

M700 / M702

AC and servo inverters for manufacturing automation

Instruction manual

Basic M700 Demo Drive
and Motor Setup using
MConnect Software



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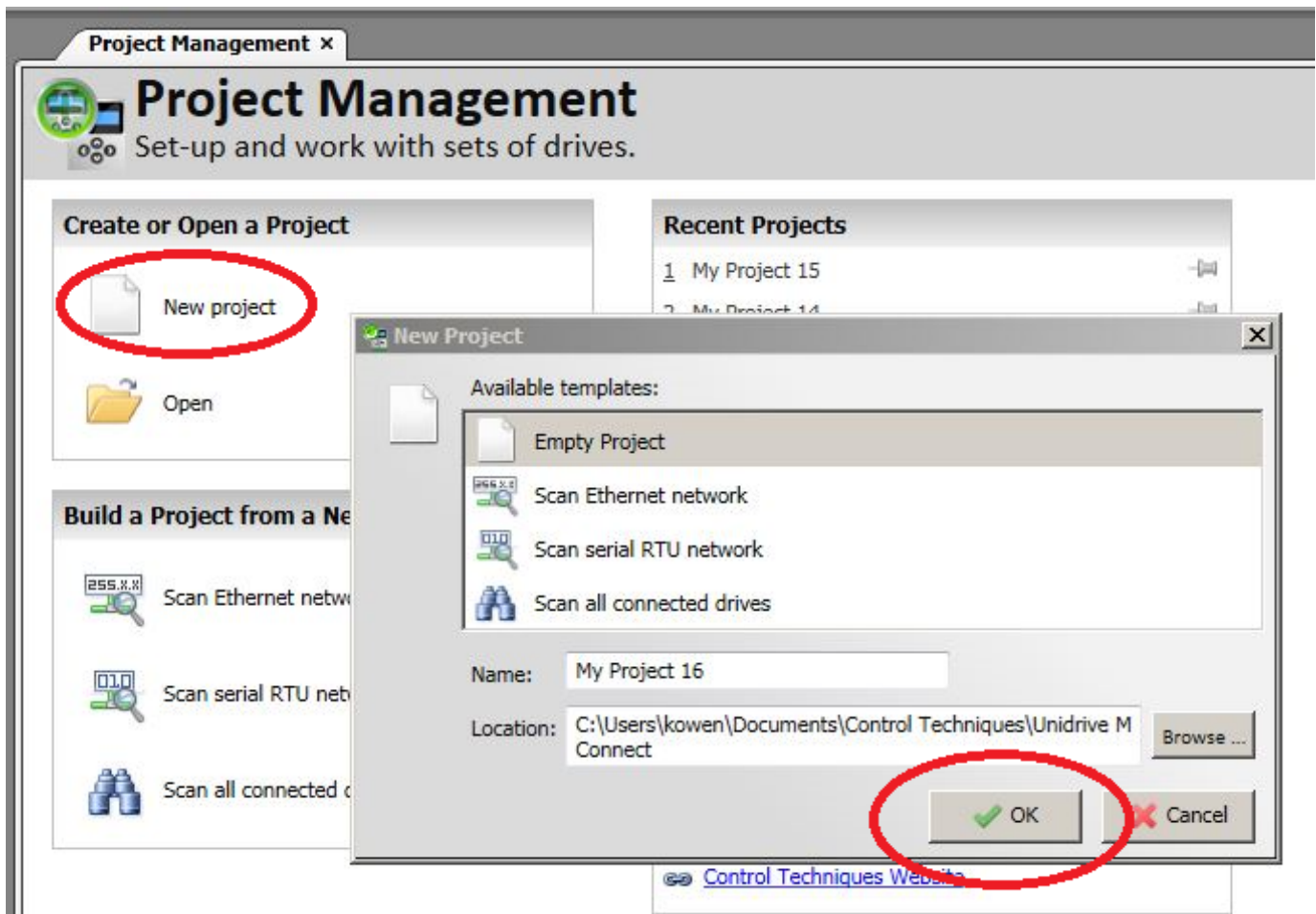


This Application Note applies to the M700 & M702 Drive Series

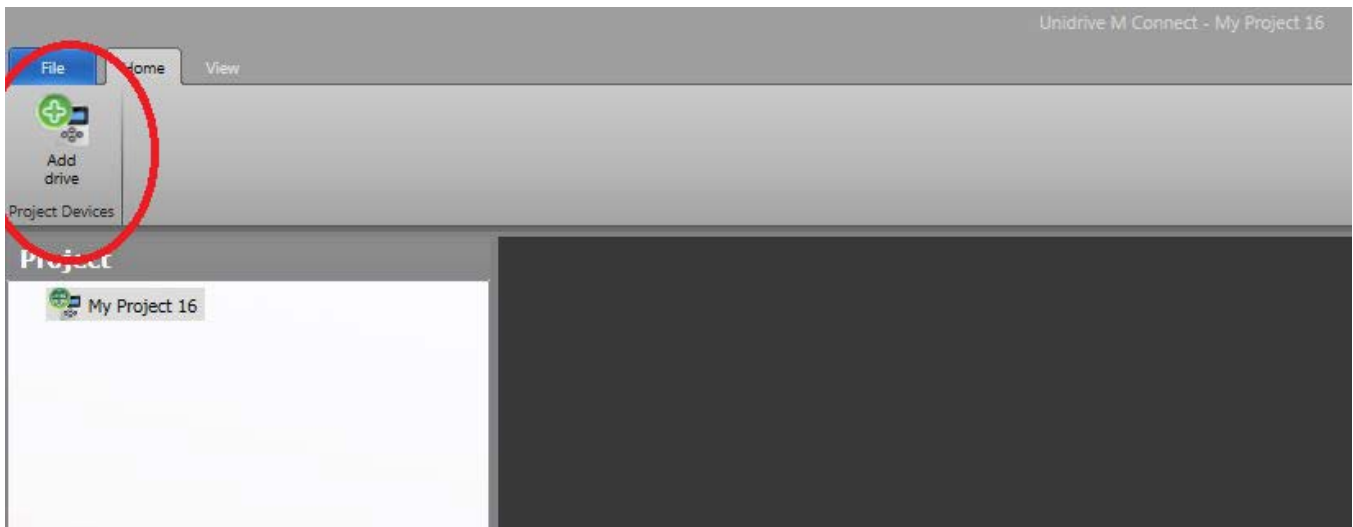
Basic M700 Demo Drive and Motor Setup using MConnect Software

This application note will demonstrate how to set up the M700 demo for Analog Velocity Mode using MConnect software. The application note will focus specifically on using the MConnect software and will assume the user has an Ethernet patch cable connected to the drive with a PC static IP address set to be able to communicate to drive IP address 192.168.1.100 along with a M700 demo unit connected to 230 Vac input voltage.

After opening the MConnect software select 'New project'. Keep the default 'Empty Project' enter a Name for the project or accept the default name shown by Selecting 'OK'.



In the top right corner select 'Add drive':



Enter an optional 'Name' and make selections for the Model, Mode, Region, and Communications as shown below. When finished select 'Ok':

New drive

Choose the name and type of the new drive

Name: M700_Demo

Drive Type: Unidrive M700

Model

Model: 03200050 **Set model ...**

Rating: 0.75kW (5A)

Voltage: 200V

Mode and region

Mode: RFC-S

Region: 60Hz

Communications

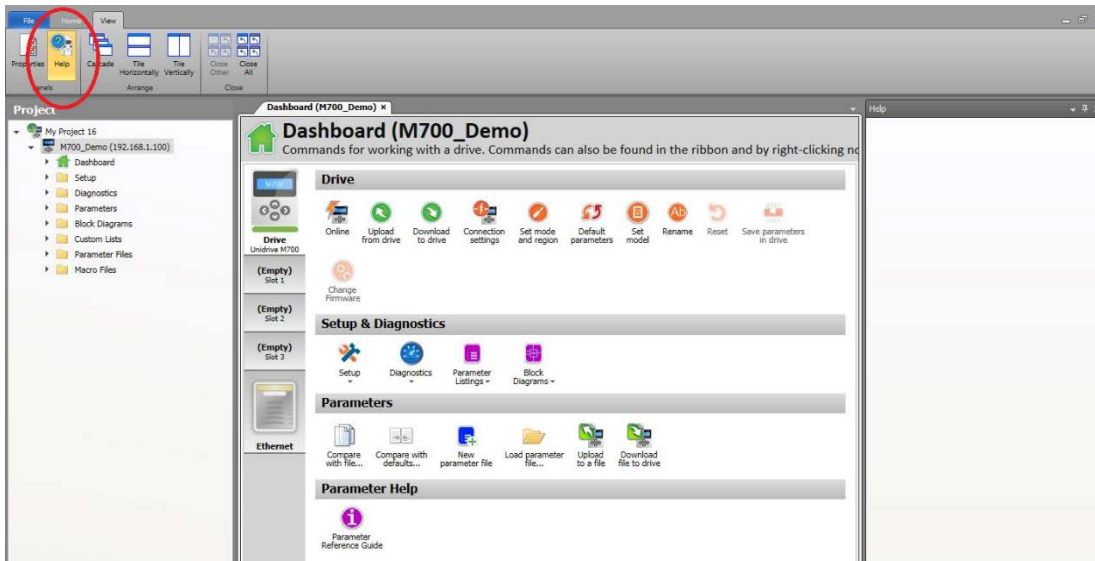
Enter the settings for connecting to this drive:

Protocol: Ethernet

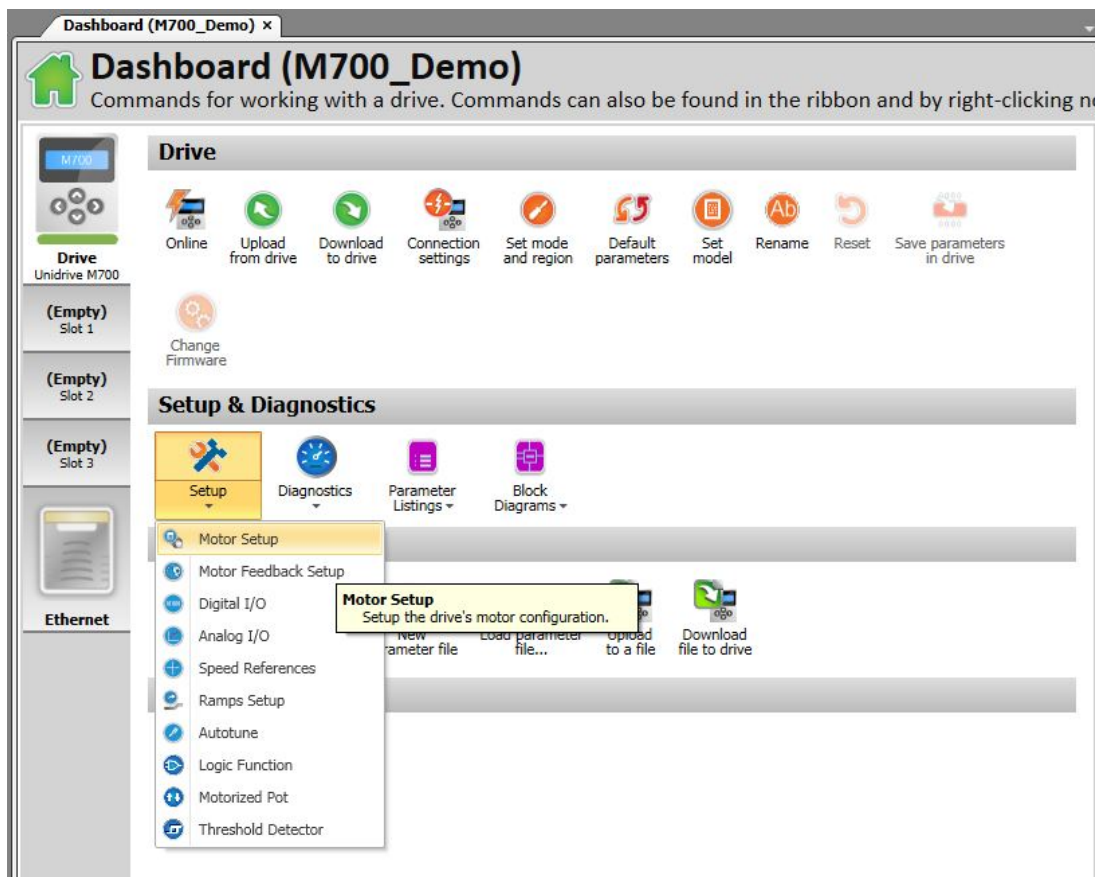
IP address: 192.168.1.100

OK **Cancel**

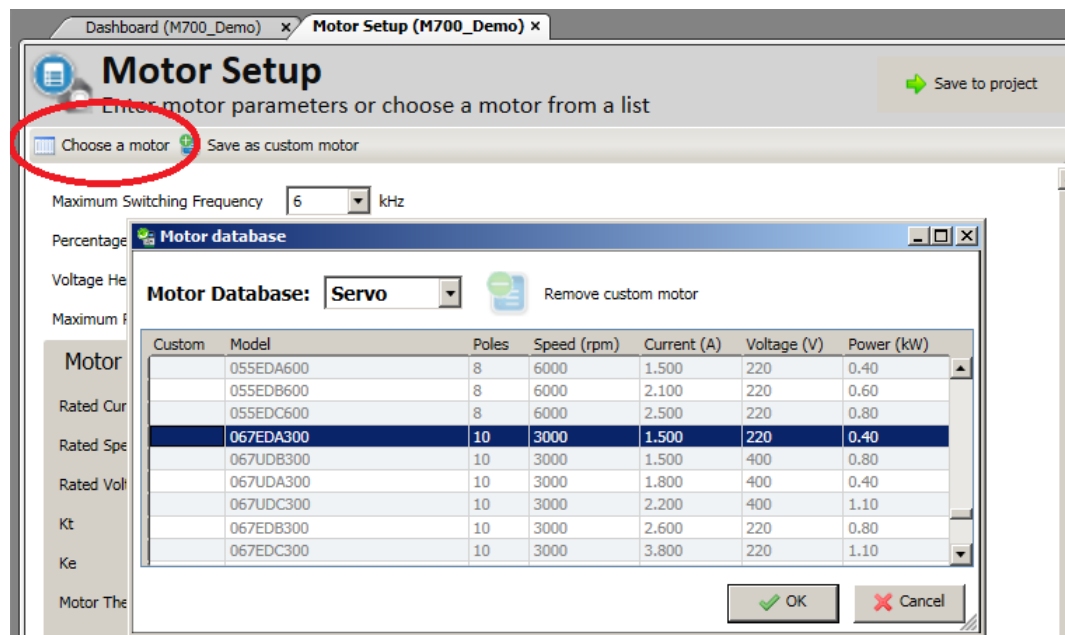
Select 'Help' in the 'File' tab above to access the third pane in MConnect software that has useful parameter information while navigating through the MConnect project:



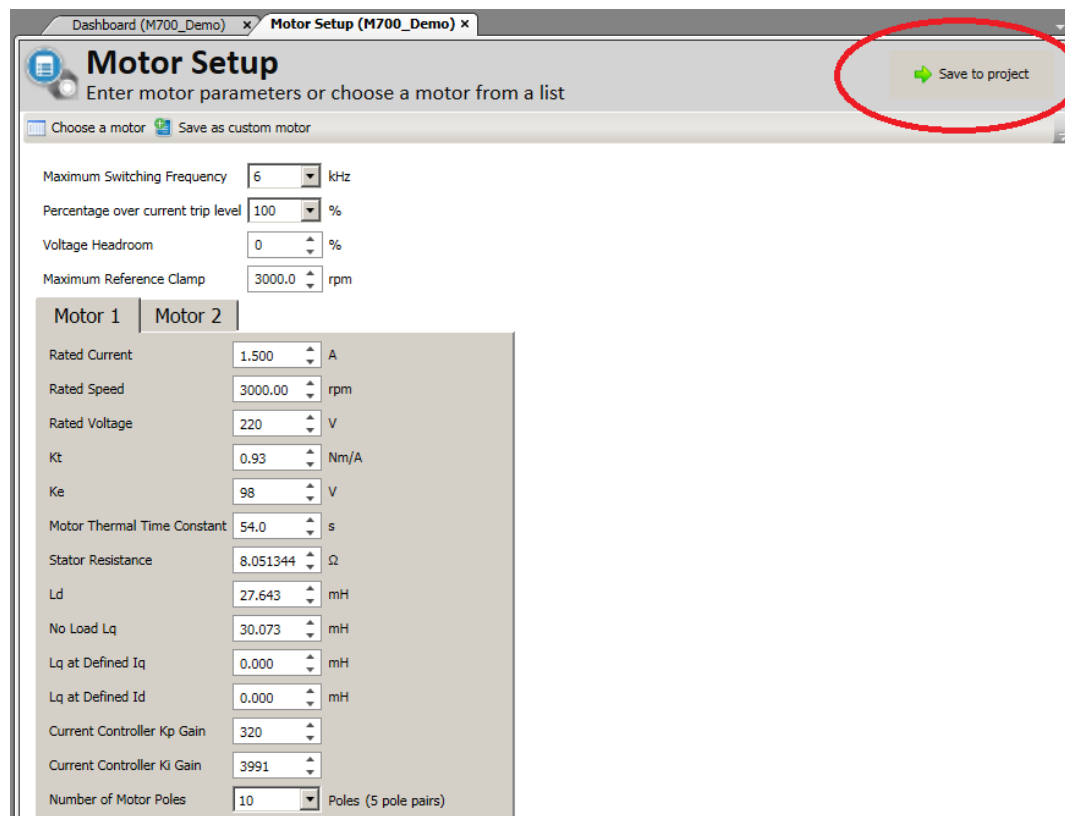
In the drive Dashboard expand Setup and select 'Motor Setup':



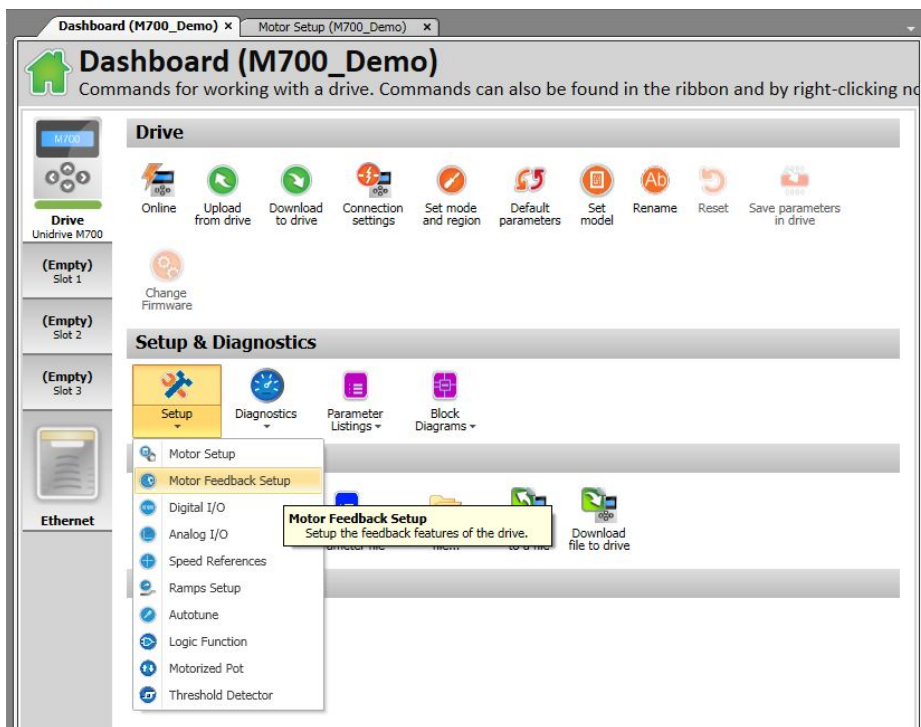
Select 'Choose a motor', scroll down the list and select 067EDA300 shown below and select 'OK':



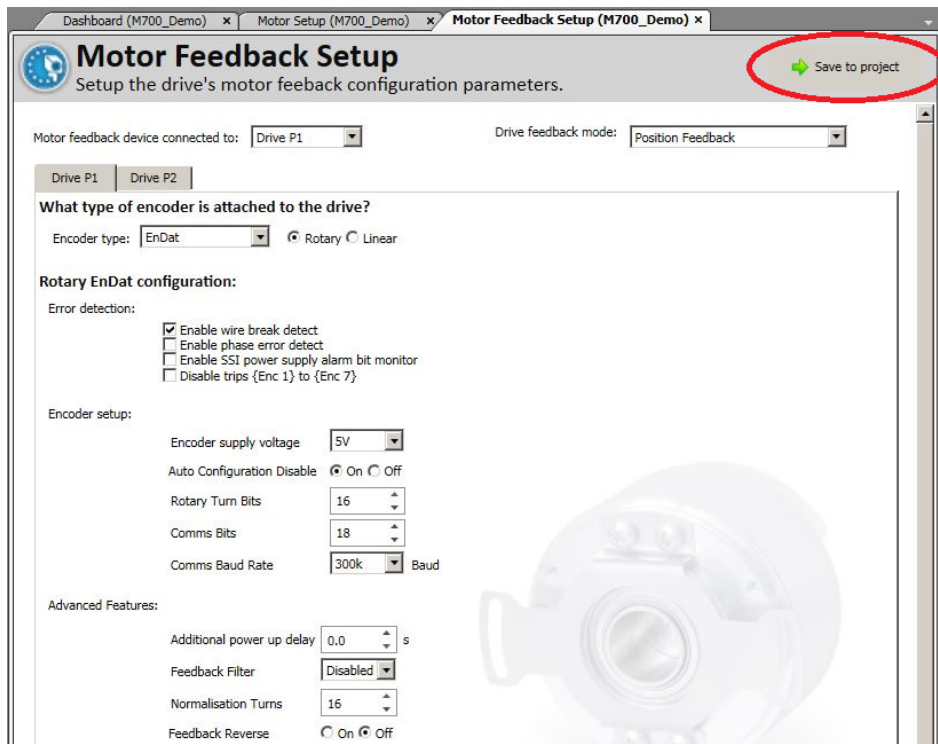
Select 'Save to project' in the upper right hand corner to save the motor data to the project:



In the drive Dashboard expand 'Setup' and select 'Motor Feedback Setup':



Make the Drive P1 setup selections as shown below. Then select 'Save to project':



Select the 'Ethernet' icon below in the Drive dashboard. Expand 'Parameters' and Select 'Menu 4.02 Ethernet : Configuration':

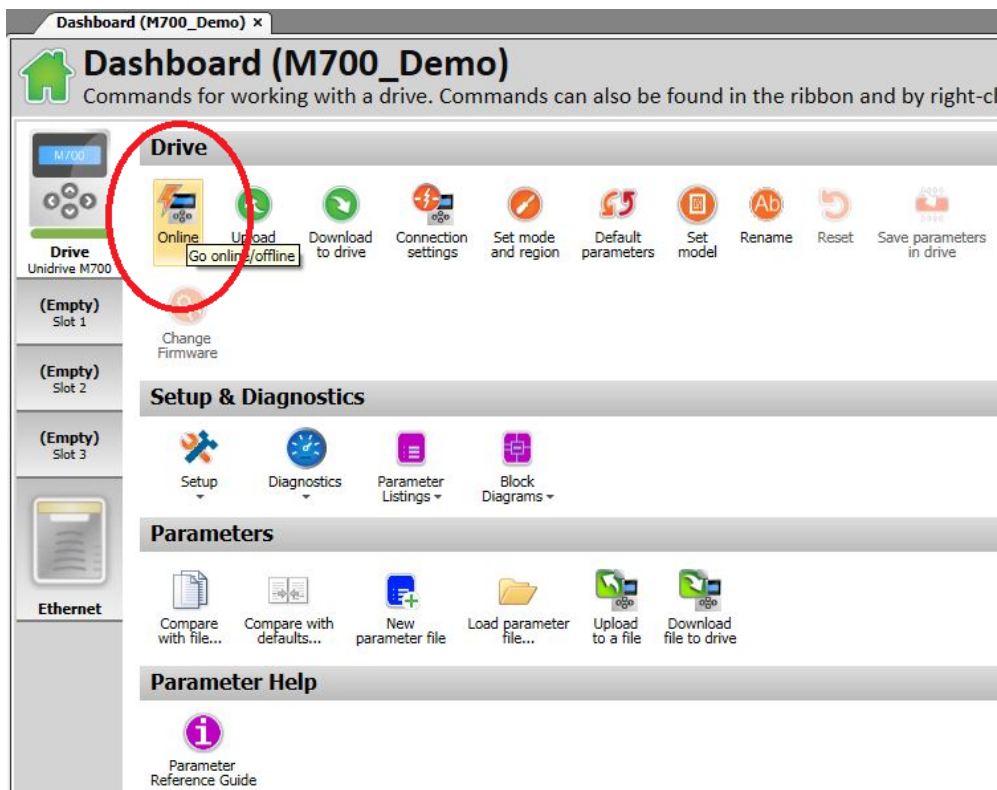
The screenshot shows the 'Dashboard (M700_Demo)' interface. On the left sidebar, the 'Ethernet' icon is selected. The main area displays the 'Parameters' menu expanded, showing a list of configuration options. 'Menu 4.02 : Ethernet Configuration' is highlighted, and a tooltip explains: 'Menu 4.02 : Ethernet Configuration View parameters on the drive and option modules.' The 'Status' section shows IP address: 192.168.1.100, MAC address: Not available, Gateway mode: Switch, and VLAN: Disabled.

Uncheck the box shown below to turn 'DHCP' Enable 'Off' in Pr 4.02.005:

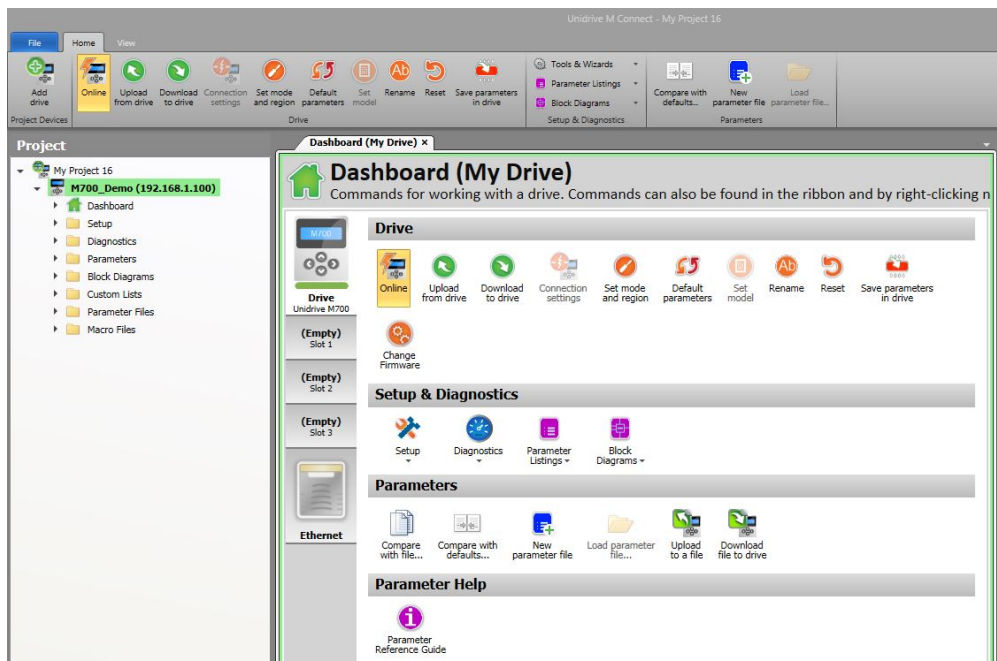
The screenshot shows the 'Menu 4.02 : Ethernet Configuration' window. The 'DHCP Enable' parameter (4.02.005) is highlighted with a red circle, and its value is 'Off'. The window also includes a search bar and various utility buttons like 'Compare with Defaults', 'Print', and 'PDF export'.

Parameter	Caption	Categories	Value	Source/Destination
4.02.000	Parameter mm.000		0	
4.02.003	Network Status		Initialising	
4.02.004	Network Message Count		0 Messages/s	
4.02.005	DHCP Enable		<input type="checkbox"/> Off	
4.02.006	IP Address		192.168.1.100	
4.02.007	Subnet Mask		255.255.255.0	
4.02.008	Default Gateway		192.168.1.254	
4.02.009	Primary DNS		0.0.0.0	
4.02.010	Secondary DNS		0.0.0.0	
4.02.011	MAC Address		Not available	
4.02.020	Priority Protocol		None	
4.02.021	Web Server Enable		<input checked="" type="checkbox"/> On	
4.02.022	Web Server Port		80	
4.02.024	Ethernet MTU		1500 Bytes	
4.02.025	Gateway Mode		Switch	
4.02.030	VLAN Enable		<input type="checkbox"/> Off	
4.02.031	Drive VLAN ID		0	
4.02.035	Non cyclic enable		<input type="checkbox"/> Off	
4.02.036	Non cyclic base parameter		0.00.000	Unassigned

Select the 'Drive' Keypad Icon to go back to the Drive Dashboard and select 'Online':



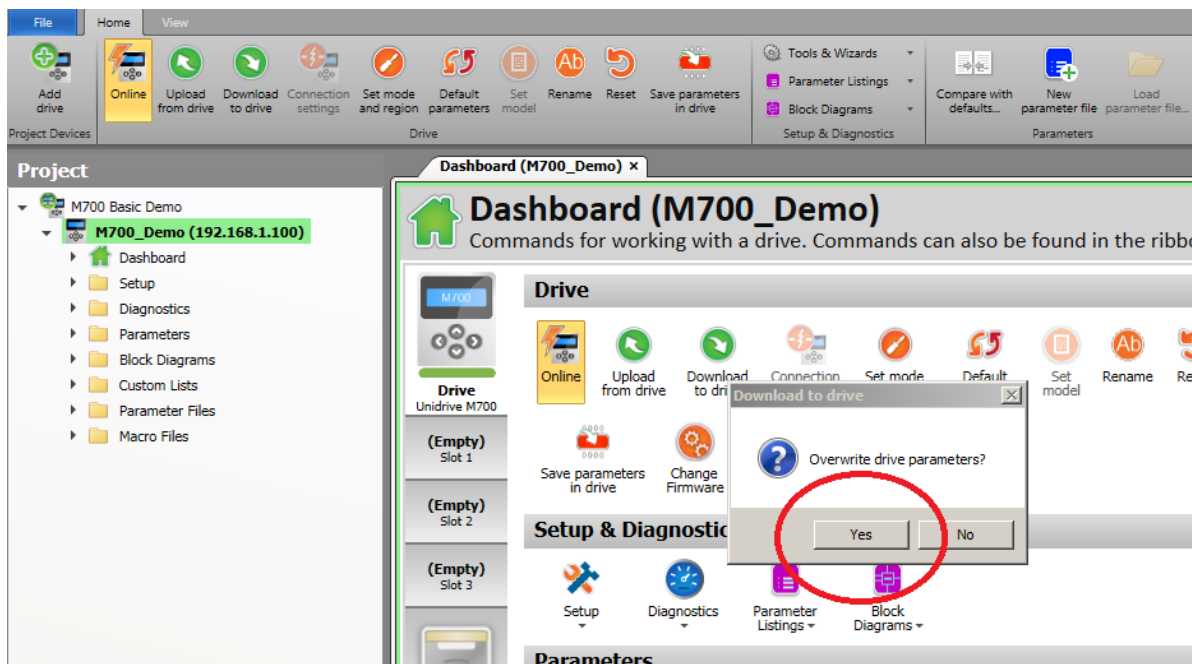
Once successfully Online with the drive the drive name, IP address, and the Drive Dashboard will be highlighted in Green. The 'Online' button will be illuminated yellow as shown:



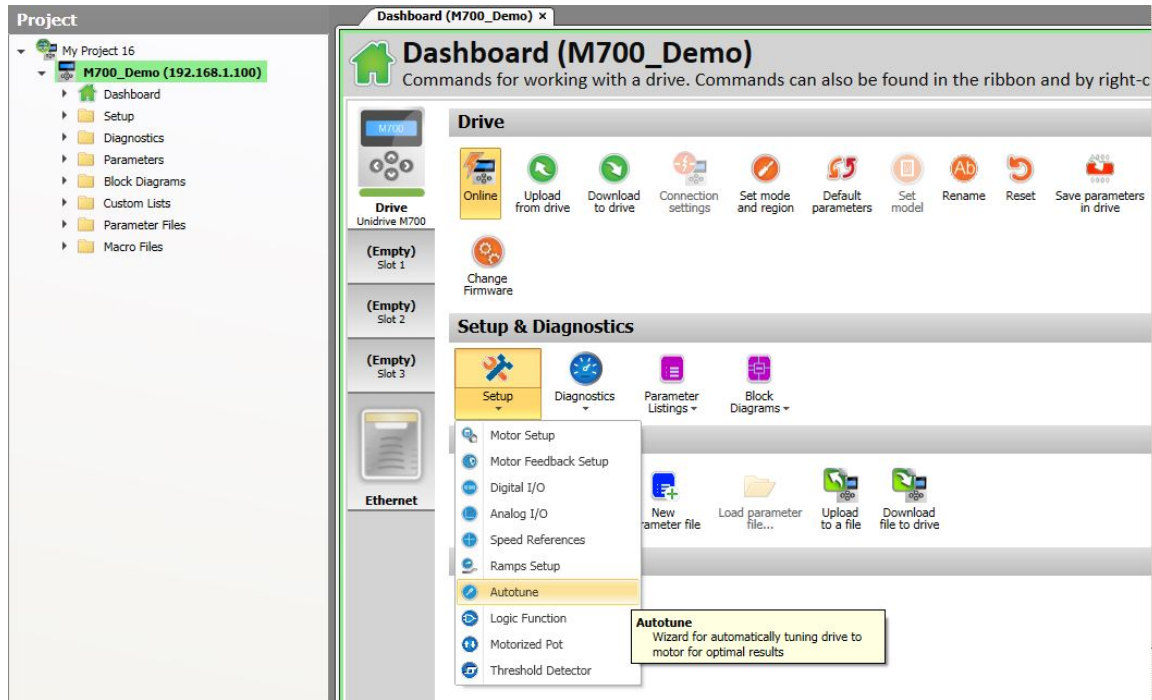
Select 'Download to drive' to download the project setup:



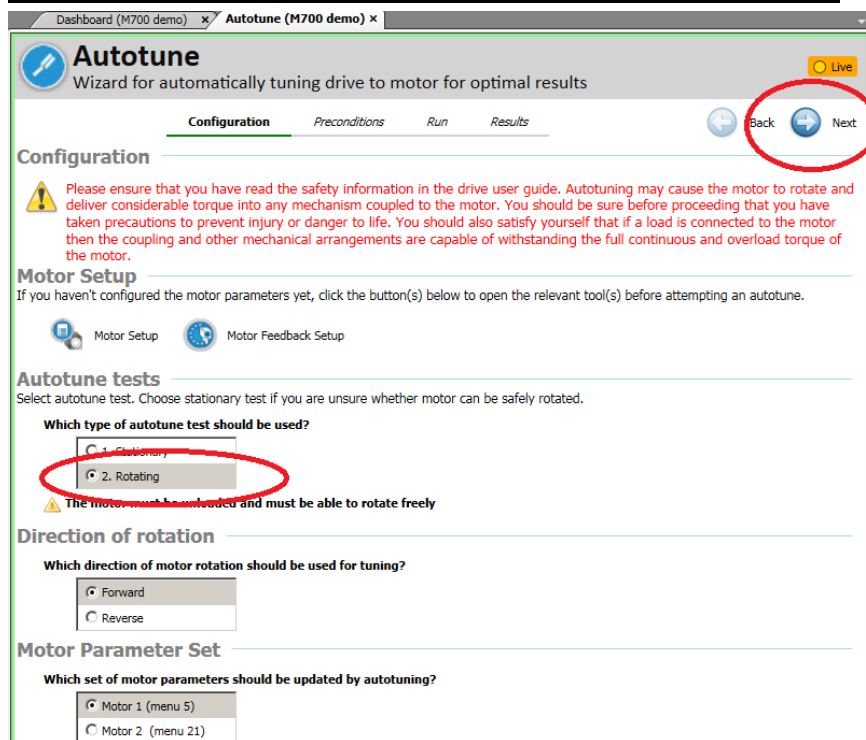
When prompted to 'Overwrite drive parameters?' select 'Yes':



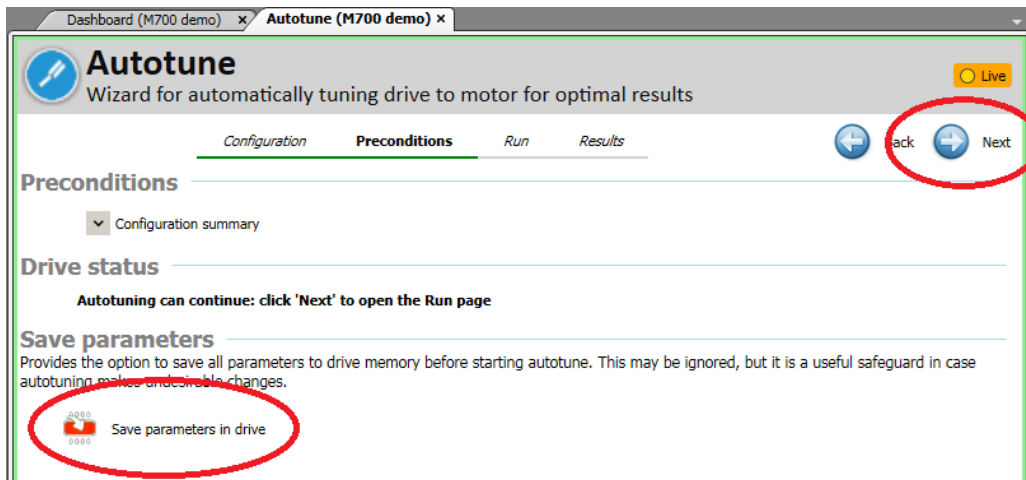
In the Drive dashboard expand 'Setup' and select 'Autotune':



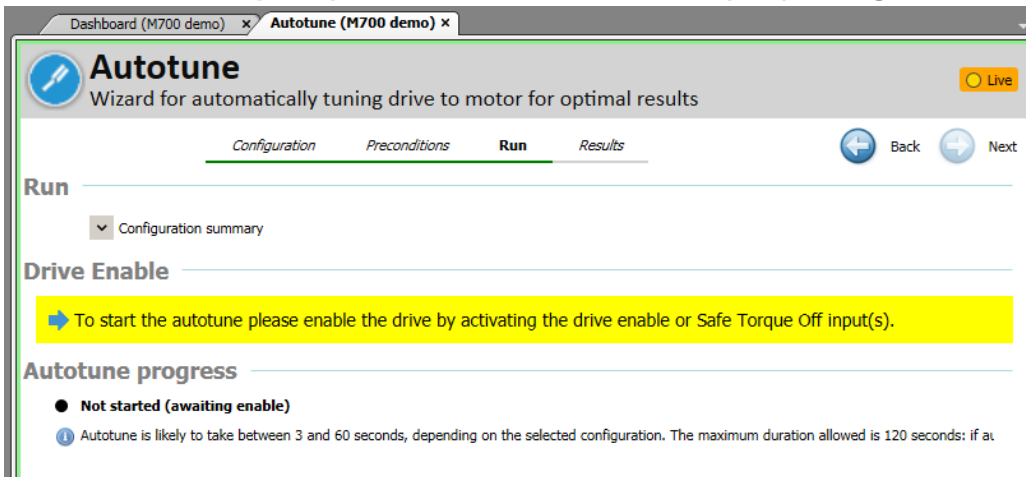
For best results select type '2. Rotating'. Then select 'Next':



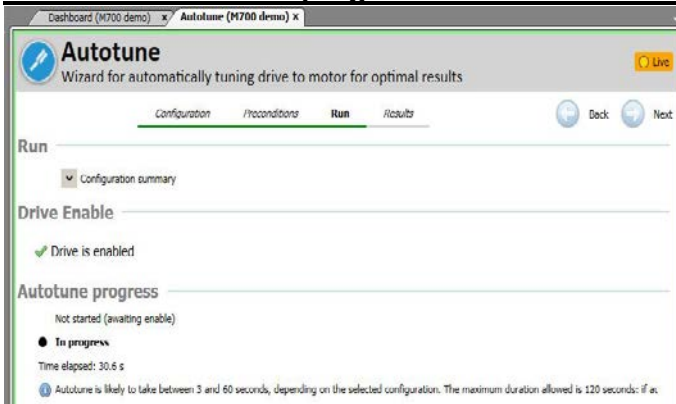
At this point it is optional to select 'Save parameters in drive'. Then select 'Next'.



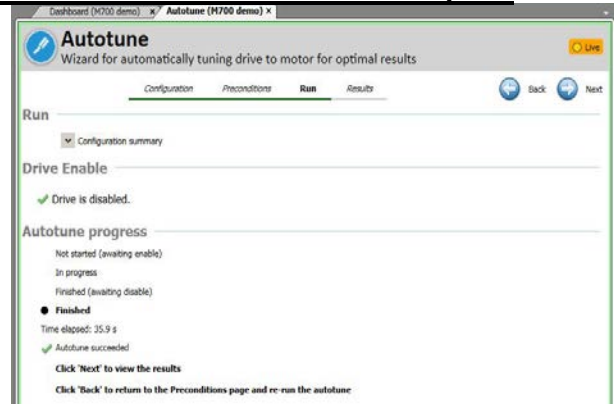
Follow the Online prompt and activate drive enable (T31) to begin the rotating Autotune:



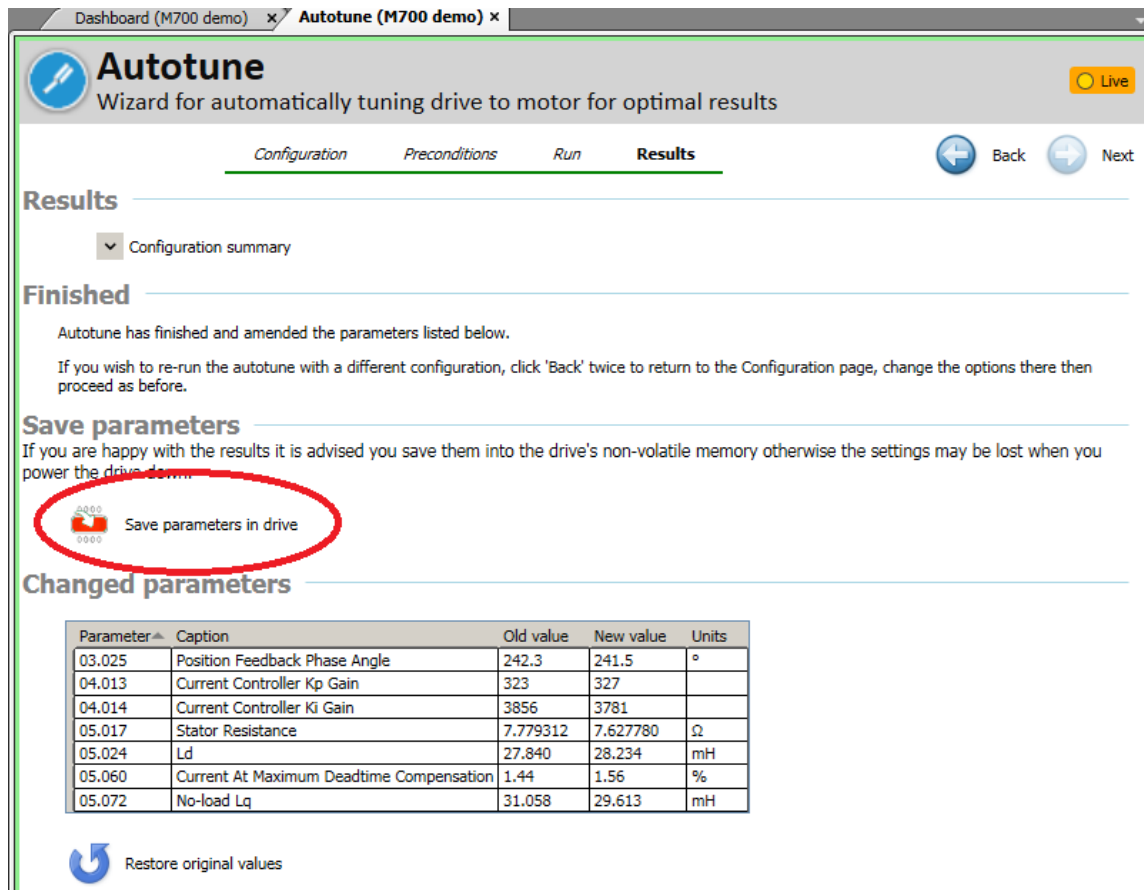
Below is Autotune in progress:



Below is Autotune complete



Select 'Next' to view the changed parameters in the drive as a result of performing a rotating Autotune. Select 'Save parameters in drive' to save the parameter changes:



Autotune
Wizard for automatically tuning drive to motor for optimal results

Configuration Preconditions Run **Results**

Back Next

Results

Configuration summary


Finished

Autotune has finished and amended the parameters listed below.

If you wish to re-run the autotune with a different configuration, click 'Back' twice to return to the Configuration page, change the options there then proceed as before.


Save parameters

If you are happy with the results it is advised you save them into the drive's non-volatile memory otherwise the settings may be lost when you power the drive down.

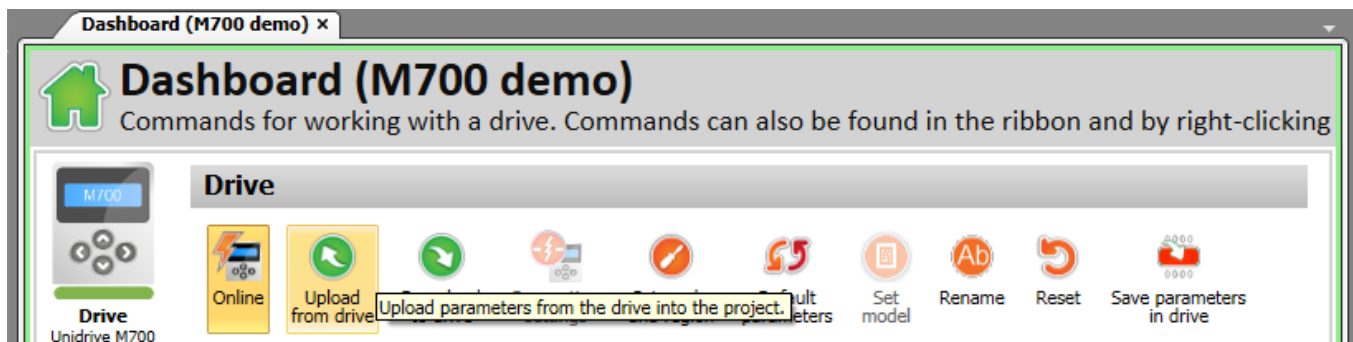
 Save parameters in drive

Changed parameters

Parameter	Caption	Old value	New value	Units
03.025	Position Feedback Phase Angle	242.3	241.5	°
04.013	Current Controller Kp Gain	323	327	
04.014	Current Controller Ki Gain	3856	3781	
05.017	Stator Resistance	7.779312	7.627780	Ω
05.024	Ld	27.840	28.234	mH
05.060	Current At Maximum Deadtime Compensation	1.44	1.56	%
05.072	No-load Lq	31.058	29.613	mH

 Restore original values

At this point all of the changes made from performing the Autotune are saved in the drive, however, these changes do not reside in the MConnect project. While the drive is still Online go back to the Drive dashboard and select 'Upload from drive'.

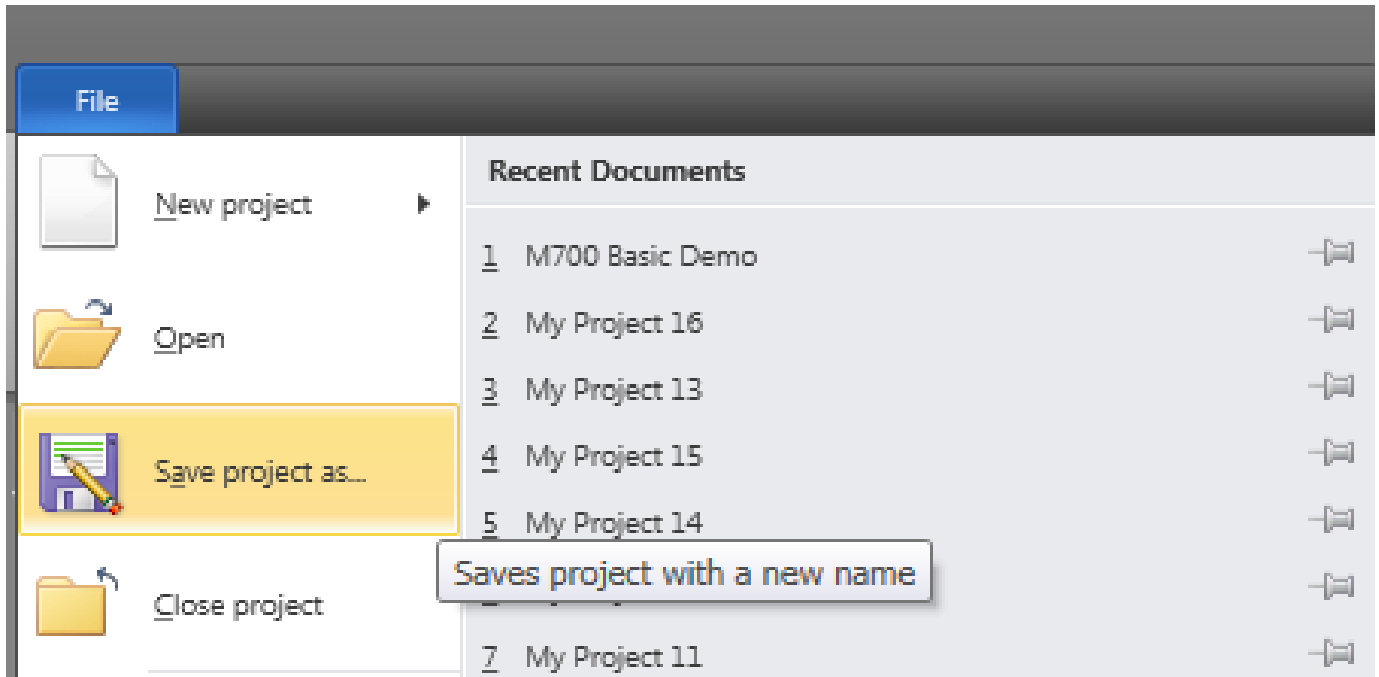


Dashboard (M700 demo)
Commands for working with a drive. Commands can also be found in the ribbon and by right-clicking

Drive

Online Upload from drive Upload parameters from the drive into the project. Fault parameters Set model Rename Reset Save parameters in drive

Once the parameter changes have been uploaded go Offline and Select File ‘Save project as’ and enter a file name to save the project as a backup file or for future use:



The demo can now be enabled by activating the Drive Enable (T31). Then either Run Forward (T26) or Run Reverse (T25) can be activated and the demo Analog potentiometer turned from full CCW (zero speed) to full CW (full motor speed) in the direction selected, and will provide the required analog speed command.

Resources: can be found on our website: www.controltechniques.com
For help contact techsupport.cta@mail.nidec.com, or
call Technical Support at 952-995-8000, 24/7/365