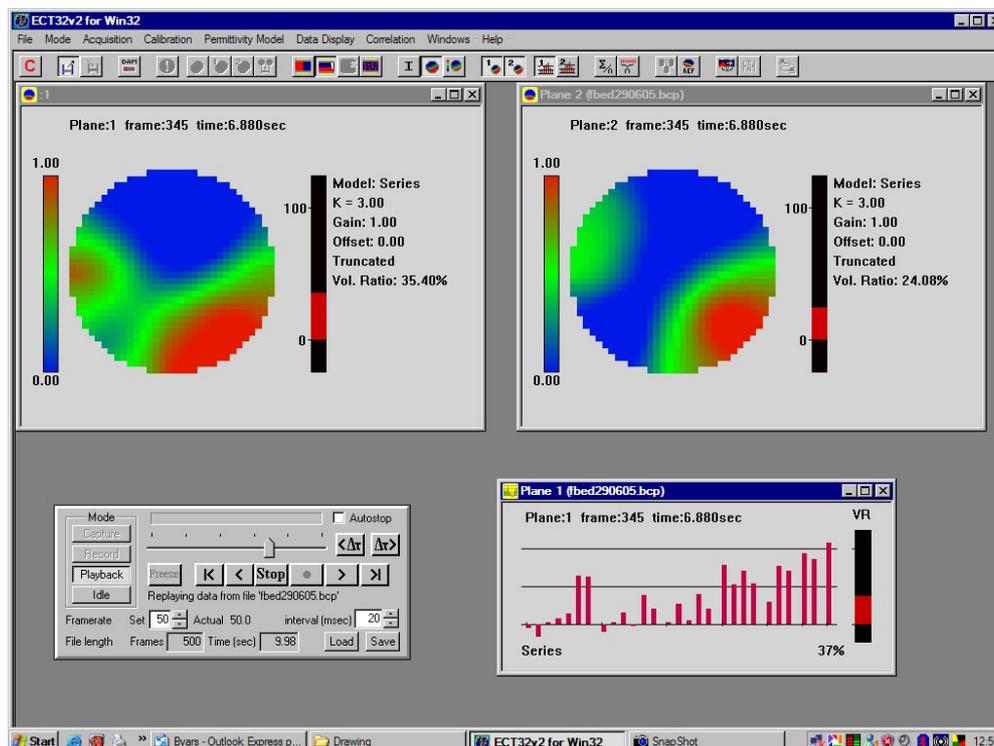


32 BIT SOFTWARE FOR ELECTRICAL CAPACITANCE TOMOGRAPHY

OVERVIEW

The **PTL ECT32v2** software suite is an updated version of PTL's previous **ECT32** software for controlling and processing data from **PTL300E ethernet-controlled ECT systems**. The software runs under all versions of the Windows operating systems from Windows 98 to XP and can be used to control both single and twin-plane ECT systems. A file conversion facility is included with this software to allow it to read ECT data files created using previous software versions, including PCECT, TransECT and ECT1. The software has many features not included in previous versions, including **on-line iterative image reconstruction**, the use of **permittivity offsets**, choice of **sensor models** and **reconstruction algorithms**, **frame averaging** for **noise reduction** and, for advanced users, direct control over the **measurement time constants**.



SOFTWARE OVERVIEW

The main **control screen** is the **ECT32 Desktop window** (shown above), which allows **one or two ECT sensor planes** to be controlled either **independently** or **simultaneously**. Data can be **captured** and **played back** at **different frame rates**. Measurement data can be displayed as **permittivity images**, **normalised capacitances** or any combination of these.

Permittivity Images can be constructed using a number of different **physical sensor models** and **reconstruction algorithms**, including **on-line iterative techniques**. **Image pixels** can be **truncated** or **inverted**. The **image gain** can be set by the user and a **permittivity offset** can also be applied to the image to allow **small variations** about a **preset value of permittivity** to be displayed. **Frame averaging** can be used on-line to reduce **noise levels** for slowly changing data.

Measurement data can be saved in either **binary** or **ASCII** format and sequential data files can be generated automatically. **Calibration of twin plane systems** can be carried out **for each plane individually** and a composite calibration file can be generated from the individual files. Sensors can be recalibrated at the **high or low permittivity points individually**.

A set of data can be stored in a **reference frame** and **subtracted from all subsequent data frames**, allowing enhanced viewing of changes in experimental conditions. Data from a number of frames can be **averaged** on a rolling or fixed basis to **reduce the effect of noise** for slowly-changing images and the **averaged data** can be used to produce the **reference frame**.

An optional facility which allows **capacitance data to be exported on-line** via a fast ethernet link to a remote PC is also available.

Advanced facilities are provided which allow the fundamental **measurement time constants** to be optimised to allow **increased data capture speeds** at the expense of increased **system noise levels**.

MODES OF OPERATION

The **ECT32 software** has three main modes of operation.

In **Capture** mode, data is displayed **on-line** from a **single** or **twin-plane ECT sensor** connected to the **DAM200E unit**. The displayed data is stored to a **circular memory buffer continuously**. When **Capture** mode is exited, the **buffer memory** is saved to a **data file** automatically.

In **Record** mode, the **ECT32 software** allows **capacitance data** from an **ECT sensor** to be recorded directly into a **capacitance data file** for subsequent replay and analysis.

In **Playback mode**, the **ECT32 software** displays data from a **previously captured or recorded capacitance data file**.

PERFORMANCE

The following maximum data capture rates are possible using a current standard Pentium 4 PC and a PTL300E ECT system with the default measurement time constants:

	Single- plane fps	Twin-plane fps
12 Electrodes:	100	100
8 Electrodes:	200	200
6 Electrodes:	300	300

FILE CONVERSION UTILITIES

File conversion software is supplied which can convert all previous ECT data file formats into ECT32 format. This allows data captured using previous versions of PTL software to be replayed and processed using the improved facilities available in the new software.

FURTHER INFORMATION

For further information, please contact our sales department at the address below or email us at: enquiries@tomography.com

PROCESS TOMOGRAPHY LTD

64, Courthill House, Water Lane, Wilmslow, Cheshire. SK9 5AJ United Kingdom.

Phone/Fax 01625-418722

(From outside UK +44-1625-418722)

email: enquiries@tomography.com Web site: www.tomography.com

Registered in England No. 2908507. Registered Office 15, Croft Road, Wilmslow, Cheshire. SK9 6JJ United Kingdom.

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