



OTR011

Knowledge Base Document

Technical Support Department, U79, Newtown

Title: 'CTSoft for Digitax ST' Quick Start Guide.

Document Category: Application Related **Product Category:** Other Products

Revision History

Revision	Date	Revising Author	Released for Website ?	Mark X	Authorised By	Comments
2.0	08/11/2007	Ian Meredith	CTSupport CTVip Both None	X	Martin Dudley	

Summary of Contents

This is a basic step-by-step guide on how to use 'CTSoft for Digitax' for the first time. If you require a more detailed approach please read the help files supplied with this product. This document covers Hardware Setup, Motor and Encoder selection, Indexer settings, Reference Mode, Download Configuration, the Autotune Wizard and an Indexer Section which covers the Homing Block, Exit Action, Transitions, Absolute Index, Relative Index and downloading to the drive.

Requirements

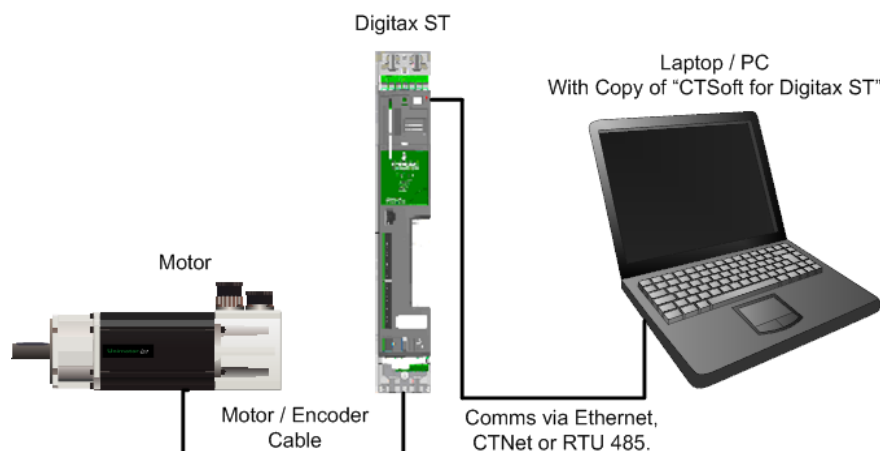
Digitax ST (Indexer or Plus) with motor and encoder attached.

PC/Laptop with supported operating system (XP, Win 2000).

Copy of 'CTSoft for Digitax ST'.

Means of communication between PC/Laptop and Digitax ST (CTNET, RTU, etc).

Note: This document assumes that the user has a basic knowledge of setting up communications between a PC and a drive.

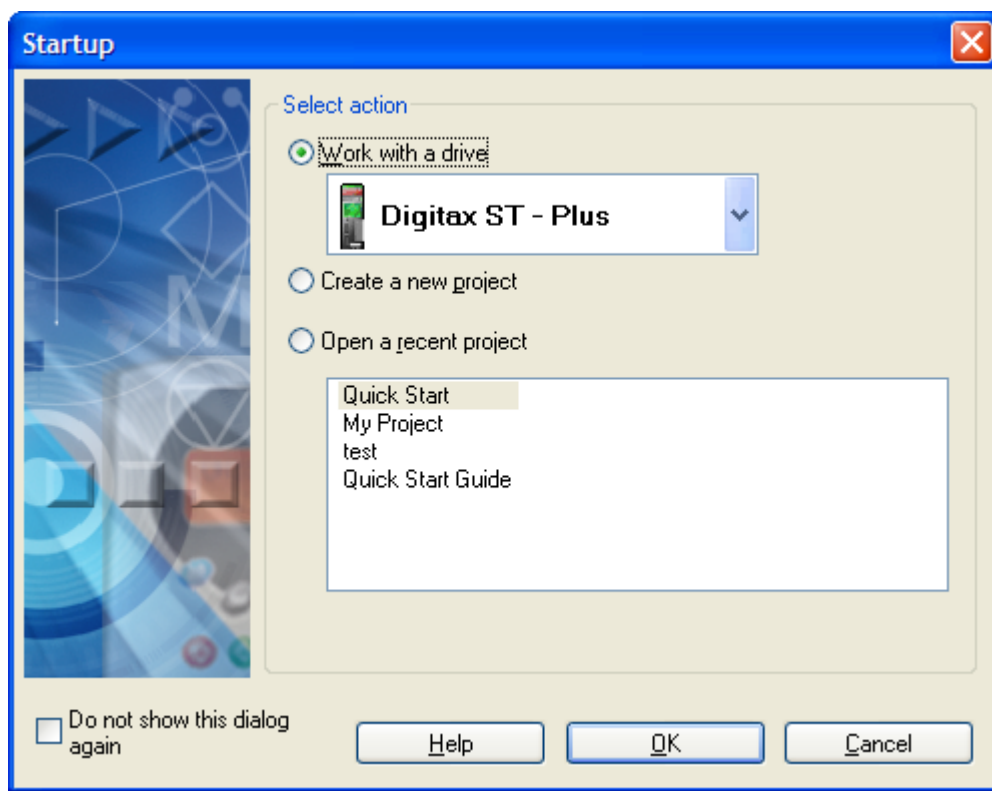


Ensure everything is correctly connected and communications working before proceeding.

Note: Pay particular attention to any safety warnings that may be seen during this setup process.

Hardware Setup.

When “CTSoft for Digitax ST” is first started the following dialogue (Fig.1) will appear.

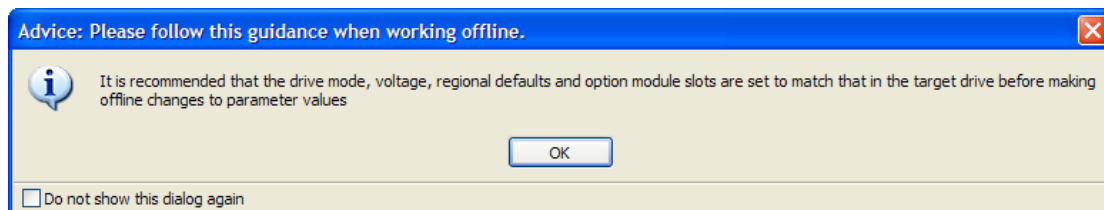


(Fig.1)

For this example select ‘Work with a drive’, select your drive type from the drop-down list and click ‘OK’.

Note: “Digitax ST Plus” or “Digitax ST Indexer” must be selected as Indexing cannot be produced with the Digitax ST – Base.

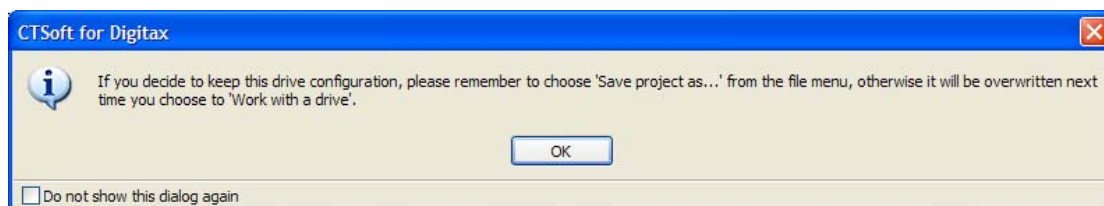
The following dialogue is normally displayed.



(Fig.2)

Read the message (taking precautions if necessary) and click ‘OK’.

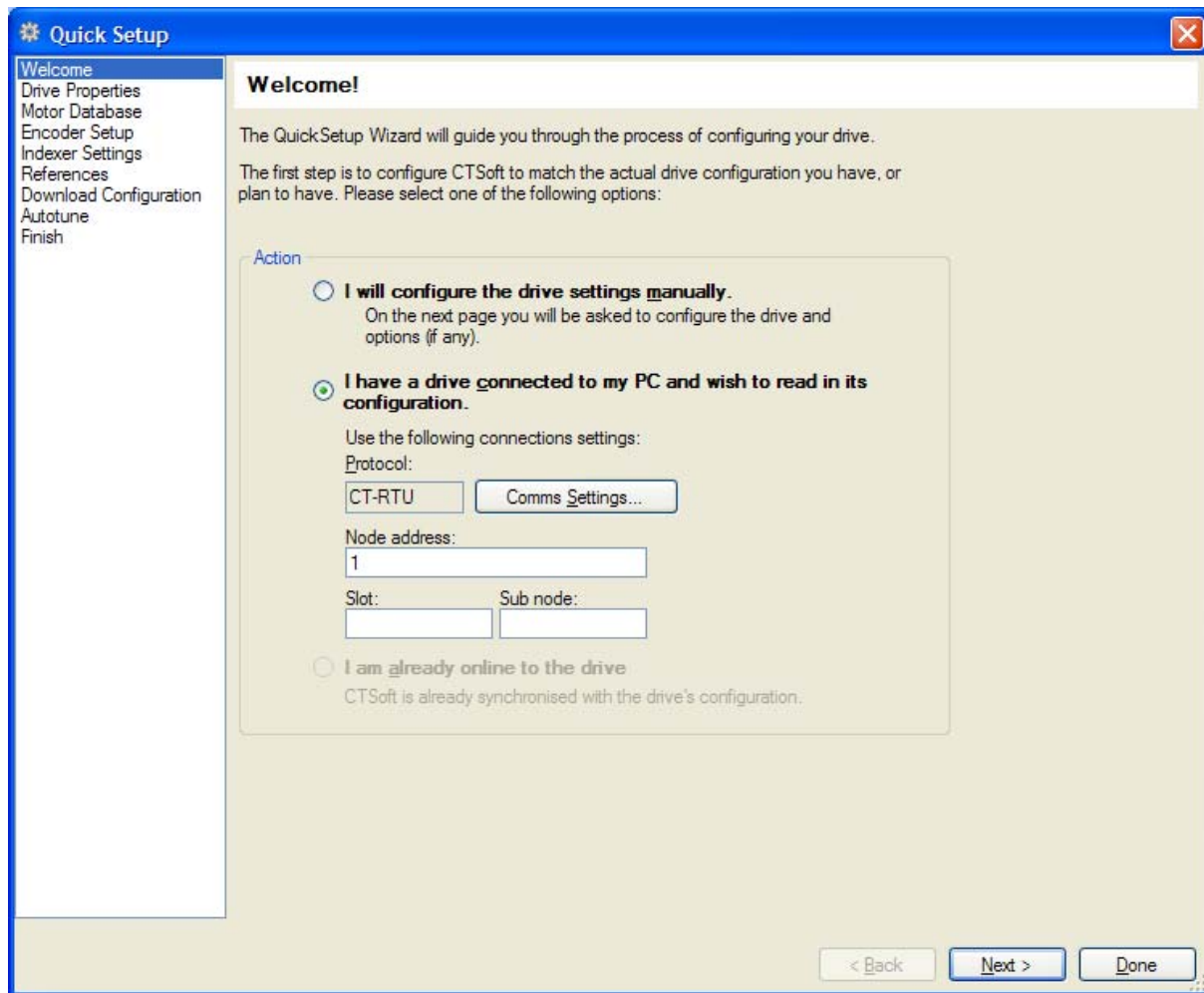
The following dialogue is normally displayed.



(Fig.3)

Read the message (taking precautions if necessary) and click ‘OK’.

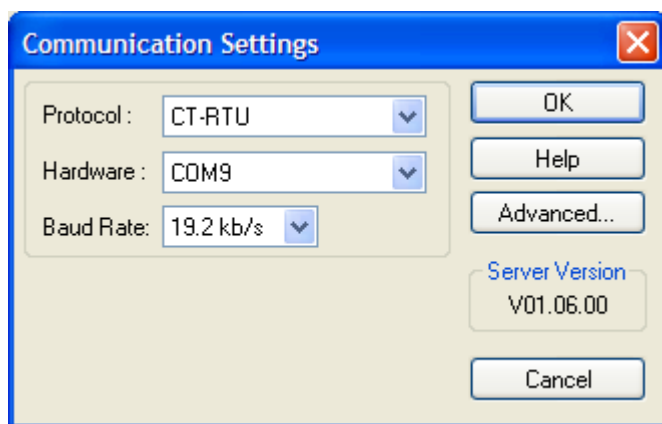
The 'Quick Setup' dialogue is displayed.



(Fig.4)

For this example, select 'I have a drive connected to my PC and wish to read in its configuration'. Click on the 'Comms Settings' button and select the comms settings for your setup.

On the following window you can see that CT-RTU is being used, your communications setup may be different. I.e. CTNet, ANSI or CT-TCP/IP.

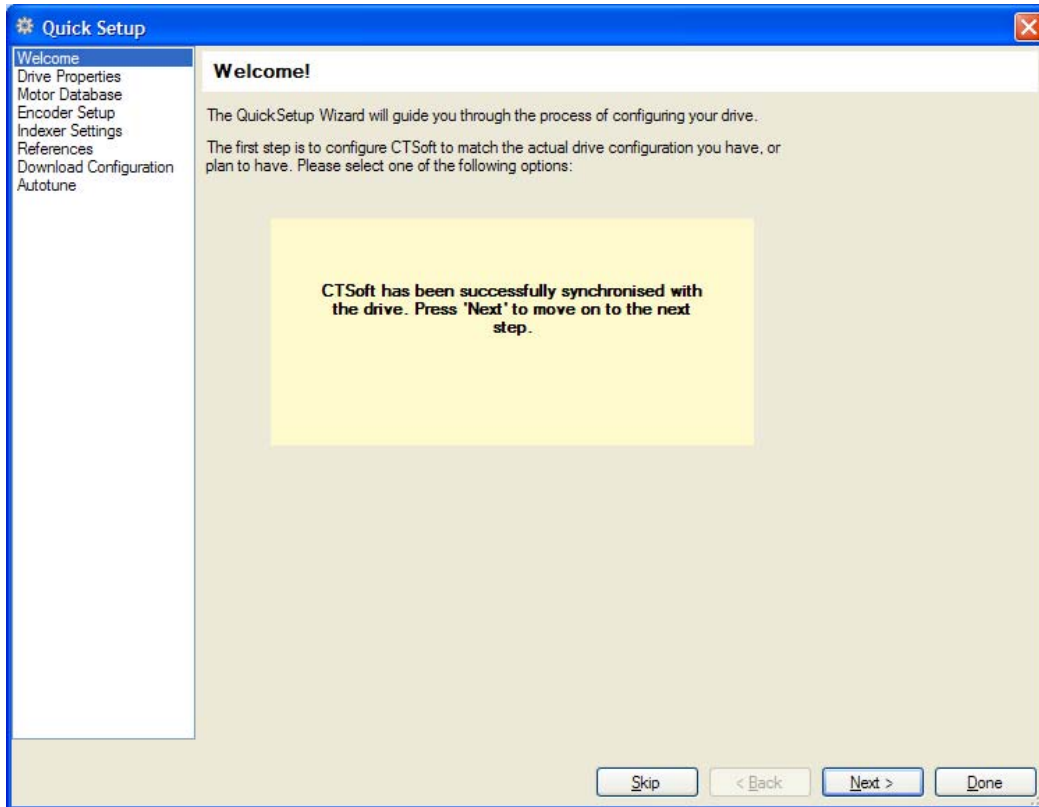


(Fig.5)

Ensure you have the correct communications settings then click 'OK'.

You will be returned to the 'Quick Setup' dialogue. Click 'Next'.

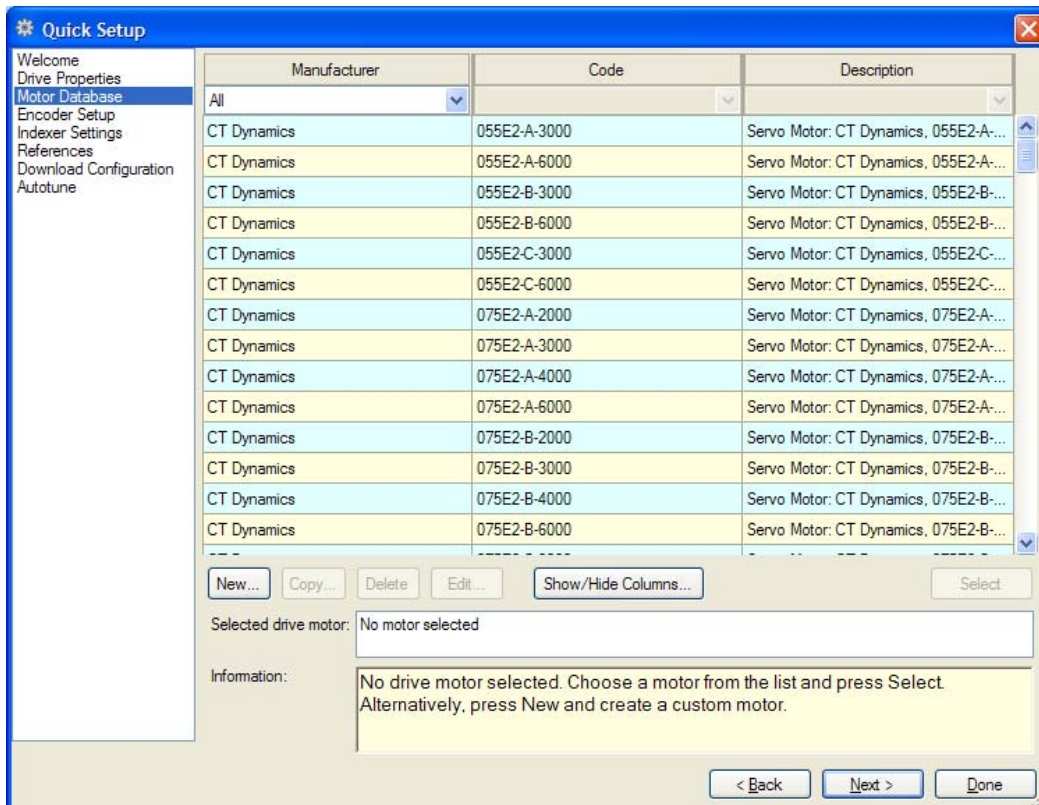
There will now be a short delay as CTSoft for Digitax uploads parameters from the drive. When this has finished the following dialogue (Fig.6) should be seen.



(Fig.6)

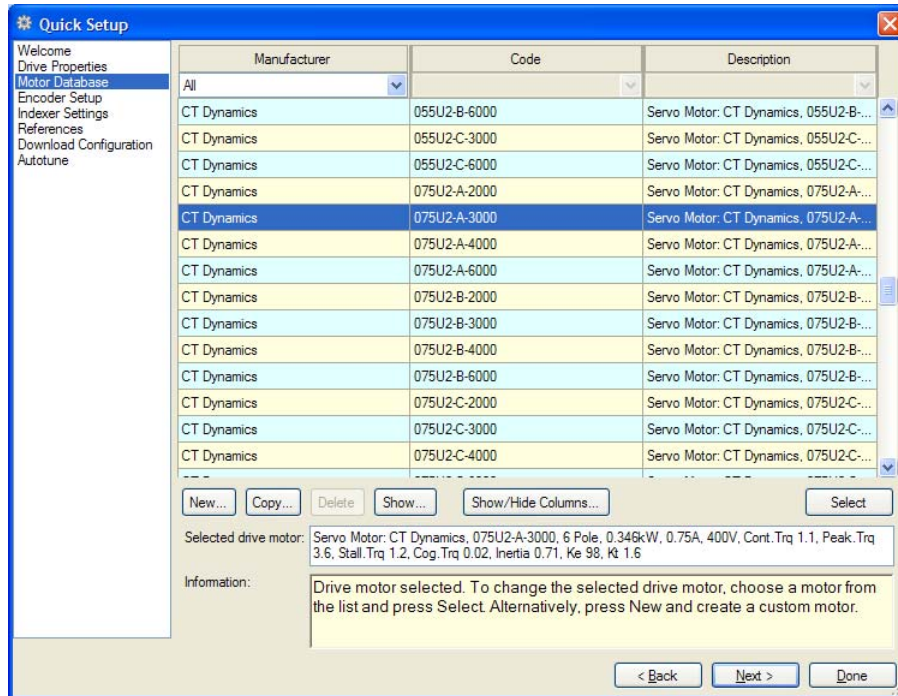
Click 'Next'. The Motor database dialogue should be seen.

CTSoft Motor and Encoder Selection



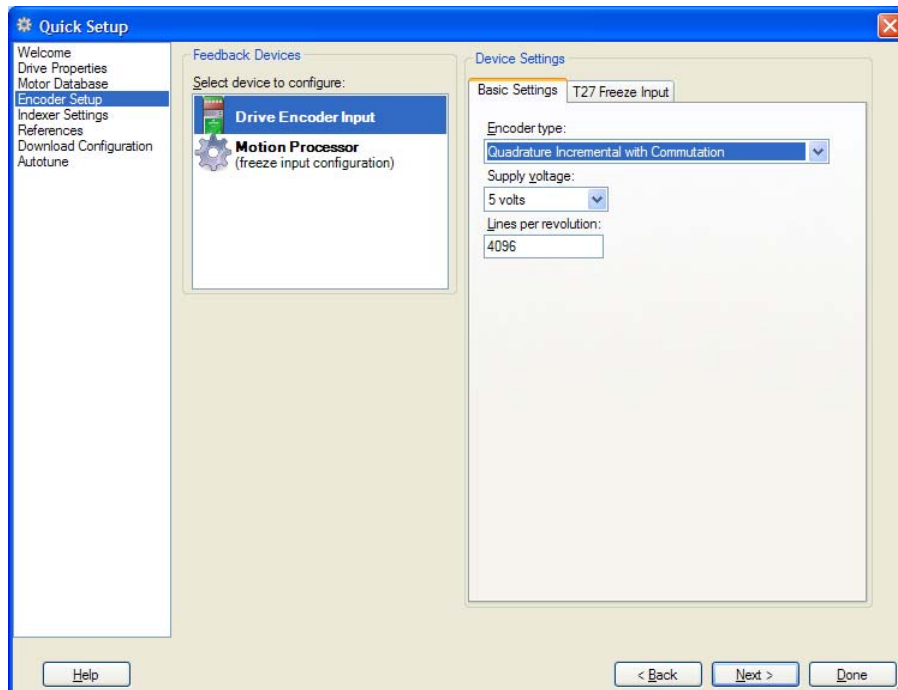
(Fig.7)

If your motor is listed, highlight it and click 'Select'. When 'Select' is clicked the motor information will appear in the 'Selected drive motor' area (as shown in Fig.8), and the 'Information' area will change to 'Drive motor selected' from 'No drive motor selected' (as shown in Fig.7). If you click 'Select' on the incorrect motor, you can change it by highlighting the motor you want and clicking 'Select' again. If your motor is not listed click on 'New' and you can manually add your own.



(Fig.8)

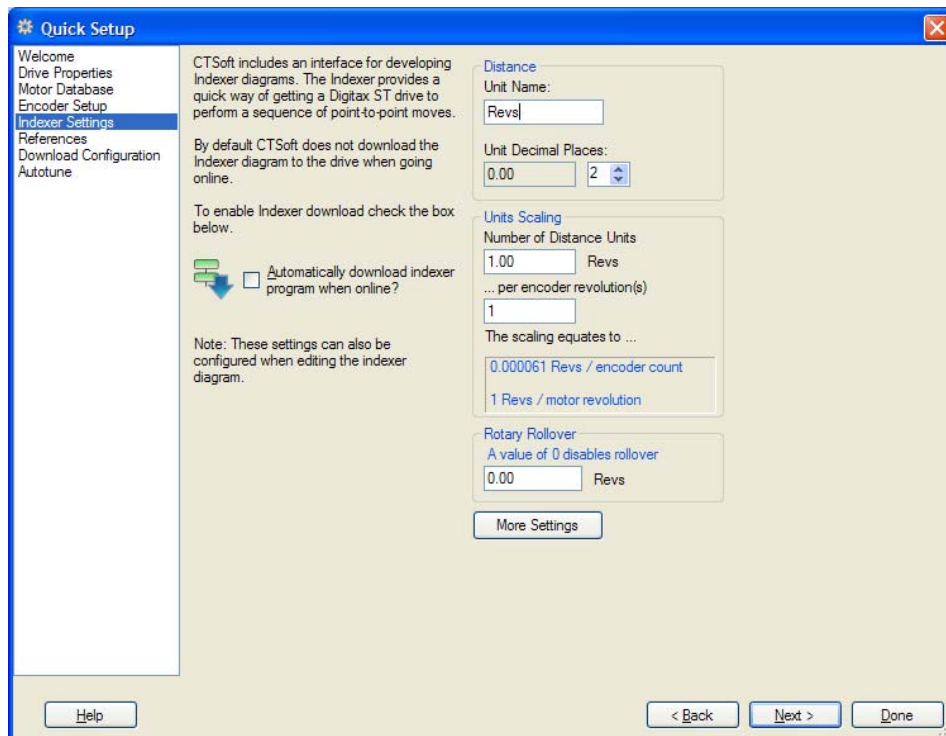
Click 'Next', the Encoder Setup dialogue is now seen (Fig.9). In this dialogue select the 'encoder type', 'voltage' and 'Lines per revolution'. Freeze input can also be set up here if required. For more information on encoder types please refer to the "AC & DC Drives, Servos & Motors Product and Services catalogue", available to download from www.controltechniques.com.



(Fig.9)

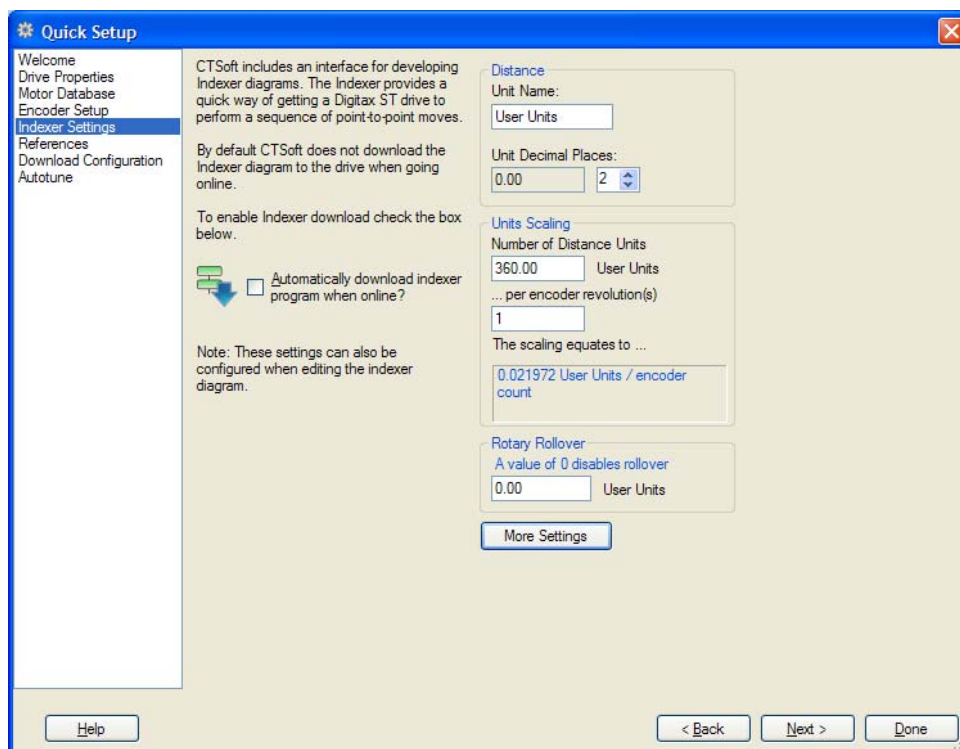
Click 'Next'.
The dialogue in Fig.10 should now be seen.

Indexer Settings



(Fig.10)

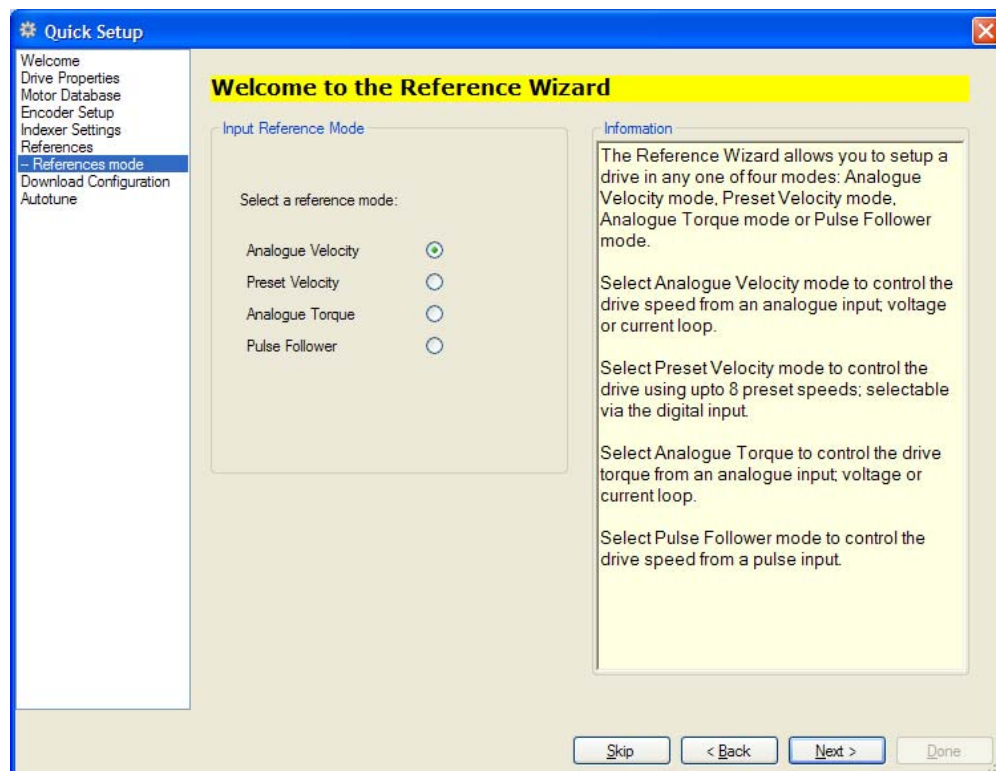
In this dialogue set the units you want to work with. The default value is shown in Fig.10 above, the 'unit name' is 'Revs' and one revolution of the encoder equates to one Rev. In the example below the name has been changed to 'User Units' and the 'Number of Distance Units' changed to 360. This now means that there are 360 user units per encoder revolution (360 degrees). You may use whatever units you feel comfortable with, but for the remainder of this document the default 'Revs' will be shown.



(Fig.11)

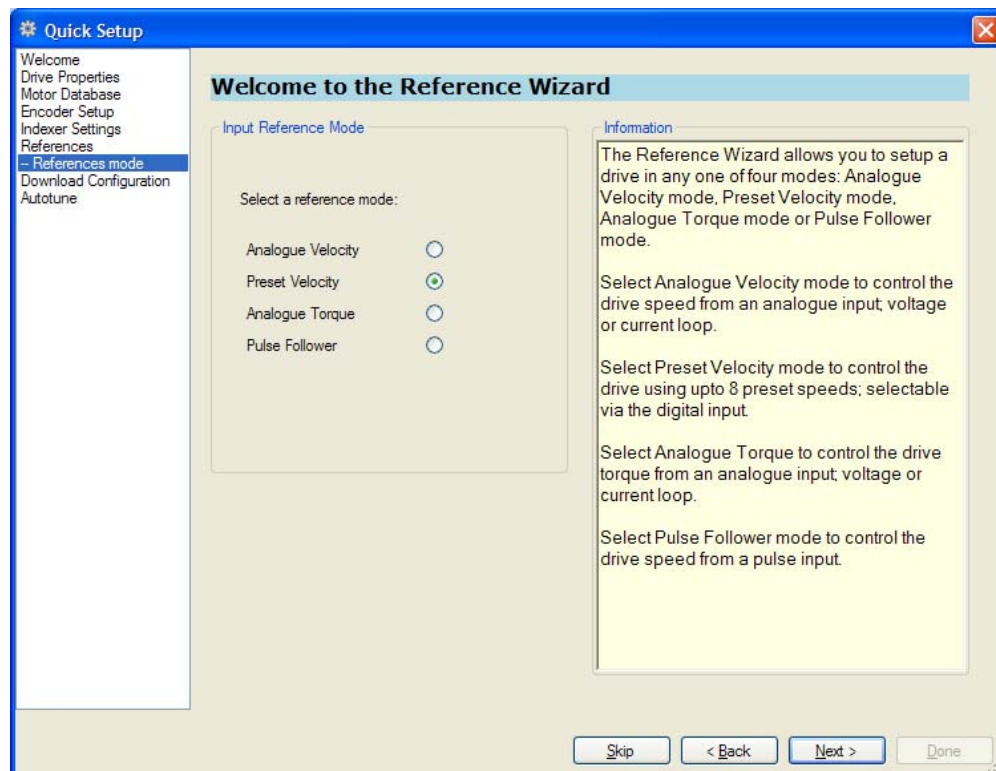
Click 'Next'.
The dialogue in Fig.12 should now be seen.

Reference Mode



(Fig.12)

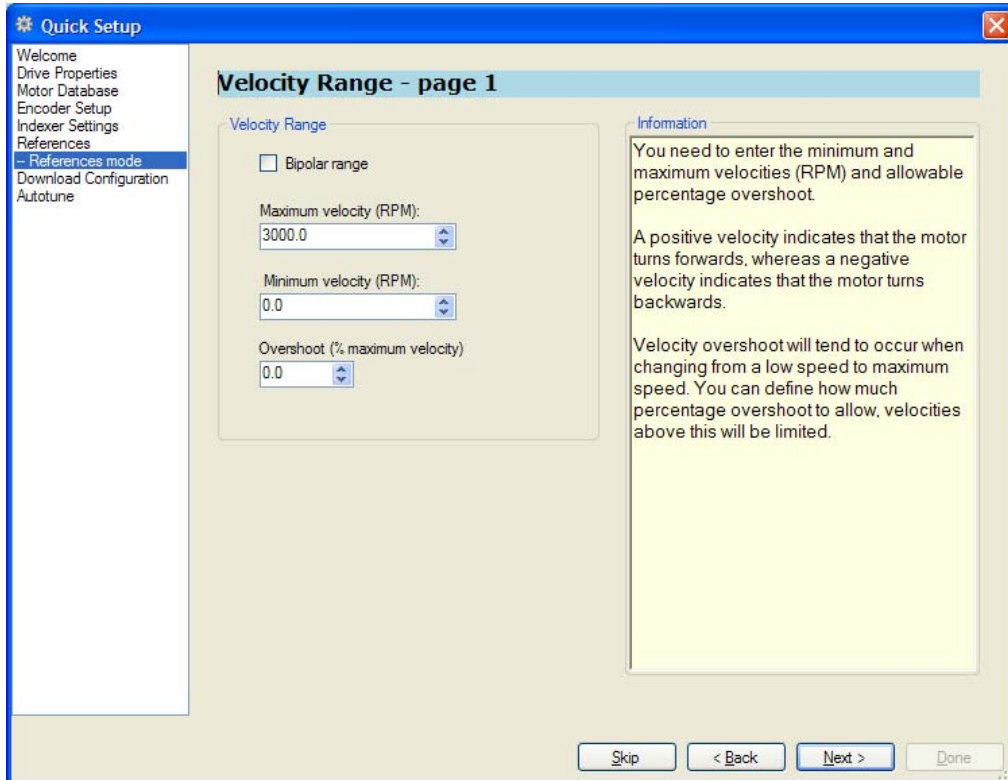
In this dialogue one of four different reference modes can be selected, they are described in Fig.12.
For this example choose 'Preset Velocity'.



(Fig.13)

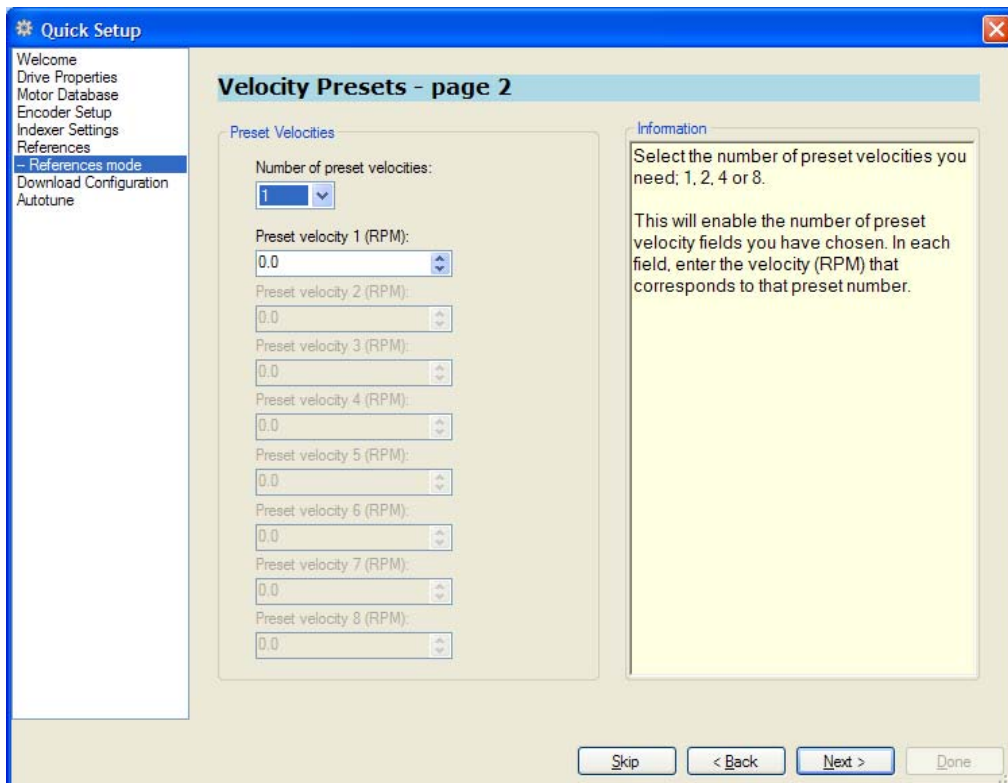
Click 'Next'.

The dialogue in Fig.14 should now be seen. Use this dialogue to input your 'Maximum/Minimum velocities' and 'Overshoot' value. Click 'Next'



(Fig.14)

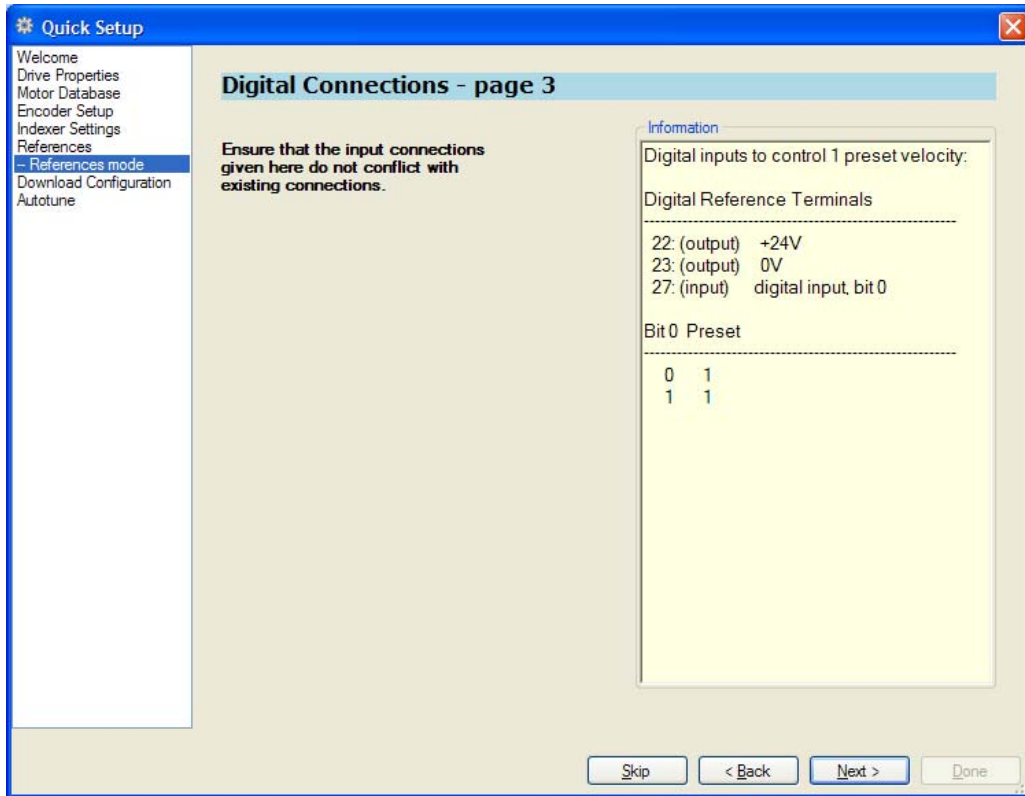
The following dialogue Fig.15 should now be seen. On this dialogue enter the 'Number of preset velocities' required and then add the corresponding velocity.



(Fig.15)

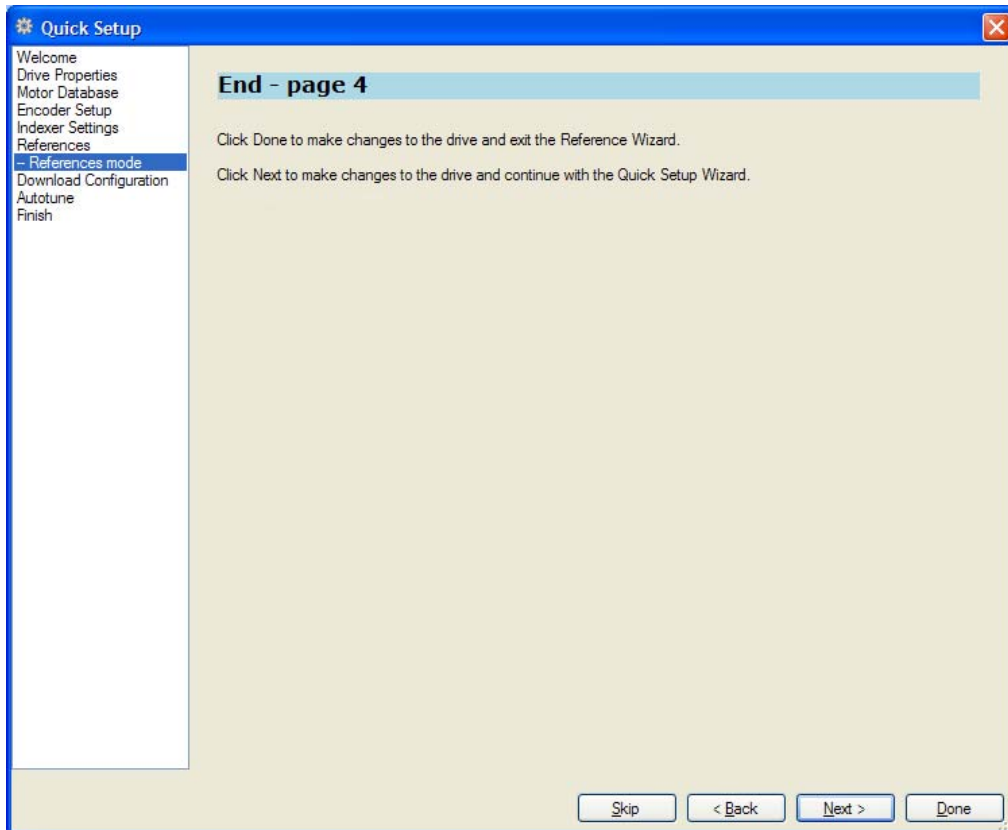
Click 'Next'

The dialogue shown in Fig.16 below should now be seen. This dialogue gives details of the digital connections you have set up. The information area will vary depending on the number of presets chosen on the last page.



(Fig.16)

Click 'Next'

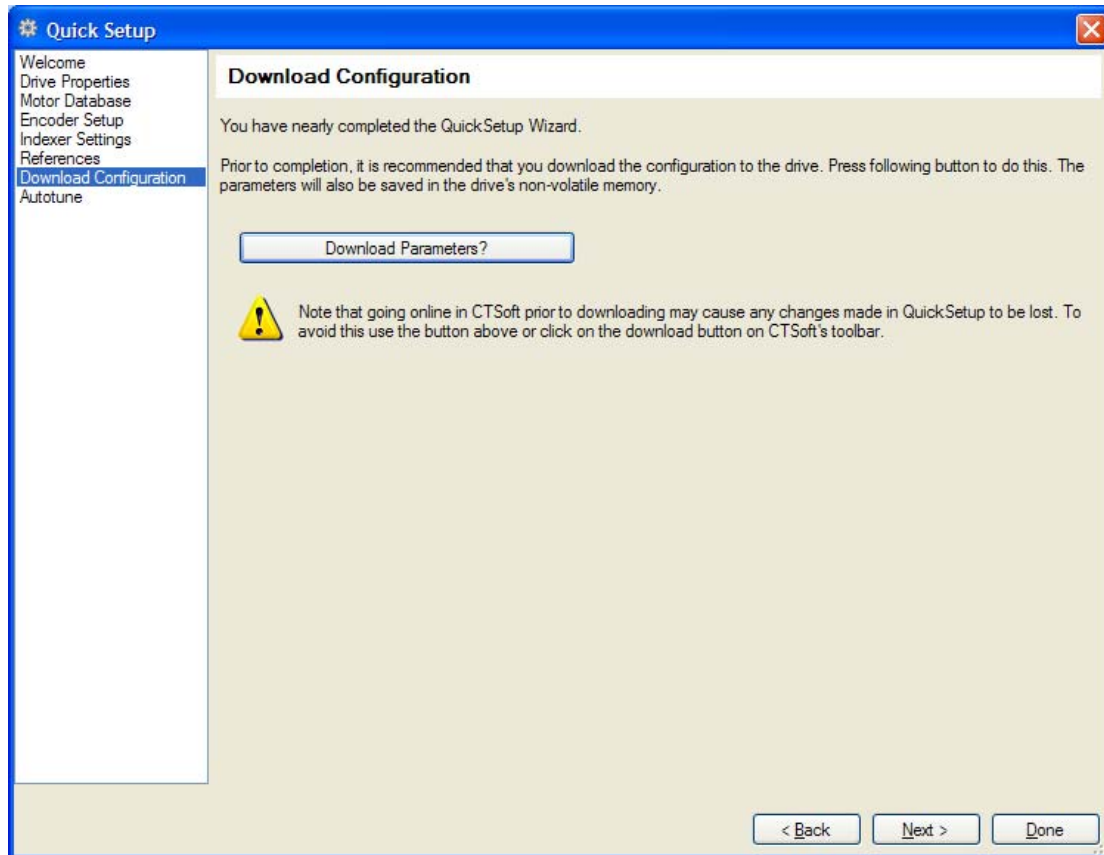


(Fig.17)

There are three choices here (see Fig.17), click 'Next' as we want to perform an Autotune.

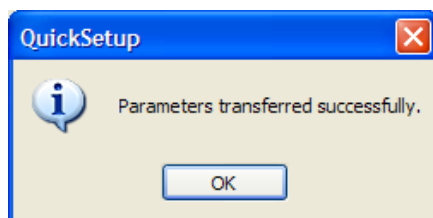
The dialogue in Fig.18 should now be seen.

Download Configuration



(Fig.18)

Click on 'Download Parameters'. If everything has worked correctly Fig.19 will be seen.

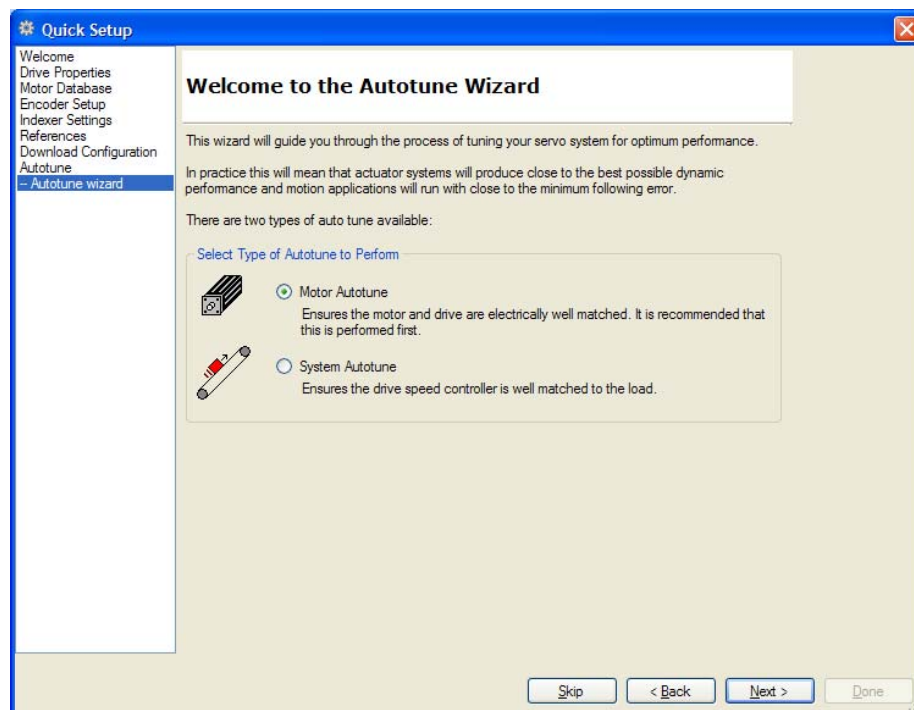


(Fig.19)

Click 'OK'. Click 'Next'

This will automatically move on to the motor Autotune Wizard, see Fig.20.

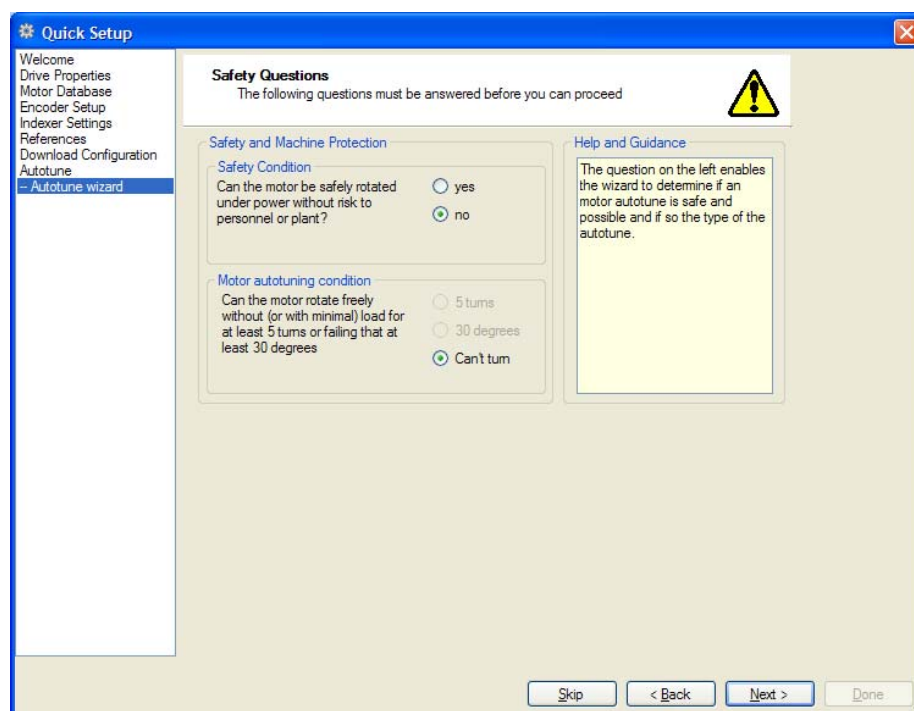
Autotune Wizard



(Fig.20)

From this dialogue Fig.20 select 'Motor Autotune' and click 'Next'.

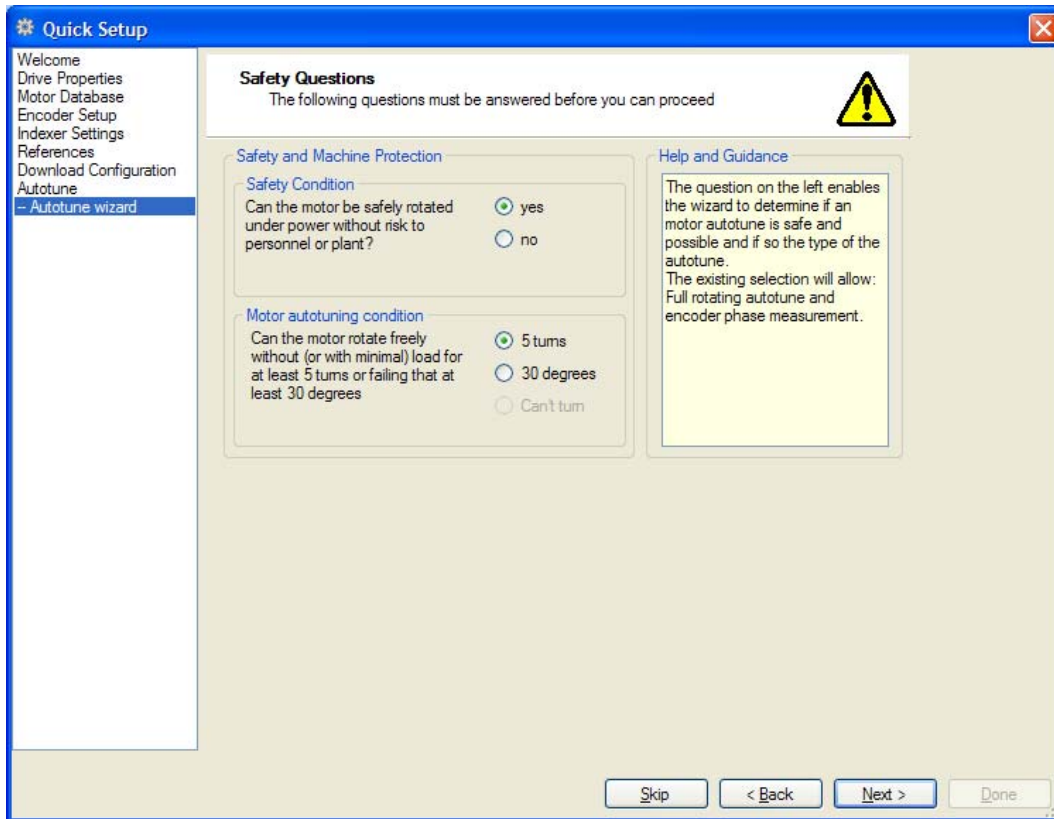
The 'Safety Questions' window below will be seen.



(Fig.21)

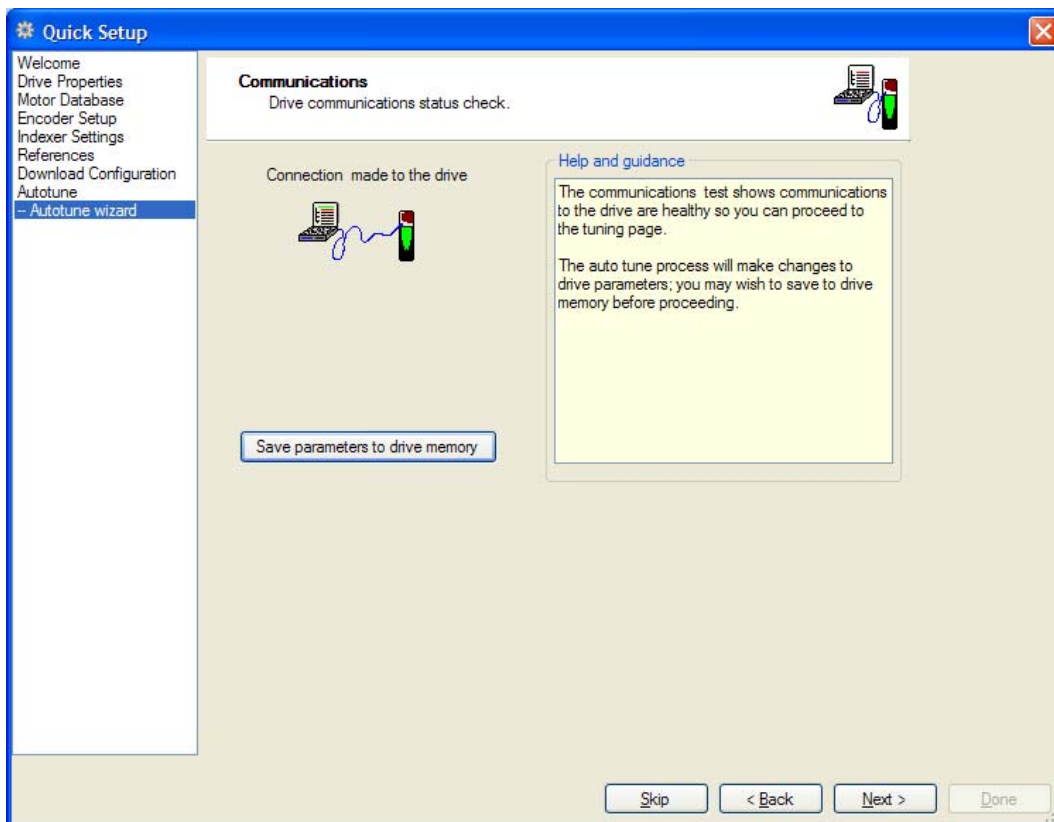
Pay particular attention to this part of the process and only carry on with this guide if safe to do so. If the safety condition is met select 'yes'. The 'Motor autotuning condition' becomes selectable. Selecting '5 turns' will allow 'Full rotating autotune and encoder phase measurement'. Selecting '30 degrees' will allow 'Non-rotating autotune and minimum rotation encoder phase measurement'.

Select '5 turns' for this example, as shown in Fig.22.



(Fig.22)

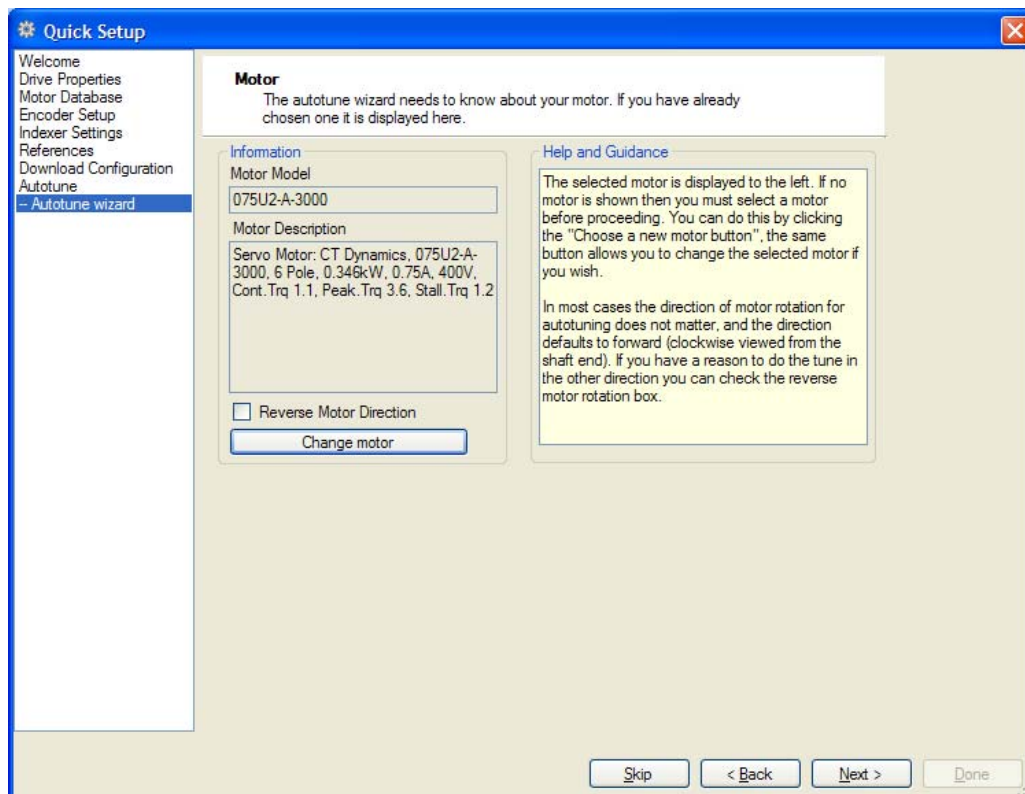
If safe to do so click 'Next'.



(Fig.23)

At this point you may wish to save parameters to drive memory, if so, click 'Save parameters to drive memory' and click 'Next'.

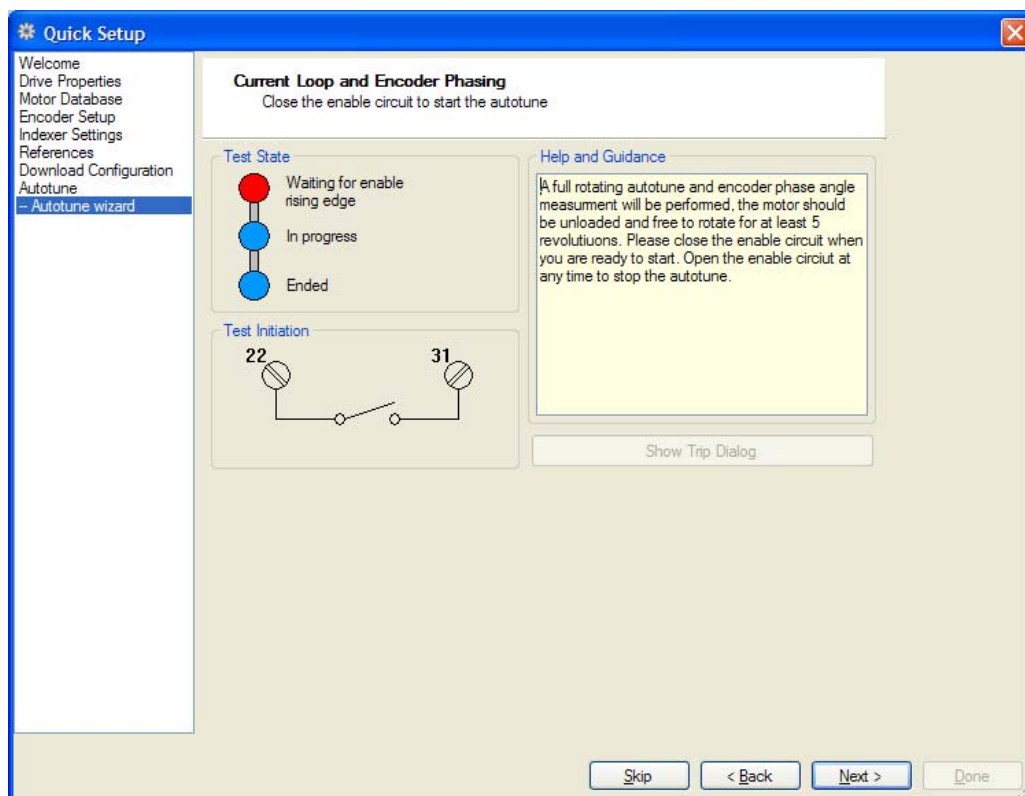
The following dialogue Fig.24 should be seen.



(Fig.24)

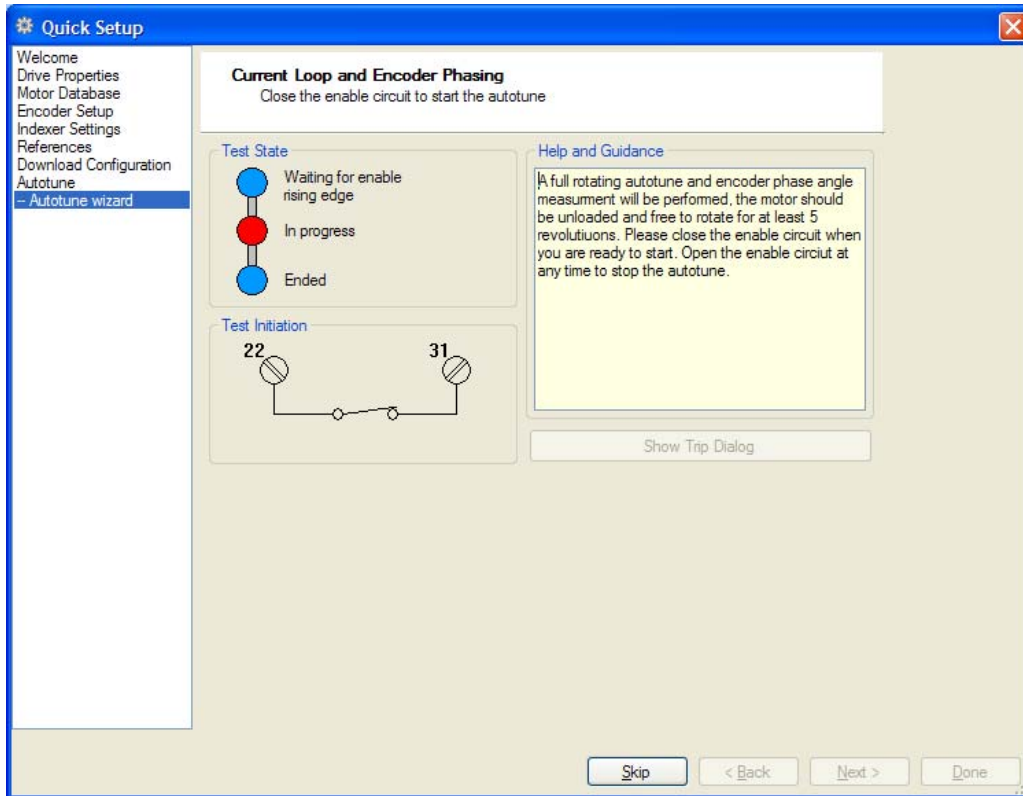
At this point details of the motor chosen previously can be seen. If the details are incorrect click on 'Change Motor'. If not, click 'Next'.

The following dialogue Fig.25 should be seen.



(Fig.25)

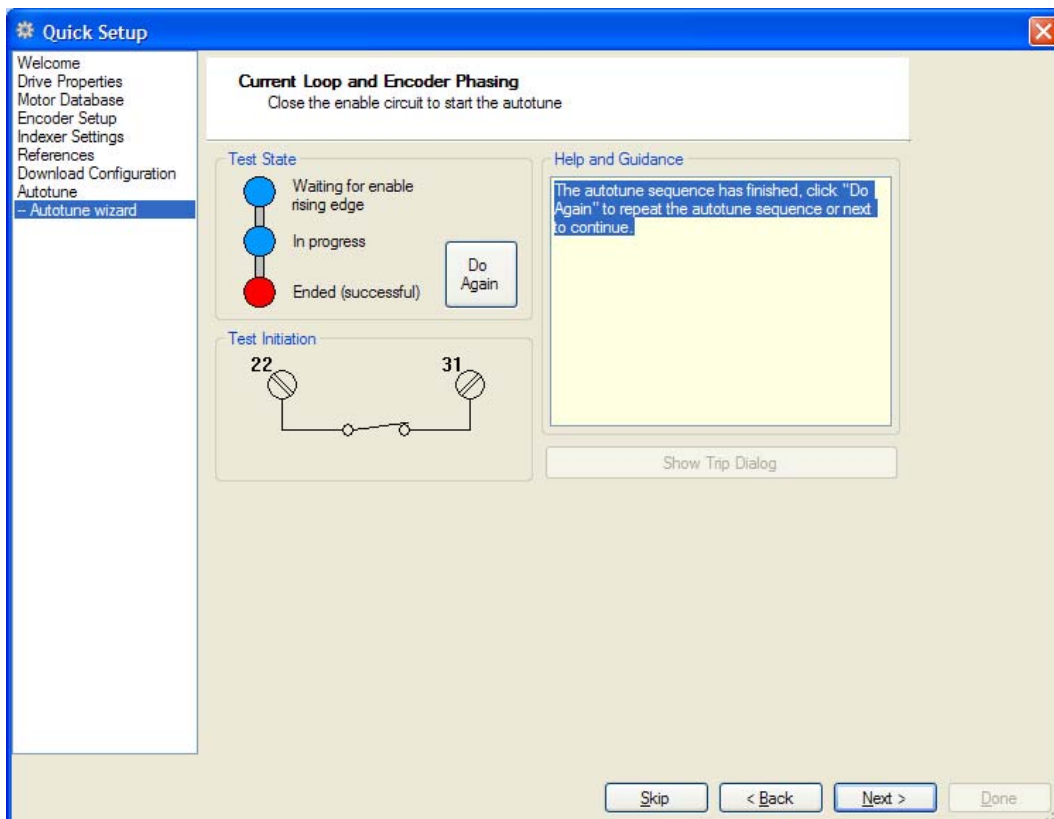
Now close the enable circuit between terminals 22 and 31, ideally using a switch. With the enable circuit closed your dialogue will change to that shown in Fig.26.



(Fig.26)

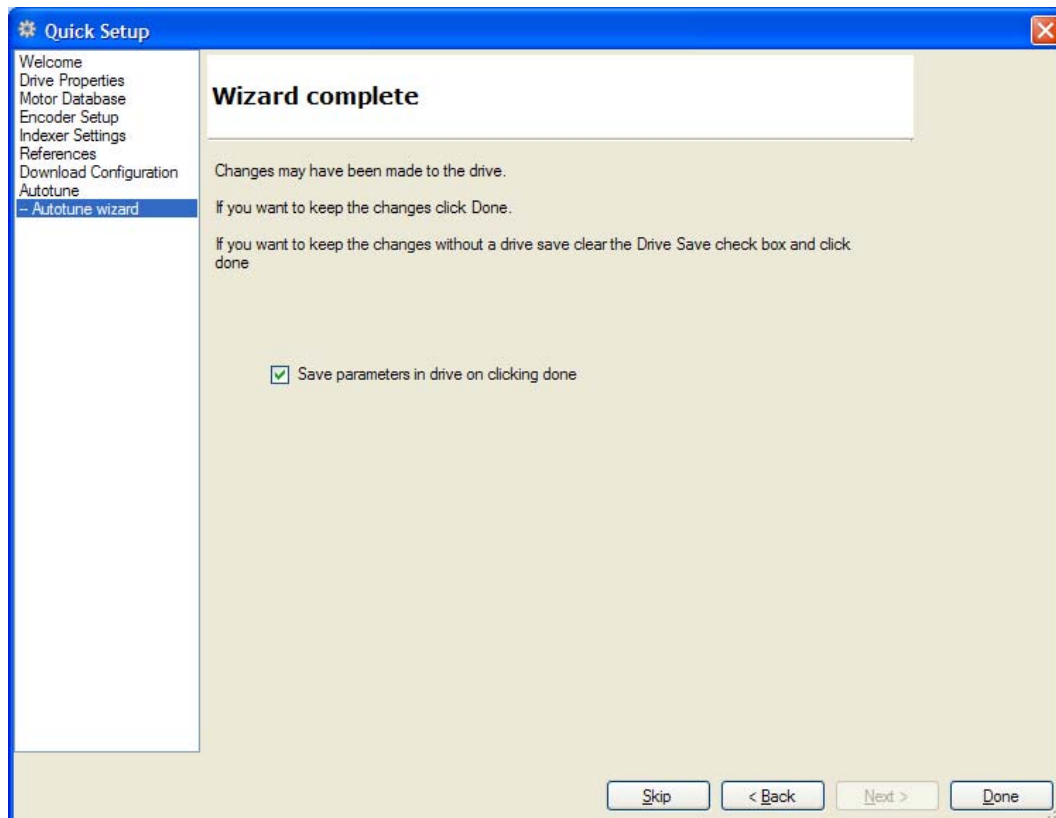
The motor should rotate as the Autotune is performed.

When the autotune is complete this dialogue can be seen Fig.27.



(Fig.27)

If another autotune is required, click on 'Do Again'. When finished click 'Next'.



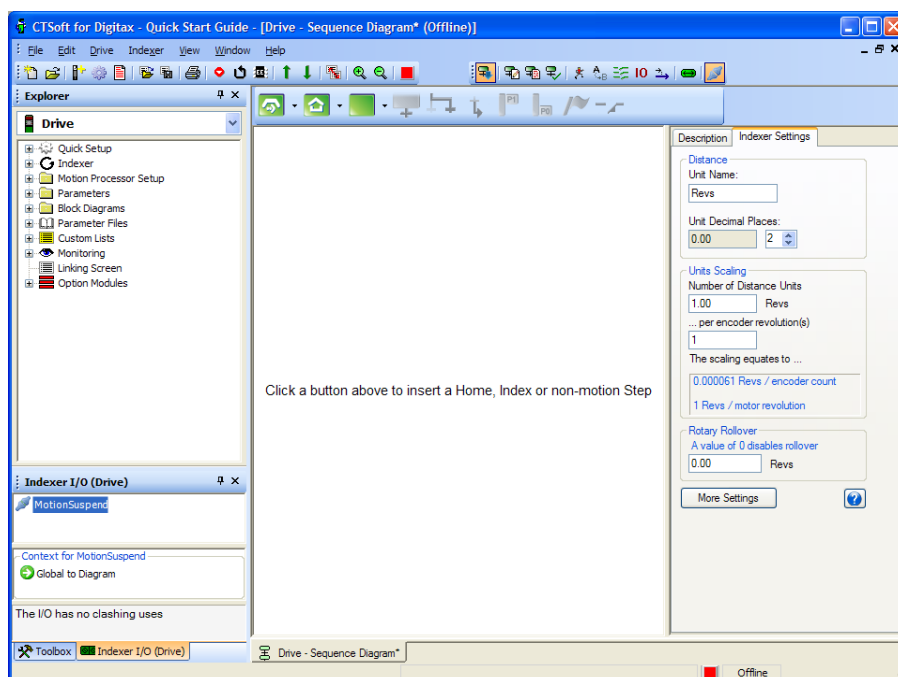
(Fig.28)

To save changes and finish the setup, click 'Done'.

Indexer Section

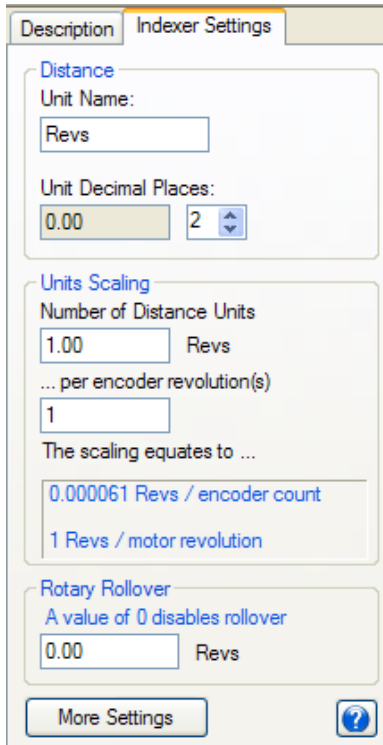
You should now see the following dialogue Fig.29.

The example project will consist of a homing step, followed by a 5 second delay, a move absolute step, followed by a 3 second delay, a move relative step, followed by a 2 second delay, a move absolute step to position '0' followed by a 1 second delay.



(Fig.29)

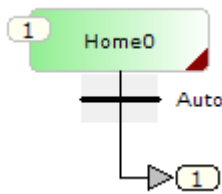
On the right of Fig.29 is the 'Properties' panel. From here the 'Units' that were created earlier can be found. For this example leave this as the default values as in Fig.30.



(Fig.30)

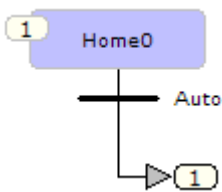
Homing block

To insert the 'Homing' step click on the  button, the diagram should now look like this:



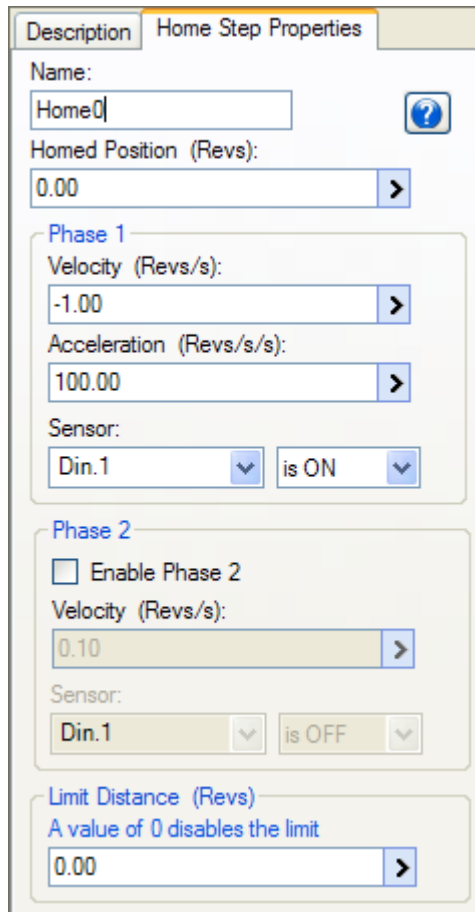
(Fig.31)

Click on Home0 with the mouse so that Home0 (Step 1) is highlighted as follows Fig.32:



(Fig.32)

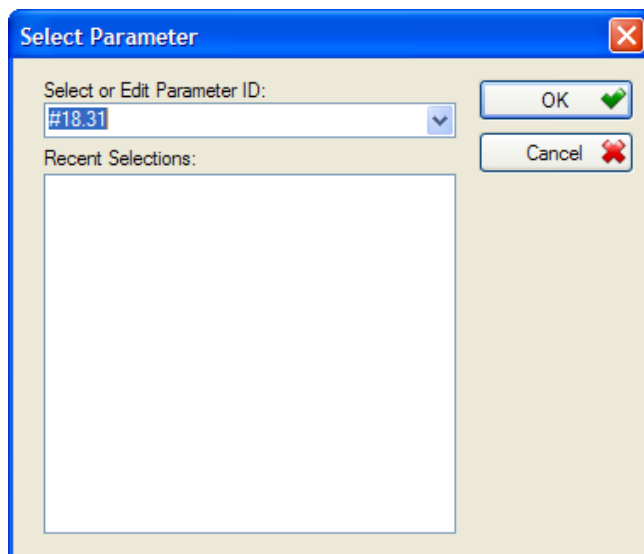
The Properties panel should now show the index properties as follows Fig.33:



(Fig.33)

Leave the velocity, acceleration and homed position as in Fig 33. Notice the 'Velocity' is a negative number as the motor shaft will be running backwards at 1 Rev per second when looking for its home position.


Select the 'Sensor' drop down menu and from the menu choose 'Select Param', a window as seen in Fig.34 will pop up, choose #18.31 from the 'Select or Edit Parameter ID' drop down menu and click 'OK'.

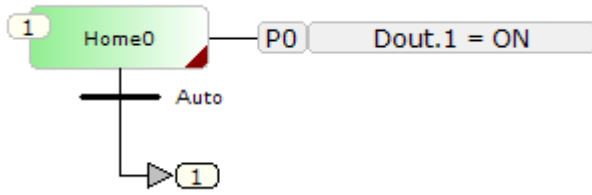


(Fig.34)

When the program is running and a rising edge occurs in #18.31 the Home0 step will be homed and the absolute position will be '0'.

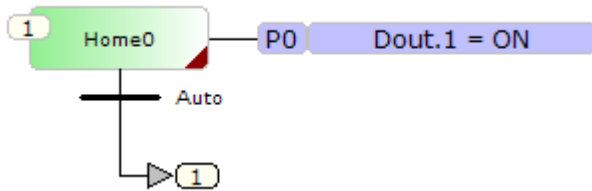
Exit Action

Select Home0 and press the  button to insert an exit action. The diagram should now look like Fig.35.



(Fig.35)

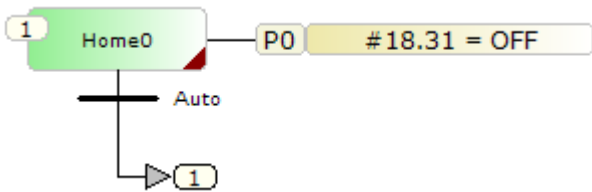
Make sure the exit action is selected as shown in Fig.36 and modify the action properties to match those shown in Fig.37.



(Fig.36)

(Fig.37)

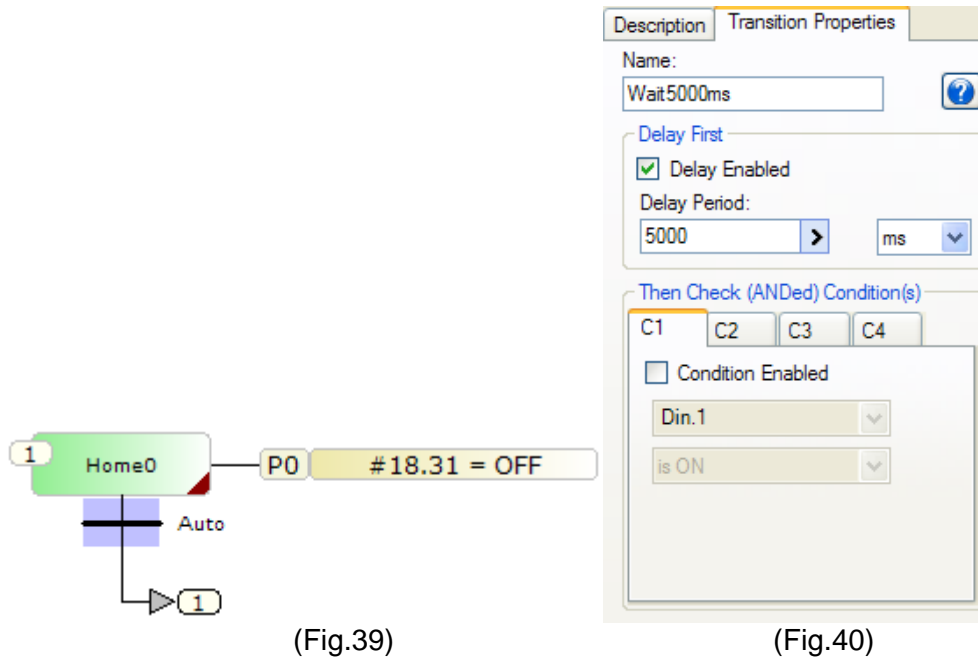
This exit action clears #18.31 when the Home0 step has completed. The diagram should now look like Fig.38.



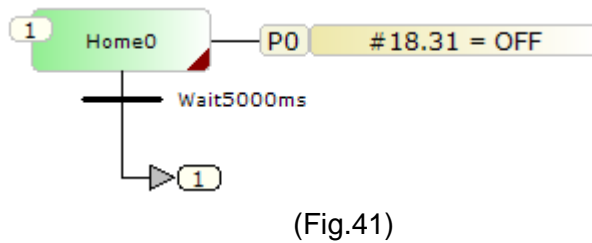
(Fig.38)

Transition

Make sure the exit transition is selected as shown in Fig.39 and modify the 'Transition Properties' to match those shown in Fig.40.




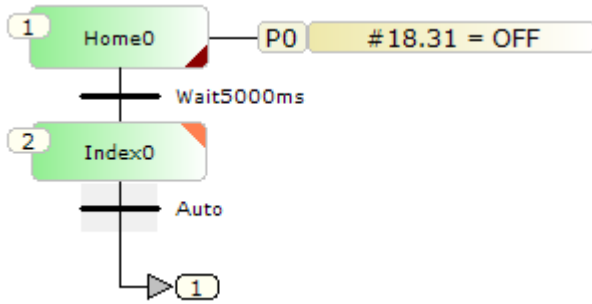
The diagram should now look like Fig.41.



The transition now shows a 5000ms (5 second) delay.

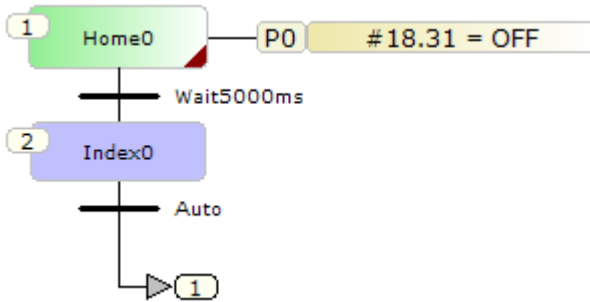
Absolute Index

To insert the 'Absolute Index' step, click on the  button, the diagram should now look like Fig.42.




(Fig.42)

Click on Index0 with the mouse so that Index0 (Step 2) is highlighted as in Fig.43 and modify the 'Index Step Properties' to match those shown in Fig.44.



(Fig.43)

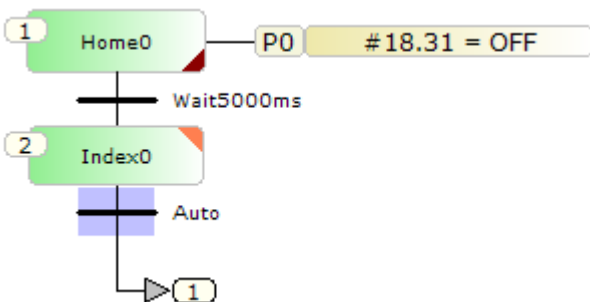
Description	Index Step Properties
Name:	Index0 
Type:	Absolute <input type="button" value="v"/>
Position (Revs):	100.00 <input type="button" value=">"/>
Speed (Revs/s):	10.00 <input type="button" value=">"/>
Accel (Revs/s/s):	100.00 <input type="button" value=">"/>
Decel (Revs/s/s):	100.00 <input type="button" value=">"/>

(Fig.44)


This will make the motor turn to the absolute position of 100 revs at 10 revs per second.

Transition

Make sure the transition is selected as shown in Fig.45 and modify the 'Transition Properties' to match those shown in Fig.46

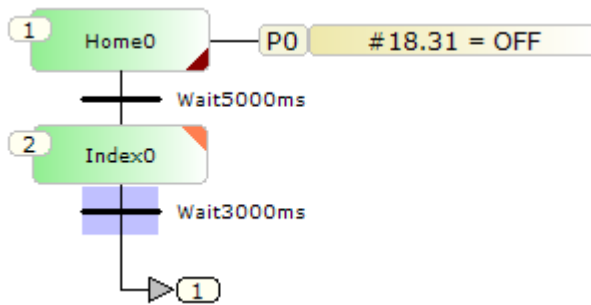


(Fig.45)

Description	Transition Properties																
Name:	Wait 100ms 																
Delay First	<input checked="" type="checkbox"/> Delay Enabled																
Delay Period:	3000 <input type="button" value=">"/> ms <input type="button" value="v"/>																
Then Check (ANDed) Condition(s)	<div style="border: 1px solid gray; padding: 5px;"> <table border="1"> <thead> <tr> <th>C1</th> <th>C2</th> <th>C3</th> <th>C4</th> </tr> </thead> <tbody> <tr> <td colspan="4"><input type="checkbox"/> Condition Enabled</td> </tr> <tr> <td colspan="4">Din.1 <input type="button" value="v"/></td> </tr> <tr> <td colspan="4">is ON <input type="button" value="v"/></td> </tr> </tbody> </table> </div>	C1	C2	C3	C4	<input type="checkbox"/> Condition Enabled				Din.1 <input type="button" value="v"/>				is ON <input type="button" value="v"/>			
C1	C2	C3	C4														
<input type="checkbox"/> Condition Enabled																	
Din.1 <input type="button" value="v"/>																	
is ON <input type="button" value="v"/>																	

(Fig.46)

The diagram should now look like this:

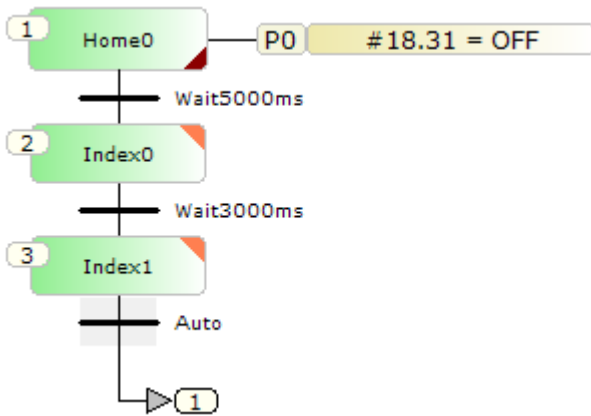


(Fig.47)

The transition shows a 3000ms (3 second) delay.

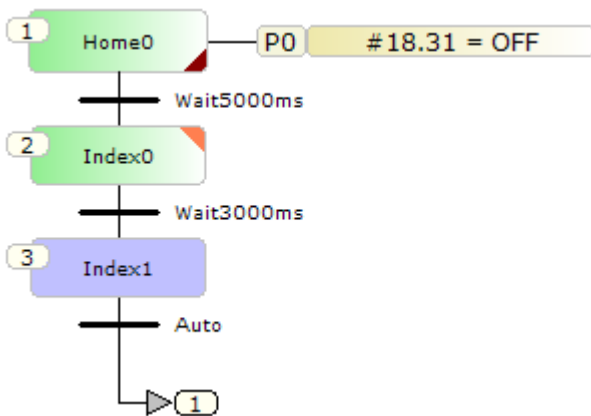
Relative Index

To insert the 'Relative Index' step, click on the  button, the diagram should now look like this:




(Fig.48)

Click on Index1 with the mouse so that Index1 (Step 3) is highlighted as in Fig.49 and modify the 'Index Step Properties' to match those shown in Fig.50.



(Fig.49)

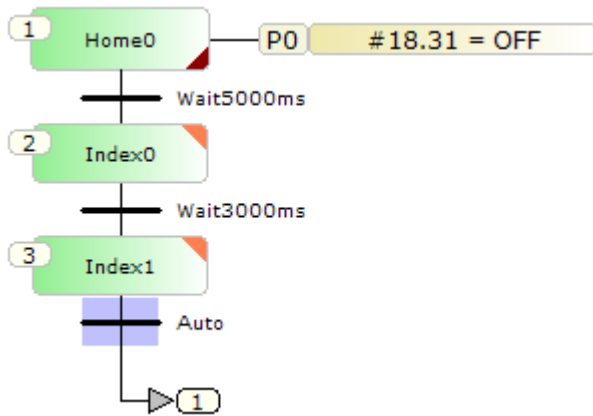
Description	Index Step Properties
Name:	Index1 
Type:	Relative <input type="button" value="v"/>
Distance (Revs):	10.00 <input type="button" value=">"/>
Speed (Revs/s):	2.00 <input type="button" value=">"/>
Accel (Revs/s/s):	100.00 <input type="button" value=">"/>
Decel (Revs/s/s):	100.00 <input type="button" value=">"/>

(Fig.50)

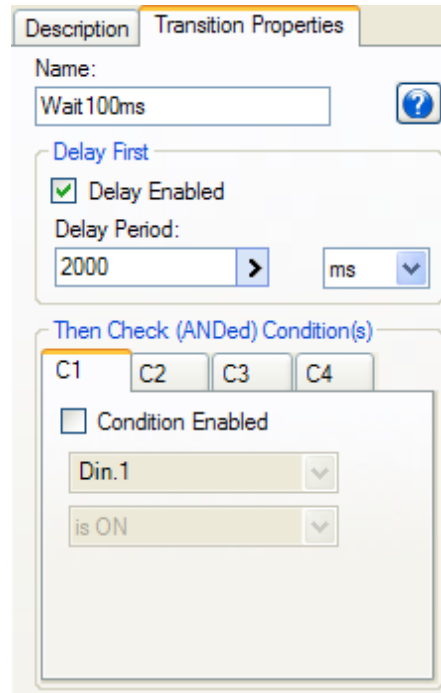
This will make the motor turn relative to the current position by 10 revs at 2 revs per second.

Transition

Make sure the transition is selected as shown in Fig.51 and modify the 'Transition Properties' to match those shown in Fig.52.

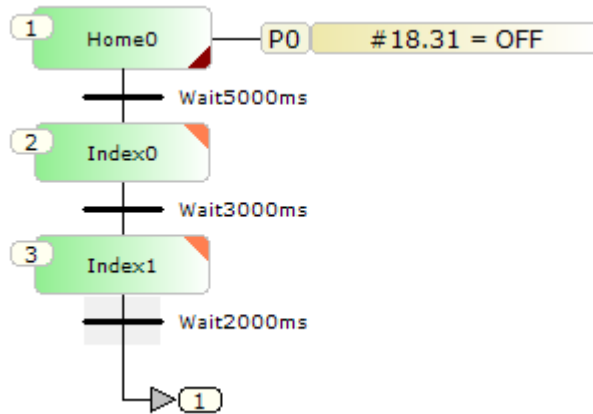


(Fig.51)



(Fig.52)

The diagram should now look like this (Fig.53):

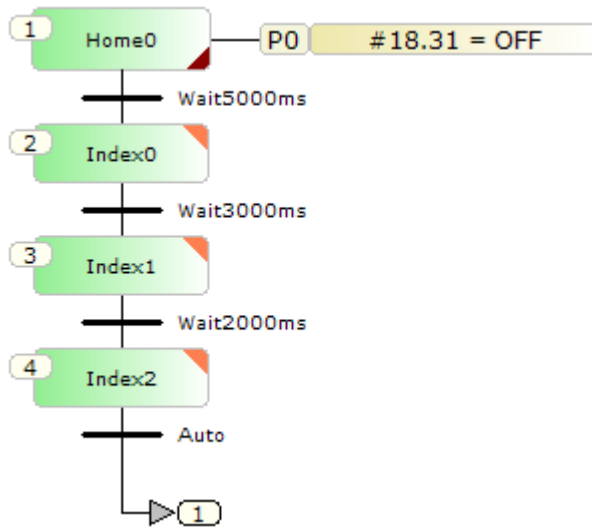


(Fig.53)

The transition shows a 2000ms (2 second) delay.

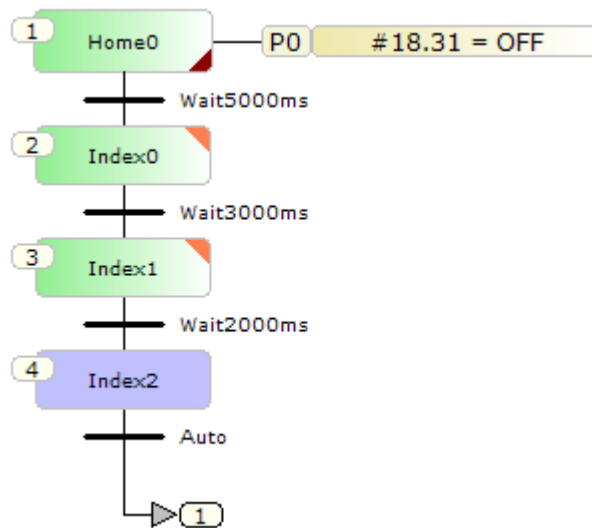
Absolute Index

Now insert another 'Absolute Index' step, click on the  button, the diagram should now look like this:




(Fig.54)

Click on Index2 with the mouse so that Index2 (Step 4) is highlighted as in Fig.55 and modify the 'Index Step Properties' to match those shown in Fig.56.



(Fig.55)

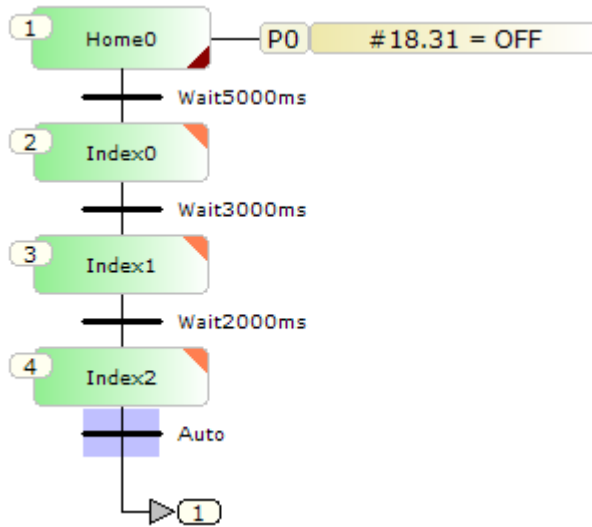
Description	Index Step Properties
Name:	Index2 
Type:	Absolute <input type="button" value="v"/>
Position (Revs):	0.00 <input type="button" value=">"/>
Speed (Revs/s):	50.00 <input type="button" value=">"/>
Accel (Revs/s/s):	10.00 <input type="button" value=">"/>
Decel (Revs/s/s):	10.00 <input type="button" value=">"/>

(Fig.56)

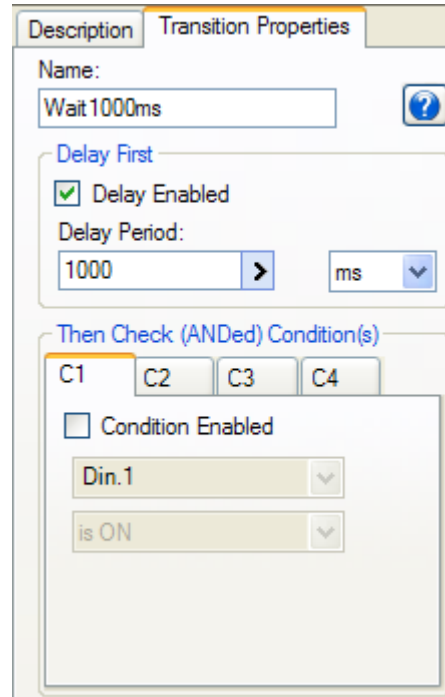
This will make the motor turn to the absolute position of 0 at 50 revs per second.

Transition

Make sure the exit transition is selected as shown in Fig.57 and modify the 'Transition Properties' to match those shown in Fig.58.

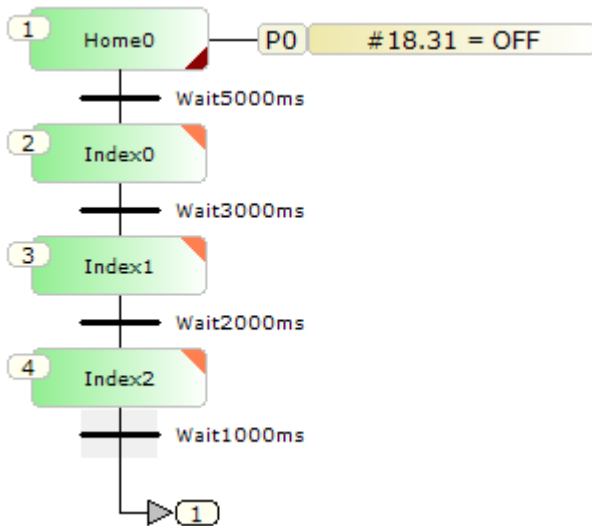


(Fig.57)



(Fig.58)

The diagram should now look like this Fig.59.

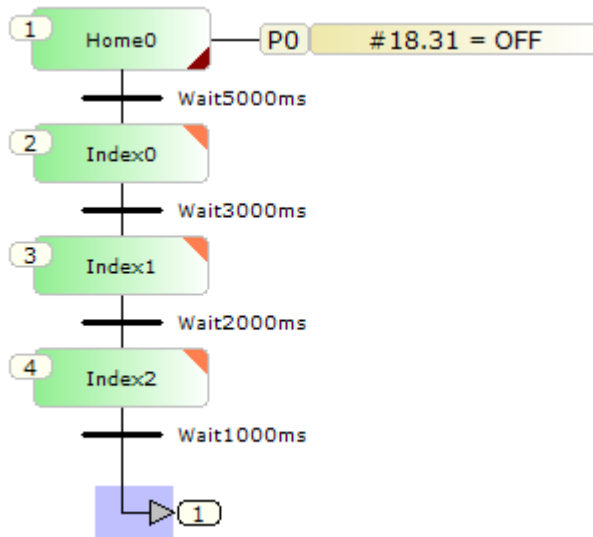


(Fig.59)

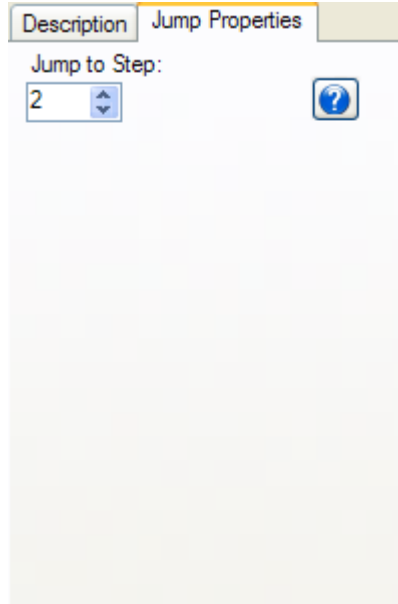
The transition shows a 1000ms (1 second) delay.

Loop through again without the Home block.

The motor would now be back at position “0” if the program had been run. As another homing routine is not needed the program can start again from the “Index0” step. To do this select the “Jump to Step” arrow as in Fig.60 and modify the properties to match those shown in Fig.61.

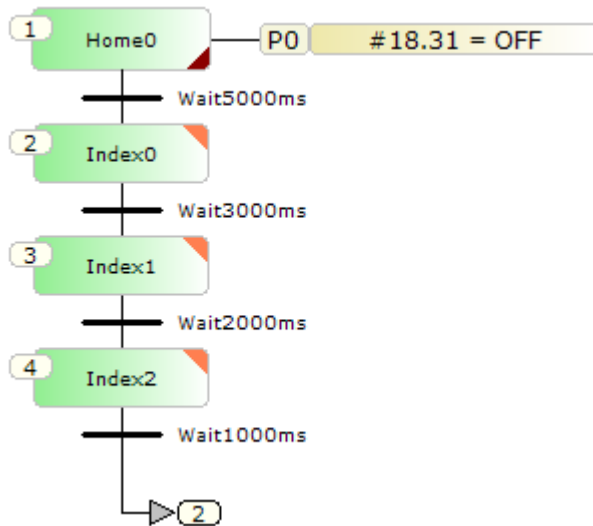


(Fig.60)



(Fig.61)

The diagram should now look like Fig.62.



(Fig.62)

Download to drive

Click on the red button at the top of the screen Fig.63, It will change to green Fig.64 and the program will be downloaded to the drive.

Note: If the drive is enabled the motor may start to rotate.



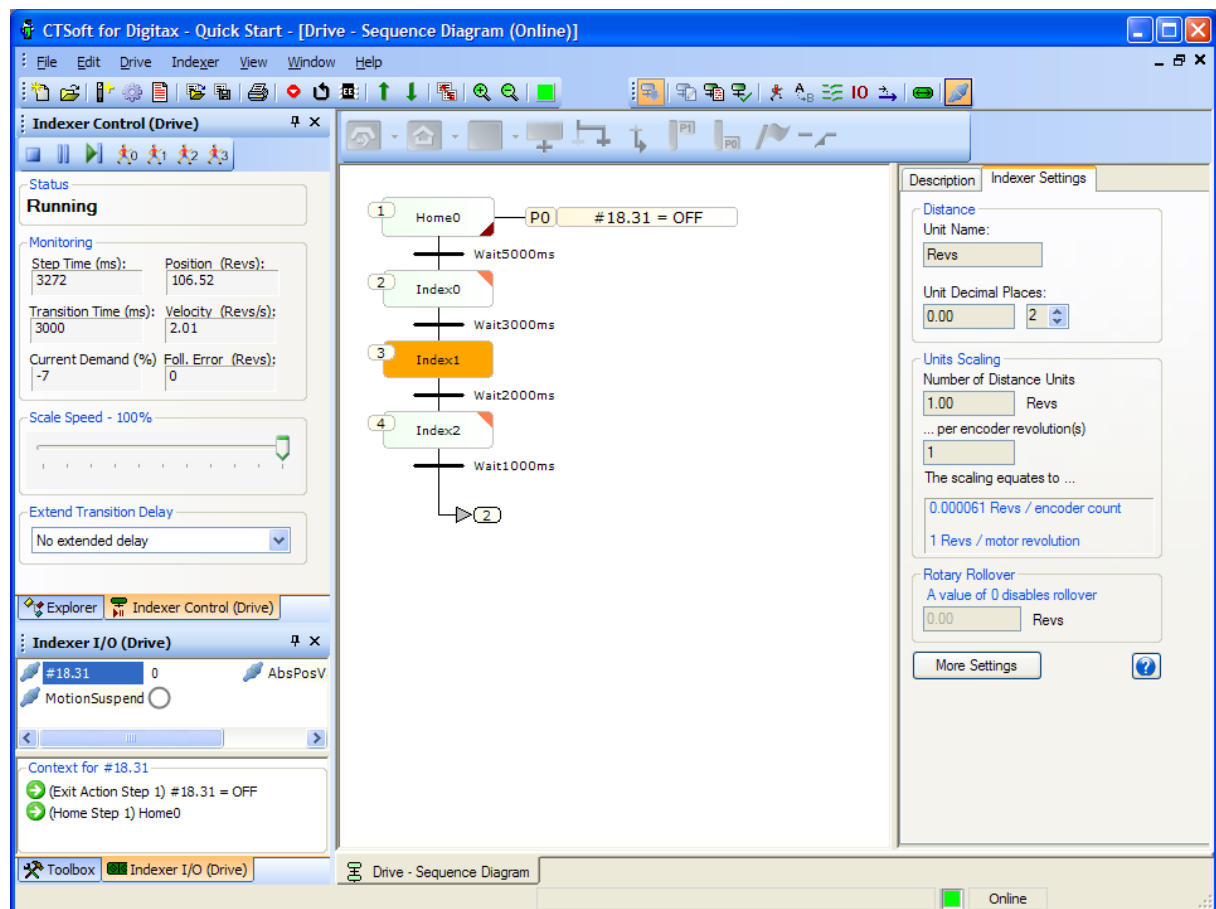
(Fig.63)



(Fig.64)

Program running

When the program is running, the step currently being actioned can be seen highlighted in orange (Fig.65). Information on what the program is currently doing can be seen by selecting “Indexer Control (Drive)” as shown in Fig.65.



(Fig.65)

This ends this basic introduction to CTSoft for Digitax ST, for more detailed information please view the “CTSoft for Digitax ST” help files.