

ADAS-500 Data Collection Module

User's Manual
Version B.0

Introduction

The ADAS-500 Data Collection Module (DCM) is a utility that allows you to perform PC based data collection with your AMAC-500 Crawler System. It can be used in place of the ADAS-500 data logger. The output files (tk files) are the same as those generated by the ADAS-500.

System Requirements

The AMAC-500 Reporting System runs under Windows 95,98,ME,2000 and XP. The system has the same minimum system requirements as the Windows versions it runs in. A network (ethernet) connection is required.

What to do Next

If your system meets the requirements listed above, it is suggested that you move to the next section *System Installation*. Once you install the software, you should proceed to the section *Getting Started*. This section will take you step by step through the process of collecting data using the system.

System Installation

If your computer meets the minimum system requirements listed in the previous section, you are ready to install the software. The installation utility on the distribution setup diskette must be used to install the software.

Installation

Close all applications you have running in Windows. Place the distribution cd in drive **d:** (cd drive) and the setup utility should run automatically. If it does not run, from the Start menu select **Run...** Enter **d:\Setup.exe** (or drive letter of the cd drive) in the edit box and click **OK**.

When the installation utility appears, click **Next** to continue through the installation. The utility will step you through the process of installation.

When the installation is complete, it will have created the folder below if the default settings were used

C:\Program Files\ATCO\ADAS-500 Data Collection

There should be a menu option under the **Start** menu:

Start | Programs | ADAS-500 Data Collection

Removing or Uninstalling the Software

To remove the *ADAS-500 Data Collection Module* from a computer, you should not delete the folders and files manually. Remove it by selecting **Start | Settings | Control Panel**.

From the control panel, double click the **Add / Remove Programs** icon. From the list of applications in the window, select *ADAS-500 Data Collection Module* and click the **Add/Remove** button.

Getting Started

The software must be successfully installed before running the system. If you have not installed the software from the distribution disks at this point, please refer to the previous section and do so now. If the software has been successfully installed, you are ready to connect to the AMAC-500.

Connecting to the Crawler

The DCM requires an ethernet connection between the computer and the MCU-500. This connection utilizes a standard Category 5 (Cat 5) ethernet cable with RJ-45 connectors. If you do not have the cable that shipped with the system, you can use any standard Cat 5 cable. The system does not require a crossover cable, although, one can be used.

The diagram below shows the connections required to use the system. The ethernet connection to the MCU-500 provides both position and UT data to the DCM. Be sure to select the UT device you are using by clicking on *Settings*. You can select either the USN-52 or USN-58. Be sure to set the baud rate for the USN-52/58 to 9600.

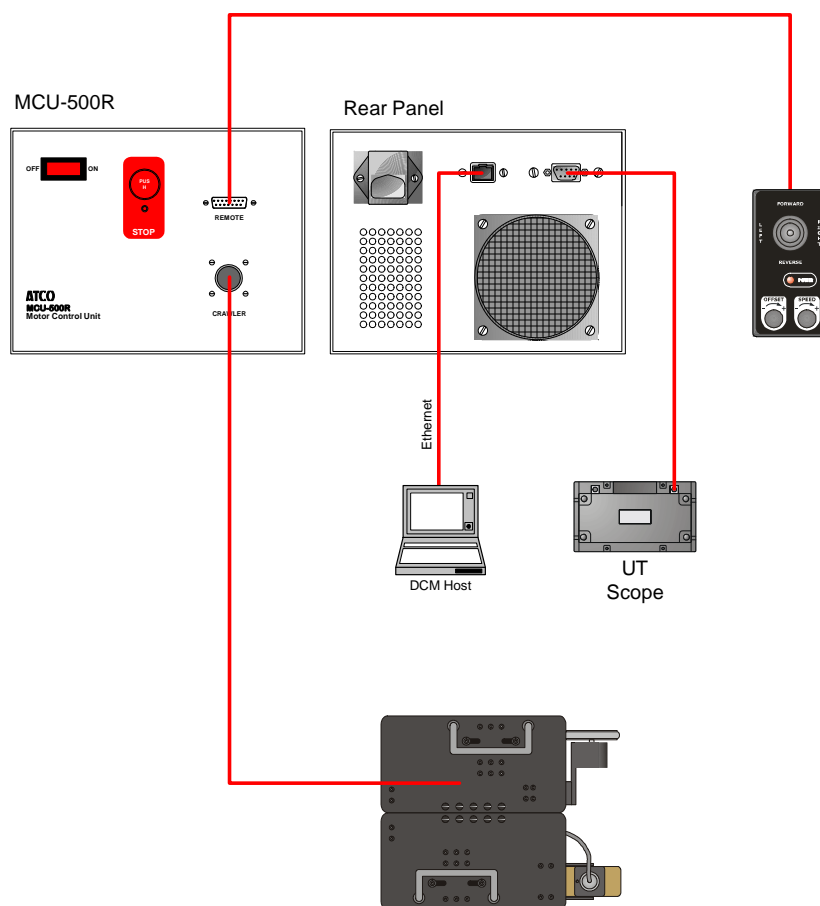


Figure 1 Connecting to the AMAC-500/MCU-500

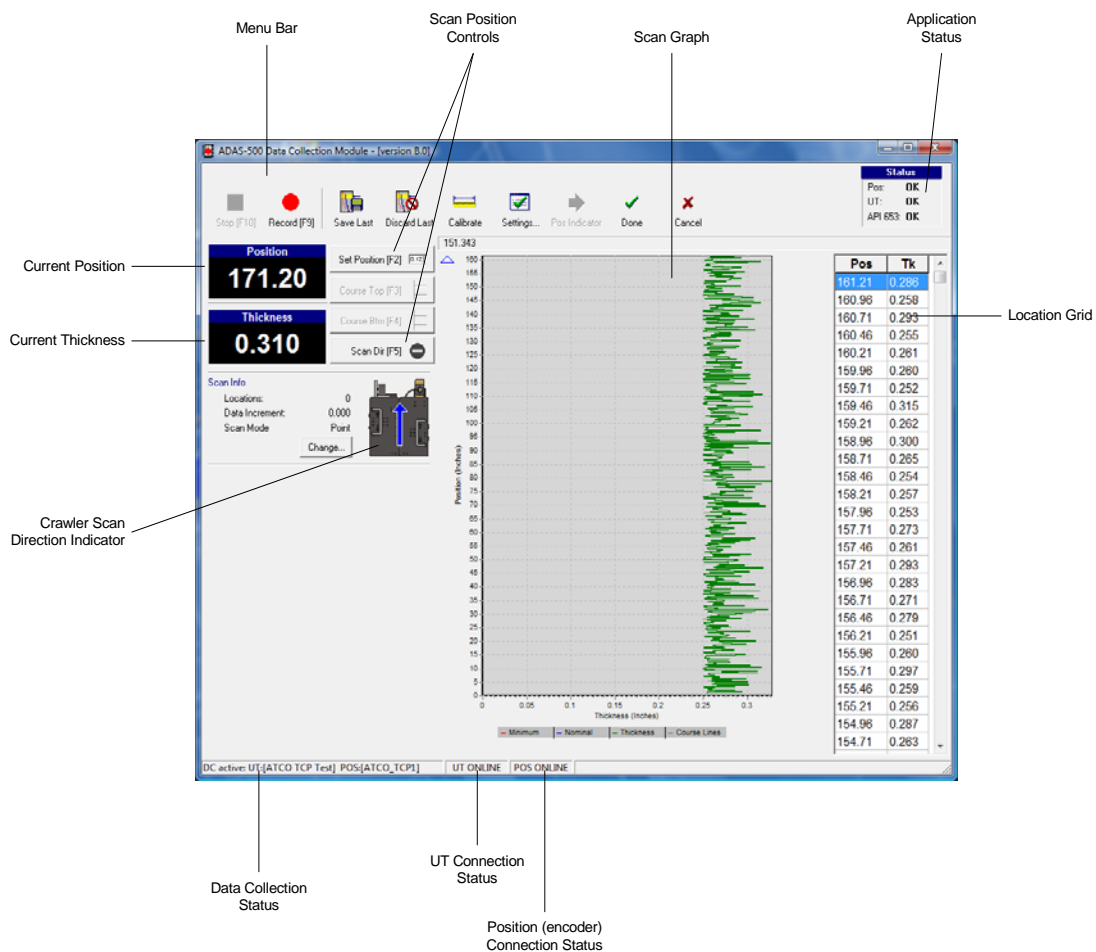
Running the DCM

Once the software is installed and the system is connected as shown above, you are ready to run the DCM.

Note: You must have the entire system connected, the MCU-500 and USN-52/58 powered up prior to running the DCM.

From the **Start** menu select **Programs | ADAS-500 Data Collection Module | ADAS-500 DCM**

If you do not find the **Start** menu entry, proceed to the previous section and run the installation as specified. Otherwise, select the menu option (as shown above) and the main screen of the program should appear as shown below.



DCM Main Window

The main window of the DCM is shown above. Prior to using the system, it must be calibrated to work with the crawler's encoders. The encoders are the devices on the crawler that provide the software with the crawler's position. To calibrate the system's positioning, refer to the section in the Appendix *Calibrating Encoders*.

Menu Bar

The Menu Bar spans the top of the application window. The buttons contained in it, and their functions, are listed below.

STOP [F10]	Stops recording mode
RECORD [F9]	Starts recording mode
Discard Last	Discards the last set of locations scanned in to the system
Save Last	Saves the last set of locations scanned in to the system.
Calibrate	Allows you to calibrate the travel distance of the crawler and the application.
Settings	Allows you to change the encoder/UT interface settings of the application.
Done	When you are finished scanning, select this option to save the data and exit the application.
Cancel	Select this option if you wish to discard any scanned locations and return to the main application.

Application Status

The *Application Status* area shows the status of the key parts of the application. **OK** indicates proper working status. **ERR** indicates that an error has occurred.

POS	Indicates the status of the positioning interface to the AMAC-500 encoders.
UT	Indicates the status of the interface to the UT Instrument.
API653	Not used in this version

Current Position

The *Current Position* displays the current position of the AMAC-500 in the scan. This can be changed by using the *Scan Position Controls*. This value changes as the crawler moves. In order to get the correct position, you must be sure to calibrate the position using the *Calibrate* button on the *Menu Bar*. If the position is not being displayed, the POS status shown in the *Application Status* area will likely be **ERR**. When this happens, the error will be indicated at the bottom of the window in the *Status Bar*.

Current Thickness

The *Current Thickness* displays the thickness that is coming from the UT Instrument Interface. If the current thickness is not being displayed, the UT status shown in the *Application Status* area will likely be **ERR**. When this happens, the error will be indicated at the bottom of the window in the *Status Bar*. Typically if an error occurs, the UT device is either off or the cable is not connected.

Scan Specific Information

The scan information shown here displays the

Data Increment	The interval at which locations are stored in the scan. It can be changed by selecting the Settings button on the Menu Bar.
Scan Mode	This option is the mode selected for scanning. The options are <i>low hold</i> or <i>point</i> .
Locations	The number of locations currently in the scan

Scan Graph

The Scan Graph displays the data graphically with the position on the Y axis and the thickness values on the X axis.



Location Grid

The location grid displays the locations stored in the scan.

Pos	- the position of the location relative to the zero reference of the scan.
Tk	- the thickness value stored at that location

Scan Position Controls

Set Position	[F2] - Allows you to enter the current position.
Course Top	Not used in this version
Course Bottom	Not used in this version
Scan Dir	[F5] - allows you to change the direction of the scan relative to the crawler. Positive means that the crawler position increases when moving forward. Negative means that the crawler position decreases when moving forward. The button indicates the current setting (see below).

-  - Indicates that crawler moving forward increases the position.
-  - Indicates that crawler moving backwards increases the position.

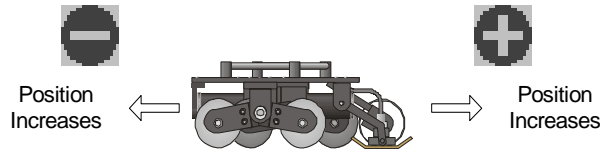
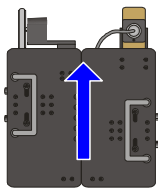
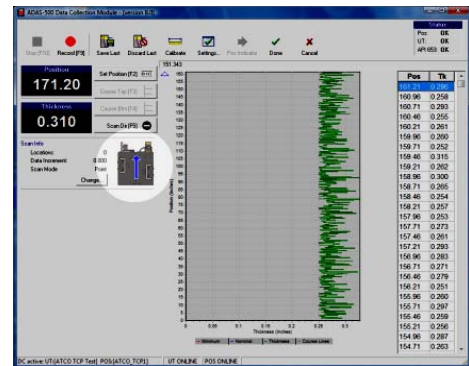


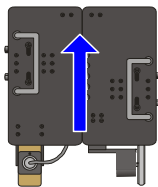
Figure 5 Scan Direction

Scan Direction Indicator

The *Scan Direction Indicator* displays the positive direction for the position counter. Shown below, it indicates the direction that will cause the position to increment positively. Click the *Scan Dir* button (or press F5) to change the positive direction.



Moving the crawler forward will increment the position positively



Moving the crawler in reverse will increment the position positively

Configuration Settings

The Configuration Settings Dialog allows you to select the settings for the PC interface. To change the settings, click the **Settings** button and the dialog will appear (Figure 6).

ATCO Ethernet Interface

The ATCO Ethernet Interface provides an interface to both the encoder and UT devices through the single ethernet connection. The Krautkramer USN-52 and USN-58 are supported.

IP Address*

This is the IP Address of the MCU-500. This setting should not be changed unless there are more than one MCU-500 connected to the network. The default setting is 192.168.1.200.

Encoder Port*

This is the port to use for TCP communication with the Encoder on the MCU-500. The default setting is 26.

UT Port*

This is the port to use for TCP communication with the UT device on the MCU-500. The default setting is 23.

** Note: These settings should not be changed. Changing this setting without changing the setting on the MCU-500 to match will cause the communications to fail.*

Gate Settings

When using the USN-58 you can select the gate to read on the device. The values are the three gates S1, S2 and S3. The USN-52 does not support this feature.

Restore Defaults

Clicking this button will set all the interface values back to their initial default settings.

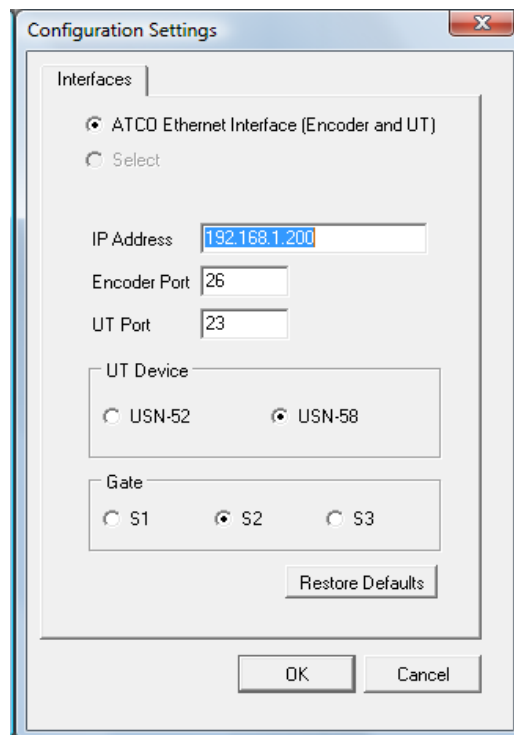


Figure 8 Configuration Settings

Scanning

Once the interfaces are working properly, you can prepare to collect data with the DCM. For more detailed information on scanning, refer to the section *Scanning Techniques* in the AMAC-500 Manual.

Check the Scan Parameters

Before scanning, be sure that the *data increment* and *scan mode* are correct. They appear under *Scan Info* below the Current Thickness. If the settings are not correct, you can change them by clicking the **Change...** button. For more on *Scan Parameters* refer to that section in this document.

Position the Crawler

Position the crawler at your scan starting point. Typically, the crawler will be inverted to scan the first course to reach the area closest to the tank chine (Figure 8). The remaining courses will be scanned with the crawler moving forward in the positive direction of the scan.

Set the Position in the DCM

Once you've positioned the crawler on the equipment, you must set the position in the DCM. To do this, you can click the **Set Position** button or press **F2**. Then, enter the new position and click OK.

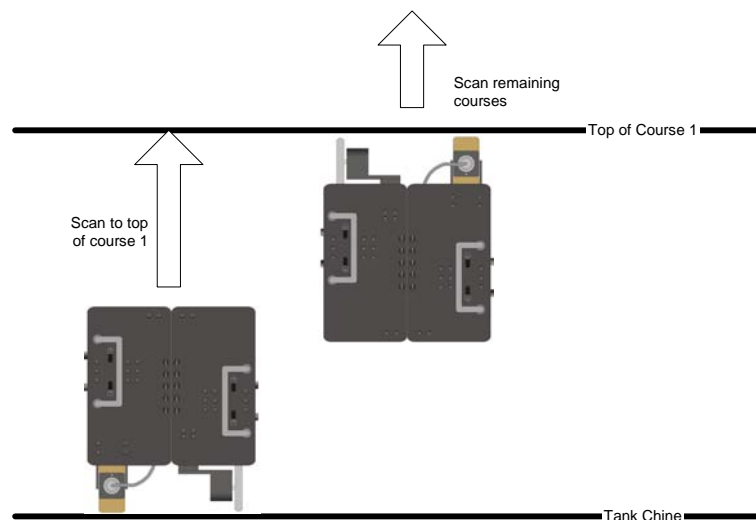


Figure 9 Scanning Course 1 Inverted

Set the Scan Direction

You must tell the DCM the direction in which the crawler will be scanning. In some cases the crawler will be moving in a positive direction along a scan while moving in reverse. This typically happens when scanning the bottom course as shown above. In this case set the scan direction to Reverse (-). Otherwise, when you move the crawler backwards the position will decrease. If you are moving the crawler forward and the scan direction is positive, select Forward (+) otherwise, select Reverse (-).

Start Recording

When the crawler is positioned and all settings are correct, you are ready to record data. Click the **Record** button (or press **F9**) and then move the crawler to the end point of your scan. The new locations should appear in the *Readings Grid* on the right side of the window as you scan. The *Position Indicator* should move along the graph showing the scanned area with a white background.

Saving / Discarding New Data

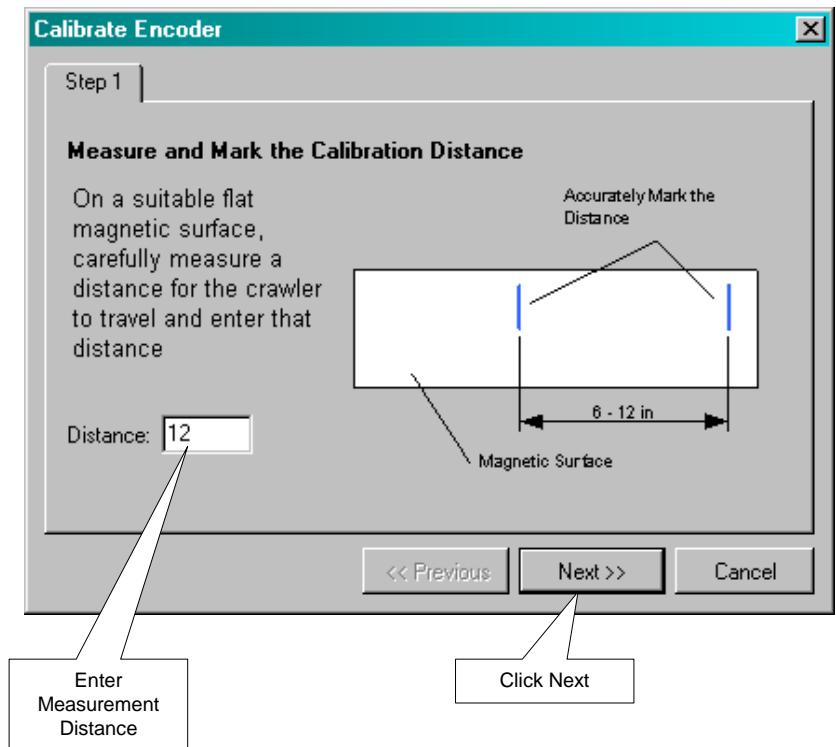
When the crawler reaches the end of the scan, click the **Stop** button (or press **F10**). The newly scanned locations should now appear in a white background. At this point you can either save or discard the new data. If you want to keep the data, click the **Save Last** button. If there are any locations in the area you scanned, they will be overwritten. If there were problems such as loss of signal you will likely want to discard the data and scan the area over. In these cases click the **Discard Last** button, you will be prompted to confirm it and the data will be removed leaving any existing data in the scan.

Once you are finished scanning you can either save any changes to the data or discard them. To save them to a TK file close the DCM by clicking on the **Done** button. You will be prompted for a folder and filename to save the data to. If you do not want to save the changes made to the scan, click on the **Cancel** button and the DCM will close without saving the data.

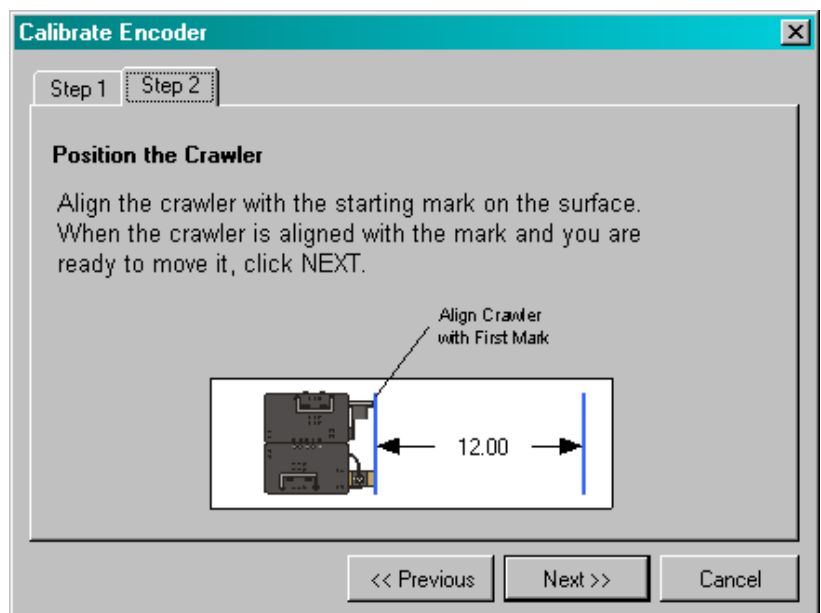
Calibration

Prior to using the Data Collection Module (DCM) you must calibrate the system to work with the encoders of the AMAC-500 crawler. The encoders are the devices that tell the DCM the position of the crawler. The first step in calibrating the system is to accurately mark a distance on a flat, smooth magnetic surface. Next, you will need to drive the AMAC-500 along this distance. Once you have prepared the magnetic surface select the **Calibrate** button from the menu bar. The Calibrate Encoder Wizard will appear as shown.

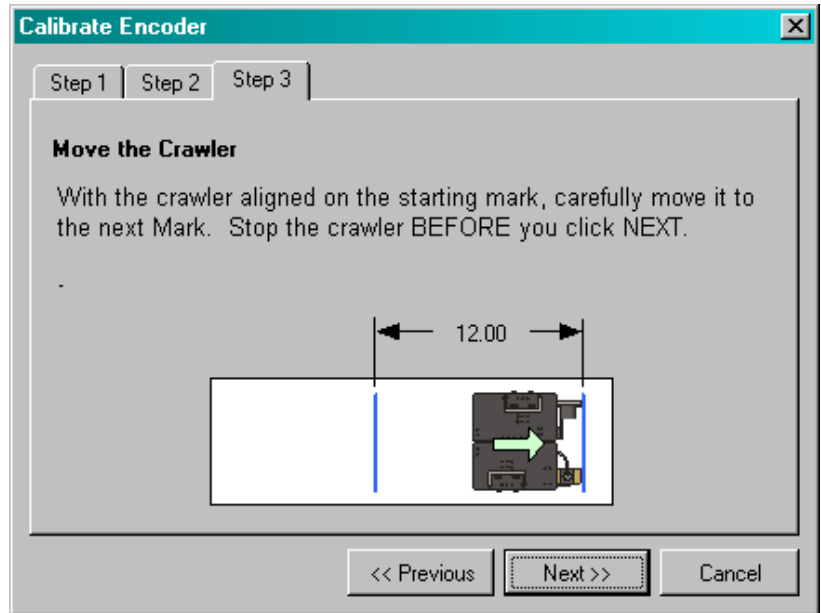
Step 1 Enter the measurement distance that the AMAC-500 will be driven. Then, click **Next**.



Step 2 - Prepare the crawler to move by aligning it with the starting mark. Once the crawler is aligned with the first mark, click **Next**.



Step 3 - Move the crawler to the mark at the end of the measurements distance. Do not click Next until after you have aligned the crawler up with the ending mark. Then click **Next**.



Step 4 - Test the calibration by moving the crawler and checking the position displayed. To accept the calibration, click **Finish**. If you need to try again, just click the **Previous** button or click on the appropriate tab at the top.

