

## Ultrasonic Coating Thickness Measurement

## QuintSonic 7



### Coating Thickness Gauge

- for paint, lacquer and plastic coatings on plastic, metal, wood, ceramic or glass substrates
- from 10 µm coating thickness
- extended measuring range up to 7mm
- up to 5 layers in one operation
- also suitable for GRP and CRPK

### A-Scan on Graphic Display

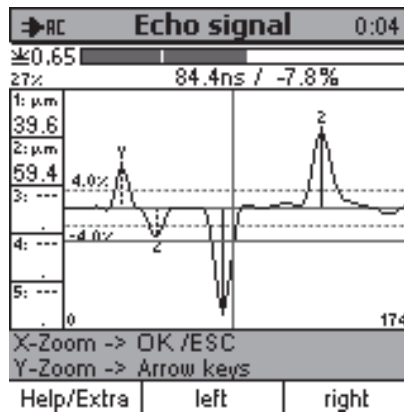
## Application

QuintSonic 7 is an ultrasonic thickness gauge for measuring paint, lacquer and plastic layers applied on:

- Plastic
- Metal
- Wood
- Glass
- Ceramic

Up to five layers can be measured non-destructively in one operation.

Thanks to the innovation technology, QuintSonic 7 is the first gauge of its kind to determine exactly the layer thickness of GRP and CRP components. QuintSonic 7 offers a wide range of applications in the automotive industry, aircraft manufacturing or any other industrial branch where accuracy is of high importance.



**A-scan illustration on QuintSonic display**

High user comfort is provided through the A-scan image function that is available on the graphic display without the need to connect the gauge to a PC. This enables utmost reliability of measurement in any situation and makes QuintSonic 7 the ideal gauge for on-suite use, use in the laboratory or use on the shop floor.

**Additional feature:** QuintSonic 7 can also be used for measuring the substrate through the coating.

## Measuring principle

Based on the reflection of ultrasonic waves, the intelligent sensor of QuintSonic 7 works as an acceptor and a transmitter at the same time emitting an ultrasonic pulse through the layer system. When the ultrasound beam crosses a boundary between two layers or to the substrate, some of the ultrasound energy is re-



**Ultrasonic transducer**

flected. Such reflections are detected by the sensor and evaluated according to the sound velocity in the given medium. The transit time of the ultrasonic waves is analyzed and converted into a coating thickness value with a resolution of 1  $\mu\text{m}$ .

Special feature of QuintSonic 7: the gauge combines state-of-the-art sensor technology and innovation software to provide a high-precision measuring system and the reliability of measurements for applications that couldn't be solved so far. Measuring values are created within the sensor itself and only after complete processing transferred to the gauge hence unaffected by interference during signal transmission.



**Measurement of a multilayer system on a front lid**

## Evaluation

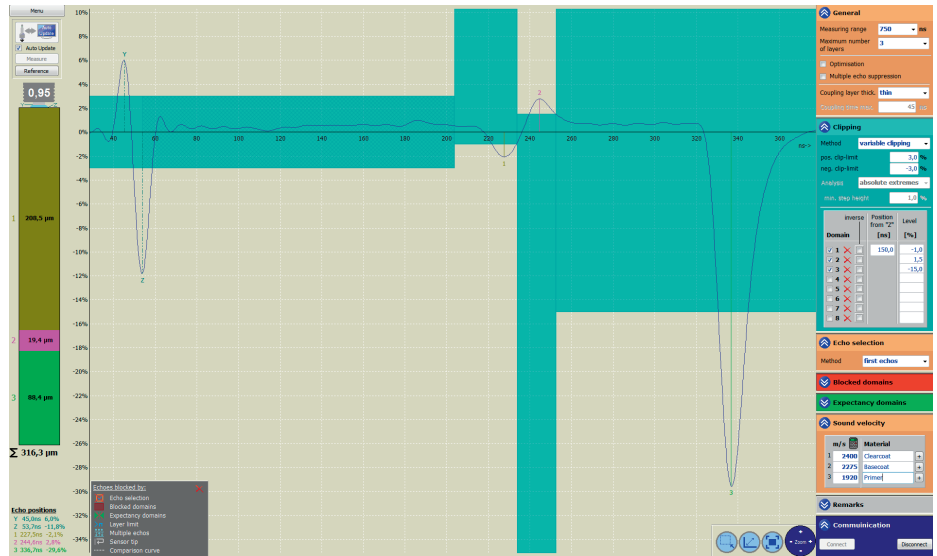
The QSoft 7 Basic Edition PC software supplied with the gauge provides A-scan images allowing convenient parameter setting adapted to your measuring task. This allows to optimize measuring results considerably. Parameter sets are used to define measuring ranges, interference suppression and evaluation of sound echoes as well as expectancy or blocked domains. Unwanted echoes caused by fibers of GRP or CRP substrates, for instance, will be attenuated by blocked domains accordingly. The optimal parameter can be stored, loaded again and transferred to the QuintSonic 7 device.

QSoft 7 Professional is optionally available and offers additional opportunities:

- Creation of measuring series with the help of an assistant and transfer of complete data structures to the gauge.
- Data management of measuring values, analysis and documentation of measuring series.
- Data transfer to Microsoft Excel® and creation of reports version in Adobe® PDF formation for documentation.

Another challenge in ultrasonic coating thickness measurements are layers exhibiting very similar materi-

Multilayer coating on cover of a rearview mirror

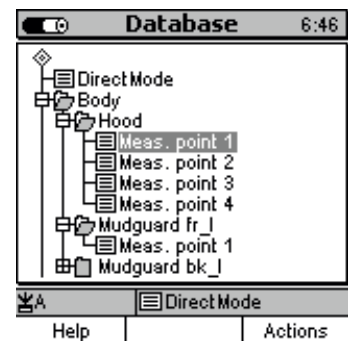
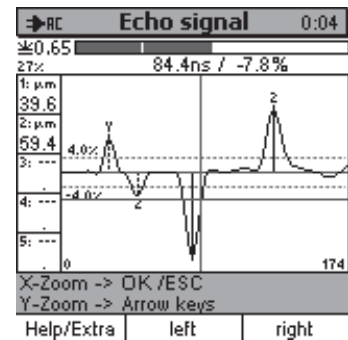
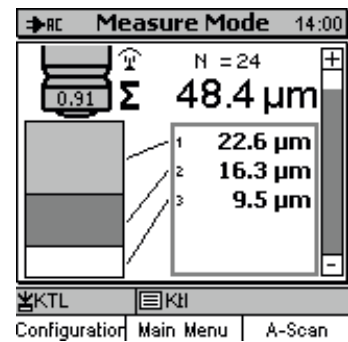


Parametrization software "QSoft 7"

al properties. Their impedance values do not vary significantly enough in order to provide clear echo signals. The innovation clipping functions "global clipping", "variable clipping" and "divisional clipping" of QuintSonic 7 are offering a solution to this problem so that also very weak echoes can be clearly distinguished. Thus even very difficult setting of task of this kind can be solved with utmost reliability and precision.

## Data management

Additional comfort is added by the possibility to determine the sound velocity by means of reference samples. Once the sound velocity of a given material has been determined, it can be stored in the data base to be available for further measurements. This helps to cut the time expense for the set-up of your measuring tasks to a minimum.



QuintSonic 7 user interface





### Supply Schedule

- QuintSonic 7 with sensor in carrying case
- Operating instructions on CDROM
- Coupling agent (gel 200 g)
- One-layer reference sample
- QSoft 7 Basic Edition software
- USB adapter cable
- 4 x AA batteries

### Optional Accessories

- Data printer MiniPrint 7000
- Quick charger for NiMH batteries
- Mains unit
- Shoulder bag
- Protective rubber cover with positioning device and shoulder strap
- Multi-purpose connection box with USB cable for connecting mains unit, footswitch, alarm device, headphones, RS232 adapter cable
- QSoft7 Professional Edition data management software
- RS232 adapter cable

### Technical specification

<b>Measuring principle</b>	Run-time measurement of ultrasonic waves
<b>Measuring range</b>	maximum 7900 µm (adjustable in ranges of 400 µm, 900 µm 1900 µm, 3900 µm for a velocity of 2375 m/s for all layers in order to achieve most precise scanning)
<b>Min. thickness of individual layers</b>	Approx. 10 µm (depending on the sound velocity of the material to be measured)
<b>Resolution</b>	0.1 µm
<b>Number of layers</b>	Max. 5 layers in one measurement
<b>Time of measurement and evaluation</b>	Approx. one second
<b>Measuring spot</b>	5 mm Ø / 0.2" Ø
<b>Contact area</b>	11 mm Ø
<b>Minimum radius of curvature</b>	Convex : 50 mm    concave : –
<b>Number of measuring series</b>	300 (max.)
<b>Data memory</b>	Approx. 250.000 measuring values (in total)
<b>Measuring units</b>	µm, mm, mils
<b>Calibration</b>	Calibration of sound velocity for up to 5 layers
<b>Statistical functions (per batch)</b>	Number of readings, minimum, maximum, mean value, standard deviation, variation coefficient, block statistics (configuration at choice), histogram, trend
<b>Interfaces</b>	IrDA® 1.0, USB and RS232 via adapter cable (available as option)
<b>International norms</b>	DIN EN ISO 2808
<b>Operating temperature</b>	+5...+50 °C
<b>Storage temperature</b>	-10...+50 °C
<b>Power supply</b>	4 x AA (LR6) batteries or optionally via mains unit (100-240 V~/50-60 Hz)
<b>Dimensions</b>	153 mm x 89 mm x 32 mm (gauge); Ø 25 mm x 65 mm (sensor)
<b>Weight</b>	320 g (gauge including batteries), 45 g (sensor), 35 g (cable)

### Other products

For further information on our complete range of products, please do not hesitate to contact us for:

- Coating thickness gauges
- Wall thickness gauges
- Pinhole detectors
- Cross cut testers
- Thickness gauges in road construction