Kyntronics
Innovation in Motion

CTSCOPE GUIDE

USING AND DOCUMENTING CTSCOPE

Prepared By Title:	Nathan Weyer Engineer	Date:	8/1/2025
Checked By Title:		Date:	
Approved By Title:		Date:	

REVISION HISTORY

Revision	Description of Change	Date (MM-DD-YYYY)	Revised by
A	Preliminary, created	8/1/2025	NW

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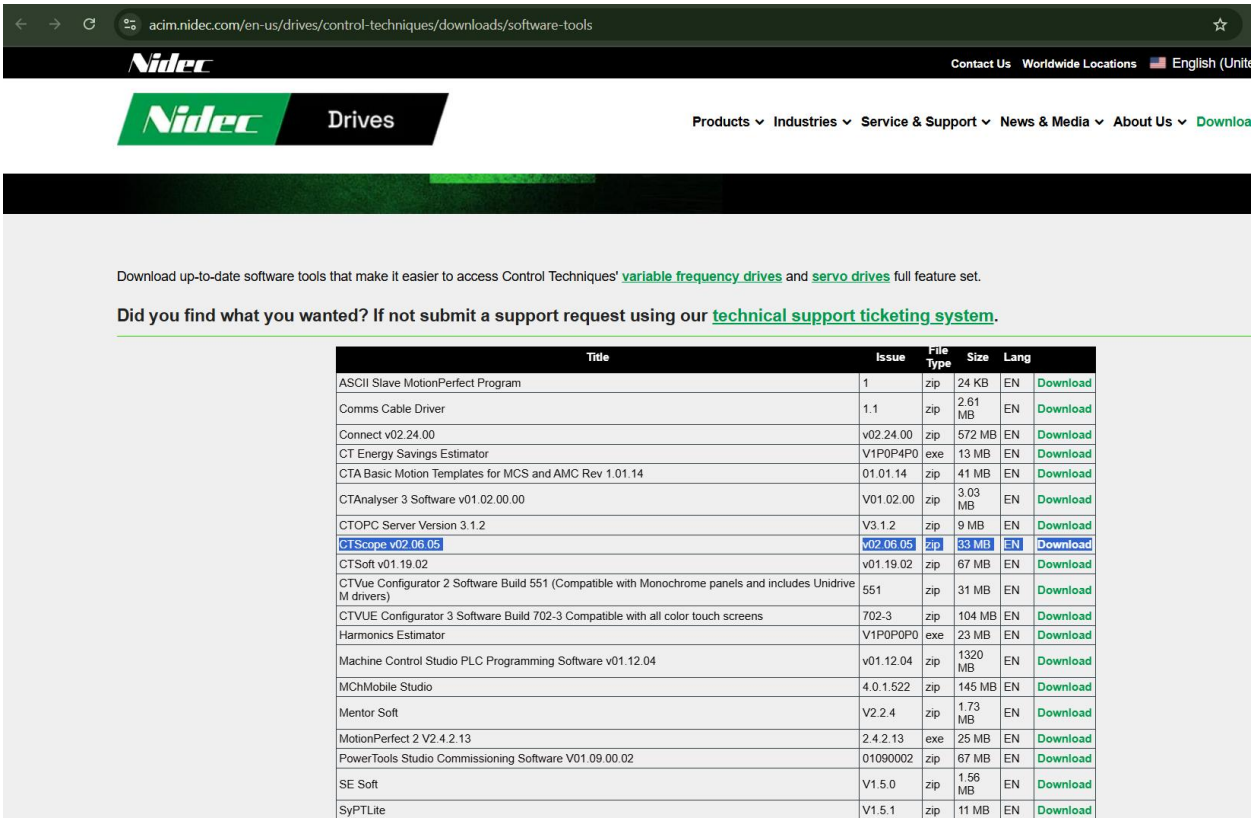
1 PURPOSE

To provide guidelines for monitoring and recording Kyntronics Smart Hydraulic Actuator (SHA) parameters through Nidec CTScope, a software oscilloscope solution.

2 CTSCOPE SOFTWARE

2.1 Control-Techniques “CTScope” Software Download

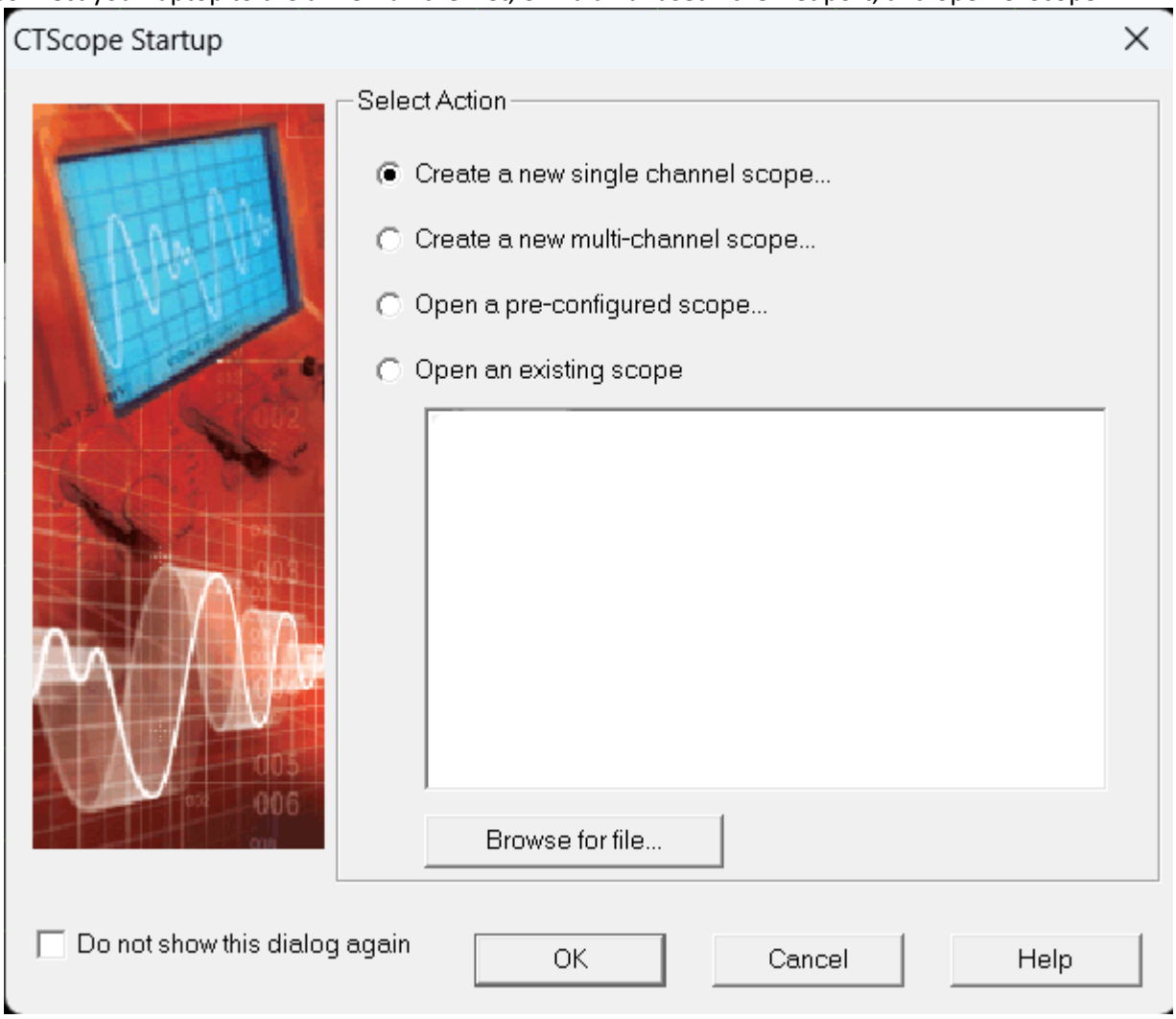
The servo drive manufacturer, Nidec/Control Techniques, named its oscilloscope software CTScope. It is free to download from the web and requires no job-specific files or passwords to access the drives. On the download site, look for the CTScope software, Issue: v02.06.05, zip file. You will need to set up a login/email, but the download is free. The installation can take several minutes to complete.



Title	Issue	File Type	Size	Lang	
ASCII Slave MotionPerfect Program	1	zip	24 KB	EN	Download
Comms Cable Driver	1.1	zip	2.61 MB	EN	Download
Connect v02.24.00	v02.24.00	zip	572 MB	EN	Download
CT Energy Savings Estimator	V1P0P4P0	exe	13 MB	EN	Download
CTA Basic Motion Templates for MCS and AMC Rev 1.01.14	01.01.14	zip	41 MB	EN	Download
CTAnalyser 3 Software v01.02.00.00	V01.02.00	zip	3.03 MB	EN	Download
CTOPC Server Version 3.1.2	V3.1.2	zip	9 MB	EN	Download
CTScope v02.06.05	v02.06.05	zip	33 MB	EN	Download
CTSoft v01.19.02	v01.19.02	zip	67 MB	EN	Download
CTVue Configurator 2 Software Build 551 (Compatible with Monochrome panels and includes Unidrive M drivers)	551	zip	31 MB	EN	Download
CTVUE Configurator 3 Software Build 702-3 Compatible with all color touch screens	702-3	zip	104 MB	EN	Download
Harmonics Estimator	V1P0P0P0	exe	23 MB	EN	Download
Machine Control Studio PLC Programming Software v01.12.04	v01.12.04	zip	1320 MB	EN	Download
MChMobile Studio	4.0.1.522	zip	145 MB	EN	Download
Mentor Soft	V2.2.4	zip	1.73 MB	EN	Download
MotionPerfect 2 V2.4.2.13	2.4.2.13	exe	25 MB	EN	Download
PowerTools Studio Commissioning Software V01.09.00.02	01090002	zip	67 MB	EN	Download
SE Soft	V1.5.0	zip	1.56 MB	EN	Download
SyPTLite	V1.5.1	zip	11 MB	EN	Download

2.2 Connecting to the Drive

Connect your laptop to the drive via Ethernet, or via an unused Ethernet port, and open CTScope.

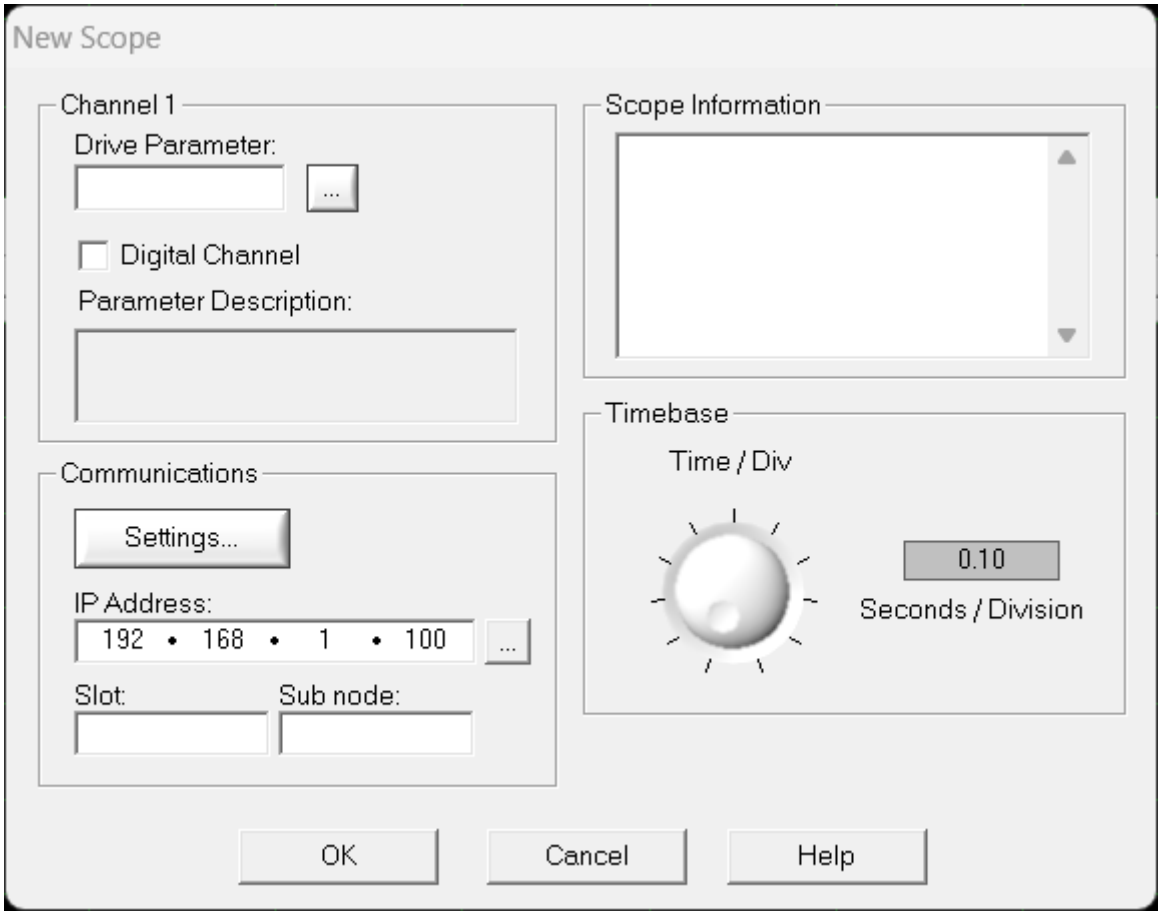


Troubleshooting for connection issues between CTScope and the target drive are discussed later in this guide.

Make a note to remember that CTScope communicates with MODBUS TCP/IP over ethernet. This protocol is called “CT-TCP/IP” in CTScope but just called “Modbus TCP/IP” in Connect.

2.3 Setting up CTScope File

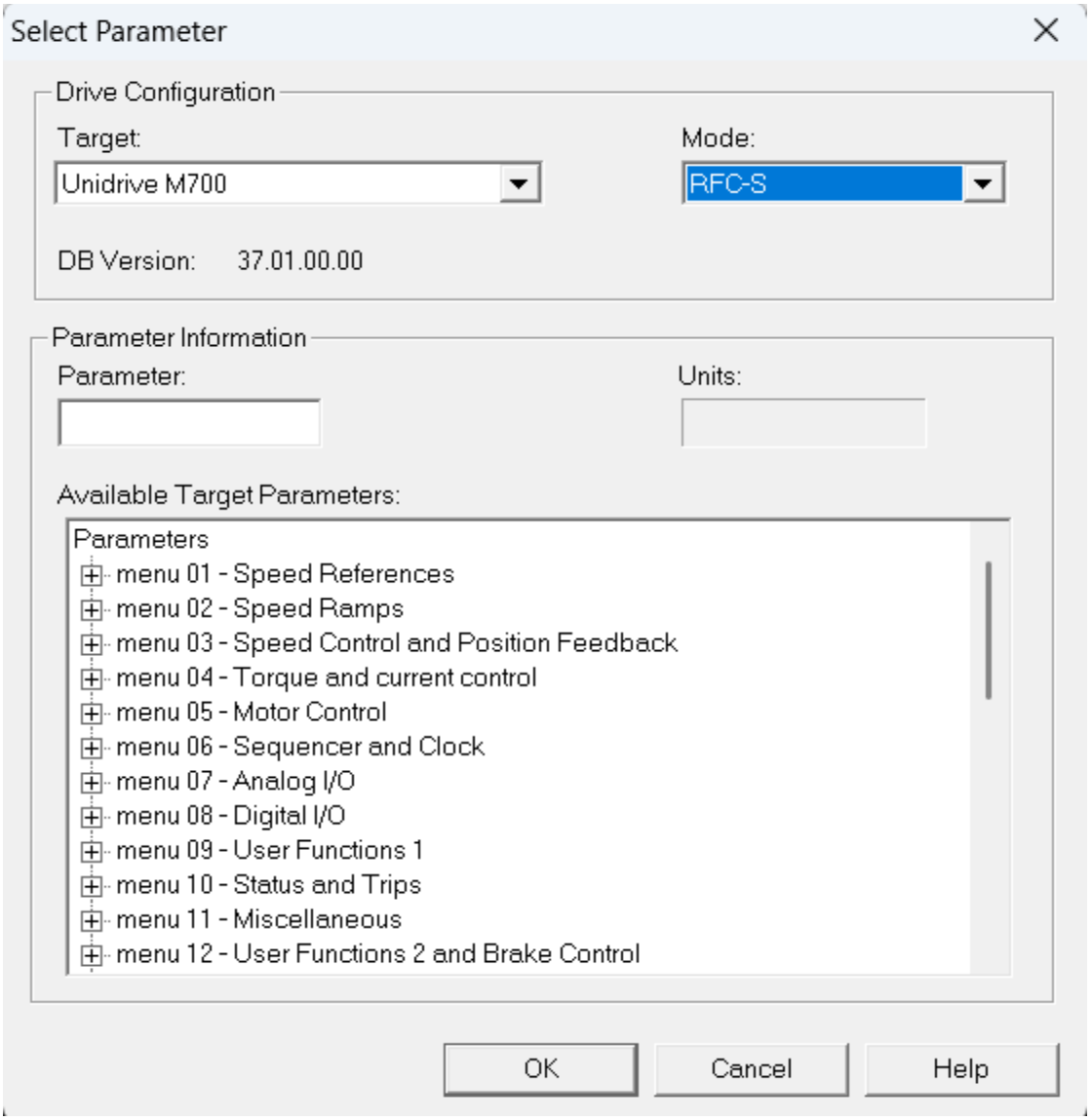
Select “Create a new single channel scope” and click OK. Next you will be asked to set up a new scope on channel 1.



For communications, start by selecting “Settings…”; this will open a window to select the communications protocol, please select “CT-TCP/IP”. Typically, Kyntronics drives start at 192.168.1.101 and increment from there, be sure to verify the drive’s IP address if you have multiple drives. There’s no need to adjust the Slot or Sub node

Selecting the 3 dots next to the drive parameter will allow you to select a parameter for channel 1. All channels used will be analog, do not select “Digital Channel”.

When selecting available target parameters be sure you have the proper target (drive) selected and the mode set to RFC-S. M700 drives are Unidrive M700, M701 drives are Unidrive M701 and so on. For M750 or M754 drives, the names are Digitax instead of Unidrive. Take note, when selecting a new drive/target, the mode defaults back to Open-loop.



Some helpful available target parameters to capture:

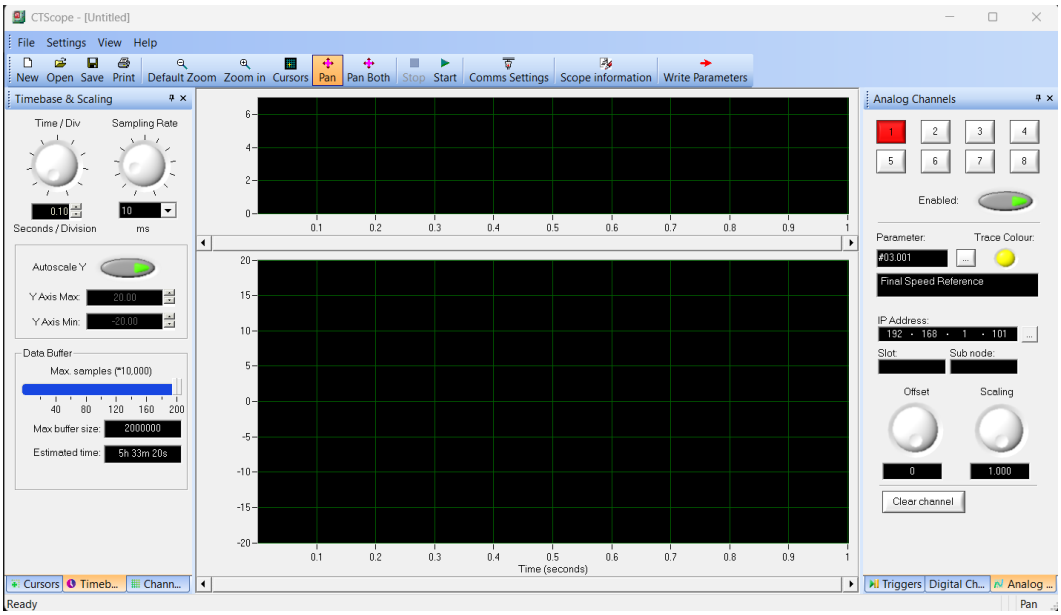
Parameter Name:	M700 / M750 Location:
Final Speed Reference (rpm)	#03.001
Speed Feedback (rpm)	#03.002
Position Reference	#20.025
Position Feedback	#20.026
Force Reference	#20.028
Force Feedback * 100	#20.023
Analog Pressure Sensor (0% – 100%)	#07.001
Final Torque Reference	#04.003

Notes:

-Verify what parameter the drive uses for the analog pressure sensor; the default is input 1 here.

- Set each channel up with these parameters when capturing to send to Kyntronics.

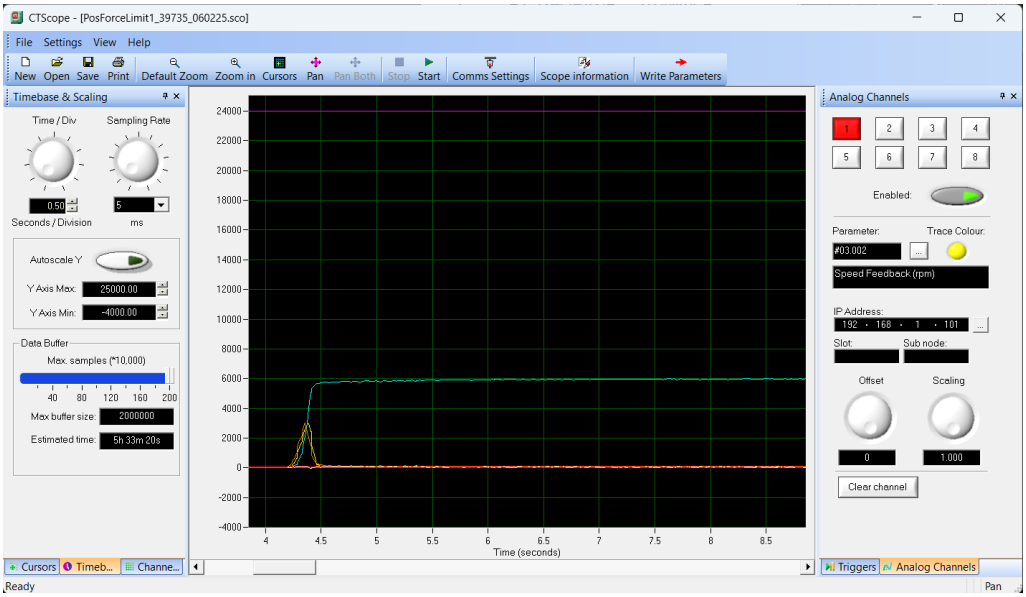
After completing the first parameter and channel 1, select OK. You will be presented with the scene below. You can resize the Timebase & Scaling and Analog Channels windows and disable the Digital Channels Window by selecting View in the toolbar and unselecting it.



Additionally, it is advisable to adjust the Y Axis Max and Min with respect to the analog ranges expected. Furthermore, adjust the Time/Div to 0.50 seconds per division and the sample rate to 5 ms.

Now proceed by setting up the remaining 7 analog channels by clicking them, clicking the 3-dot button next to the parameter entry field, and following the same procedure as noted above.

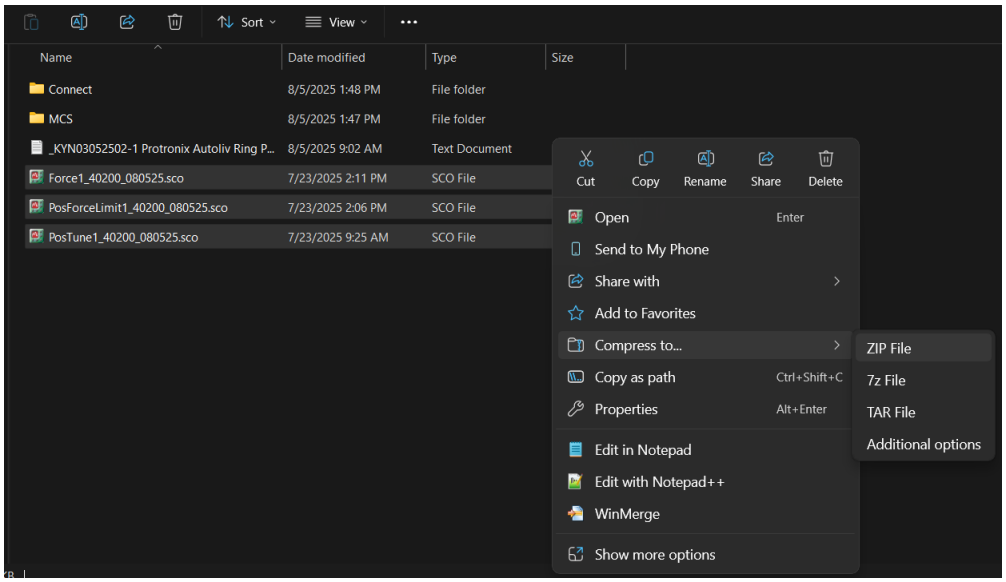
All that is needed now is to click start and run the actuator, here is an example of the actuator running in a force limiting position mode:



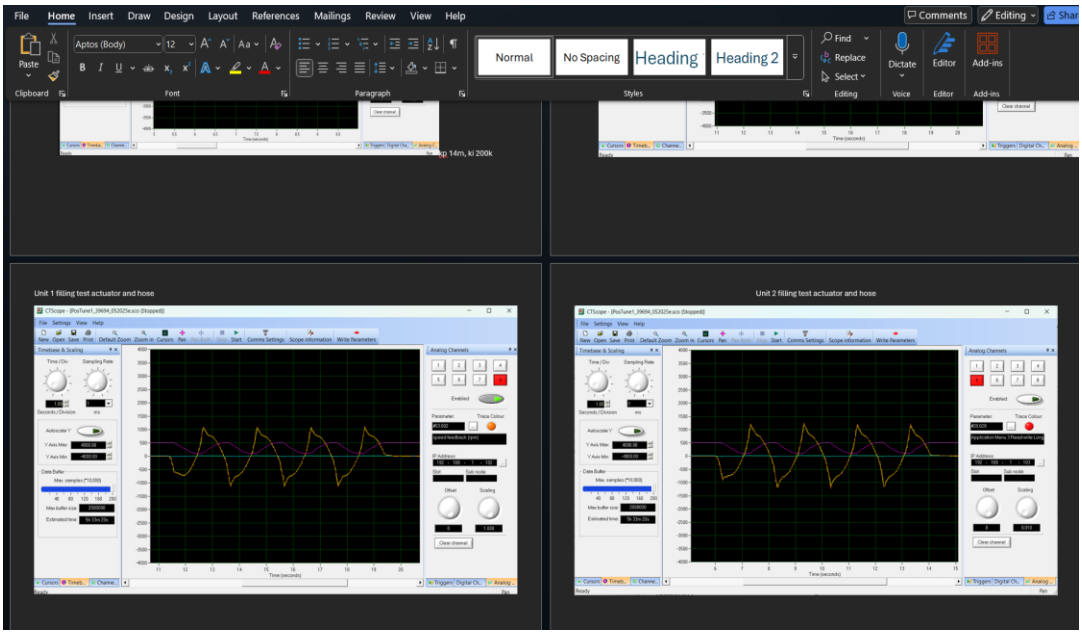
Just click stop when done and save the file.

3 DOCUMENTATION

Proper documentation is crucial for debugging and storing performance records of the actuator system. Additionally, proper documentation helps Kyntronics with diagnosis and solutions for customers experiencing issues.



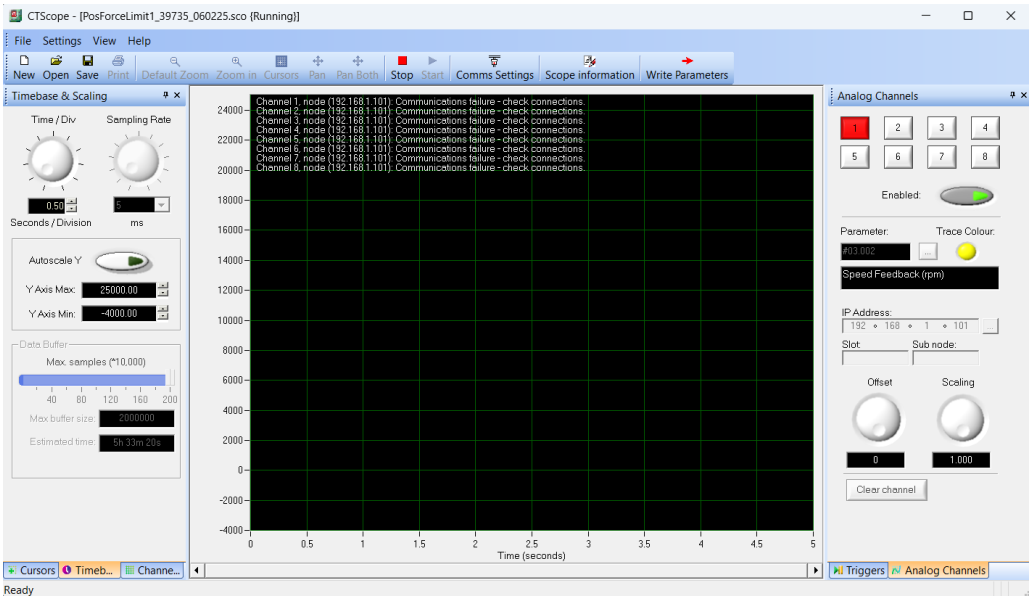
The first method is to compress all scope files to a zip and to email them to Kyntronics support along with an email outlining issues, working conditions, and any other important information.



The second method is to just take screenshots of the waveforms and to copy them into a document with a brief description of each image, as seen above. This can then be emailed to Kyntronics with an outline of the issue.

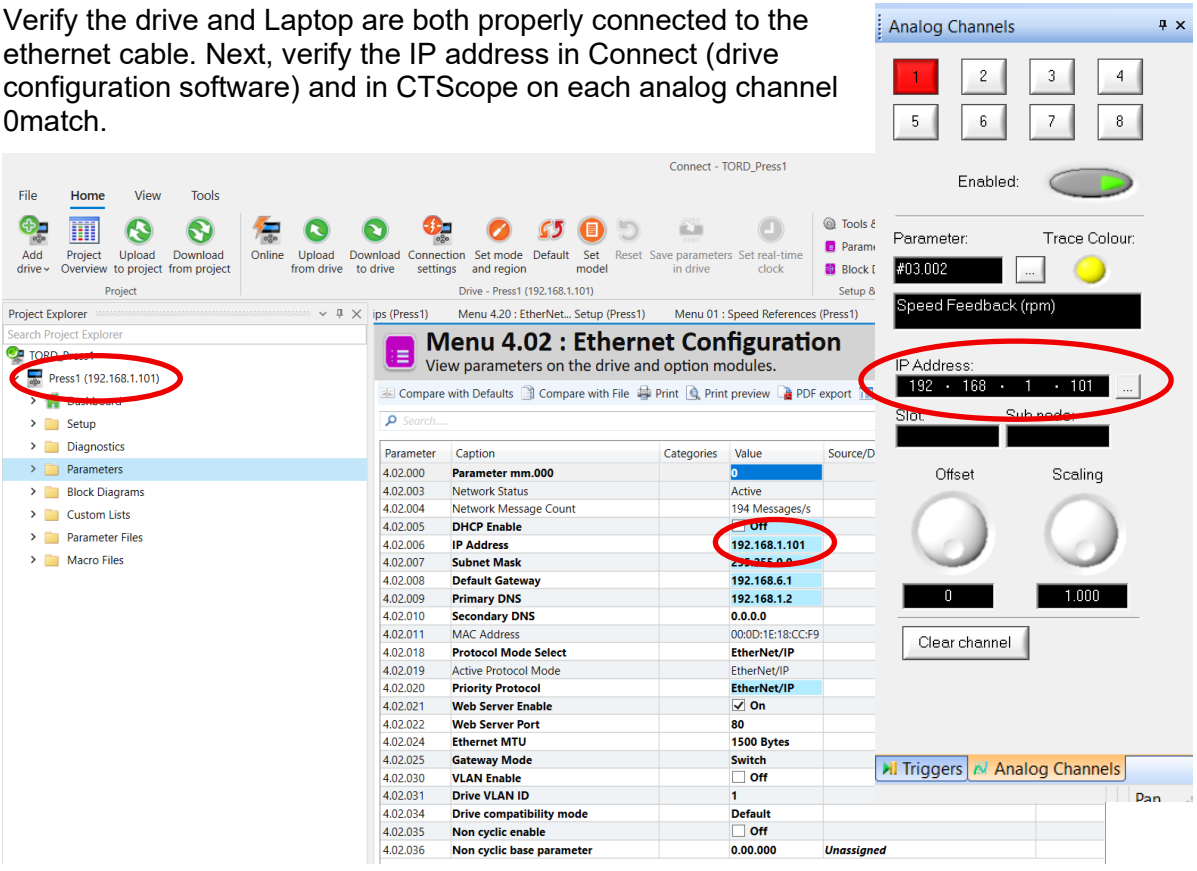
4 TROUBLESHOOTING

If experiencing communication issues, as displayed below, follow these steps to resolve.

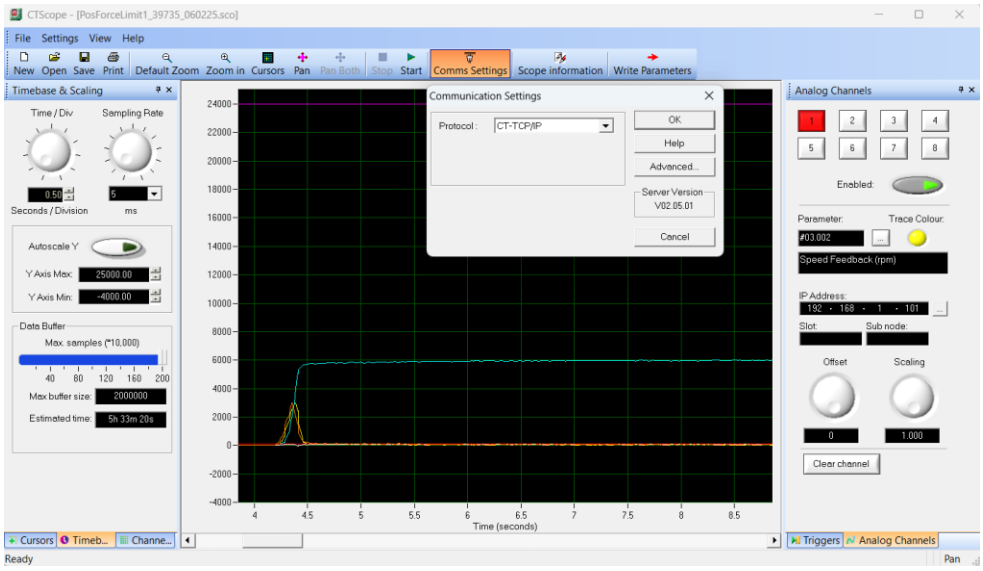


4.1 Step 1: Verify Ethernet Cable and IP Addresses

Verify the drive and Laptop are both properly connected to the ethernet cable. Next, verify the IP address in Connect (drive configuration software) and in CTScope on each analog channel 0match.

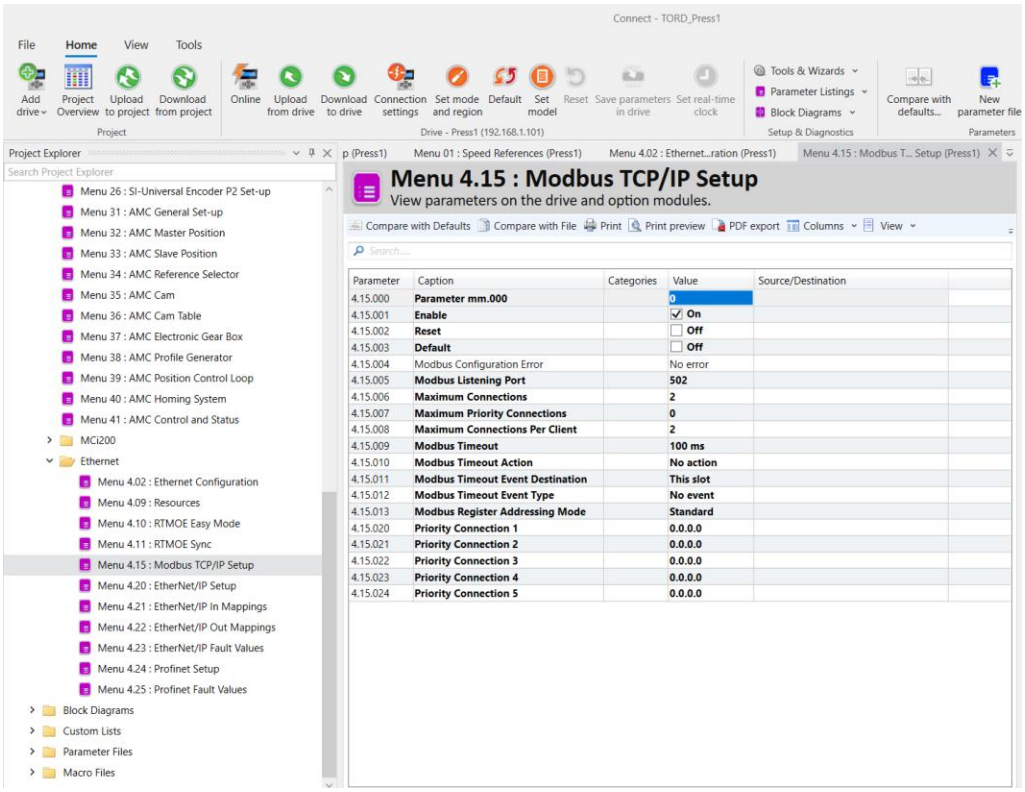


4.2 Step 2: Verify CTScope Comms Settings



Make sure CTScope uses CT-TCP/IP as its communication protocol.

4.3 Step 2: Verify Connect Modbus Settings



Verify Modbus TCP/IP is enabled, and if needed, increase Maximum Connections and Maximum Connections Per Client if using many Modbus TCP/IP devices.