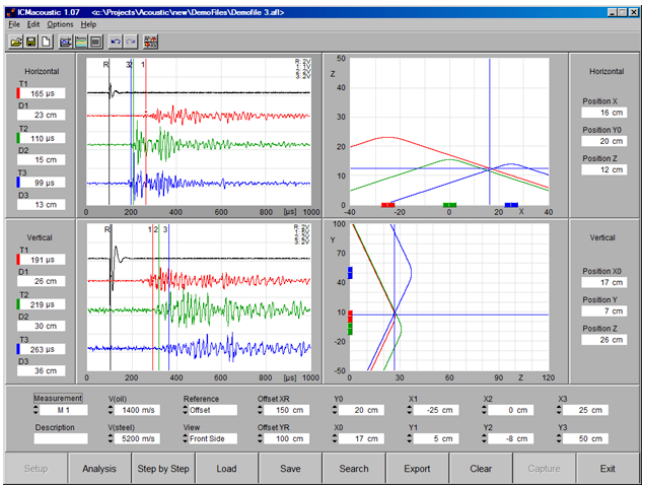
FO*system*

FOS4

FOT4 / FOR4

The ICM*acoustic* system comprises of FOT4 transmitter units and FOR4D receiver units. Each channel acts as an independent transient recorder with its own storage and settable acquisition speed and storage depth. The sampling rate is 10Msample / second and, hence, sufficient to even acquire the pointing vector of the incoming acoustic wave, when using two dimensional three-sensor configuration.

The modular system accepts up to twelve optical channels and comes with high-speed controller card to communicate with a notebook. Here, the ICM*acoustic* software offers full control of the system. Besides this, the FOS4 system has additional signal output on the rear side and can be used as a digital isolated amplifier without the use of any software.



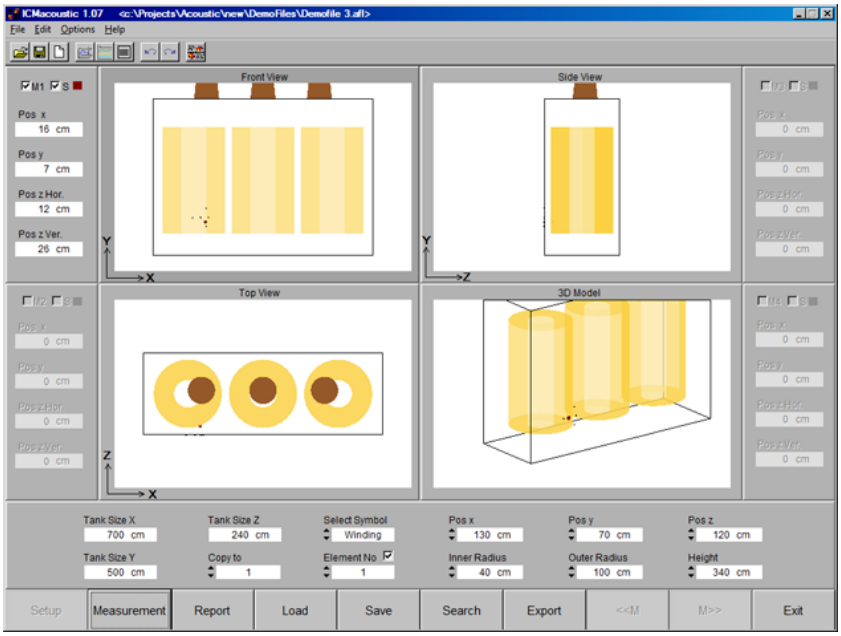
Measurement panel for horizontal (top) and vertical triangulation (bottom).

ICM*acoustic* software

The ICM*acoustic* software offers full control of the FOS4 system including of the averaging and the trigger logic. It is designed for the acoustic location of transformer partial discharge with the triangulation method. The basic idea is to reduce the location to a "flat problem". I.e., to horizontally position three sensors on a line to firstly get the horizontal position of the layer (see upper graph of the software's measurement panel, left). Here, the position of the sensors are entered and assigned to their channel. In a second step the sensors are placed on a vertical line at the found vertical position. In the lower graphs the sensor positions are entered accordingly.

If this measurement indicates a deviation of the vertical position used for the first measurement, the results are automatically corrected by "tilting" the layer. Alternatively, the horizontal step can be redone at the now found vertical position.

Finally, the defect's x/y/z coordinates give the found location along with a 3D graph (see right hand graph). To simplify reporting, traces, sensor positions, and location result is compiled to a readily formatted graph available for copy/paste into report documents. All measurements, settings and positions are stored in a file and can be reloaded for later revision or reporting.



Analysis panel for visualization of the found location(s).

FOT4A	**Digital optical transmitter and acquisition unit**	
Bandwidth:	0.2 - 1 MHz	
Conversion:	10MS/s	
Input:	BNC 1 MΩ // 40 pF	
Ranges:	10 mV - 1 V (1-2-5-10)	
Supply:	LiMH battery for up to 20h operation Built-in supply for acoustic sensors	
Overvoltage:	200V max.	

FOT4D	**Receiver Plugin**	
Internal FIFO storage		
Configurable trigger logic		
Mains Supply:	85-264V_{AC}, 47-440Hz	(automatic)
Line Fuse:	1,6 A	(time-lag)
Power Requirements:	approx. 20VA	
Connection:	USB 2.0	
Operation Temperature:	10 - 40°C	(non condensing)
Size (W x H x D):	236 x 133 x 300 mm^3	
Weight:	approx. 4,5 kg	