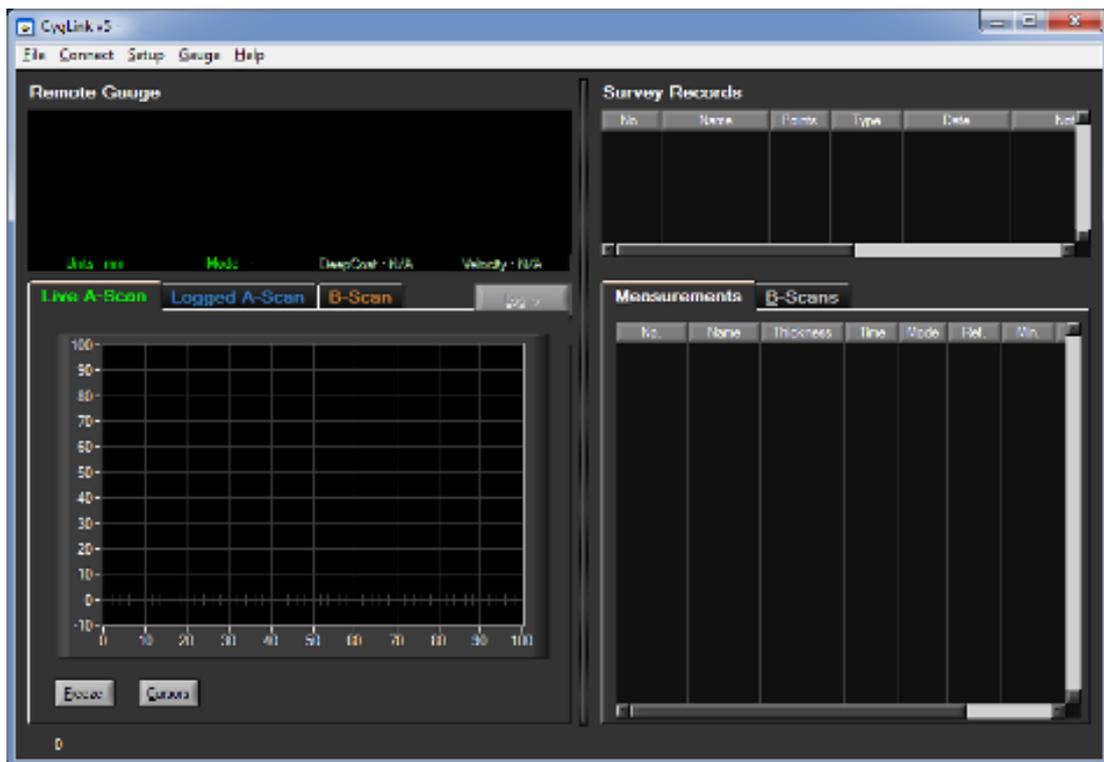


# CygLink V5 User Manual



**Covers use with Gauge Model : Cygnus 1 Ex**  
from CygLink Version 5.1.2

**Doc No. CygLink V5 and Cygnus 1 Ex User Manual (Issue 1).doc**  
27 May 2022

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## 1. CygLink Computer Software

CygLink V5 is a Windows® program that is used to transfer data logger records from the gauge so they can be inspected, edited and reports produced. CygLink offers the following features;

- Create a Survey to contain your data logged records and measurements
- Transfer your data logged records from the gauge
- Organise your records and measurement points
- View A-Scan graphs
- Add comments to individual measurement points
- Create a PDF report of a survey
- Export data from the survey to a CSV<sup>1</sup> file

Data is transferred from the Cygnus 1 Ex gauge using the Data Port on the gauge and the USB Ex Interface module supplied in the kit.



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<sup>1</sup> CSV (Comma Spaced Variable) for opening in a spreadsheet like Microsoft Excel.

## Connecting to the Instrument

The lead coming from the USB Interface has a silver connector that is plugged into the data port on the rear of the Cygnus 1 Ex instrument.

- Push-down the sealing cap on the data port connector on the rear of the Cygnus 1 Ex instrument to expose the connector socket,
- Align the red marks on both connector parts,
- Push the connector into the socket until it latches into place.
- To remove the connector, pull-back on the body of the connector to release the latch, the connector can then be removed.

## Installing CygLink

CygLink V5 is supplied with the kit on a USB Flash Drive, or it can be downloaded from the Cygnus Instruments website. If you want to make sure you are installing the latest version then downloading from the website is the best route.

## Requirements

To install and run CygLink the computer must:

1. Be running Windows 10 or a newer version
2. Have sufficient resources for Microsoft .NET Framework installation
3. We recommend a screen resolution of 1280 x 720 or greater
4. We recommend at least 1GB of memory

## Upgrading

You can check the Cygnus Instruments website for the latest version of CygLink V5.



If you are upgrading from an older version of CygLink then

you must uninstall the old version of CygLink first.

## Installing

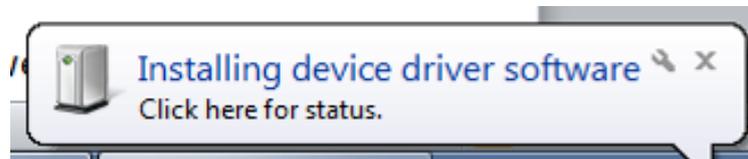
If you downloaded the CygLink installer file from the Cygnus website then this is a single self-extracting ZIP file.

Simple double-click the 'setup' or 'CygLink...' exe file to start installation. You will need to agree to the license terms and conditions. There are no options to select so installation is straight forward.

## Connecting to the Gauge

### First time USB Connection

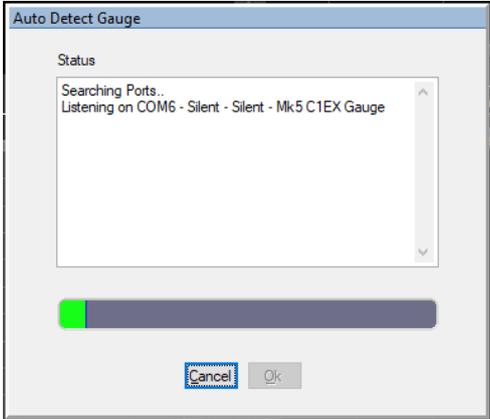
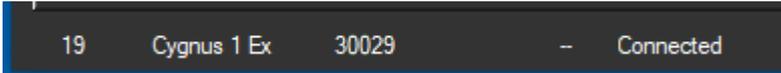
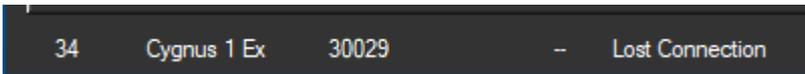
When you first connect the gauge to the computers USB port Windows will search for a suitable driver, you may notice this message from the taskbar;



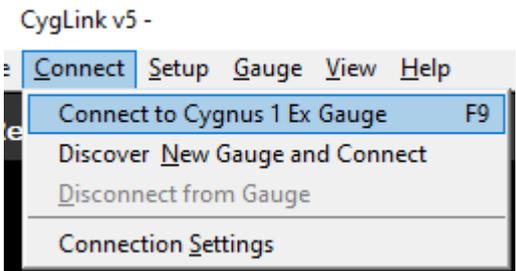
If you click the message you should see the driver installation process;

### Connecting the Gauge to CygLink for the First Time

<b>1.</b>	Turn on the gauge	
<b>2.</b>	Run CygLink V5	

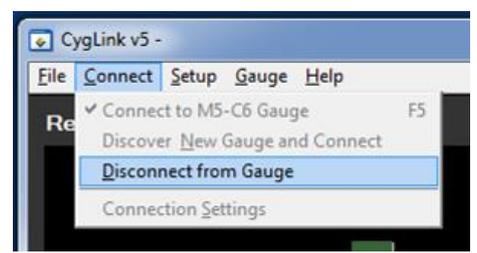
<p><b>3.</b></p>	<p>From the Menu click;  <b>Connect</b>          ↳ <b>Discover new Gauge and Connect</b></p>	
<p><b>4.</b></p>	<p>CygLink will search all the available Com ports listening for a Cygnus gauge..</p> <p>If a gauge is detected then it will connect and save these settings for next time.</p>	
<p><b>5.</b></p>	<p>When connected you should see details of the gauge in the status bar at the bottom and 'Connected'</p>	
<p><b>6.</b></p>	<p>If the connection is ever lost the status bar will show 'Lost Connection'</p>	

### Connecting to the Gauge Afterwards

<p><b>1.</b></p>	<p>Once you have discovered the Gauge the connection settings will be stored for next time, so to connect next time simply click from the menu;</p> <p><b>Connect</b>          ↳ <b>Connect to M5-C6 Gauge</b></p>	
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## Disconnecting from the Gauge

1. To disconnect from the Gauge simply click from the menu;  
  
**Connect**  
 ↳ **Disconnect from Gauge**



## Manual Connection Settings

If you need to manually set the connection settings then select the **Connection Settings** option from the **Connect** menu, here you can specify the COM Port number, gauge type and baud rate.

## Status Bar

At the bottom of the CygLink screen is the Status Bar, it shows information about the gauge and the connection.



Status Bar

From left to right;

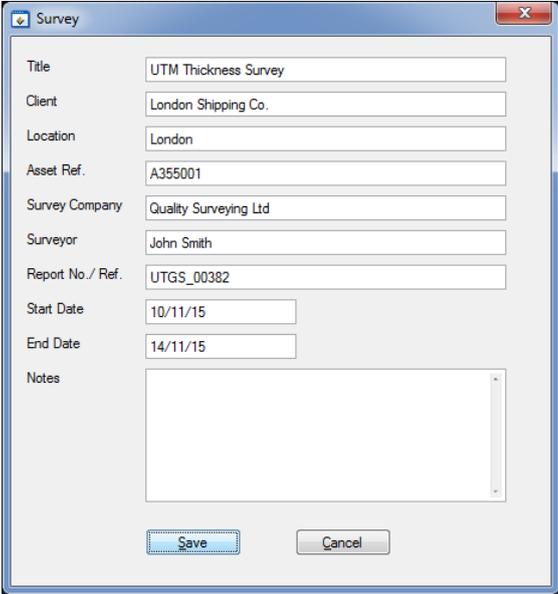
1. Received message counter (increase as message arrive from the gauge)
2. The Gauge Model number
3. The gauge's serial number
4. The probe type connected to the gauge
5. The gauge's measurement mode
6. The connection state (Connected, Lost Connection, Disconnected)
7. The gauge's battery level

## **Surveys**

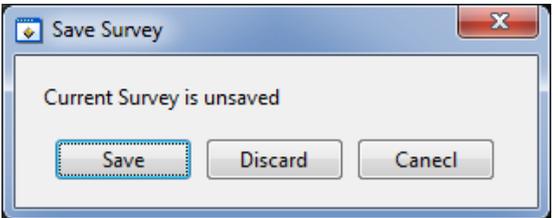
A Survey is a container for all your data logger records and measurements. A Survey can be saved to a single file which can be copied or send electronically to another CygLink user. The Survey file is binary and cannot be tampered with.

### **Creating a new Survey**

You don't have to create a Survey but it does create the container for any records that you transfer from the gauge. If you intend to save the records transferred then you will need to create a survey file anyway.

<p><b>1.</b></p>	<p>From the Menu click;  <b>File</b>          L <b>New Survey</b></p>	
<p><b>2.</b></p>	<p>Complete as many fields as required, you can always go back and edit this information.</p> <p>This information will appear on the PDF report and the export to CSV file output.</p>	
<p><b>3.</b></p>	<p>You can save your new Survey to a file, from the Menu click;  <b>File</b>          L <b>Save Survey</b></p> <p>Entering your filename and location.</p>	

### Opening an Existing Survey

<p><b>1.</b></p>	<p>From the Menu click;  <b>File</b>          L <b>Open Survey</b></p>	
<p><b>2.</b></p>	<p>You may be prompted to save any unsaved data first</p>	

## Editing the Survey Info

1. From the Menu click;  
**File**  
    ↳ **Edit Survey Info**

## Managing the Survey

### Sorting Survey Records

You can sort some of the columns in the Survey Records list by clicking on the column header. A column that has been sorted is marked with an asterisk after the column name. Clicking the column header a second time will toggle between an ascending or descending sort.

No.	Name	Points*	Type	Date	Notes	State	Gauge	S/No	Title
1	091215-110546	35	Grid 2D	09-Dec-15 11:05		Open	M5-C6	20000	
2	091215-095752	30	Linear	09-Dec-15 09:57		Open	M5-C6	20000	
3	091215-135853	30	Grid 2D	09-Dec-15 13:58		Open	M5-C6	20000	
4	091215-125403	20	Template	09-Dec-15 12:54		Open	M5-C6	20000	T20_UF
5	091215-134513	0	Linear	09-Dec-15 13:45		Open	M5-C6	20000	

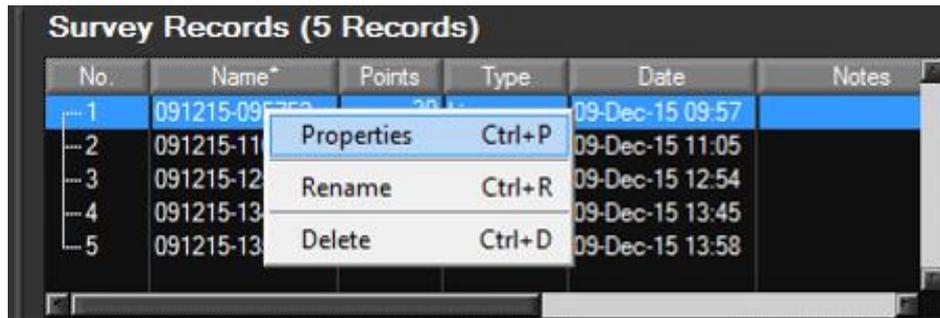
Survey Records List

Survey list columns that can be sorted;

- Name (ascending or descending)
- Points (ascending or descending)
- Type
- Date (ascending or descending)

### Viewing Record Information

You can view the details of a record by right-clicking on the record in the list which will display a context menu, select the Properties item.



Record Properties Screen

The Record Properties will be displayed;

Name: 091215-095752

Title:

Comment:

Location: Cygnus

Surveyor: David

Notes:

Ref. Thickness: 16.00

Min. Thickness: 14.00

Protection State: Open

Details	
Date	09-Dec-15 09:57
Gauge Type	M5-C6
Gauge ID	1
Serial No	20000
Record Type	Linear
Title	
Units	mm
Source	Gauge

Record Properties Screen

You can edit the fields in this screen, the **Details** table is read only and contains details about the record and summary information about its measurements.

### Ref and Min Thickness

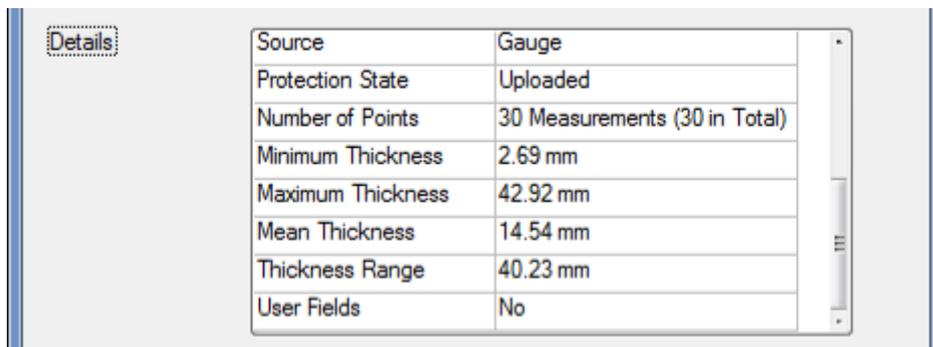
You can set and apply a Reference and Minimum thickness value for the record, click the **Apply..** button to apply this values to the measurement points in the record.

## Protection State

You can set a record to be Protected or Open, when Protected it will prevent users from editing the measurement points or deleting them.

## Measurement Summary Stats

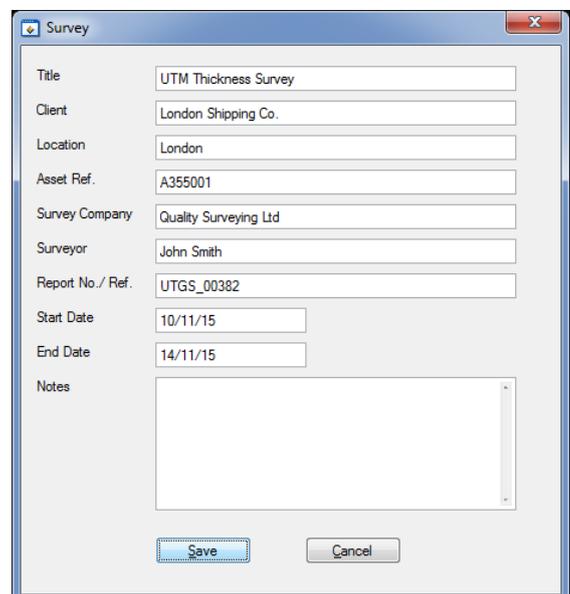
If you scroll down the **Details** table you will see summary information about the measurements contained in the records;



Source	Gauge
Protection State	Uploaded
Number of Points	30 Measurements (30 in Total)
Minimum Thickness	2.69 mm
Maximum Thickness	42.92 mm
Mean Thickness	14.54 mm
Thickness Range	40.23 mm
User Fields	No

Record Properties Screen - Stats

2. This information will appear on the PDF report and the export to CSV file output.



Survey

Title: UTM Thickness Survey

Client: London Shipping Co.

Location: London

Asset Ref.: A355001

Survey Company: Quality Surveying Ltd

Surveyor: John Smith

Report No./ Ref.: UTGS\_00382

Start Date: 10/11/15

End Date: 14/11/15

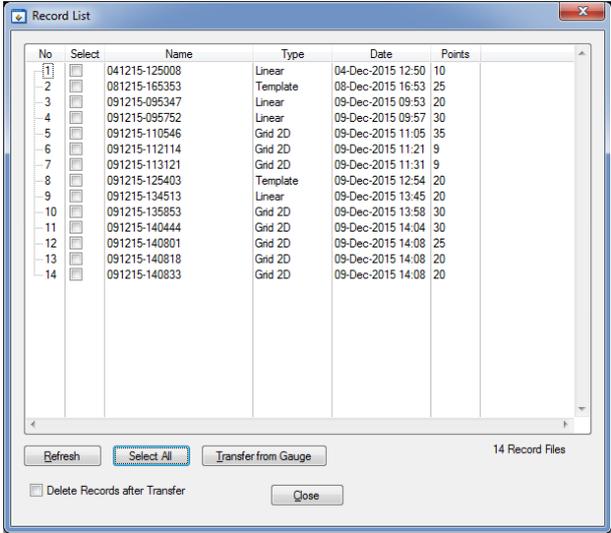
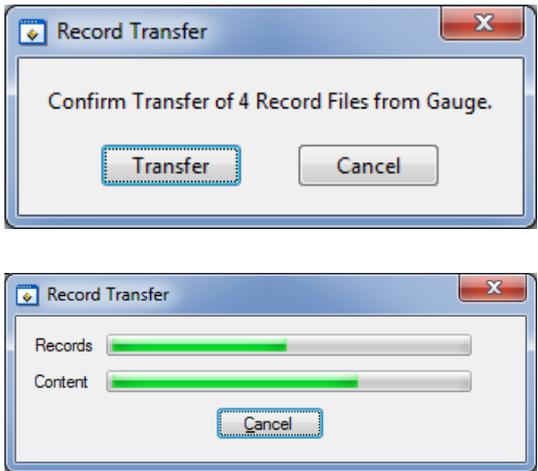
Notes:

Save Cancel

## Data Logger Records

### Transferring Records from the Gauge

You need to be connected to the gauge to transfer records.

<p><b>1.</b></p>	<p>From the Menu click; <b>Gauge</b> └ <b>Transfer Records from Gauge</b></p>	
<p><b>2.</b></p>	<p>A list of records stored on the gauge will be displayed. You can select the individual record you wish to transfer, or click <b>Select All</b>.</p> <p>If you check <b>Delete records after Transfer</b> they will be deleted from the gauges memory card after transferring.</p>	
<p><b>3.</b></p>	<p>To start the transfer click <b>Transfer from Gauge</b></p> <p>Click <b>Transfer</b> to confirm..</p> <p>During the transfer process a progress screen is displayed</p>	
<p><b>4.</b></p>	<p>When all the records have been transferred they will be listed in the <b>Survey Records</b> list</p>	

	 <table border="1" data-bbox="429 264 1331 595"><thead><tr><th>No.</th><th>Name</th><th>Points</th><th>Type</th><th>Date</th><th>Notes</th></tr></thead><tbody><tr><td>1</td><td>091215-095752</td><td>30</td><td>Linear</td><td>09-Dec-15 09:57</td><td></td></tr><tr><td>2</td><td>091215-110546</td><td>35</td><td>Grid 2D</td><td>09-Dec-15 11:05</td><td></td></tr><tr><td>3</td><td>091215-125403</td><td>20</td><td>Template</td><td>09-Dec-15 12:54</td><td></td></tr><tr><td>4</td><td>091215-134513</td><td>0</td><td>Linear</td><td>09-Dec-15 13:45</td><td></td></tr><tr><td>5</td><td>091215-135853</td><td>30</td><td>Grid 2D</td><td>09-Dec-15 13:58</td><td></td></tr></tbody></table>	No.	Name	Points	Type	Date	Notes	1	091215-095752	30	Linear	09-Dec-15 09:57		2	091215-110546	35	Grid 2D	09-Dec-15 11:05		3	091215-125403	20	Template	09-Dec-15 12:54		4	091215-134513	0	Linear	09-Dec-15 13:45		5	091215-135853	30	Grid 2D	09-Dec-15 13:58	
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<b>5.</b>	You should save the Survey file now, from the Menu click; <b>File</b> └ <b>Save Survey</b>																																				

## Viewing Thickness Measurements in a Record

To display the list of thickness measurements in a record click on the record in the **Survey Records** list, the **Measurements** tab below will display the measurements belonging to the record;

Survey Records (5 Records)						
No.	Name*	Points	Type	Date	Notes	
1	091215-095752	30	Linear	09-Dec-15 09:57		
2	091215-110546	35	Grid 2D	09-Dec-15 11:05		
3	091215-125403	20	Template	09-Dec-15 12:54		
4	091215-134513	0	Linear	09-Dec-15 13:45		
5	091215-135853	30	Grid 2D	09-Dec-15 13:58		

Measurements (30)    B-Scans (0)							
No.	Name	Thickness	Time	Mode	Ref.	Min.	C
1	P1	14.00	09:58	SE	16.00	14.00	
2	P2	15.09	09:58	SE	16.00	14.00	
3	P3	14.54	09:58	SE	16.00	14.00	
4	P4	13.81	09:58	SE	16.00	14.00	
5	P5	13.63	09:58	SE	16.00	14.00	
6	P6	13.36	09:58	SE	16.00	14.00	
7	P7	13.17	09:58	SE	16.00	14.00	
8	P8	12.90	09:58	SE	16.00	14.00	
9	P9	14.16	09:58	SE	16.00	14.00	
10	P10	14.15	09:58	SE	16.00	14.00	
11	P11	13.21	09:58	SE	16.00	14.00	
12	P12	13.21	09:58	SE	16.00	14.00	
13	P13	14.25	09:58	SE	16.00	14.00	
14	P14	14.22	09:58	SE	16.00	14.00	
15	P15	14.02	09:58	SE	16.00	14.00	
16	P16	42.92	09:58	SE	16.00	14.00	
17	P17	13.60	09:58	SE	16.00	14.00	
18	P18	11.80	09:58	SE	16.00	14.00	
19	P19	12.16	09:58	SE	16.00	14.00	

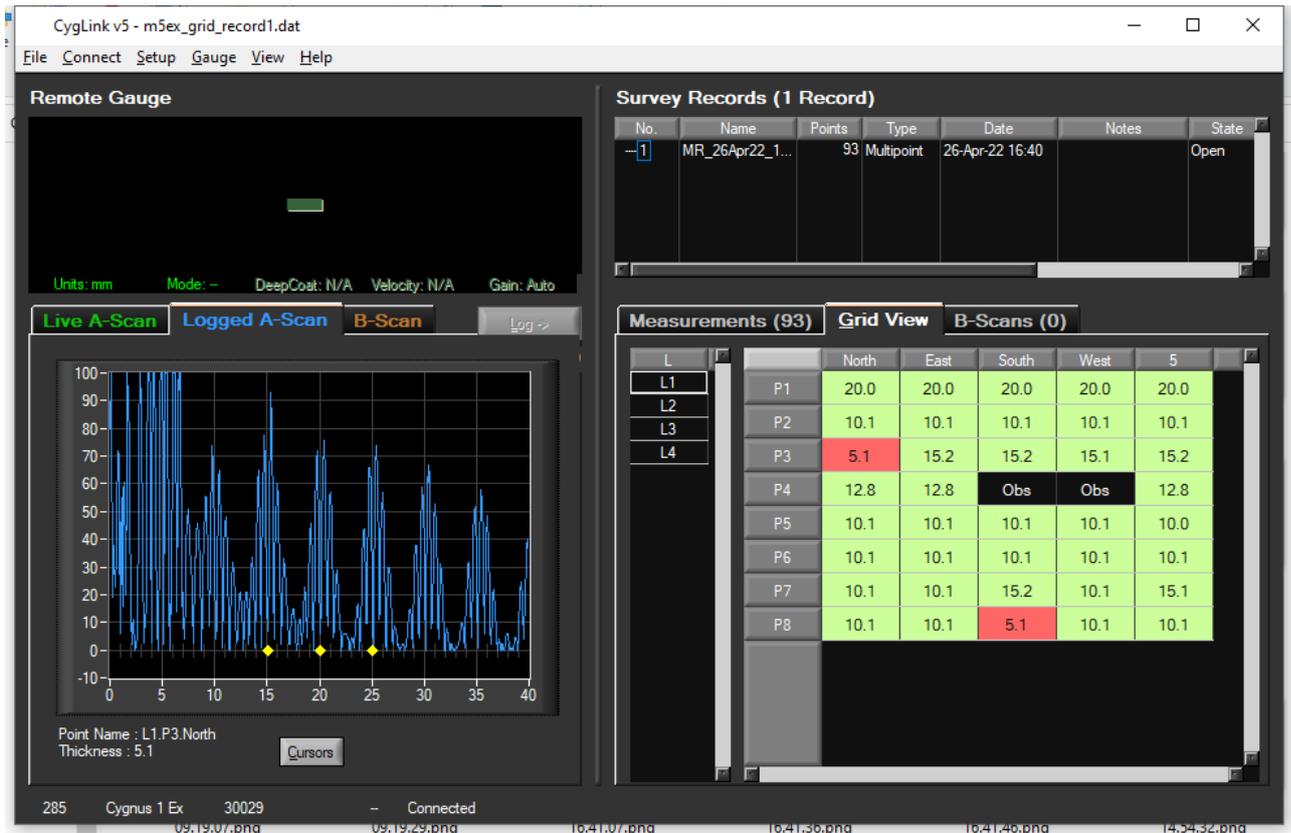
Record and Measurements Tab

## Grid Records

There is a Grid View tab where Grid and Multipoint Records are displayed as 2D grids.

You can resize the row and column headers by dragging the header to the desired size.

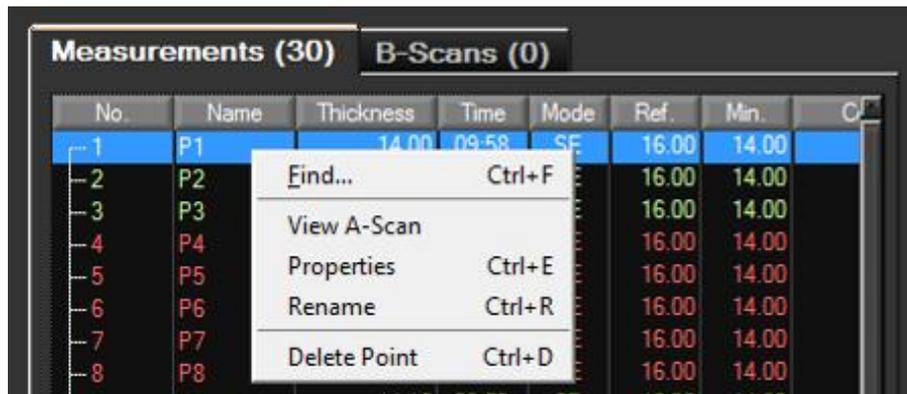
Multipoint Records, which have a 3<sup>rd</sup> dimension, have the upper dimension displayed as a list on the left side.



Grid View Tab showing a Multipoint Record.

## Managing Measurements

You can right-click a selected measurement to display the context-menu;



Measurements Context Menu

This menu allows you to **Find**, **Rename** and **Delete** a measurement point, you can also view information about the measurement or display it's **A-Scan** graph if it has one.



Note there is no undo function - once deleted the measurement point is lost, unless you have saved a copy of the survey or the record is still saved on the gauge.

### **Viewing Measurement Information**

Clicking Properties from the context menu will display the measurement properties screen;

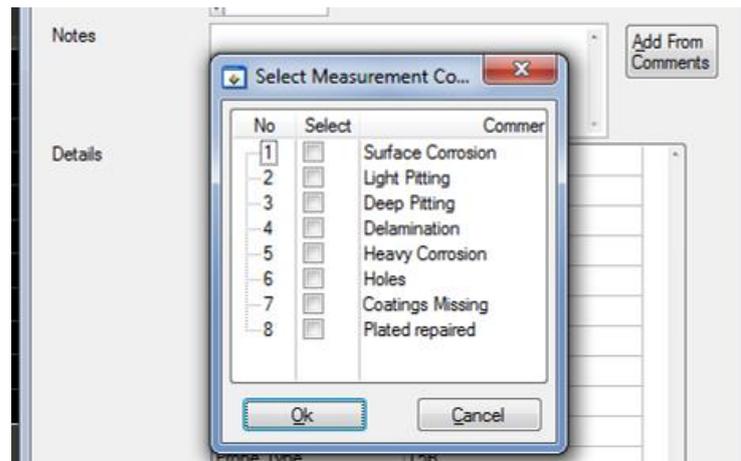
Details	
Point Type	Normal
Source	Gauge
Date	09-Dec-15 09:58
Thickness	14.00 mm
Units	mm
Measurement Mode	Single Echo
Resolution	High
Velocity	5920
Deep Coat	Off
Temp. Comp.	Non
Probe Type	T5B
Has A-Scan	Yes
Gain	35 dB

Measurements Properties Screen

## Adding Comments to Measurements

You can add comments to a measurement point using the measurement properties screen. The **Notes** field can be directly typed into or you can click the **Add From Comments** button to select a comment from the pre-defined list.

Comments will appear next to the measurement in the PDF report.



Selecting Measurements Comments from the List

Just select the required comments in the list and click **Ok**.

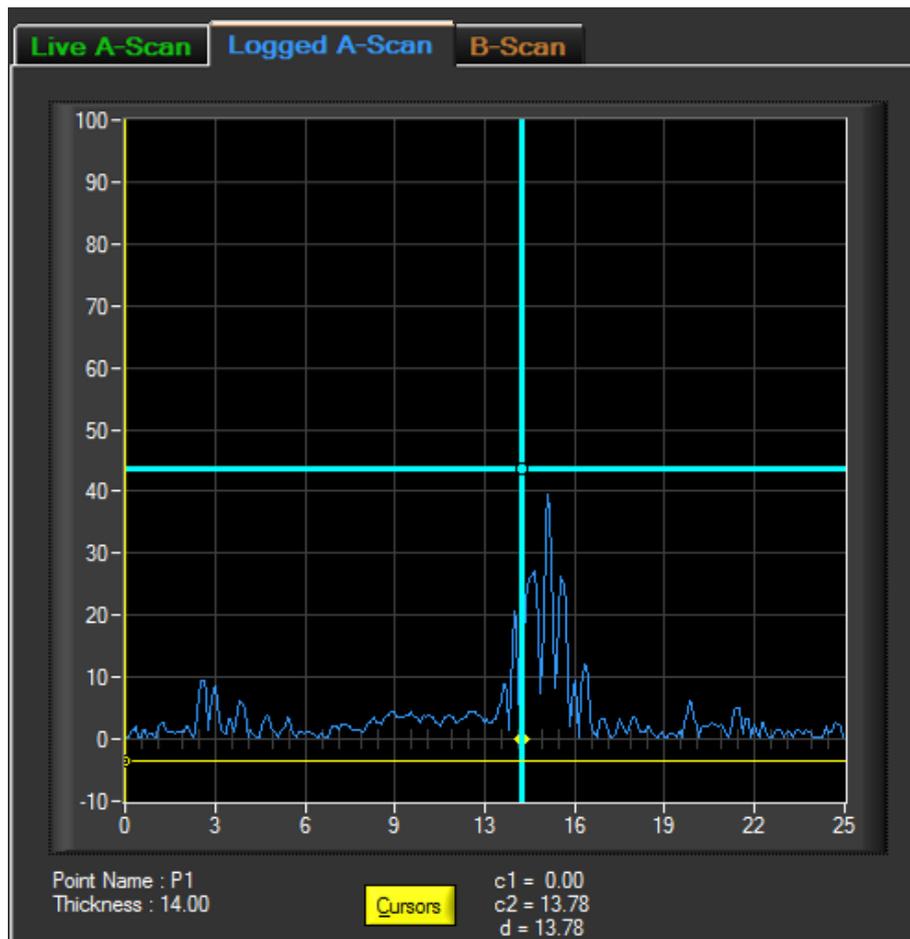
### Viewing an A-Scan Graph

You can select the **View A-Scan** item from the measurements context menu or double click the measurement row. The A-Scan graph will be displayed in the **Logged A-Scan** tab section on the left.



Logged A-Scan Graph

You can toggle the measurement cursors on and off by clicking the **Cursors** button;



Logged A-Scan Graph with Measurement Cursors

The thickness values of the two cursors (c1 = yellow, c2 = blue) are displayed to the right of the Cursor button along with the difference between the two cursors for relative measurements (d).

## Deleting all Records from the Gauge

After you have transferred your records from the gauge in to the Survey and saved the survey file you can delete these records from the gauges SD card so the gauge is 'clean' and ready for new records to be created.

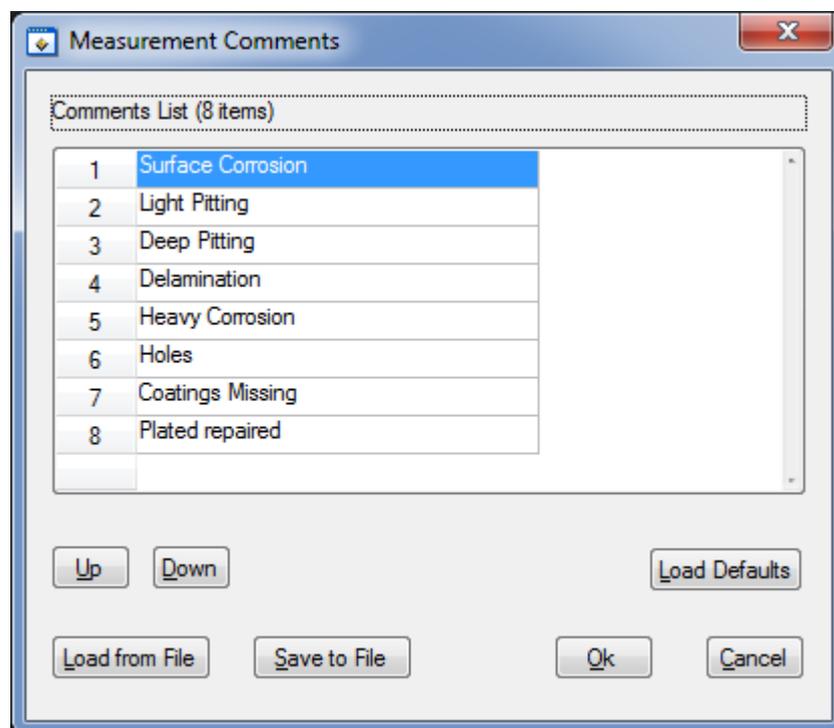
1. From the Menu click;  
**Gauge**  
└ **Delete All Records in Gauge**

2. When successful the gauge will show a "Records Deleted" message on its display.

## Measurement Comment List

The Measurement Comment List is a list of 8 pre-set text comments that can be added to data logged measurement points. The C6+ gauge also holds a copy of these comments for use during data logging. You can edit these comments using CygLink then send them to the gauge when connected to CygLink.

1. From the Menu click;  
**File**  
  ↳ **Measurement Comments**
2. You can then Add, Edit, or Remove the entries in the comment list



3. To send the new comments to the gauge, from the Menu click;

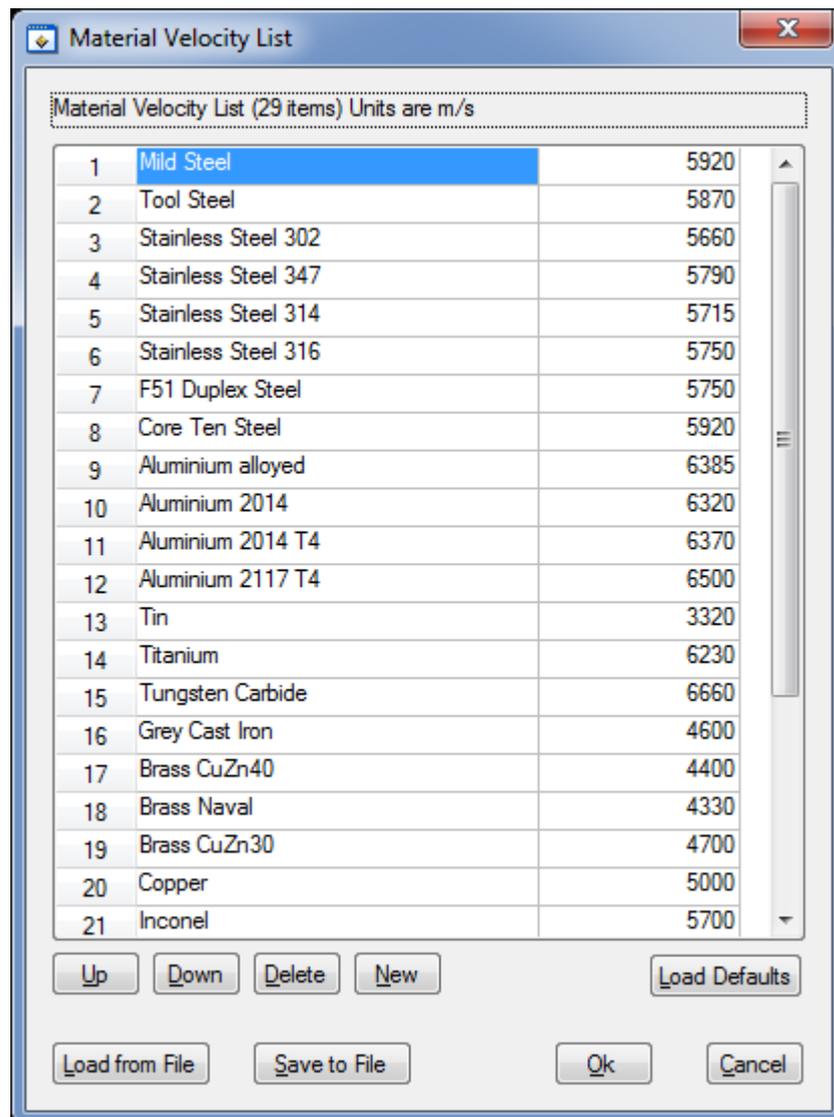
**Gauge****└ Transfer Measurement Comments to Gauge**

The gauge will display a conformation message when the new comments list has been received successfully.

## **Material Velocity List**

The Material Velocity List is a table of materials along with their velocity of sound value. CygLink comes with a pre-defined list but you can create your own list of materials specifically to suit your application. This list can be send to the gauge when connected to CygLink.

- 1.** From the Menu click;  
**File**  
**└ Material Velocity List**



- 2.** You can Edit, Add, Delete or Re-arrange the items in the list.

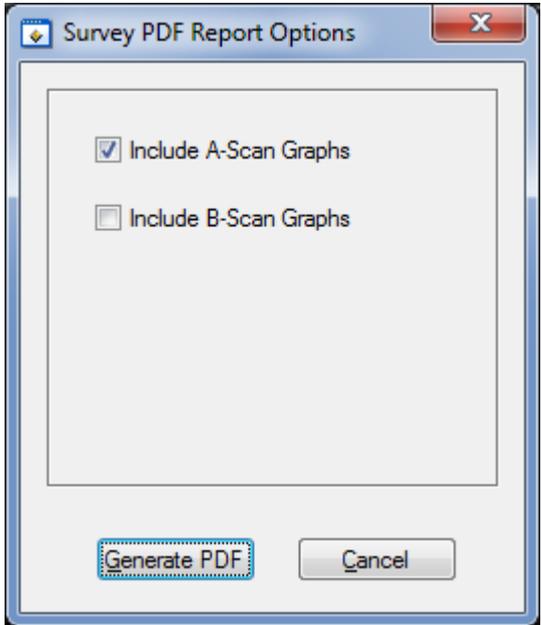
Note the velocity is in metric (m/s) by default. You can edit the table in imperial (in/μs) by setting the Measurement Units to Inch from the Setup – Measurement Setup item.

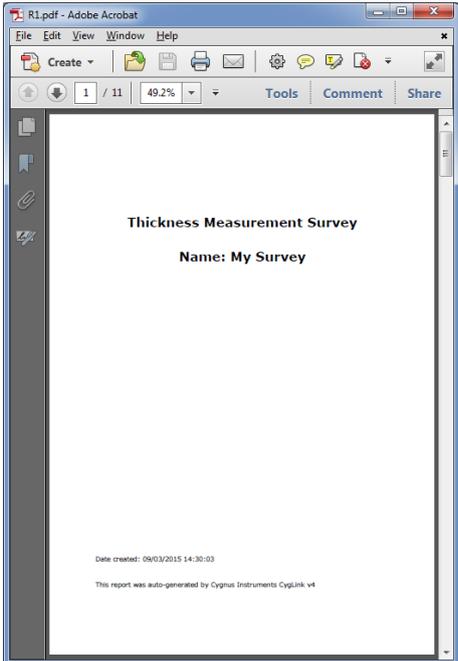
- 3.** To send the velocity list to the gauge, from the Menu click;  
**Gauge**  
 ↳ **Transfer Material Velocity List to Gauge**

The gauge will display a conformation message when the new velocity list has been received successfully.

## Creating a PDF Survey Report

A PDF report can be produced containing all the Survey Records and thickness measurements in the Survey, grouped by each Survey Records. Once the export process is complete, your report will automatically be displayed in your installed PDF viewer. The export may take a few seconds, depending on the number of measurements contained in the survey.

<b>1.</b>	From the Menu click; <b>File</b> └ <b>Create Survey Report PDF</b>	
<b>2.</b>	You can choose to include A-Scan graphs in the report.	
<b>3.</b>	A report filename may be suggested, you can continue with the filename or type your own as required.	

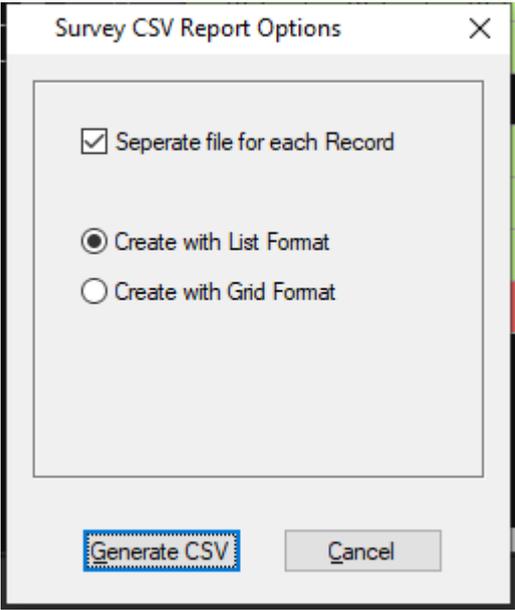
<p><b>4.</b></p>	<p>The report is then created and will open in your PDF viewer.</p>	
<p><b>5.</b></p>	<p>The PDF report is arranged into the following sections;</p> <ul style="list-style-type: none"> <li>• Title Page</li> <li>• Survey Details Page</li> <li>• Survey Record details and measurements for each survey</li> <li>• Appendix of all the A-Scan Graphs</li> </ul>	

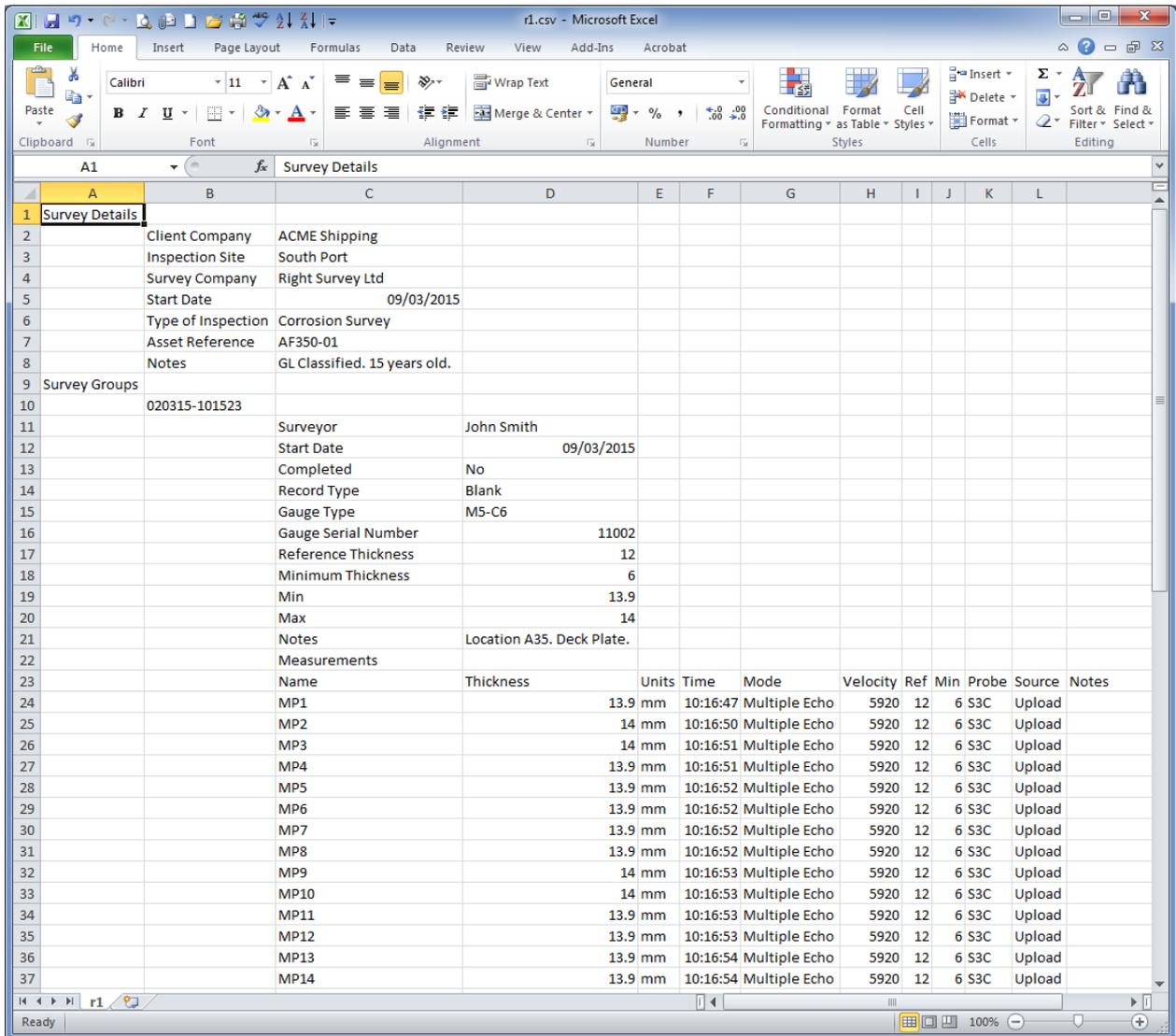
## Exporting a Survey to a CSV File

You can export the textual and numeric data from the whole survey to a CSV<sup>2</sup> file that can be opened with a spreadsheet such as Microsoft Excel. An example of a CSV export opened in Excel is shown below;

<p><b>1.</b></p>	<p>From the Menu click;  <b>File</b>        ↳ <b>Export Survey to CSV File</b></p>
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<sup>2</sup> CSV - Comma Spaced Variable

<p><b>2.</b></p>	<p>Select how you want the data to be formatted.</p> <p>List Format just lists the measurements in a single column.</p> <p>Grid Format arranges the measurements in a grid if they come from a grid record.</p>	
<p><b>3.</b></p>	<p>A filename may be suggested, you can continue with the filename or type your own as required.</p>	



Survey CSV Export opened in Excel.

## Other Features

### Setting the Time and Date on the Gauge

You can send the computers current Time and Date to the connected gauge so it can update its internal clock calendar.

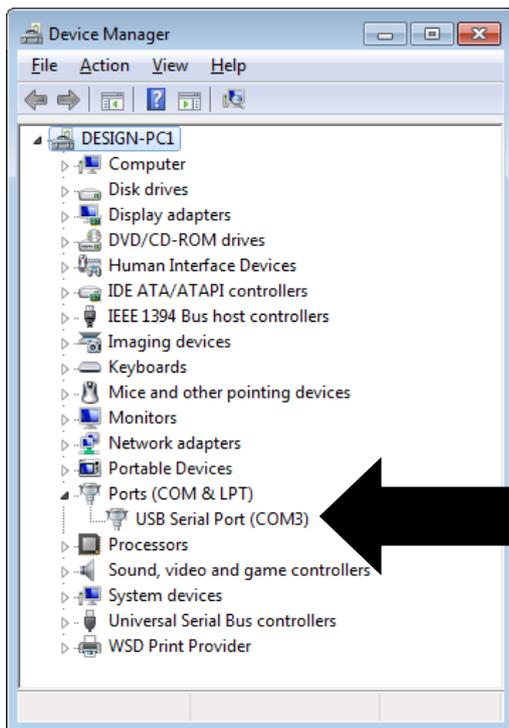
1. To set the Time and Date in the gauge, from the Menu click;  
**Gauge**  
     ↳ **Set Time and Date in Gauge**

## COM Port Numbers

CygLink should automatically find the COM port number assigned to the USB converter when you click "Connect" so you don't need to search for the port number Windows has assigned.

### Finding your COM Port Number

With the USB lead plugged into your computer, open Windows Device Manager – to do this press the Windows® key and the 'R' key together, then type "**devmgmt.msc**" into the prompt followed by enter key. In the **Ports** section, look for the USB Serial Port entry. Remember the COM number listed as this will need to be selected within CygLink's settings menu.



Windows® Device Manager

