

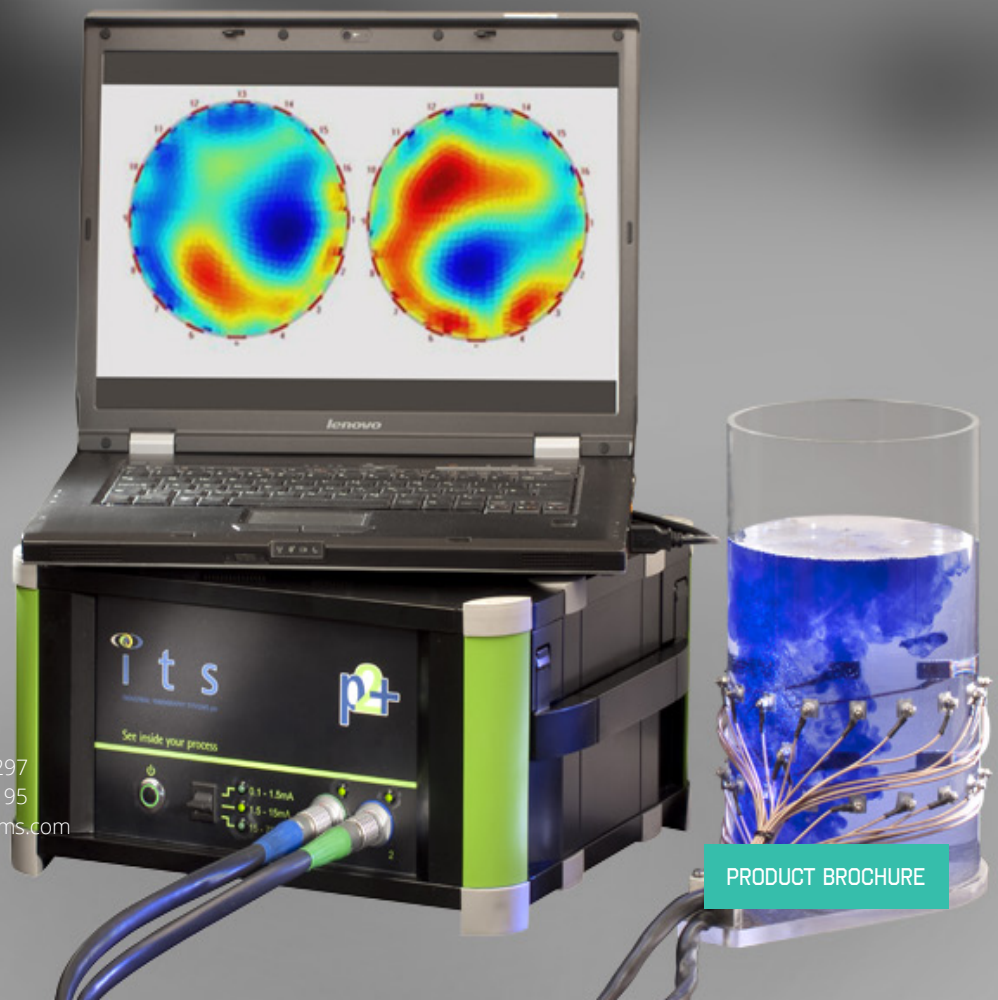
RESEARCH & EDUCATION PACKAGES

INDUSTRIAL TOMOGRAPHY SYSTEMS PLC

Sunlight House
85 Quay Street
Manchester, M3 3JZ
United Kingdom

T: +44 (0) 161 832 9297
F: +44 (0) 161 839 5195
E: sales.support@itoms.com
www.itoms.com

Registered in England No.04139271



PRODUCT BROCHURE

An affordable way to introduce tomography to your research

ITS' range of Research & Education Packages are specifically designed to meet the needs of R&D centers, universities and research institutions around the world.

Research & Education Packages from ITS allow for volumetric analysis of multiphase processes. Each package is tailored to the requirements of the user's field, meaning that package can be used for research into processes relating to petrochemicals, pharma, mining, and much more. The technology underpinning these packages is based on over 15 years' experience with tomography-based measurement solutions.

Electrical resistance tomography (ERT) technology works by applying a small current to an array of electrodes that are in contact with the process medium.

As this current propagates through the process volume, software uses complex algorithms to construct a conductivity map (or "tomogram"); a cross-sectional slice through the process. For non-aqueous processes, an alternative imaging technology is also available, based upon electrical capacitance tomography (ECT), which uses permittivity as the basis for measurements.

Tomography is extremely versatile, meaning that sensor arrays can be configured as vessels (see figure 1), probes, or as spool pieces pipelines for flowloops (see figure 2).

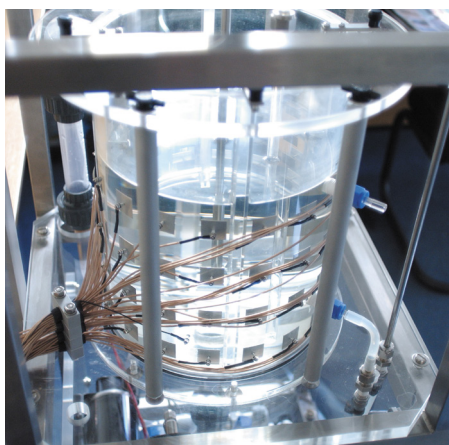


Figure 1 Lab-scale vessel sensor



Figure 2 Lab-scale sensor installed in a flow loop

INNOVATIVE RESEARCH TOOL

The standard Research & Education Package is ideal for teaching and general laboratory at university level, with over 100 institutions around the world already using this tool as part of their process engineering research into in-line and batch processes; CFD and process model verification; unit processes such as hydrocyclones, static and driven mixers, packed columns; and multiphase flows.

Your chosen package will enable you to visualise multiphase processes as they progress and then export data to Matlab, Excel, and similar tools to analyse the resultant data; enabling you to add a new dimension to lab-based teaching.

PROCESS INFORMATION

Real time tomographic data gathered by the sensor included in the Research & Education Package is presented in 2D and 3D formats – showing processes as they evolve through contrasts in the electrical properties of materials – which can be automatically converted to phase concentrations. Data is collated on a mesh and statistical operators are used to provide process parameters such as mixing indices and regional changes in the process conditions.

All of this make the Research & Education Package a powerful teaching tool in the areas of standard unit processes, process modelling, and instrumentation.

KEY BENEFITS

- ✓ Package includes everything users need to get started with tomography
- ✓ Sensors are tailored to your research requirements
- ✓ Generate real-time data
- ✓ Adds a new dimension to your research
- ✓ Technology is proven across a range of industries, including pharma, oil & gas, and mining

PACKAGE INCLUDES

- ➔ Lab-scale sensor, either as a probe, spool piece or vessel (see figure 1 on previous page)
- ➔ Data acquisition system (see figure 3)
- ➔ User-friendly Windows-based tomography software (see figure 4)
- ➔ Optional technical support from ITS's team of specialist engineers



Figure 3 p2+ tomography instrument

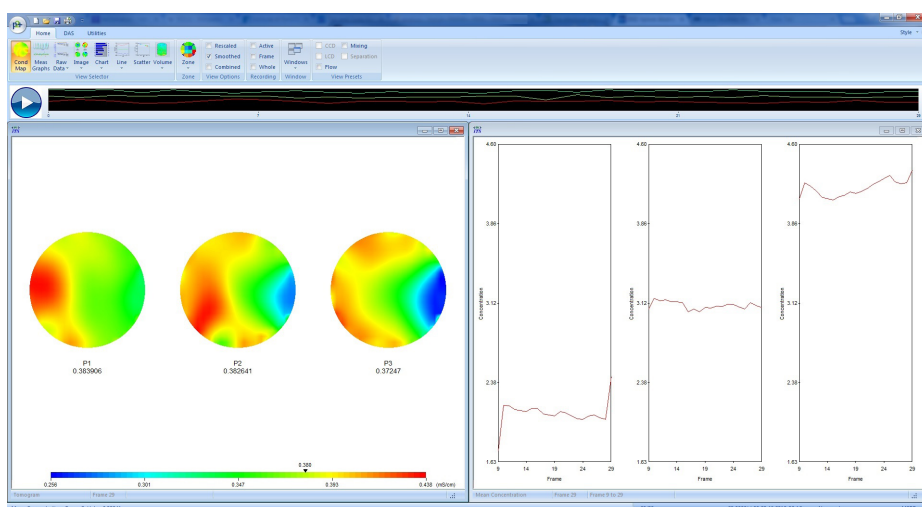
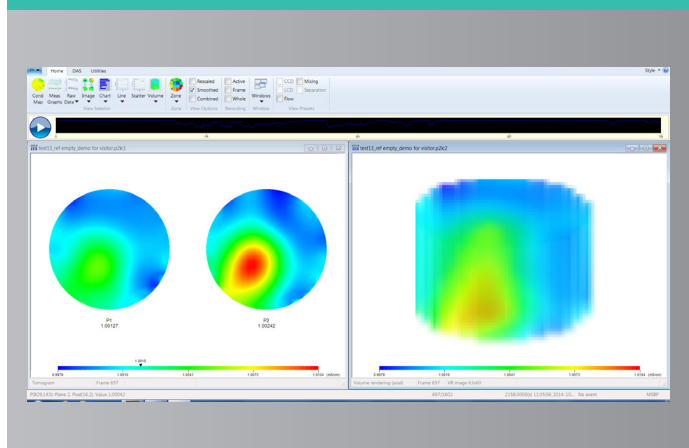


Figure 4 ITS Tomography Software

RESEARCH PACKAGE: SYSTEM SPECIFICATIONS

ITS tomography systems are comprised of a sensor that interfaces with your process, instrumentation, software, and technical support from our dedicated team of engineers.

SOFTWARE



SENSOR



Vessel



Pipe



Probe

INSTRUMENTATION



v5r ERT instrument



p2+ ERT instrument



m3c ECT instrument

TECHNICAL SUPPORT



For a detailed technical specification of this system, or to learn more about how it can enhance your processes, please [email us](#), [enquire online](#), or call +44 (0) 161 832 9297