# Table of Contents

1 Introduction ........................................ 1
   1.1 Installation........................................... 1
   Requirements ............................................. 1
   Installing UT-Lity ....................................... 1
   1.2 Overview ............................................. 2
   1.3 Supported Files...................................... 4
   1.4 User Preferences.................................... 10
   1.5 Copy to Clipboard................................... 11

2 View Files and Data Analysis ................. 12
   2.1 Alog..................................................... 15
   2.2 Bchart.................................................. 18
   2.3 Tlog..................................................... 20

3 Managing Files...................................... 23

4 Creating Reports.................................... 25

5 Exporting Thickness Tables as a CSV File ... 28

6 Maintenance .......................................... 30

7 UT-Lity Pro ............................................ 31
   7.1 Installation and Activation....................... 31
   7.2 Overview............................................. 33
   7.3 Grid Files............................................ 34
   7.4 Creating a Grid Plan for an Inspection........ 36
   7.5 Device Content Backup and Recovery........ 41
   7.6 Import Files........................................ 45

8 Parameter Description............................ 46

9 Help and Support.................................... 50
1 Introduction

This manual provides information on how to use UT-Lity software with any supported Sonatest DFD (digital flaw detector): MS-700M, SS-500S, D-70, and D-50.

UT-Lity is a tool that allows you to manage and post-process all the UT inspection data in your Sonatest Digital Flaw Detector.

Two versions of UT-Lity are available: Standard and Pro. The Pro version is covered in the UT-Lity Pro chapter.

1.1 Installation

UT-Lity is provided on a CD or can be downloaded from our Web site by selecting Download on the Support menu (http://www.sonatest.com/support/downloads/).

1.1.1 Requirements

The following are the hardware and software requirements to run UT-Lity on a computer.

- USB cable: Sonatest DFD cable 165028
- System processor: 1 GHz or faster, x86 or x64 bits
- System memory: 512-Mb RAM recommended
- Free disk space: 2 Gb
- Operating system: Windows XP, Vista, Windows 7 (32 and 64 bits), and Windows 8

1.1.2 Installing UT-Lity

The installation wizard is straightforward. Use the executable file from the CD. If you do not already have an installation key code, please contact your local representative.

To install UT-Lity from the CD:

1. Insert CD in the CD drive of the computer.
   The installation process starts automatically.
2. Follow the instructions on screen.
   At the end of the installation, an icon is installed on the computer desktop.
3. To open UT-Lity, double-click the UTLity or the UTLity-Pro icon.
4. The first time you install UT-Lity Pro you get a message.
5. Click **OK** and make a right-click on "UTLityProV1.2.1_setup.exe" and select **Run as administrator**.

This message only appears the first time you install UT-Lity on a computer.

### 1.2 Overview

This section presents the main components of UT-Lity Standard.

**Note:** The computer has to be connected to a Sonatest DFD (digital flaw detector) in order to use the following functions: **Manage Files** and **Reprogram DFD**. The **View Files** and **Settings** functionality can be used without the connection to a DFD.

The DFD information is displayed at the bottom of the main window.

**Button bar**

At the top of the main window, the button bar includes the settings button (**(Settings)**); which allows you to customize the interface and reports in the **Settings** page. Once you use a function, the home button (**(Home)**) appears at the left of the button bar. Clicking this button brings you back to the main window.

**Home**

From the **Home** tab you can open files (**View Files**), transfer files from the DFD (**Manage Files**).
UT-Lity main window Home tab
Maintain DFD

From the Maintain DFD tab you can reprogram the DFD (Reprogram DFD).

1.3 Supported Files

This section presents the file types supported by UT-Lity Standard. The additional file supported by UT-Lity Pro is covered in the UT-Lity Pro chapter.

Six types of Sonatest files are supported: configuration (*.panel), Bchart (*.bchart), Alog (*.alog), table of inspection results (*.tlog), inspection plan (*.inspln) and Grid (*.advtlog). However the Grid cannot be used to create an inspection; this feature is only available in UT-Lity Pro.
Panel

The *.panel file type includes the configuration made directly in the DFD. The configuration details are available in the tabs at the bottom of the display (Product, Calibration/TX, Gates, AutoCal, Measurement, DAC, and AVG. No other information views are included.
Bchart

The *.bchart file type includes the configuration made directly with the DFD (Panel) and the view. The view shows the part thickness in white while the black represents the absence of material.
Alog

The *.alog file type includes the configuration made directly with the DFD (Panel) and an A-scan.
Tlog

The *.tlog file is the basic thickness log that includes the configuration (Panel) and all the inspection results.

The grid option is described UT-Lity Pro chapter.

Basic Tlog with Panel
The *.insln file type is a grid plan either made directly with the DFD or with UT-Lity, and includes all the other information. This feature is only available with UT-Lity Pro and is described in the UT-Lity Pro chapter.
Grid

The *.advtlog file type is a grid of the inspection. This file type can be opened with UT-Lity Standard but can only be modified using UT-Lity Pro which is described in the UT-Lity Pro chapter.

1.4 User Preferences

Preferences for the interface, colors, units, and report settings are set on the Settings dialog box. To open the Settings dialog box, at the top of the main window, click the settings button.

Under Generals, select the display type, the graphic color, the unit system, and the parameters that you want to see in the Panel display.

Under Visible parameters, select the parameters you want to appear in the Panel when you open files and in the report. Click Apply to make the changes effective.
1.5 Copy to Clipboard

The Alog and Bchart views can be copied into the Windows clipboard for use with any third party application. In the view, make a right-click and click Copy to Clipboard.
2 View Files and Data Analysis

Data analysis is made directly from the DFD or from files downloaded from the DFD. (For more information about downloading files from the DFD, refer to Managing Files.)

To open a file for analysis:

1. On the Home tab, click View Files.

The View Files dialog box

The lists of available files appear on the left of the View Files dialog box. The files located on the computer are on the On PC tab list and the ones on the DFD are on the On DFD tab list.

Both lists can be filtered by file types using the buttons at the top of the lists.
Information about the DFD is shown at the bottom of the window.

**DFD information**

Inspection information is presented in the tabs at the bottom of the inspection view except for the .tlog type files (thickness); which are located to the right of the view.
Alog view
2.1 Alog

The Alog view, depending on the inspection settings, can display an A-scan only, or an A-scan with the DAC or the AVG. Four analysis tools can be used:

Coordinates

You can display the exact coordinates of the cursor position in the view by clicking the Zoom Scan button.
A log with coordinates

Zoom

You can zoom in on a portion of the view by clicking the Zoom Scan button and clicking and dragging the cursor inside the view. To return to the original display, click the Zoom Scan button again or right-click the graph.

Maximum - Minimum

You can display the curve with the maximum and minimum amplitude values or only the maximum. By default, both maximum and minimum amplitudes are displayed; they show as a series of vertical line when you zoom in the view. To display the signal using only maximum amplitude values, click the Max button; it then changes to the Max button.
Supersition

You can compare two Alogs by superimposing them. Open an Alog view and, in the list of files on the left of the View Files dialog box, make a right click on the Alog you want to superimpose on the current Alog view and click Superimpose.

The superimposed curve is the dark violet color.
2.2 **Bchart**

The **Bchart** view shows the part thickness in white while the black represents the absence of material.

There are two analysis tools that can be used:

**Coordinates**

You can display the exact coordinates of the cursor position in the view by clicking the **Zoom Scan** button.
Zoom

You can zoom in on a portion of the view by clicking the **Zoom Scan** button and clicking and dragging the cursor inside the view. To return to the original display, click the **Zoom Scan** button again.
2.3 Tlog

There are two types of Tlog files: basic and Grid. The Grid is presented in the UT-Lity Pro chapter.

The basic Tlog provides inspection results in a table format. The inspection can be made into a table for which each measurement is represented by a thickness value in one square of that table. The inspection can also include blocks of tables.

In this example, the inspection site has been separated into 2 blocs containing 1 table each. The tables can be the same size or different sizes. In this case, the tables for both blocks are 2 x 10.

When you select a value in the table in the top pane, the details appear at in the bottom pane. If you select a row in the bottom pane, the value is selected in the table in the top pane.

If values in the table are replaced with dashes, this means that no acquisition were made for these sections.
Color map

The Color Map button, on the left of the Tlog view, allows you to use a color code for the table values. This is particularly useful when the table is very big. It allows you to see the results faster than looking at each number individually.

Missing data appears black.

The color scheme can be customized:

- You can move the cursor along the ruler by clicking and dragging it.
- You can add cursors on the rules by double-clicking the ruler. The new cursor color is white by default.
- You can change the cursor color by double-clicking the cursor. The Select Color dialog box opens.
- You can remove a cursor by clicking and dragging it to either end of the ruler.
The Select Color dialog box
3 Managing Files

Files can be transferred from the DFD to the computer and vice versa.

To transfer files:

1. On the Home tab, click Manage Files.

![Home tab](image)

Home tab

The lists of available files from the DFD appear on the left and the ones on the computer on the right. Use the arrows between the lists to move selected files or drag and drop files from one list to the other.

Both lists can be filtered by file types using the buttons located between the lists. The Add Existing Files button imports any file, from a USB key or anywhere else, to the PC directory. That way, all files are stored in the same directory.
The Manage Files dialog box

When transferring file consider the following.

- To the DFD: The files are copied in the appropriate folder (depending on there type).
- To the PC: The files are copied in the current folder or the dragged in folder.
4 Creating Reports

Reports are defined in the Settings dialog box and are created from the Add To Report menu.

To create a report:

1. On the Home tab, click the settings button ( ).
2. Under Report Preferences, type the company and report information, and click Apply.

3. On the Home tab, click View Files.
4. On the toolbar, click Add To Report and, in the Report Manager dialog box, select the files to add to the report and click Generate.

OR

Make a right-click, on on the file you want to add to the report on the list of files on the left of the window.
5. In the **Report Manager** dialog box, select the files you want to add to the report and click **Generate**.

6. In the **Report Name** dialog box, select the path where to save the report.

7. In the **File name** box, type the report name and click **Save**.
   
The report PDF file opens.
Report example

<table>
<thead>
<tr>
<th>Product</th>
<th></th>
<th></th>
<th>Serial number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>SITESCAN</td>
<td>Hardware version</td>
<td>1010447</td>
</tr>
<tr>
<td>Operation</td>
<td>Probe</td>
<td>Location</td>
<td></td>
</tr>
<tr>
<td>J. Smith</td>
<td>SMA4-70</td>
<td>Job Obey</td>
<td></td>
</tr>
<tr>
<td>Notes</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Calibration</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Gain</td>
<td>45.8 dB</td>
<td>Probe Zero</td>
<td>6.939 us</td>
</tr>
<tr>
<td></td>
<td>45.8 dB</td>
<td>Velocity</td>
<td>3227 m/s</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range</td>
<td>130 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Delay</td>
<td>20.0 mm</td>
</tr>
<tr>
<td>Filter Band</td>
<td>Detect</td>
<td>Rejection</td>
<td>Contouring</td>
</tr>
<tr>
<td></td>
<td>FULL</td>
<td>0 %</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TX</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>TX volts</td>
<td>200 V</td>
<td>TX Width</td>
<td>500 ns</td>
</tr>
<tr>
<td>Max PRF</td>
<td>150 Hz</td>
<td>TX Edge</td>
<td>400</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TX Damping</td>
<td>400 Ω</td>
</tr>
</tbody>
</table>
5 Exporting Thickness Tables as a CSV File

CSV stands for comma separated values. CSV files are often used as an easy way to exchange a large-volume database between programs.

The exporting function is used to extract a table of thickness measurements from an inspection plan or a Tlog file in an Excel worksheet. All grids and blocks are exported in a unique .csv file.

To export data as a CSV file:

1. In the main window, click View Files.
2. In the file list, click an .inspln or a .tlog file.
3. On the tool bar, click the Export to CSV button.

The Export to CSV button
4. In the Export to CSV dialog box, in the **File Name** box, type the name of the CSV file and click **Save**.

![The Export to CSV dialog box](image)
6 Maintenance

The maintenance procedures are covered in the document Update Procedure you can find on our Web site:
7 UT-Lity Pro

UT-Lity Pro offers all the functionalities of UT-Lity Standard; therefore only the differences are covered in this chapter.

7.1 Installation and Activation

UT-Lity Pro is install the same way as UT-Lity Standard, refer to the "Installation" section at the beginning of this manual.

Once UT-Lity Pro has been installed, you have to activate it.

**Note:** This section only covers the Online activation for the manual activation or to do it from another computer please contact your distributor.

To activate UT-Lity Pro:

1. In the UT-Lity Activation dialog box, select Activate UT-Lity Online.
2. In the **License ID and Password** dialog box, type your ID and password and click **Continue**.

![License ID and Password](image)

3. In the **Register UT-Lilty** dialog box, fill the text boxes and click **Continue**.

![Register UT-Lilty](image)

**Register**

A window will open to show you that the activation was successful.
7.2 Overview

This section presents the additional functionalities offered on the Home and Maintain Device tabs.

Home

From the Home tab you can use UT-Lity to create a grid plan.

Maintain DFD

From the Maintain DFD tab you can reprogram the DFD (Reprogram DFD) and make a backup of all the files stored in the DFD on a computer and restore them to the DFD at a later time (Backup and Recovery).
7.3 Grid Files

The Grid offers all the same features as the basic Tlog (refer to the Tlog section in the View Files and Data Analysis chapter).

The additional features include:

- The possibility to view the Alog associated with a particular result.
- The possibility to have two measurements per grid square.
- The possibility to add a previous inspection file to compare acquisition results.
Grid

Alog

When an Alog is available with a measurement of the grid, a small colored square appears in the upper right corner of the grid square.

Two measurements

When an inspector makes two acquisitions at the same place on the part, that second measurement can be viewed by double clicking the value in the grid. In such a case the available second measurement is indicated by a mark in parenthesis in the upper right corner of the grid square.
Previous inspection file

To add an existing file, on the toolbar, click the Import Files button and, in the Select files dialog box, select a file and click Open.

Grid colors

The grid values appear in three colors represent the tolerance values entered in the Grid Plan window under Settings:

Red means that the value is lower than the minimum minus the tolerance or over the maximum plus the tolerance.

Green means that the value is smaller or equal to the minimum value, or smaller or equal to the maximum value.

Yellow means that the value is within the minimum value and the minimum value minus the tolerance, or that it is within the maximum value and the maximum value plus the tolerance.

7.4 Creating a Grid Plan for an Inspection

A grid plan is an inspection model that can be prepared in advance and then loaded in the DFD. You can create a grid from scratch or use an existing one and modify it.

The grid row and column numbers can be renamed by double-clicking the headers and the values in the grid can be changed by double-clicking the value boxes.
To create a grid:

1. On the Home tab, click **Grid Plan**.

2. In the **Grid Plan** dialog box, under **Settings**, in the **Plan Title** box, type the name of the grid.

   A grid can be used in many situations requiring the same type of inspection so the description helps select an existing grid.
3. In the **Plan Description** box, type a description of the grid.

4. In the **Grid Mode** list select **1D** or **2D** inspection grid.

   The grid mode can be viewed as an encoder which will help visualize the results of the inspection. The 1D grid allows the inspector to divide his inspection in a linear fashion. The 2D grid creates inspection points with X-Y coordinates. The selection depends on the part to inspect. For each inspection point there will be a corresponding Alog.

5. In the **X** and **Y** boxes type the number of inspection points you want to use to cover the part.

6. In the **Increment Mode** list, select the direction of the inspection.

7. Alarms can be set for high or low thickness readings or readings between a high and a low limits. Select the corresponding check boxes and type the limits in the **Max** and **Min** boxes.

### Previous data

The previous results of an inspection can be loaded with the grid. This can be used to compare data and monitor the evolution of the condition of the part.

On the right side of the **Grid Plan** window, click the **Load Old Values** button and, in the **Open Previous Readings CSV Files** dialog box, select the file to import and click **Open**.
Using previous values

In the Select previous data dialog box, select the data you want to import.

Select the previous data

Note: Only the basic Tlog and Grid files contents can be exported as a CSV file. (Refer to chapter Data Analysis, Tlog section.)
Importing a grid:

1. In the **Grid Plan** window, click the **Load Plan Config** button.

2. In the **Load Plan** dialog box, select a grid and click **Open**.
Load Plan dialog box

You can also enter the previous values manually by double-clicking a table cell and type the value. You can also edit the table title cells by making a double-click and type the name of the cell.

You can import the names of the title cells for any or both vertical and horizontal axes by clicking the small grid icon next to them.

7.5 Device Content Backup and Recovery

Files from the DFD can be saved on a computer and restored later on. This is very useful when the DFD needs maintenance, repair, modifications, or other interventions that could affect its content. The files are therefore protected and, once the DFD is ready to be used again, the backup can be returned to it.
To make a backup:

1. On the Maintain DFD tab, click Backup and Recovery.

You can backup a selection of files or all of them.

For a selection, if there are many files, you can use the filters, located between the DFD and the computer panes. You then select the files to backup and click the Backup Selected button.

To backup all files, click the Backup All button.
2. In the dialog box for backup identification, in the **Backup Name** box type a name for that backup and, in the **Notes** box, type some kind of reference to restore the backup to the correct DFD.

3. Click **OK**.

   The backup is listed in the top pane and its content in the bottom pane.

   The backup does not remove the files from the DFD. You can delete the DFD content at this point by clicking the Clear DFD button or do it at a later time. At the time of recovery, if the DFD has not been cleaned, a message will ask you if you want to do it before restoring the DFD content.
To make a recovery:

1. On the Maintain DFD tab, click Backup and Recovery.
2. In the Backup Recovery dialog box, in the top left pane, select the backup to restore to the DFD and click Restore.

   If the content of the DFD has been deleted, the recovery process starts.
   If the content of the DFD has not been deleted, you will be asked to delete it. You can choose not to delete it; however, you will be asked if you want to overwrite the file for all files of the same name.
The Backup Recovery dialog box

7.6 Import Files

You can import files (Panel, Alog, Bchart, Tlog and Inspln) to your local folder from anywhere. Imported files are copied in the selected folder.

To import a file:

1. On the Home tab, click View Files.
2. On the button bar, click the Import Files button.
3. In the Select Files dialog box, under Name, select a file and click Open.
8 Parameter Description

This chapter presents the parameters you can view in the Panel. They are presented in alphabetic order and some parameters are grouped under main sections.

Angle
The nominal refracted angle of the transducer to calibrate the surface and depth measurements.

API (American Petroleum Institute) (Mode, K, Imperfection Depth, Depth of Reference)
Mode: Used to set up the API measurement mode.
K: The derived factor for calculating depth.
Imperfection Depth: The calculated depth of a defect.
Depth of Reference: Depth of the reference indicator; should be set by the user according to the size of the reference defect.

Auto Cal (Dist 1, Dist 2)
The actual distance to the first or thinnest reference signal and to the second or thickest reference signal in the calibration block.

AVG (German achronyme for distance, gain, size) (AVG Mode, Frequency, TB Vel, ERS, NFL, Delay, split, T-Loss, Ref dB/m, Mat dB/m, dVK, Ref Type, Ref size, Trigger, Probe Delay, Probe Type)
AVG Mode: Indicates if the AVG mode was used or not.
Frequency: The transducer frequency taken from its datasheet.
TB Vel: The reference block velocity in m/s.
ERS: The equivalent reflector size.
NFL: The near field length taken from the transducer datasheet.
Delay: The probe delay material velocity in m/s and is used in conjunction with the probe zero and specimen velocity to calculate the sound field equivalent length.
Split: Indicates if a split AVG was used or not.
T-Loss: The transfer loss in dB due to surface condition, poor coupling, etc.
Ref dB/m: The reference material attenuation in dB/m.
Mat dB/m: The test material attenuation in dB/m.
dVK: The curvature correction factor in dB taken from the transducer datasheet.
Ref Type: The type of the reference defect that was used to calibrate the DFD.
Ref Size: The size of the reference defect that was used to calibrate the DFD.
Trigger: The gates used to trigger alarms.
Probe Delay: The time it took for the ultrasound beam to travel through the probe wedge that was used for the inspection.
Probe Type: The type of probe that was used for the inspection.

AWS (American Welding Society) (AWS Mode, Ref (%), Cursor Position, Cursor Width, IL (A), AF (C), IF (D))
AWS Mode: Used to set up the AWS measurement mode.

Ref (%): Used to set the signal reference level.

Cursor Position: The position of the cursor.

Cursor Width: The width of the cursor.

IL (indication level): The dB setting required to bring a signal to the reference level.

AF (attenuation factor): The attenuation factor required by the AWS standard and is: depth in inches minus 1, multiply by 2 and then rounded to the nearest ½ dB.

IR (indication rating): The difference in dB between the indication signal and the reference signal gain with the correction of the attenuation factor.

**BChart (Mode, Speed, Resolution, Total of Samples, Loss)**

Mode: Indicates if the AVG mode was used or not.

Speed: The speed parameter refers to the sample rate of the Bchart, measured in samples per second.

Resolution: The encoder resolution in tick/mm or in tick/inch.

Total of Samples: The number of samples stored in the Bchart.

Loss: The loss-of-signal mode can be set to Stop or Continue. This parameter determines what happens when the signal is lost during acquisition. When set to Stop the Bchart stops collecting data and pauses it. When set to Continue and there is no signal present, the values are stored for that sample leaving blanks in the Bchart.

**Blanking**

This function sets the blanking distance, as a percentage of the total gate width, which is a blind zone after the first signal, after which a second signal can be measured. This helps to eliminate the measurement of undesired noise in the first signal as thickness but will limit the minimum thickness capability if set too high.

**Contour**

Used to contour the shape of the signals.

**DAC (distance amplitude correction) (DAC Mode, Split, Cursor Position, Cursor Width, Ref Gain, Transloss, Curve Type, Trigger, Measure, Custom)**

DAC Mode: Indicates if the DAC mode was used or not.

Split: Indicates if a split DAC was used or not.

Cursor Position: The cursor position.

Cursor Width: The cursor width

Ref Gain: When the reference gain is changed the AVG curve recalculates at each step.

Transloss: Used to set the transfer loss in dB due to surface condition or poor coupling.

Curve Type: Used to determine the type of DAC curve drawn the -6/-12dB, -12/-14dB, or -2/-6/-10dB and JIS.

Trigger: Used to set the alarm threshold for the DAC curve, -2dB, -6dB, -10dB, -12dB or -14dB curve or the gate.

Measure: The measurement value in dB, % full screen height (FSH), or %REF.

Custom: Indicates what custom DAC mode was used.

**Delay**

Used to set the delay or offset of the left side of the A-scan for viewing of a portion of a signal.
Detect

Used to set the display mode for the desired rectification of the signals from Full (rectified full wave), RF (unrectified), -VE HW (negative half-wave) and +VE HW (positive half-wave).

Filter

The filter use at the time of the inspection.

Gain

The gain use at the time of the inspection.

Gain Ref

The gain used at the time of the calibration.

Gates (Start, Width, Level)

Start: The start position of the gate.

Width: The width of the gate.

Level: The alarm threshold level, which corresponds to the vertical height on the A-scan.

HalfSkip

When ON, the half skip, full skip, and skip and a half values are displayed.

HUD

The head-up display (HUD) provides a large display of the depth or thickness reading at the top right of the A-scan.

Max PRF

Used to set the maximum pulse repetition frequency.

Meas Mode

Trig: The trigonometry mode is used with angle beam transducers for weld inspection to calculate the three important measurements based on the signal position: the beam path distance, the surface distance, and the depth distance from the index point of the transducer.

F-F: Flank-to-flank measurement which detects the first rising flank that passes through the gate. When activated, gate 2 becomes an automatic gate, used for measuring between repeated signals.

Probe Zero

Used to calibrate the screen and thickness readout for zero offsets that are different for each transducer. Units are microseconds in both mm and inch modes.

Radius

The radius of a curved part.

Range

Used to set the full screen width of the horizontal A-scan in mm, inches, or microseconds depending on the units chosen.

Ref Size

The size of the reference type. If the reference type is BWE, the size is set to infinite.

Ref Type

The reference reflector type: flat bottom hole (FBH), side drilled hole (SDH), or back-wall echo (BWE).

Reject
Used to remove low-level noise from the A-scan.

**Surface**
Indicates the surface type: concave for internal surfaces or convex for external surfaces.

**Thick**
The part thickness.

**T-Min**
The minimum thickness measured.

**Trigger**
Used to select the depth or thickness measurement to the flank (left edge) of the first signal after the start of the gate or the peak measurement within the gate; that is the largest value in the gate.

**Tx Damping**
Used to select either 400 or 50 Ohms. It is selected according to the transducer and cable used.

**Tx Edge**
The transmission pulse edge.

**Tx volts**
The transmission pulse voltage.

**Tx Width**
The transmission pulse width.

**Velocity**
Used to calibrate the screen and thickness span readout based on the velocity of sound in the test material. Units are meters per second in mm mode and inches per microsecond in inch mode.

**X_Offset**
The distance from the probe emission point to the front of the probe case. This is used to calculate the surface distance.
9 Help and Support

Visit our website or e-mail us at:

www.sonatest.com
sales@sonatest.com

Contact Information

<table>
<thead>
<tr>
<th>Country</th>
<th>United Kingdom</th>
<th>United States, TX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Sonatest Ltd</td>
<td>Sonatest Inc</td>
</tr>
<tr>
<td>Department</td>
<td>• Head office</td>
<td>• Sales</td>
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<td></td>
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<td>• Support for the region</td>
</tr>
<tr>
<td></td>
<td>• Flaw detector research and design</td>
<td></td>
</tr>
<tr>
<td>E-mail</td>
<td><a href="mailto:sales@sonatest.com">sales@sonatest.com</a></td>
<td><a href="mailto:sales@sonatestinc.com">sales@sonatestinc.com</a></td>
</tr>
<tr>
<td>Telephone</td>
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<td>+1 (210) 697-0335</td>
</tr>
<tr>
<td>Fax</td>
<td>+44 (0)1908 321323</td>
<td>+1 (210) 697-0767</td>
</tr>
<tr>
<td>Location</td>
<td>Dickens Road, Old Wolverton, Milton Keynes, MK12 5QQ, United Kingdom</td>
<td>12775 Cogburn, San Antonio, Texas, 78249-2239, USA</td>
</tr>
</tbody>
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