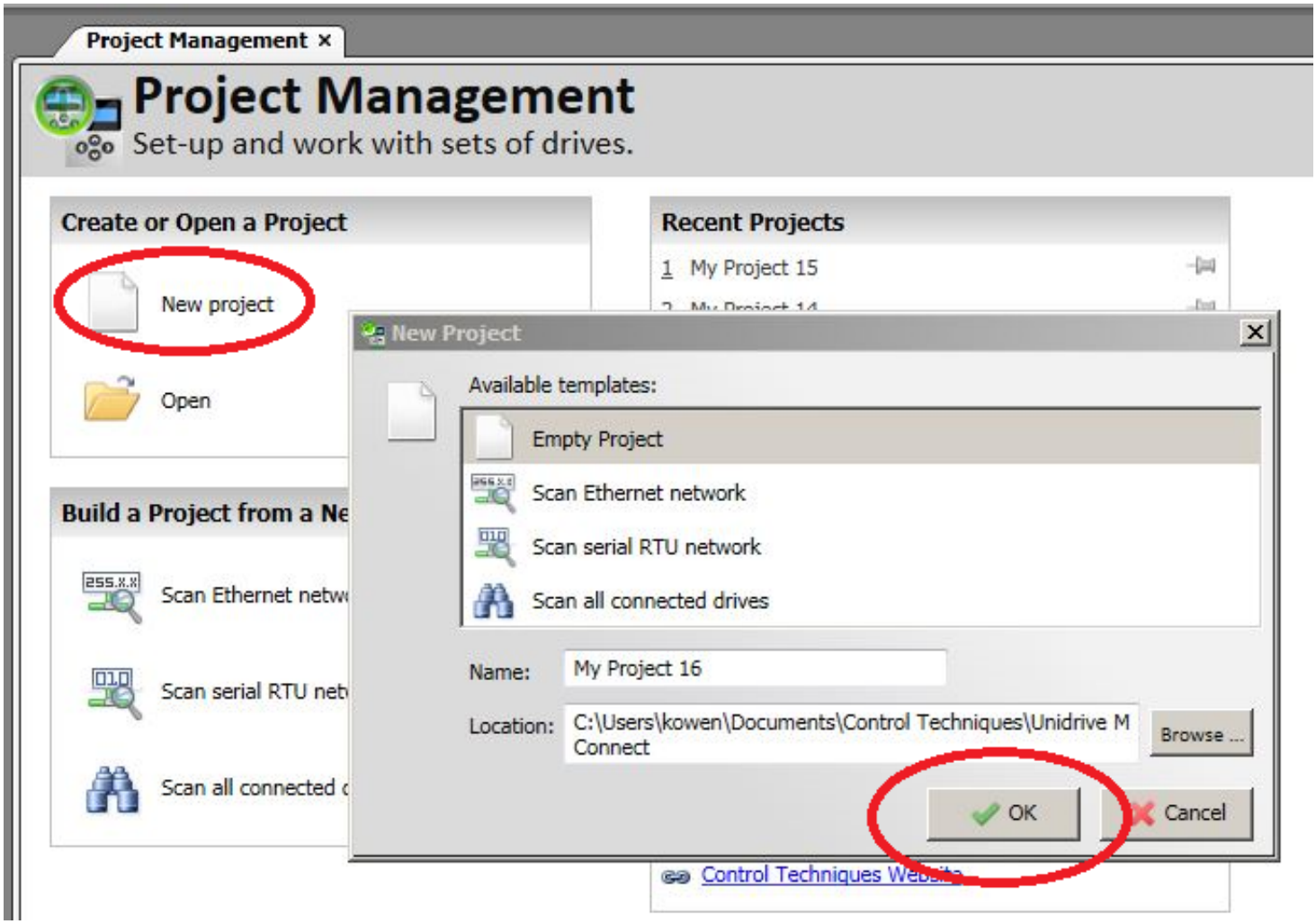
EMERSON
Industrial Automation

This Application Note applies to the M700 & M702 Drive Series

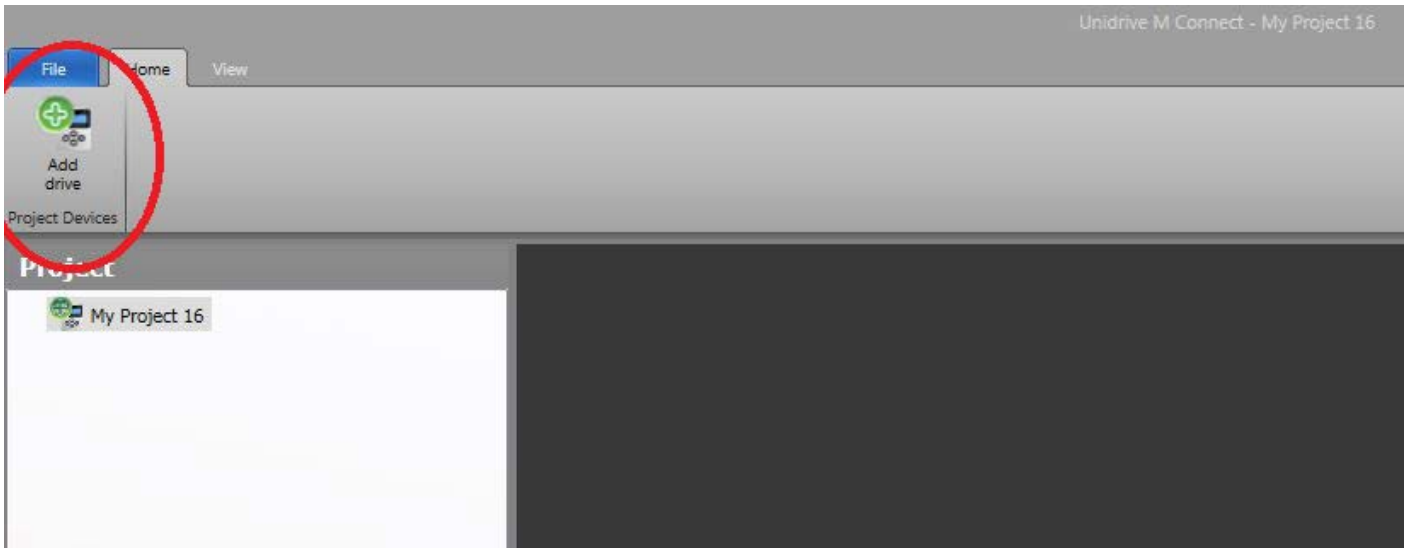
Basic M700 Demo Drive and Motor Setup using MConnect Software

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 230VAC input voltage.

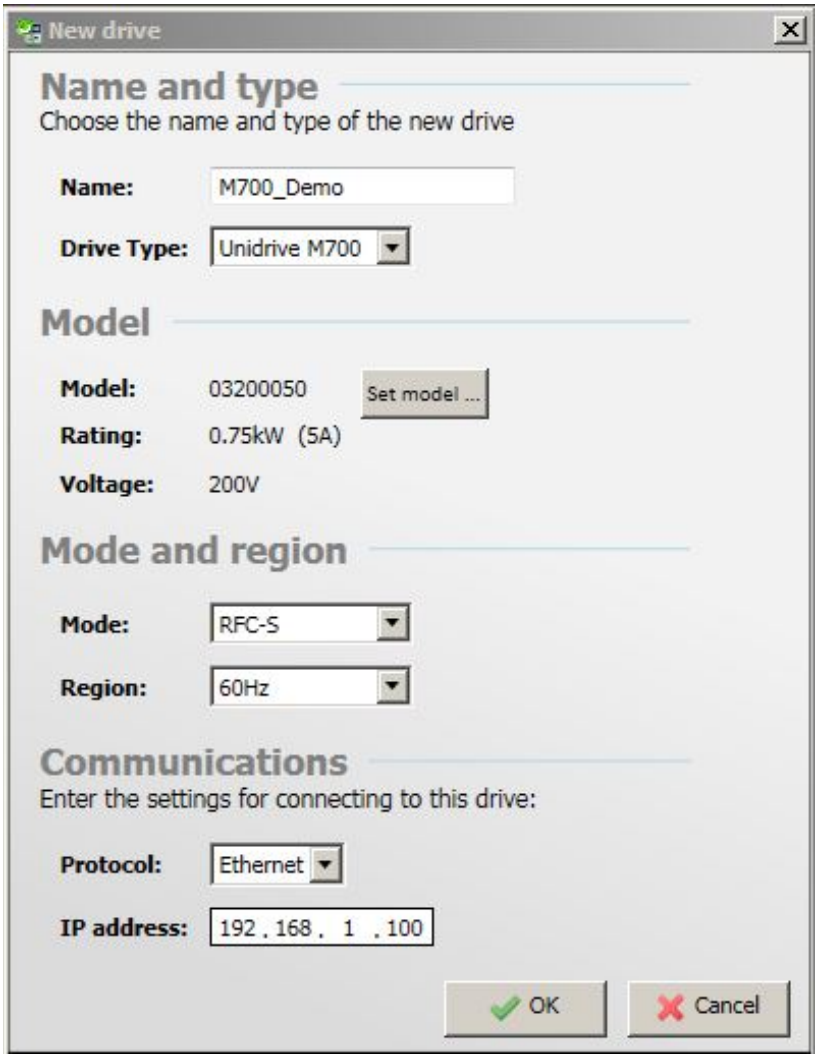
After opening the MConnect software select 'New project'. Keep the default 'Empty Project' enter a Name for the project or accept the default name shown by Selecting 'OK'.



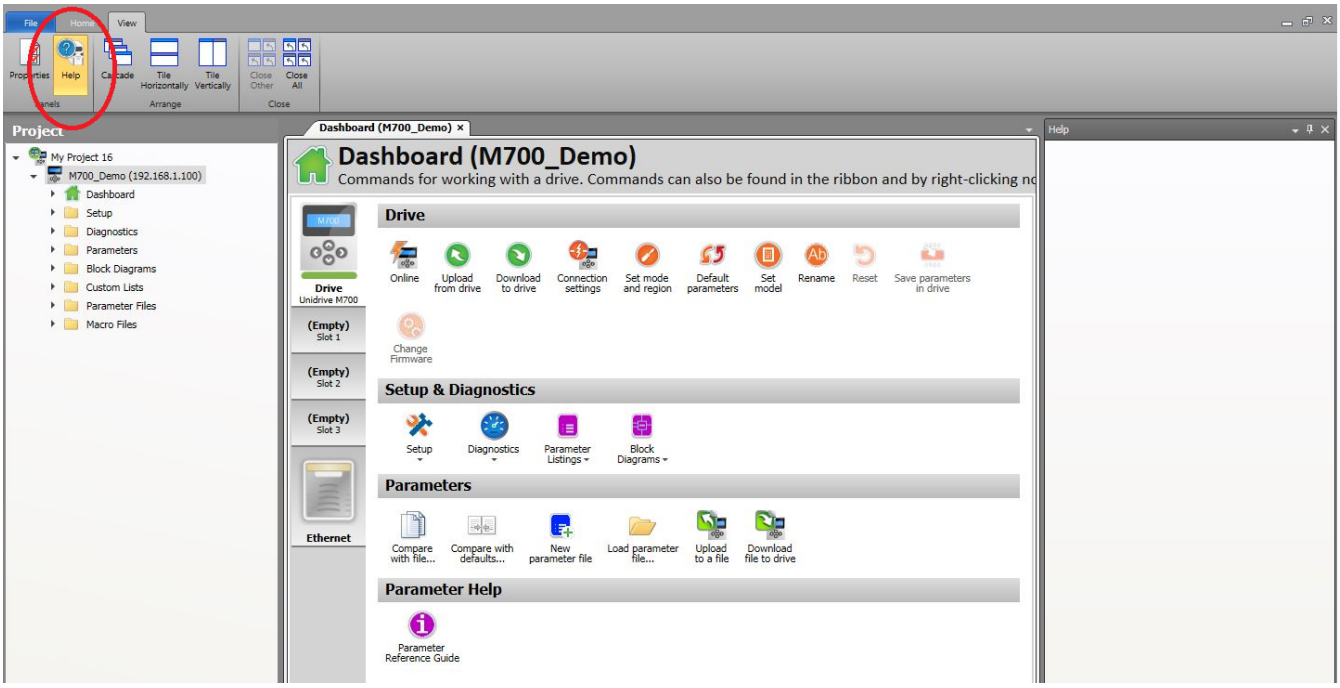
In the top right corner select ‘Add drive’:



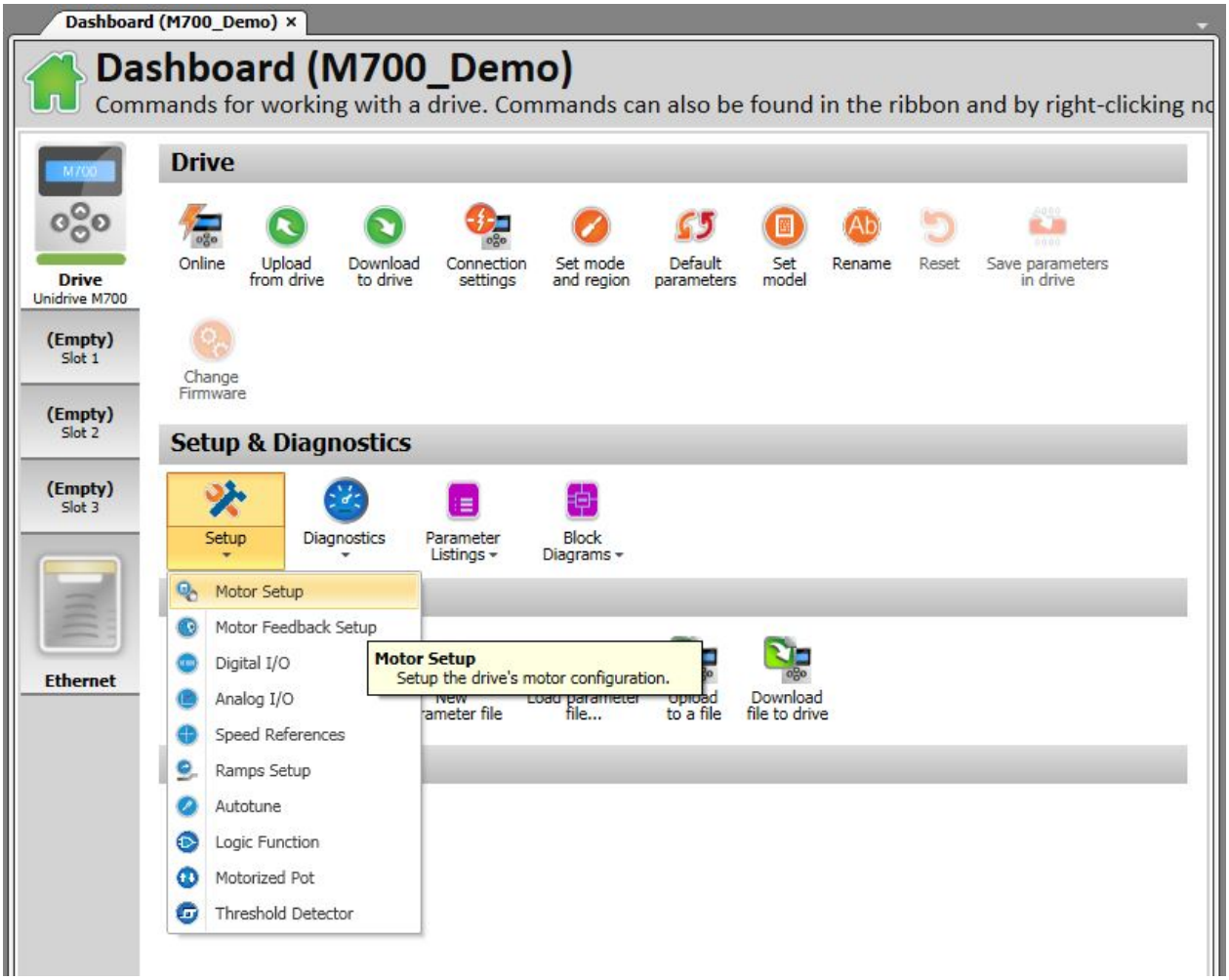
Enter an optional ‘Name’ and make selections for the Model, Mode, Region, and Communications as shown below. When finished select ‘Ok’:



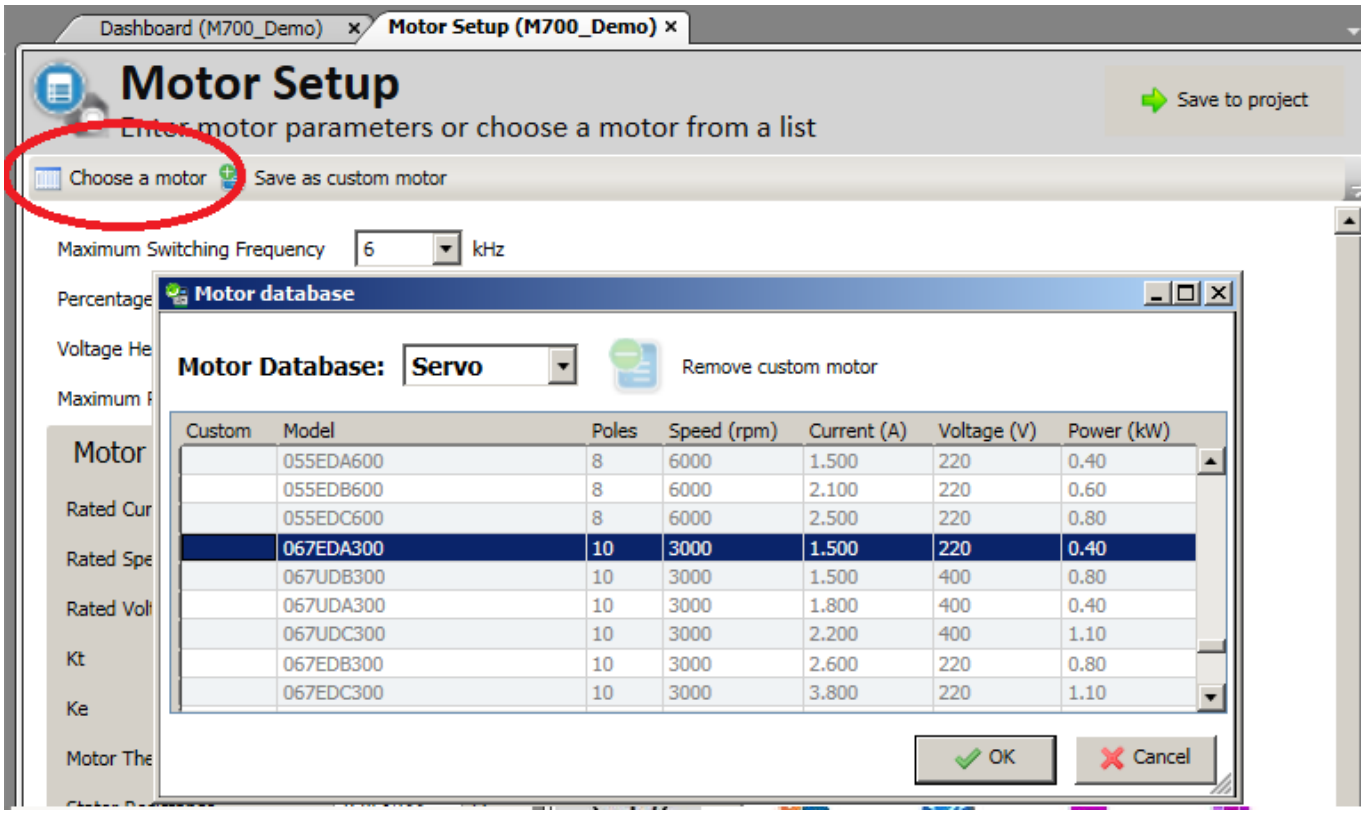
Select ‘Help’ in the ‘File’ tab above to access the third pane in MConnect software that has useful parameter information while navigating through the MConnect project:



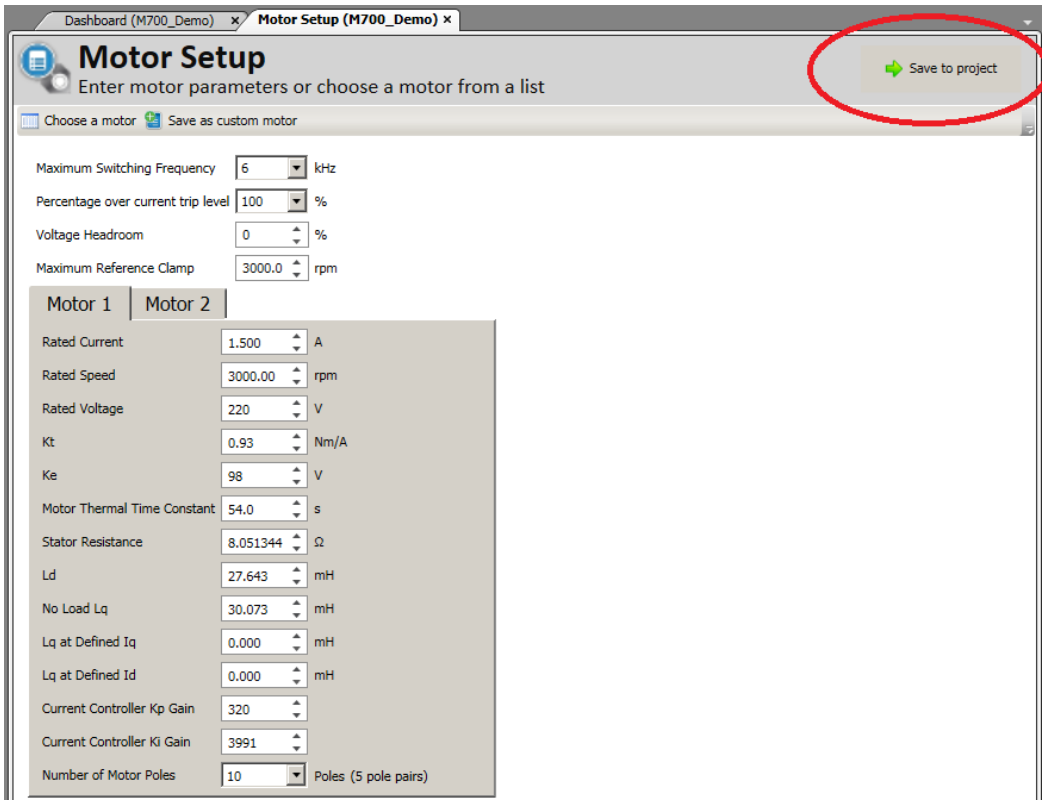
In the drive Dashboard expand Setup and select ‘Motor Setup’:



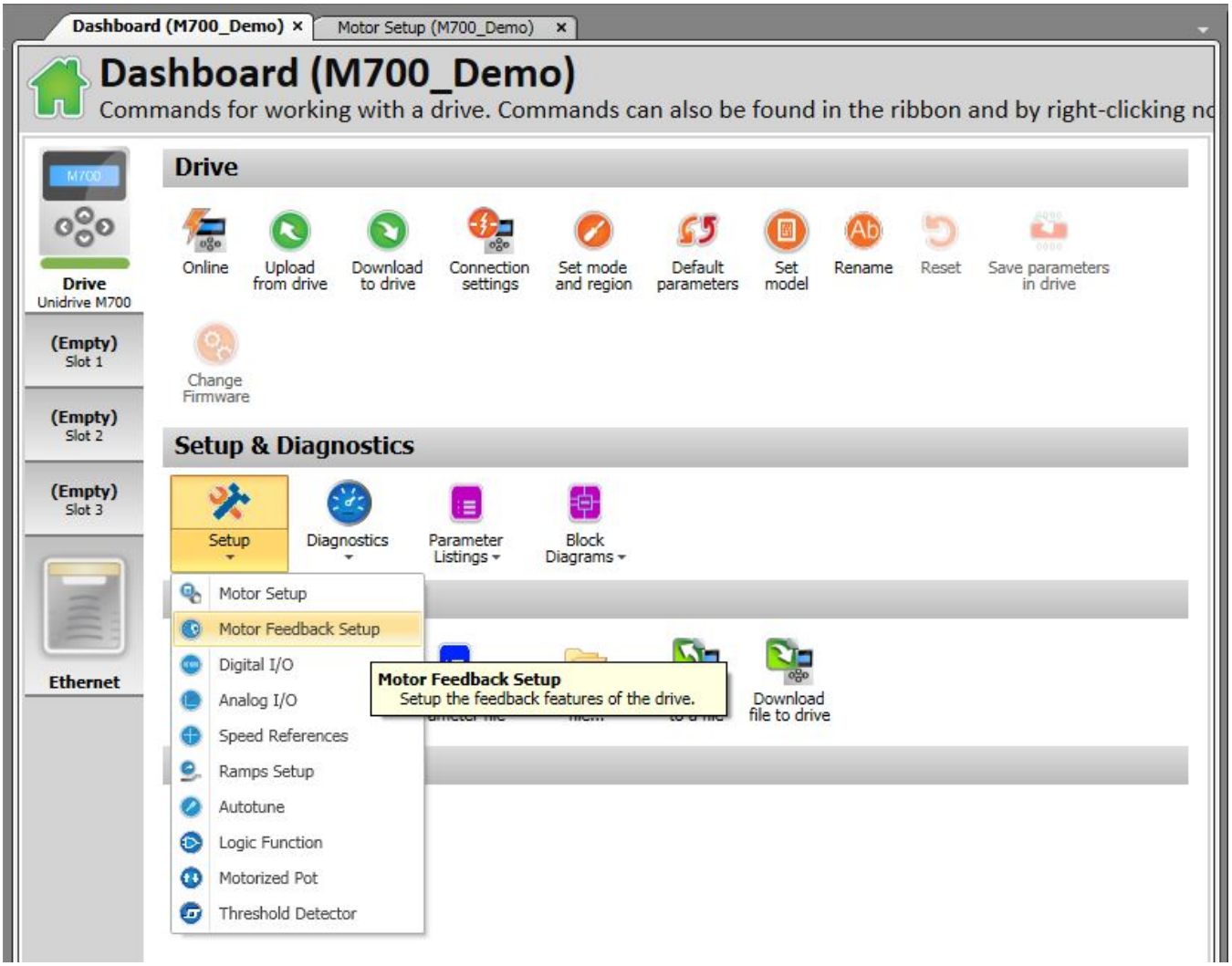
Select ‘Choose a motor’, scroll down the list and select 067EDA300 shown below and select ‘OK’:



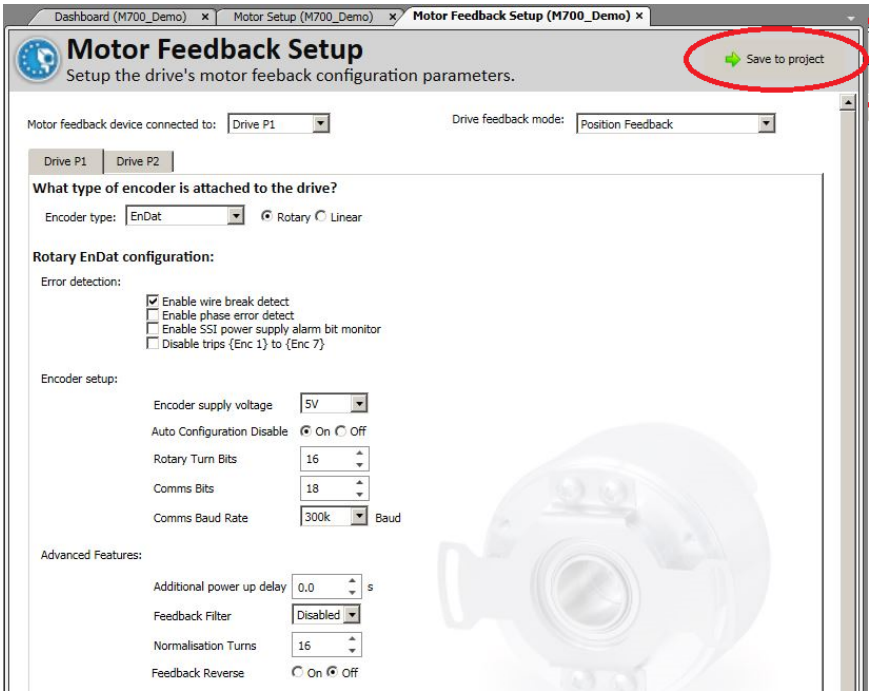
Select ‘Save to project’ in the upper right hand corner to save the motor data to the project:



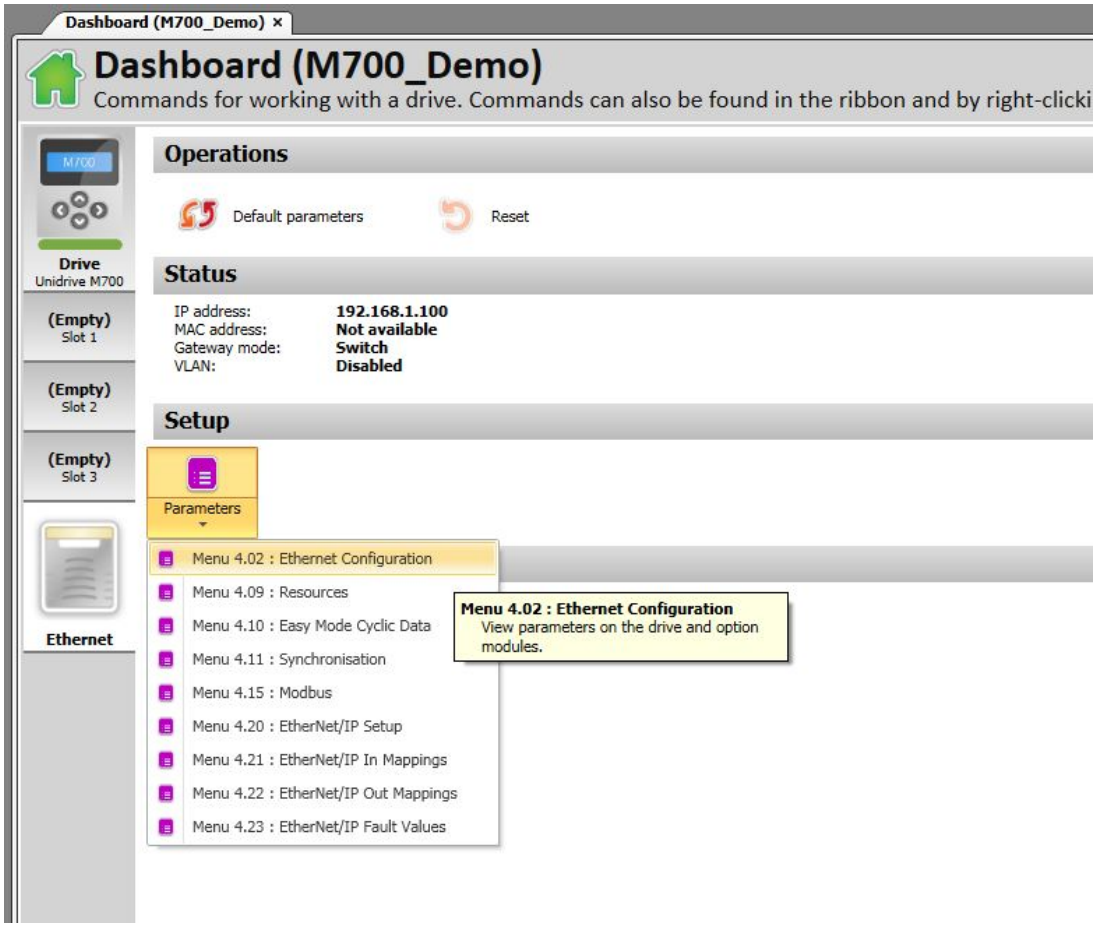
In the drive Dashboard expand ‘Setup’ and select ‘Motor Feedback Setup’:



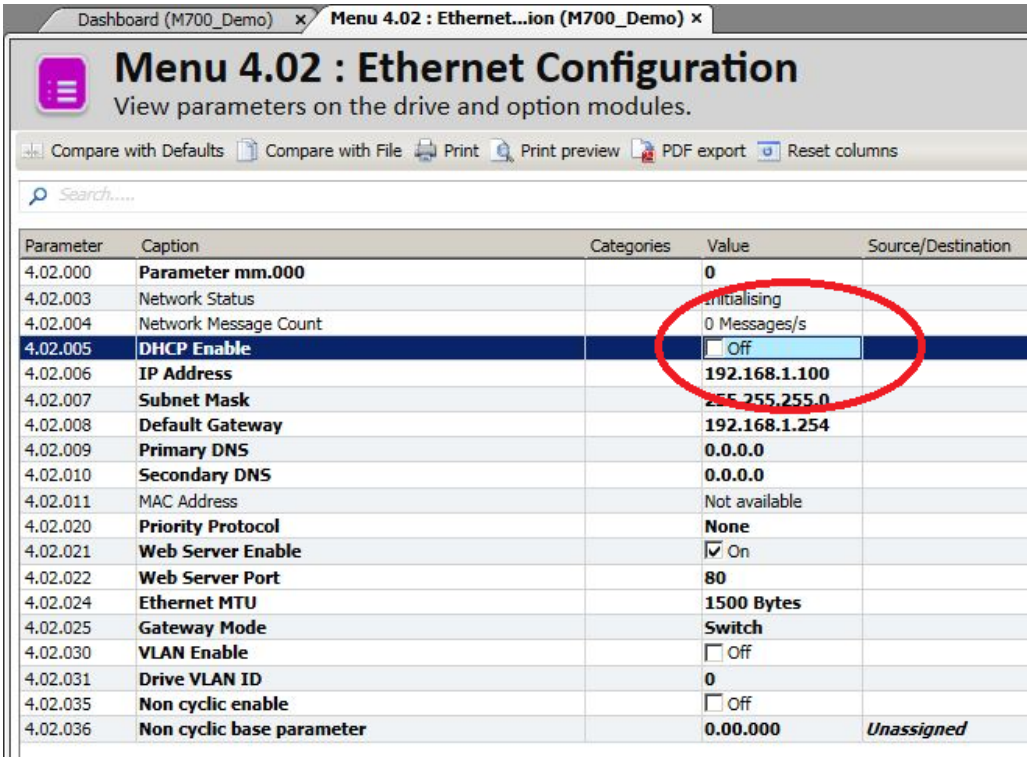
Make the Drive P1 setup selections as shown below. Then select ‘Save to project’:



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

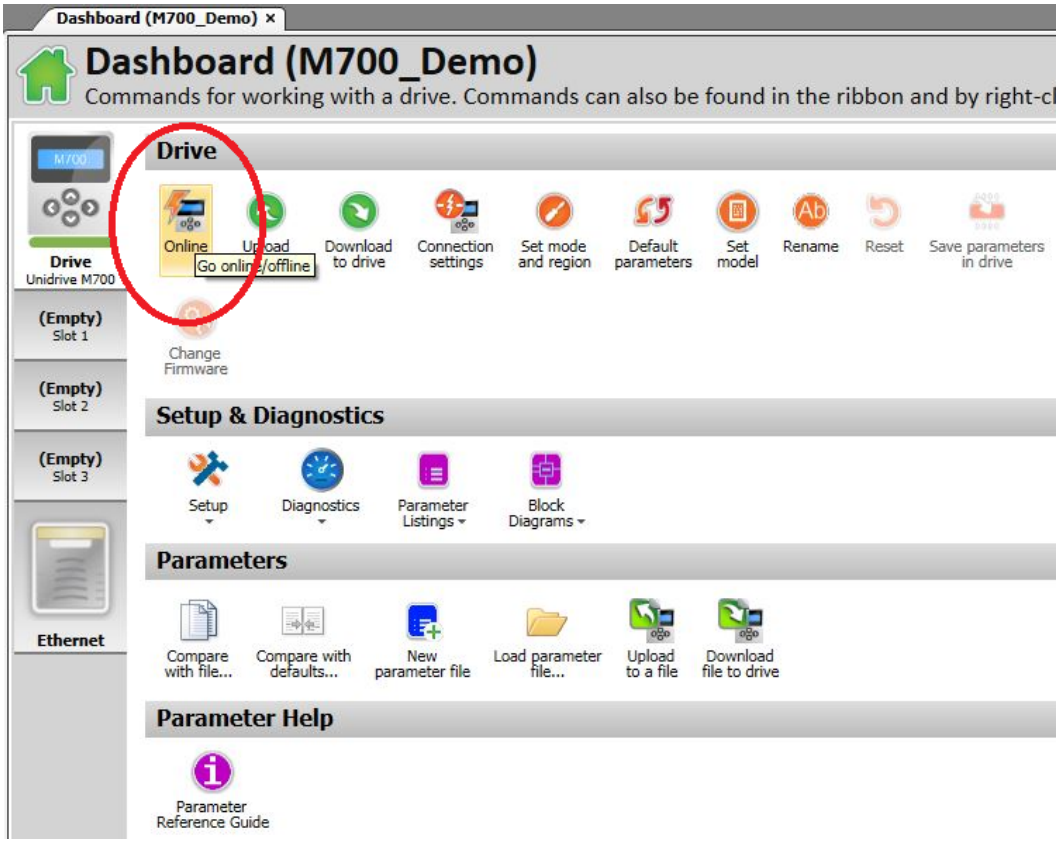


Uncheck the box shown below to turn 'DHCP' Enable 'Off' in Pr 4.02.005:

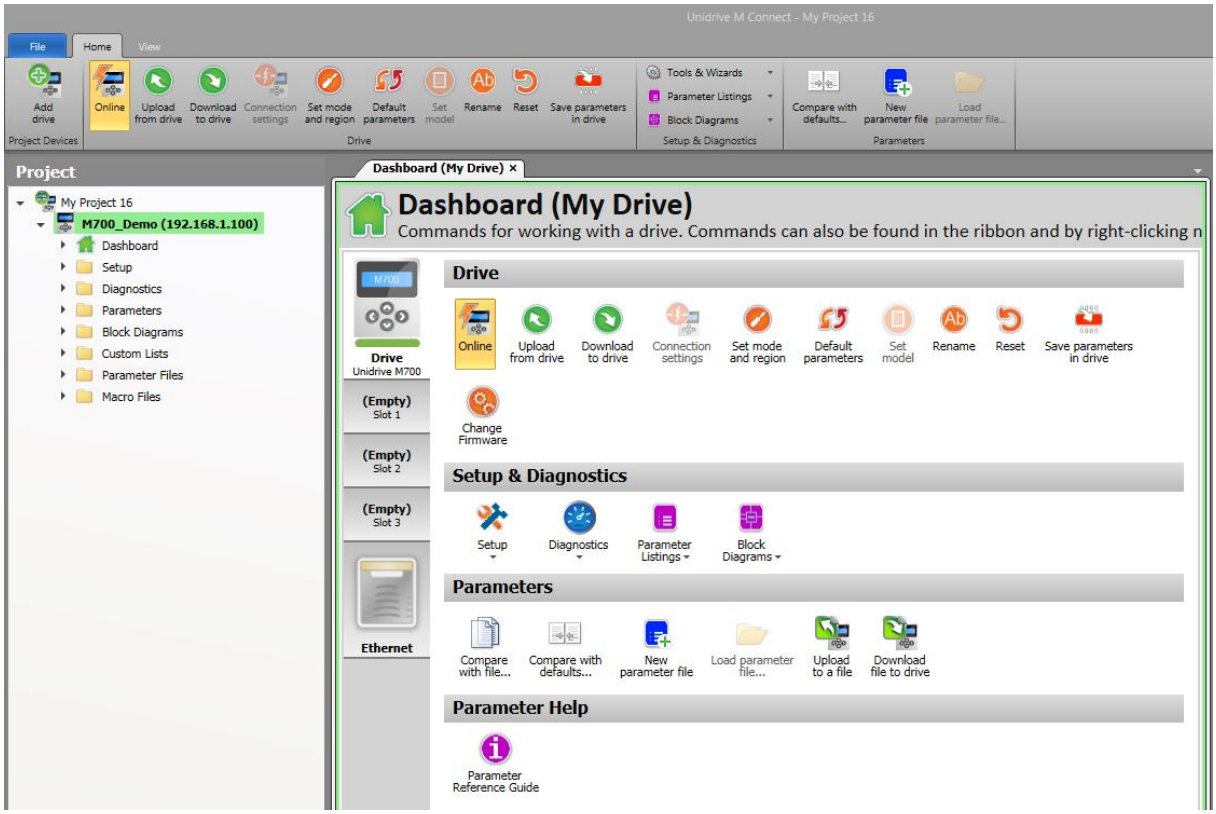


Parameter	Caption	Categories	Value	Source/Destination
4.02.000	**Parameter mm.000**		**0**	
4.02.003	Network Status		Initialising	
4.02.004	Network Message Count		0 Messages/s	
4.02.005	**DHCP Enable**		☐ Off	
4.02.006	**IP Address**		**192.168.1.100**	
4.02.007	**Subnet Mask**		**255.255.255.0**	
4.02.008	**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**		☑ 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**		☐ Off	
4.02.031	**Drive VLAN ID**		**0**	
4.02.035	**Non cyclic enable**		☐ Off	
4.02.036	**Non cyclic base parameter**		**0.00.000**	***Unassigned***

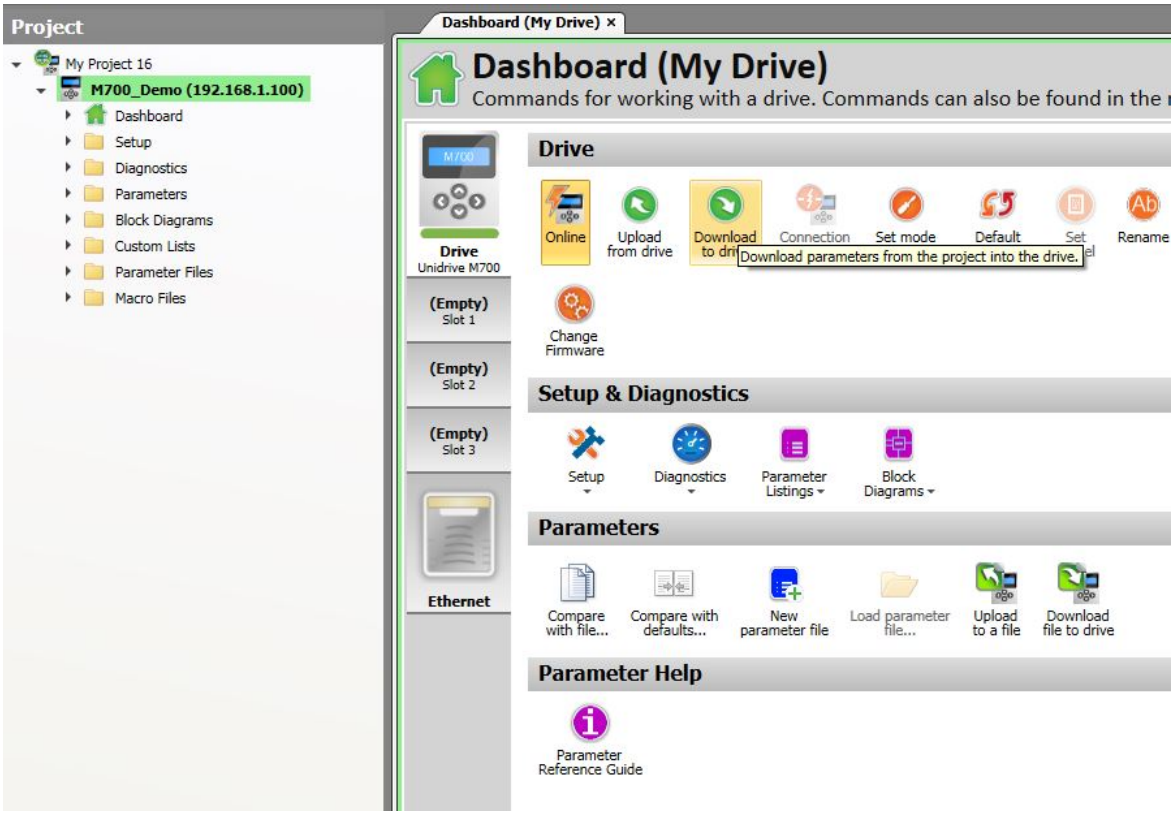
Select the 'Drive' Keypad Icon to go back to the Drive Dashboard and select 'Online':



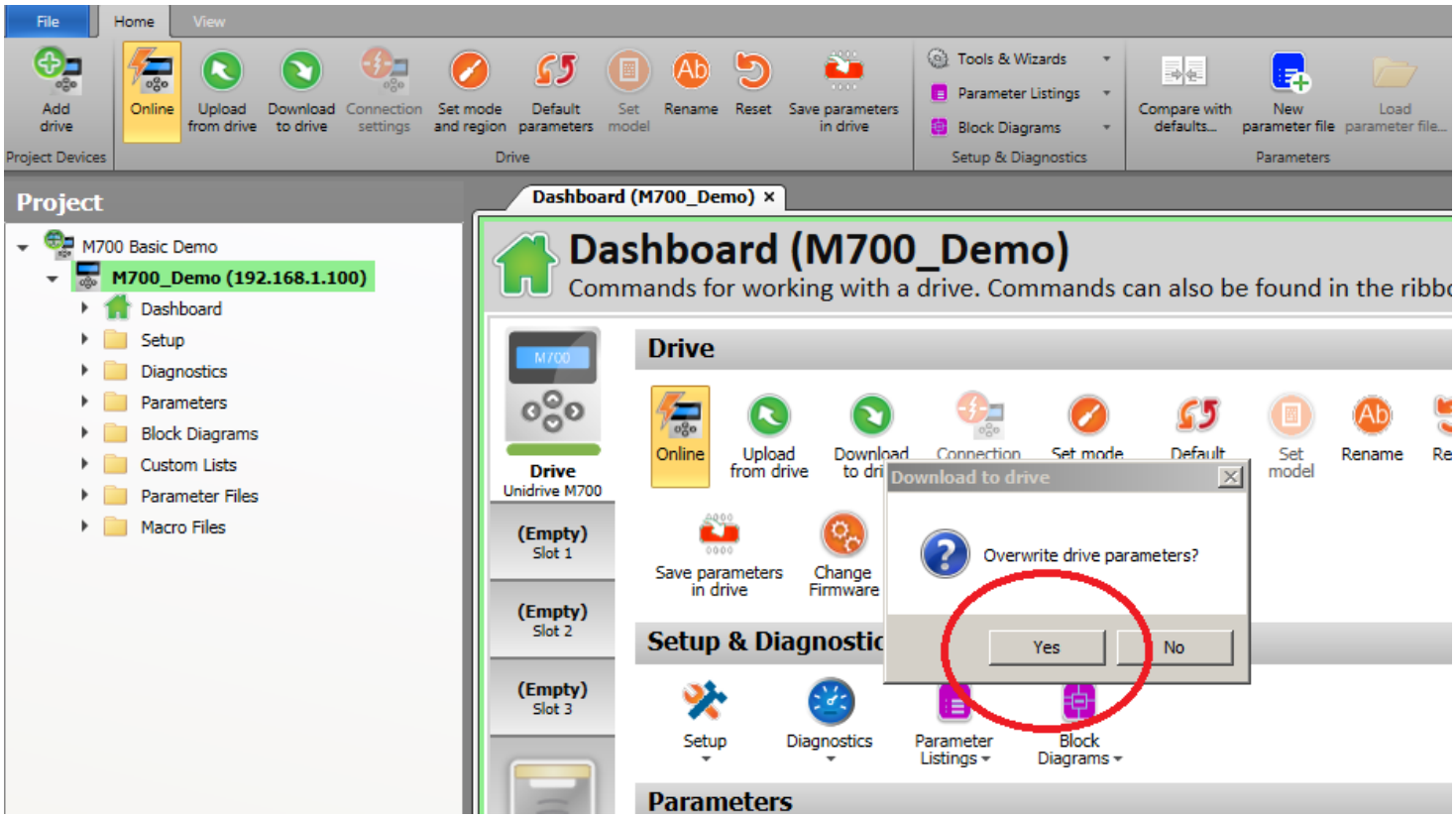
Once successfully Online with the drive the drive name, IP address, and the Drive Dashboard will be highlighted in Green. The 'Online' button will be illuminated yellow as shown:



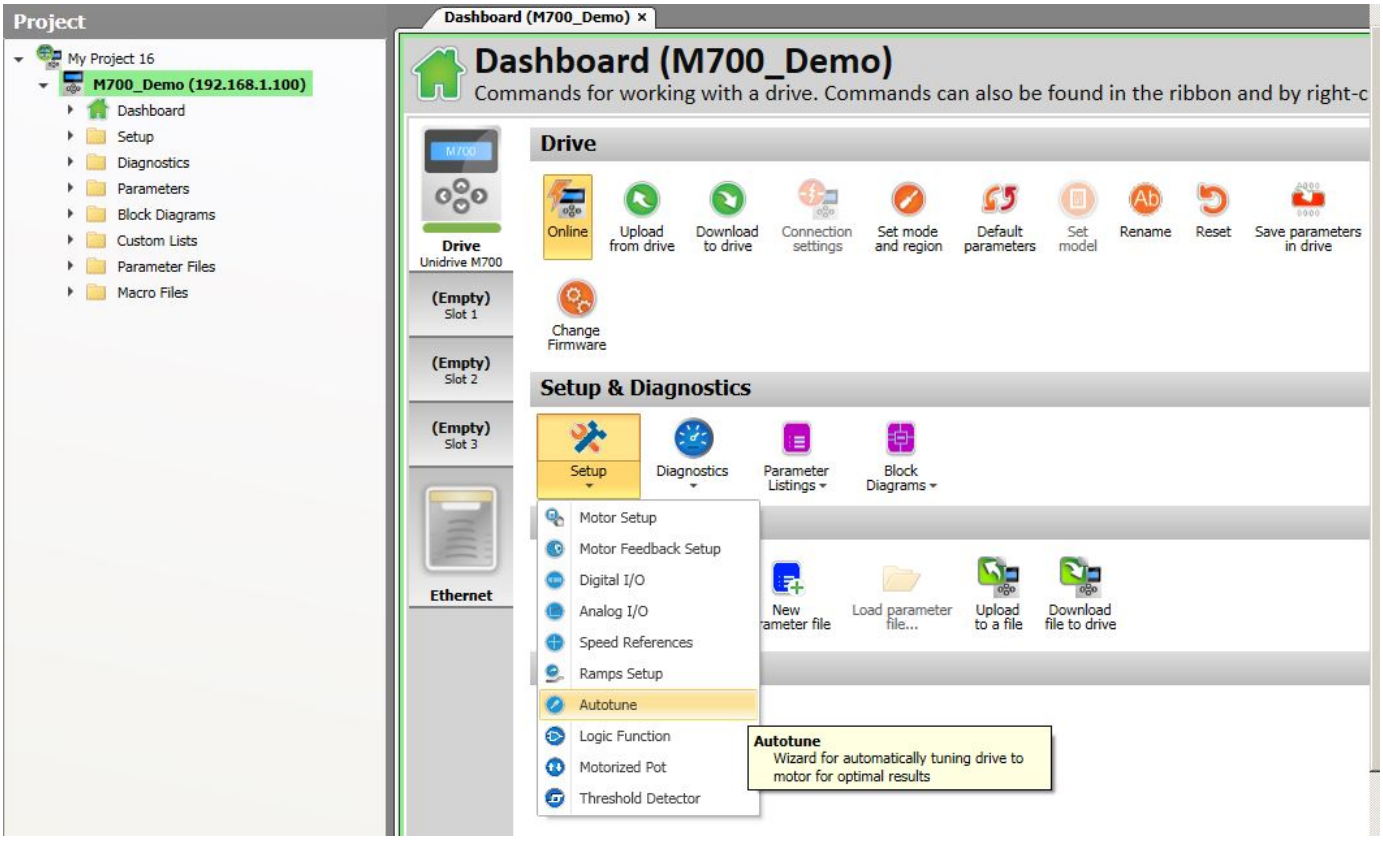
Select 'Download to drive' to download the project setup:



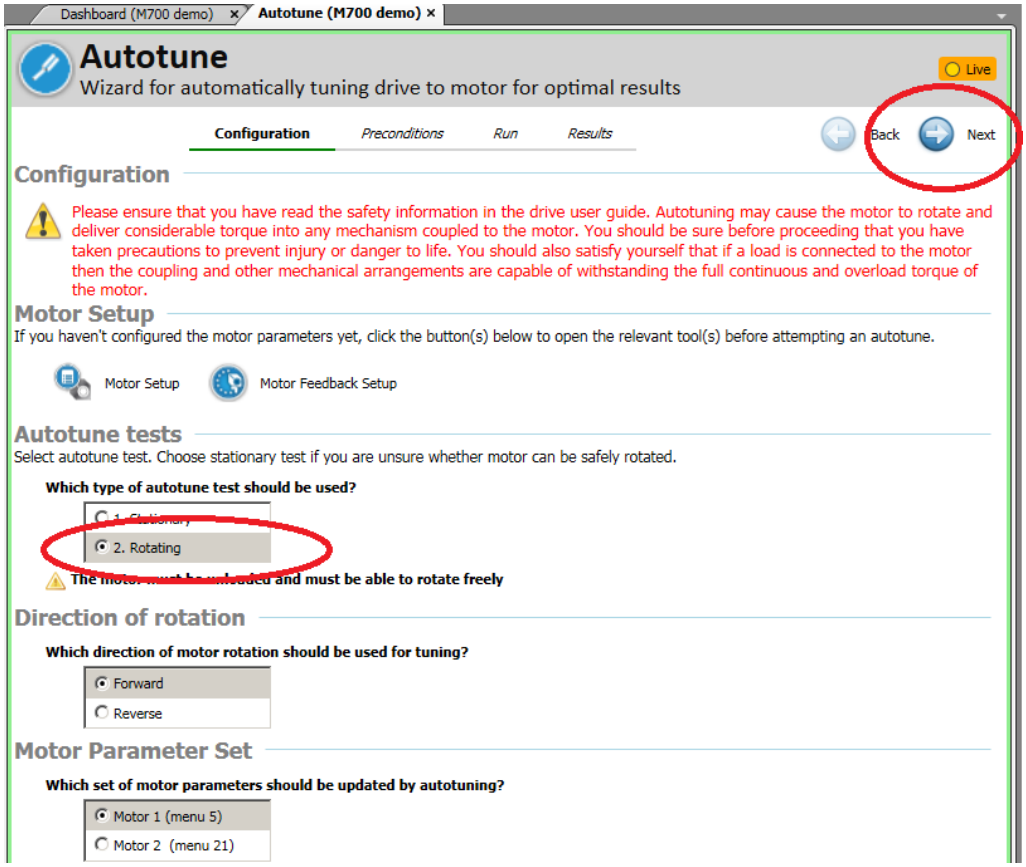
When prompted to 'Overwrite drive parameters?' select 'Yes':



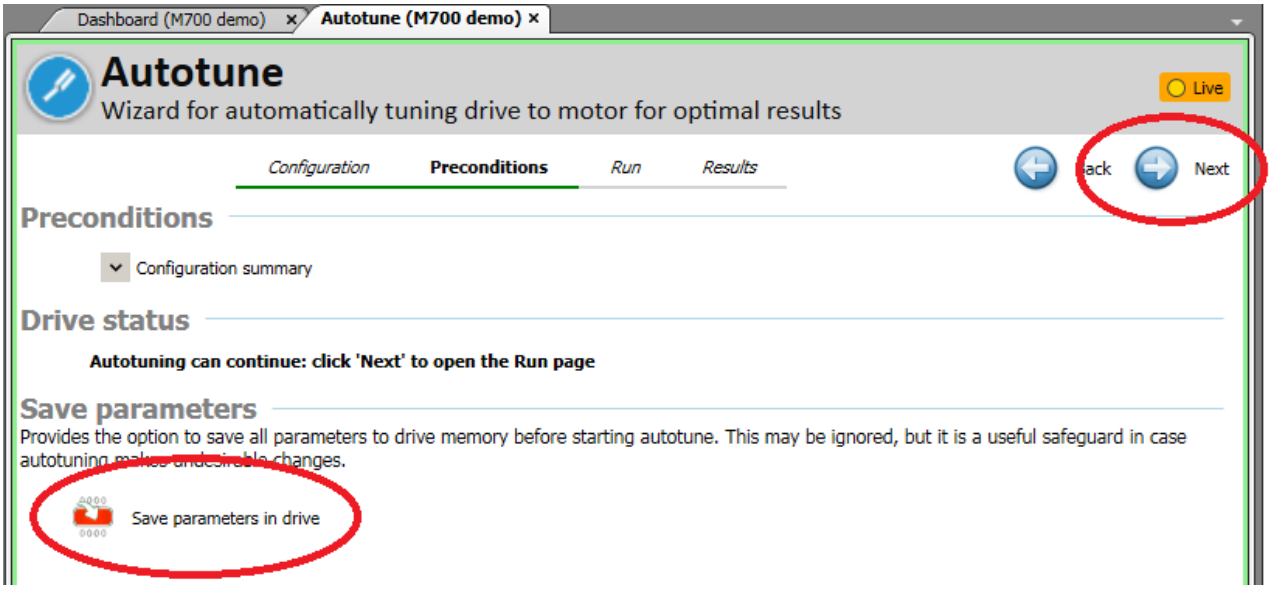
In the Drive dashboard expand ‘Setup’ and select ‘Autotune’:



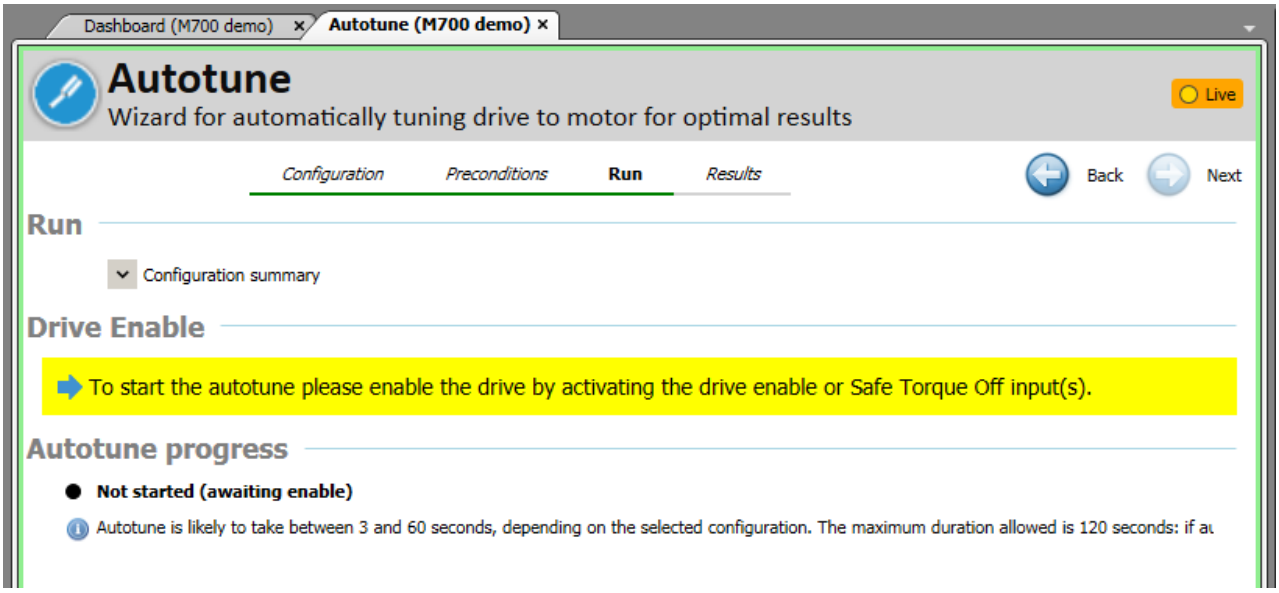
For best results select type ‘2. Rotating’. Then select ‘Next’:



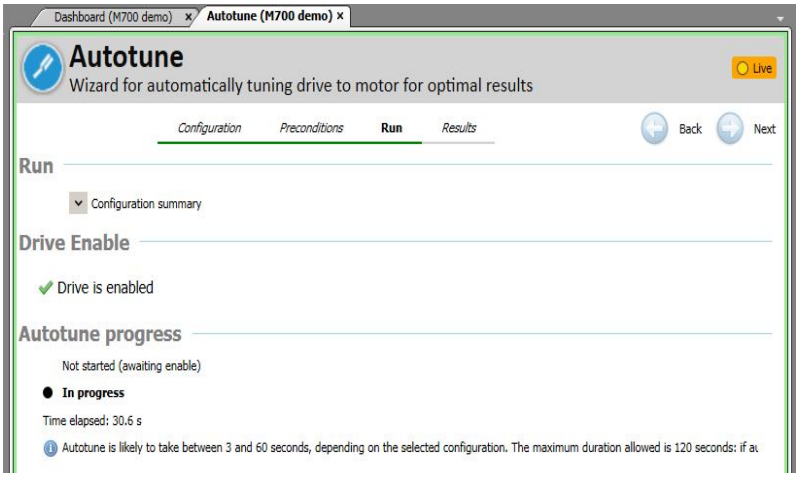
At this point it is optional to select ‘Save parameters in drive’. Then select ‘Next’.



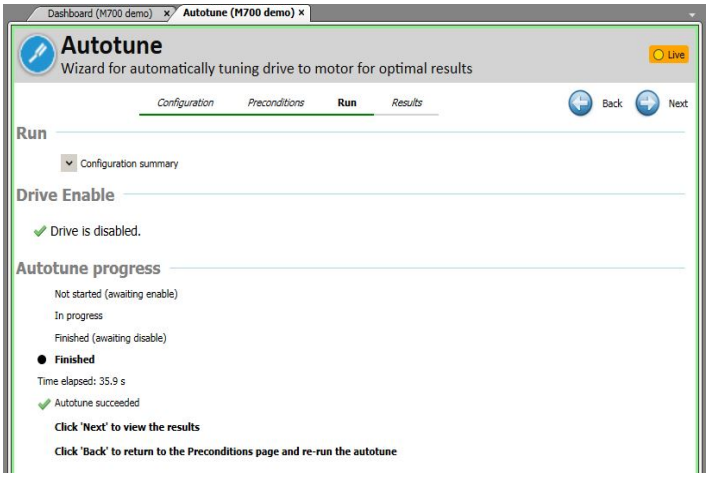
Follow the Online prompt and activate drive enable (T31) to begin the rotating Autotune:



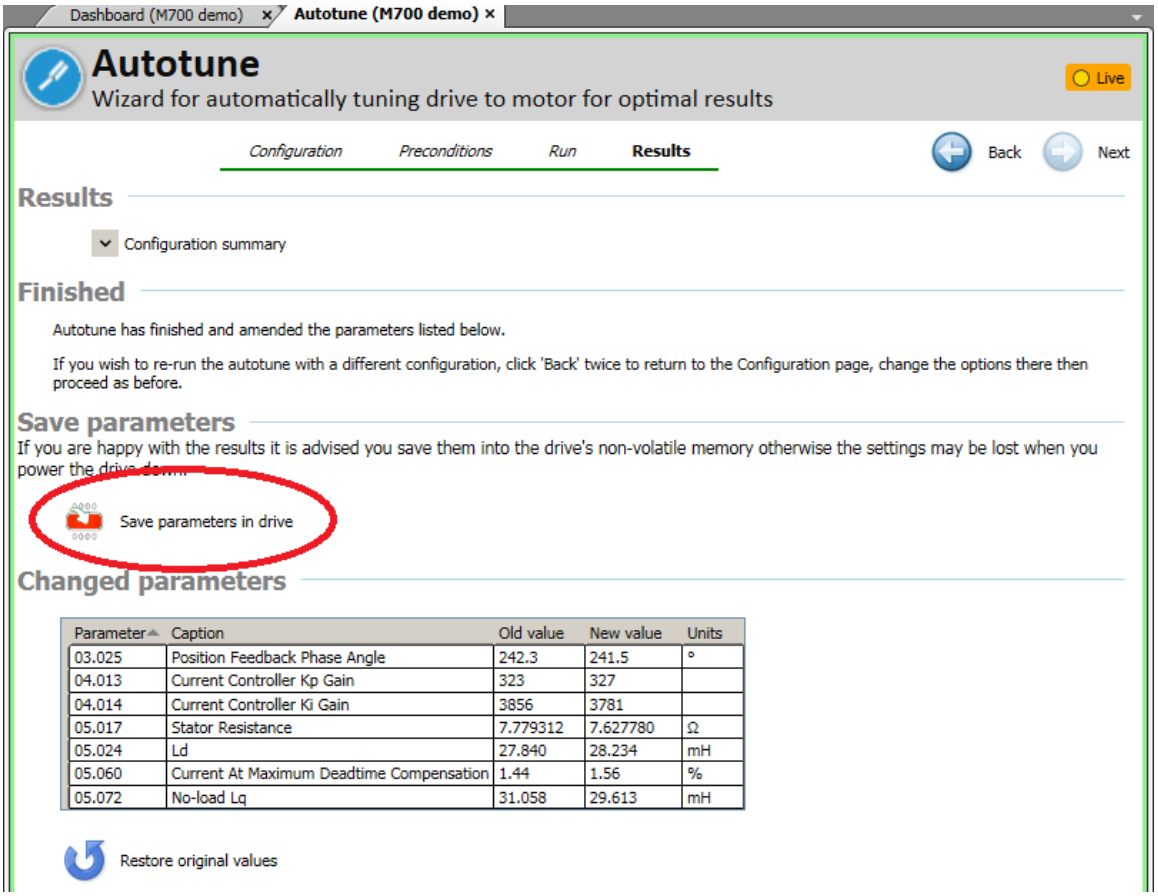
Below is Autotune in progress:



Below is Autotune complete:

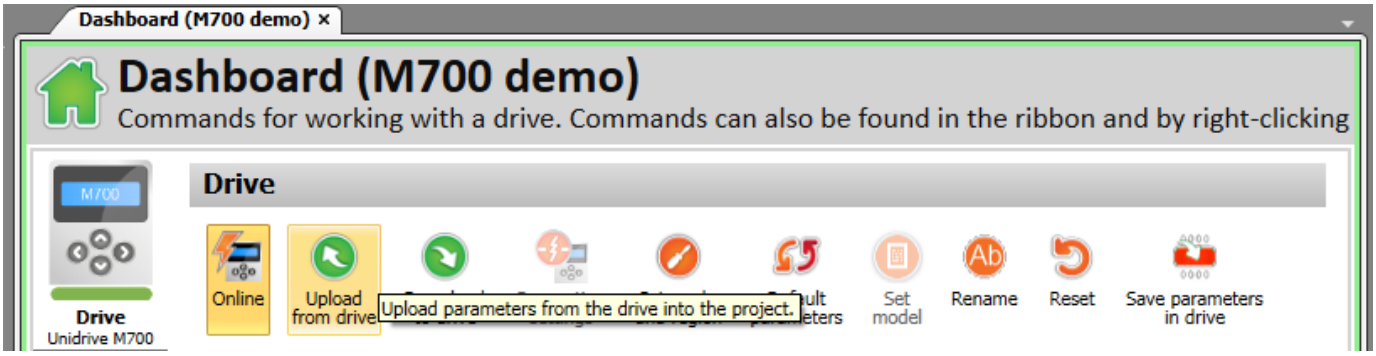


Select ‘Next’ to view the changed parameters in the drive as a result of performing a rotating Autotune. Select ‘Save parameters in drive’ to save the parameter changes:

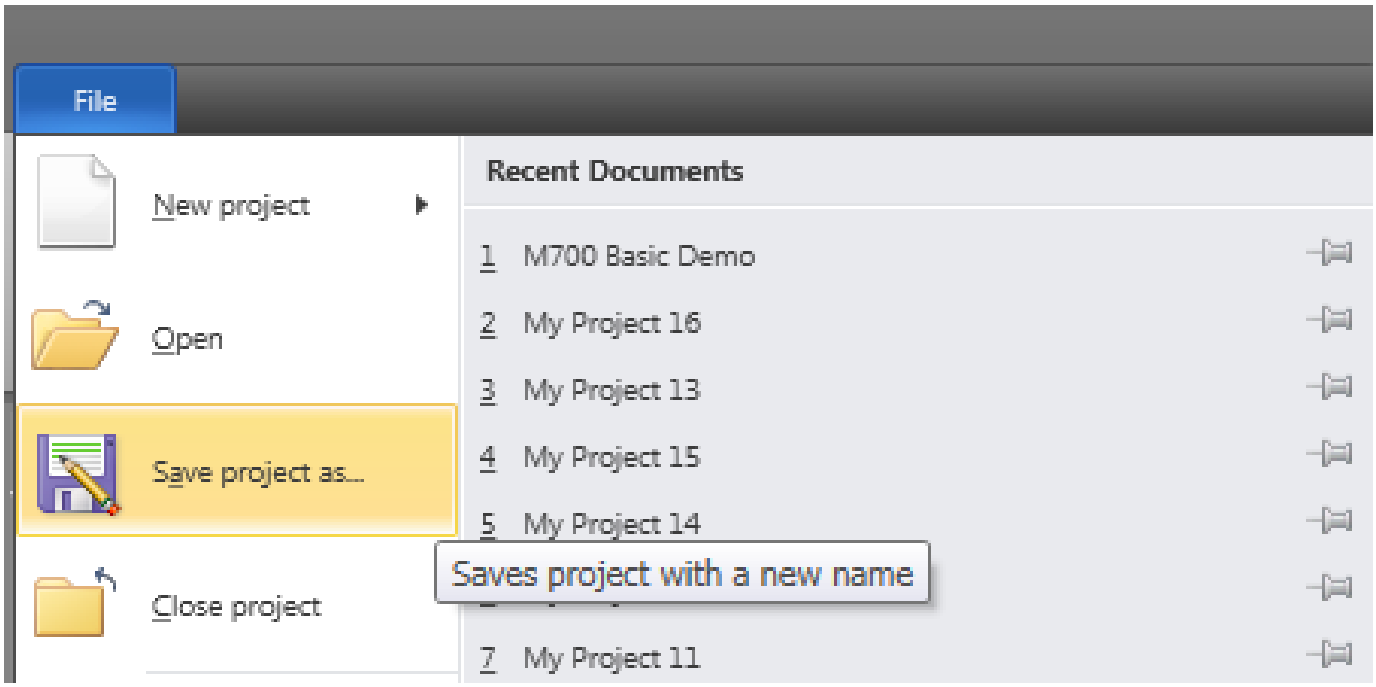


Parameter	Caption	Old value	New value	Units
03.025	Position Feedback Phase Angle	242.3	241.5	°
04.013	Current Controller Kp Gain	323	327	
04.014	Current Controller Ki Gain	3856	3781	
05.017	Stator Resistance	7.779312	7.627780	Ω
05.024	Ld	27.840	28.234	mH
05.060	Current At Maximum Deadtime Compensation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

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’.



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

M700 User Guide
M700 Parameter Reference Guide
Guides, can be found on our website: www.emersonindustrial.com/en-US/controltechniques
You can email to techsupport.cta@emerson.com
You can call Technical Support at 952-995-8000, 24/7/365