

z8000 Electrical Resistance Tomography



Electrical Resistance Tomography:

Parameter	Conductivity
Process Environment	Conducting (solutions)
Typical Processes	Multi-phase, slurry transportation
Sensor	Internal
Reference	Single (mean)
Also sensitive to	Temperature

z8000

The z8000 is essentially a resistance tomography instrument that can also measure impedance; phase and reactance. Impedance can measure real and imaginary parts, which gives another set of data to understand complex materials and how they are distributed in the course of a process.

The z8000, can capture data 1,000 dual frames per-second, which enables it to measure rapid flows or any process which is fast moving.

In contrast to many systems-based measurement techniques, tomography sensors are able to rapidly sense throughout a volume. Thus providing a dynamic picture of what is going on inside a pipe or vessel, e.g. whether a system is homogeneous.

Product Characteristics

Single modality (ERT)	
Max No of electrodes:	32; 16 x 2 planes arranged in 1 and 2 planes

Sensor Geometry:

- Circular

Applications

- Multiphase flow characterisation
- Interface Detection
- CFD Validation
- Hydraulic Conveying
- Filtration

Industries:

- Oil & Gas
- Nuclear
- FMCG
- Mining
- Others...

Benefits to users are:

- Measurement of rapid flows
- Increased process understanding
- More effective process development
- Improved and more consistent product quality

z8000 EIT



Operation

Measurement Principals: Fast EIT
Number of electrodes: 32; 16 x 2 planes
planes or 8 x 16 planes
Image reconstruction
algorithm: Linear back projection

System performance

Accuracy: $\pm 1\%$ @ 80 KHz, $\pm 0.5\%$
@ 10KHz
Stability: $< 1.3\%$ deviation @ 80
KHz, 2 hours
Frame acquisition speed: 20 ms/frame
Spatial resolution: 5%
Online measurement speed: 45 frames/ S 16 elec
trodes

Hardware

Input: Current
Non-conducting
adjacent /
Range: 00H-FFH (ad-ad)
ad)
Injection frequency: 10KHz - 80KHz
Output: -10 V to +10 V
Memory : 8MB RAM
Max no. measurement frame: 8000 16 electrodes
Mode of measurement: Parallel

Power Supply

Power input: 100-240 V a/c, 50/60 Hz 1.5A
Consumption: DC 24 V 45W

Software

GUI: VC++ Class
Data display: Online view and manage tomo-
graphy data
Tomograms images
Output: P2k file, which can be analysed
using the ITS toolsuite and Cross
Correlation software

Computer Requirements

CPU: Pentium 3 (1.6 GHz or higher)
or equivalent
RAM: 512MB
Operating System: Windows 2000/ XP
Serial Ports: IEEE 1394 Firewire