

## **Design consideration for front-end system in ultrasonic tomography**

### **Abstract**

The hardware development of the ultrasonic tomography comprises three main parts; the sensor unit, electronic measurement circuits combined with a data acquisition system and finally the display unit. The research done is focusing on the design considerations for the sensory unit which is also regarded as the front-end system. This part is an important concern for researchers in the field of ultrasonic, particularly for process tomography. Ultrasonic transducers are very sensitive piezo-mechanical component and as such its installation to complete the front-end system have to be properly configured. Many considerations and parameters that are well planned will promise significant impact on the sensor readings. Measurement errors can occur due to many aspects, thus this research aims to minimize such errors to be useful for further development in ultrasonic tomography system design.

### **Keywords**

Front-end system; Process tomography; Sensor jig; Ultrasonic transducer