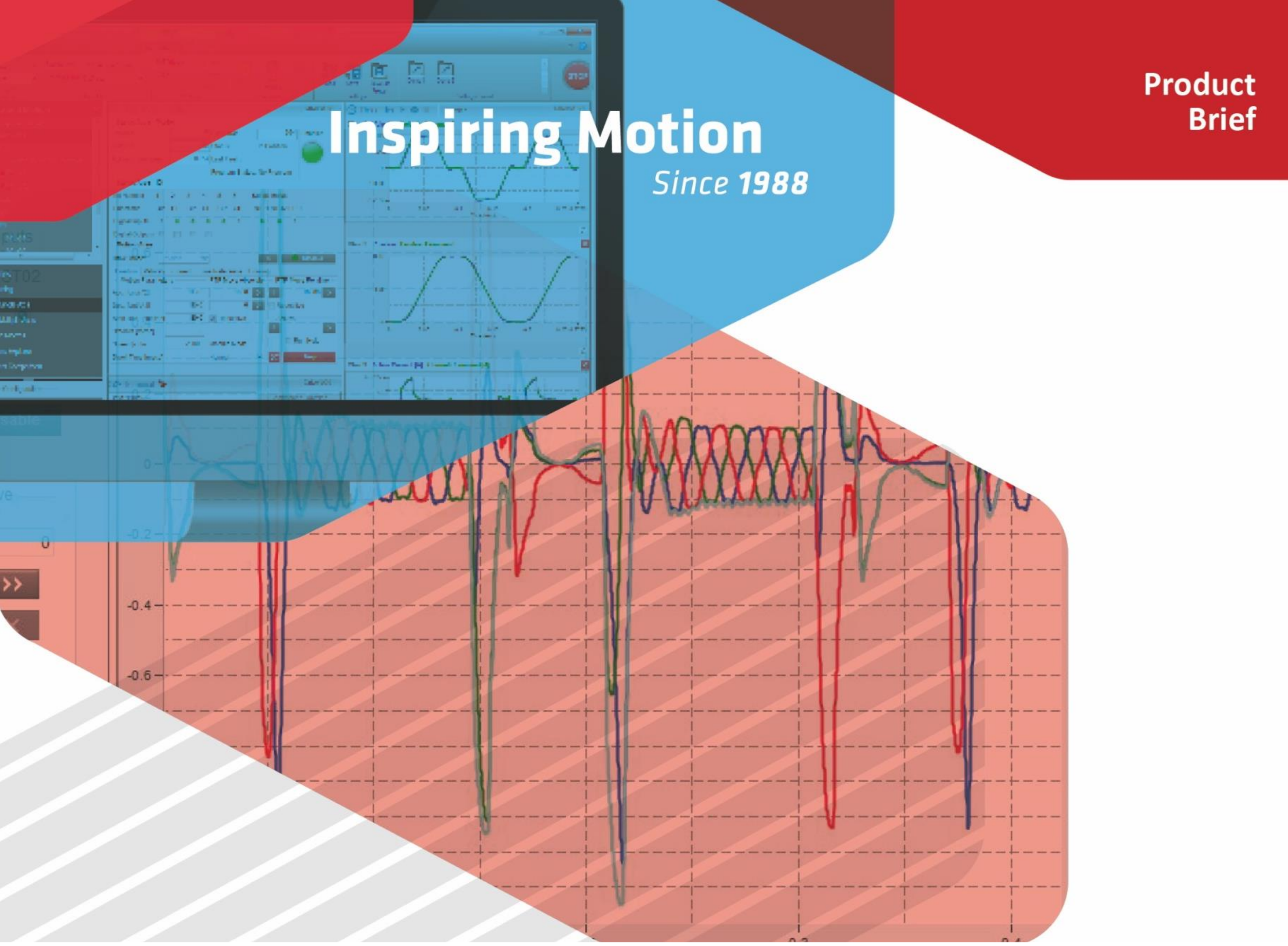


Exercise #10

Configuring a Gantry Layout System

October 2014

www.elmomc.com

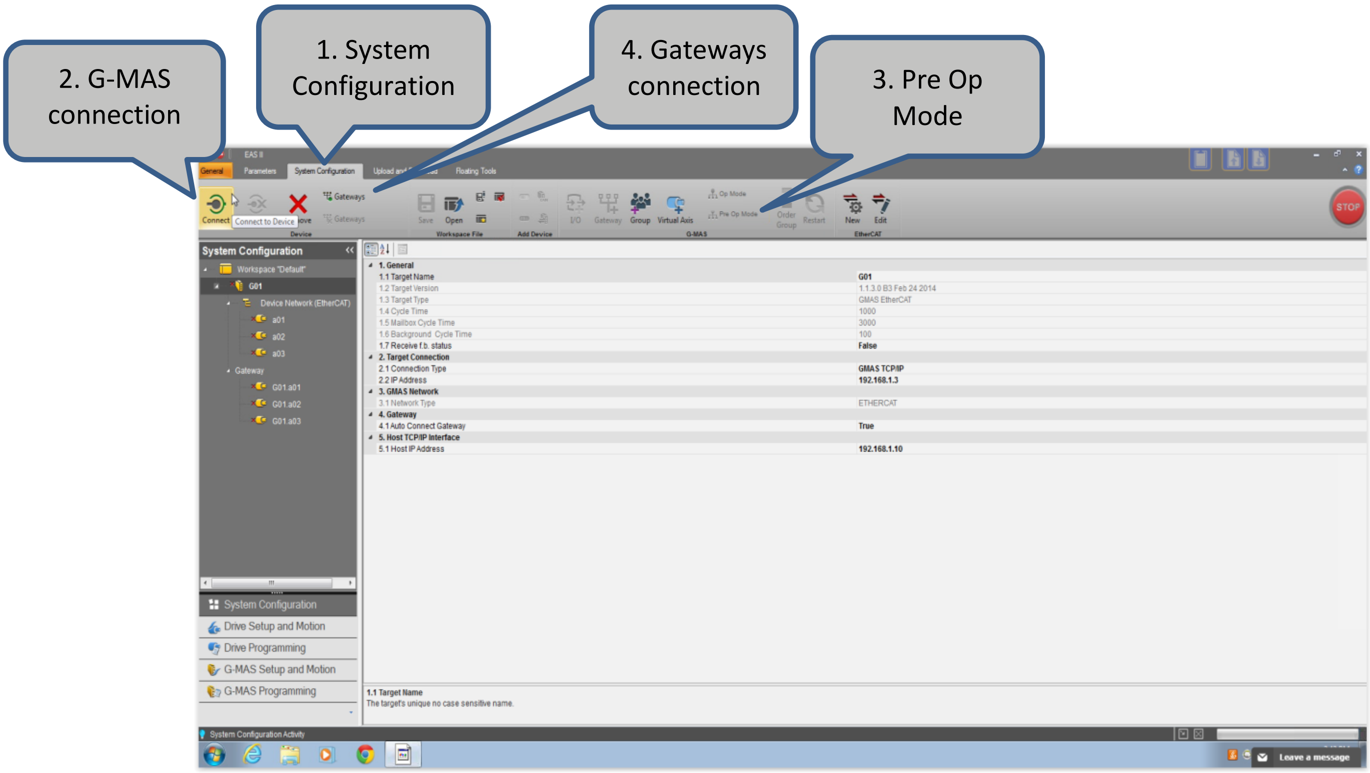
Elmo
Motion Control

The key points of this demo show that:

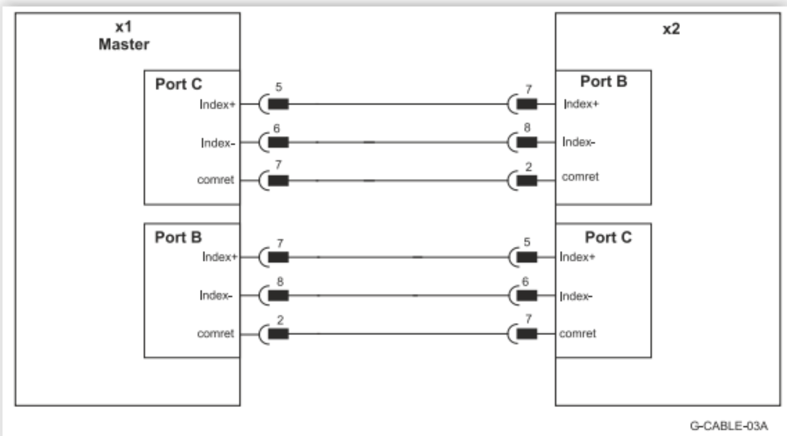
- **The Gantry system demonstrates control of two axes, of which the Master performs two separate synchronized control operations.**
- **Configuring and Tuning a Gantry assembly takes only minutes.**
- **The tuning process is backed by powerful algorithms for optimization.**
- **It is simple to simulate a gantry assembly using two axes in the RPS.**

List of parameters for this demo:				
Parameter	**Value**		**Parameter**	**Value**
Motor type	Rotary Brushless		Feedback, Socket 1	Encoder Quad, Port A
Continuous stall current	1		Feedback Resolution	2048
Peak current	2			
Maximal speed	3000		G-MAS IP	192.168.1.3
# Pole Pairs	4		Computer IP	192.168.1.XXX

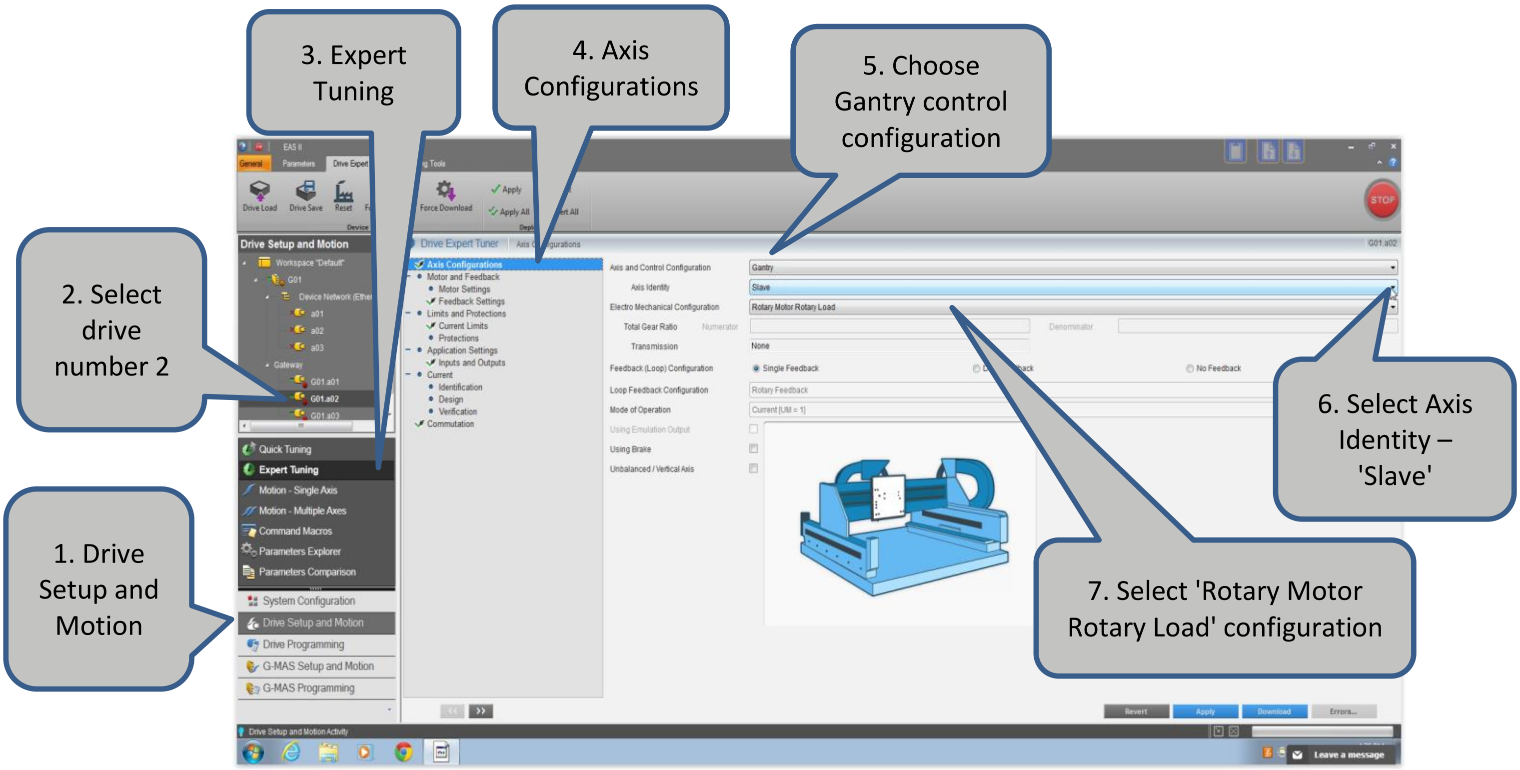
1. **Start by connecting to the relevant drive that will serve as the Slave in the gantry system.**



Note: Whenever tuning a gantry, you should always start with the drive that serves as the slave.
In the RPS, drives 2 and 3 are wired with the appropriate cables and can be used to simulate a gantry system.
The diagram below illustrates the connections used:

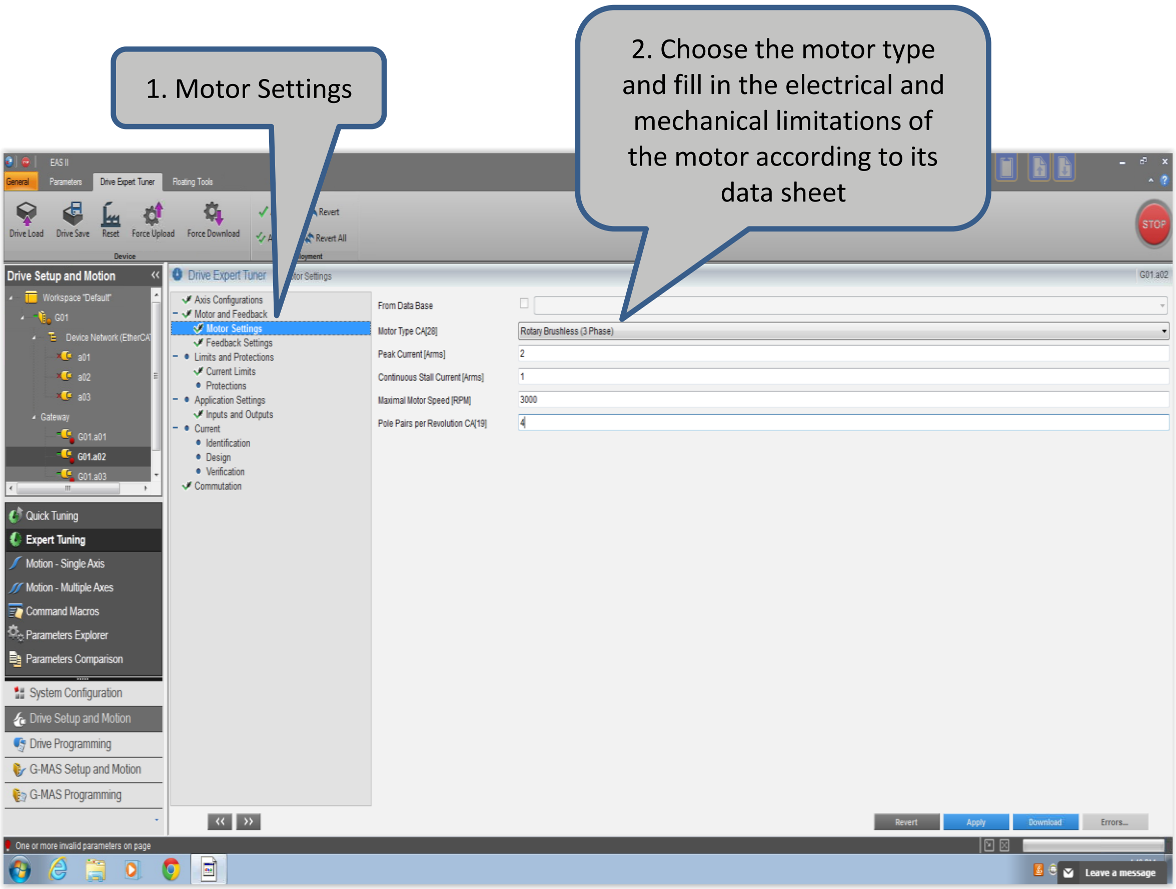


2. Start by configuring axis 2 to use as the gantry Slave.

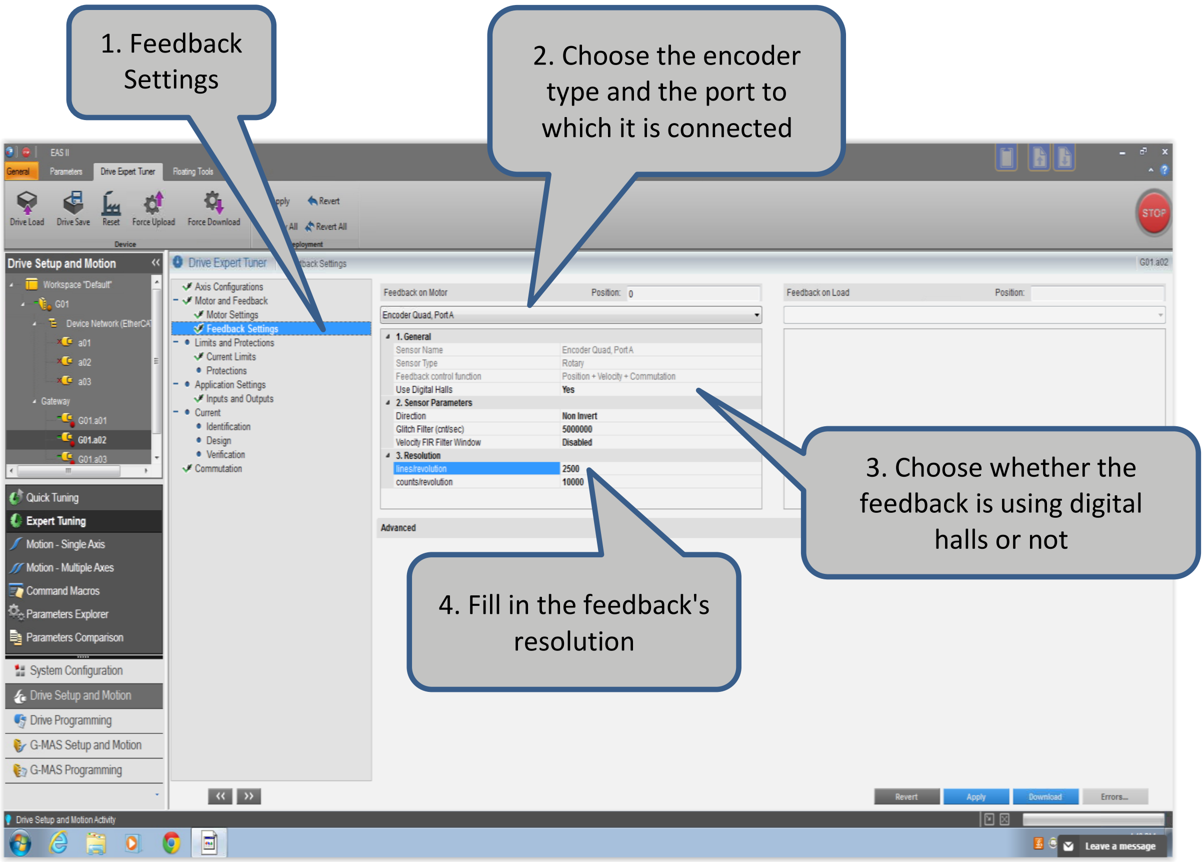


Note: As the Slave receives only a current command from the Master drive, the mode of operation is changed to Current [UM=1] and only the Current loop tuning option remains.

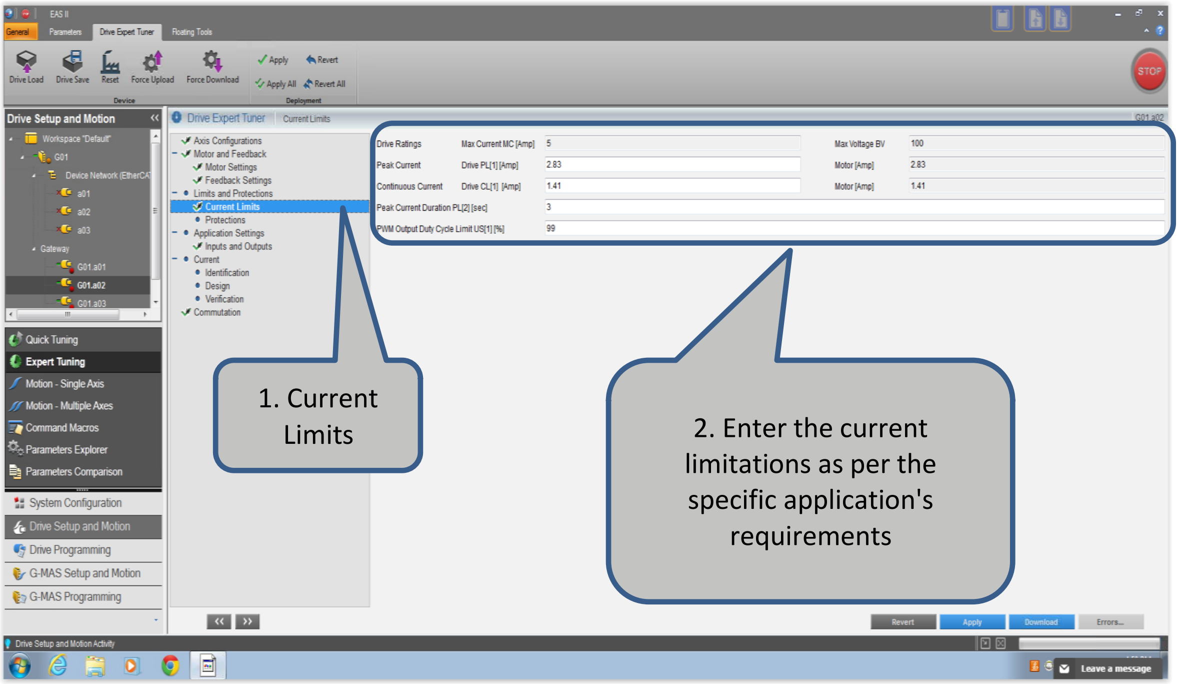
3. Fill in motor settings as listed in the motor data sheet.

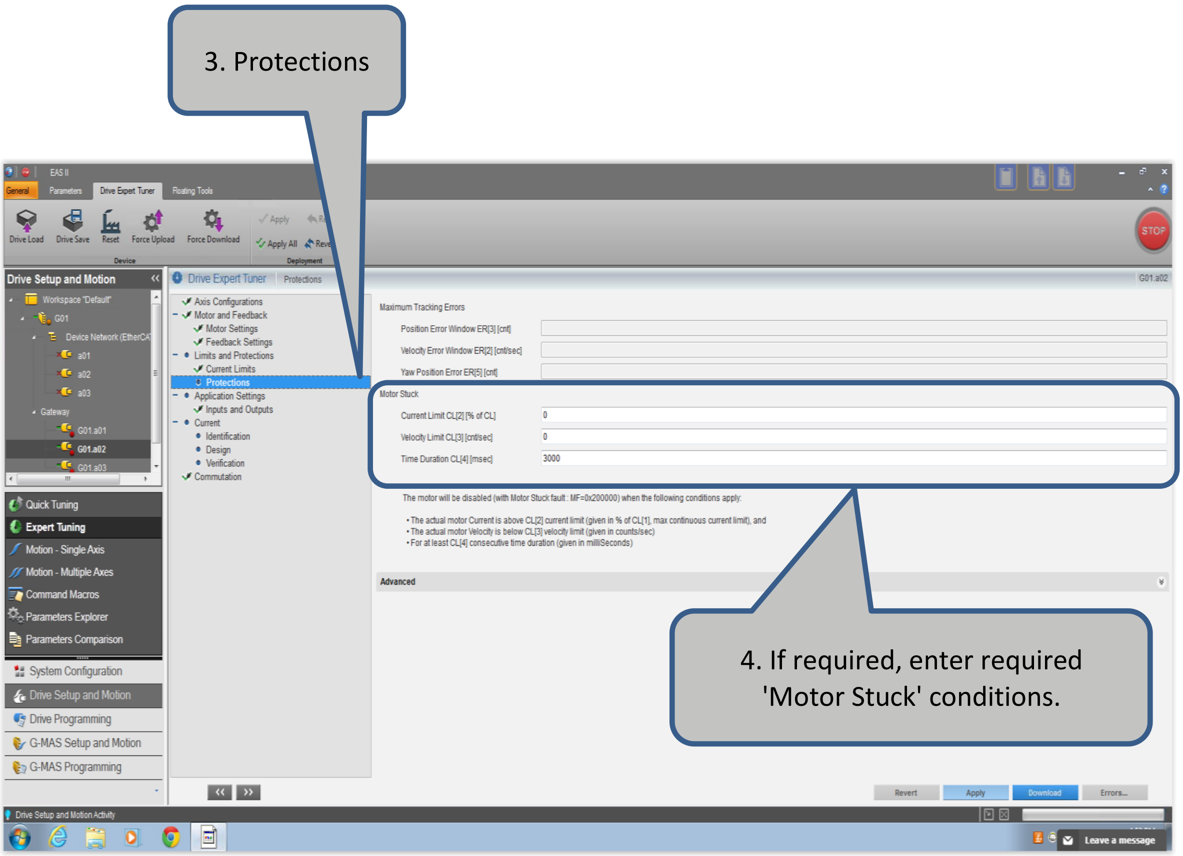


4. Fill in feedback settings as listed in the data sheet.

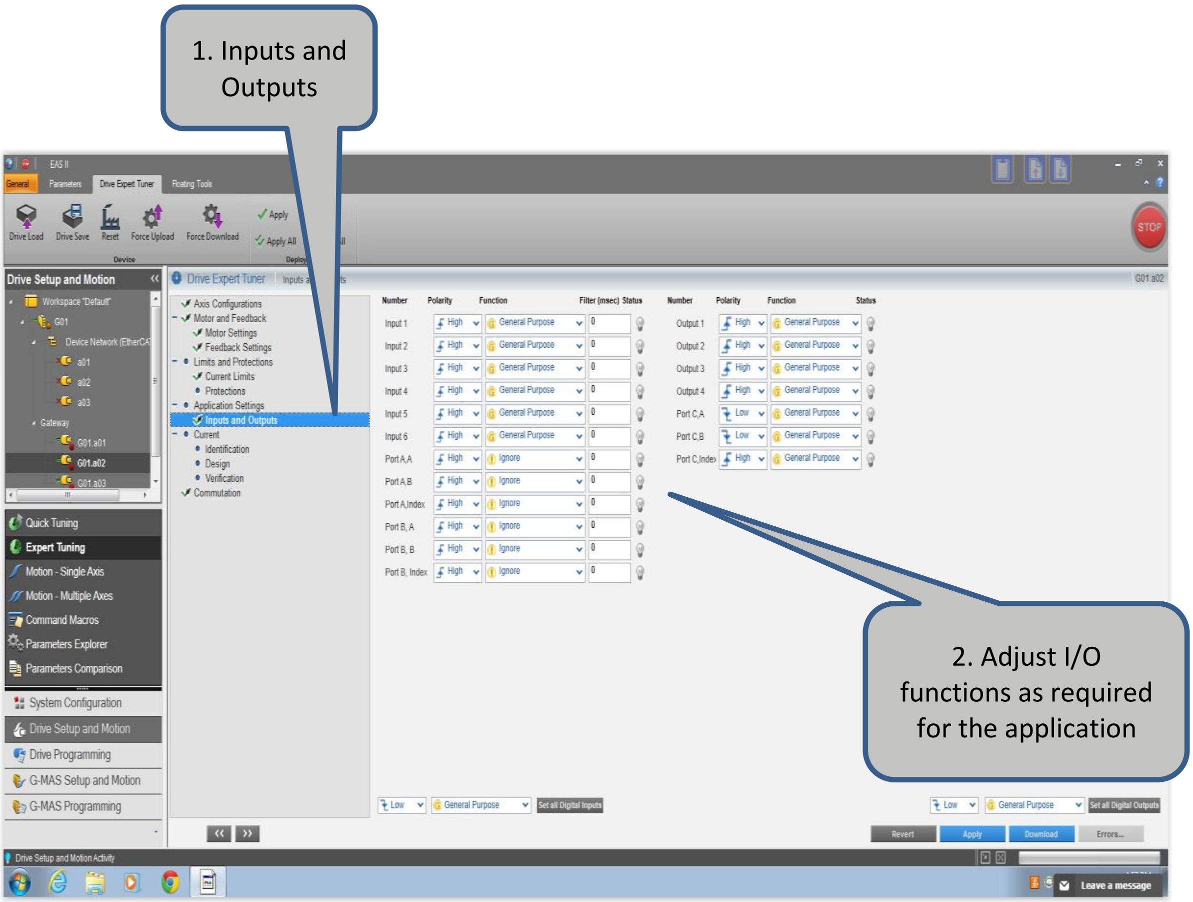


5. Fill in the current limits based on the application's requirements

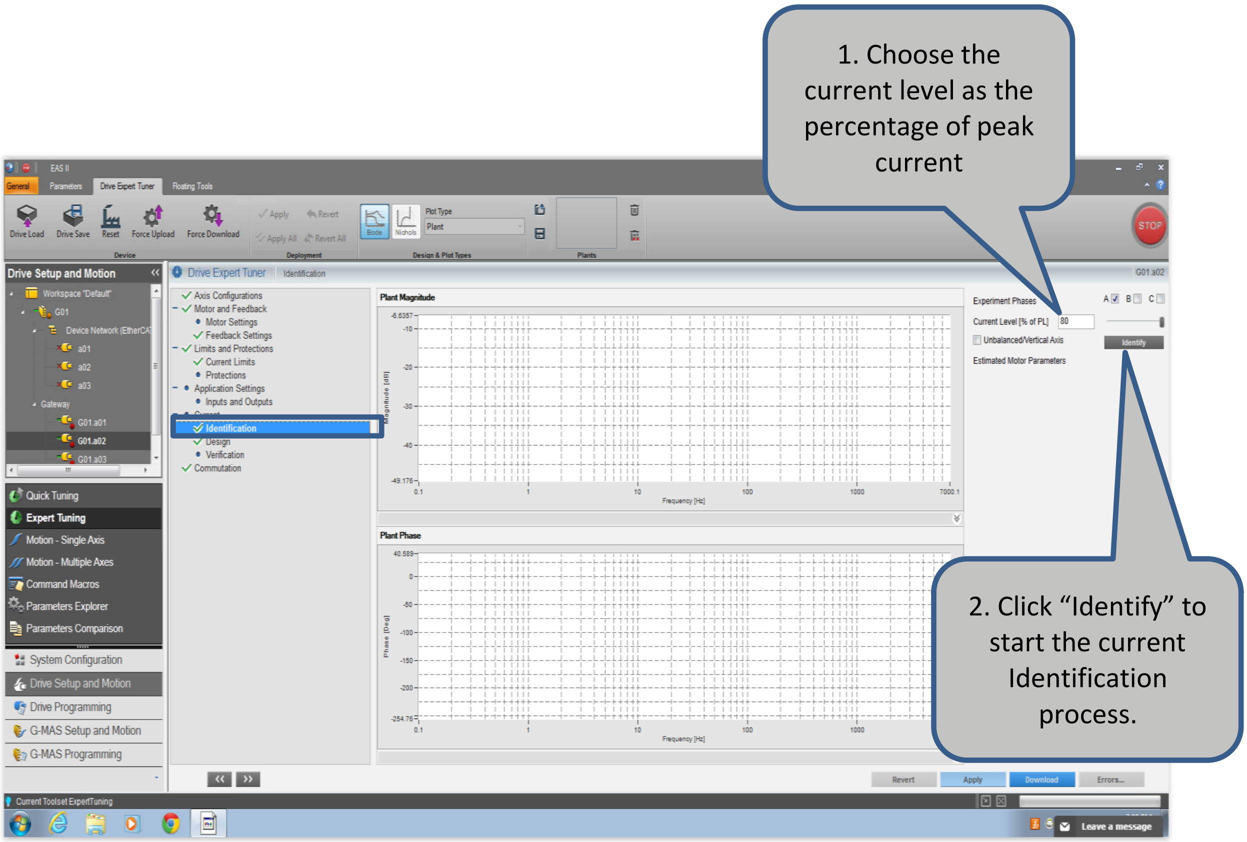



3. Protections
4. If required, enter required 'Motor Stuck' conditions.
Drive Expert Tuner
Maximum Tracking Errors
Motor Stuck
Current Limit CL[2] [% of CL]
Velocity Limit CL[3] [cnt/sec]
Time Duration CL[4] [msec]
Advanced
Revert
Apply
Download

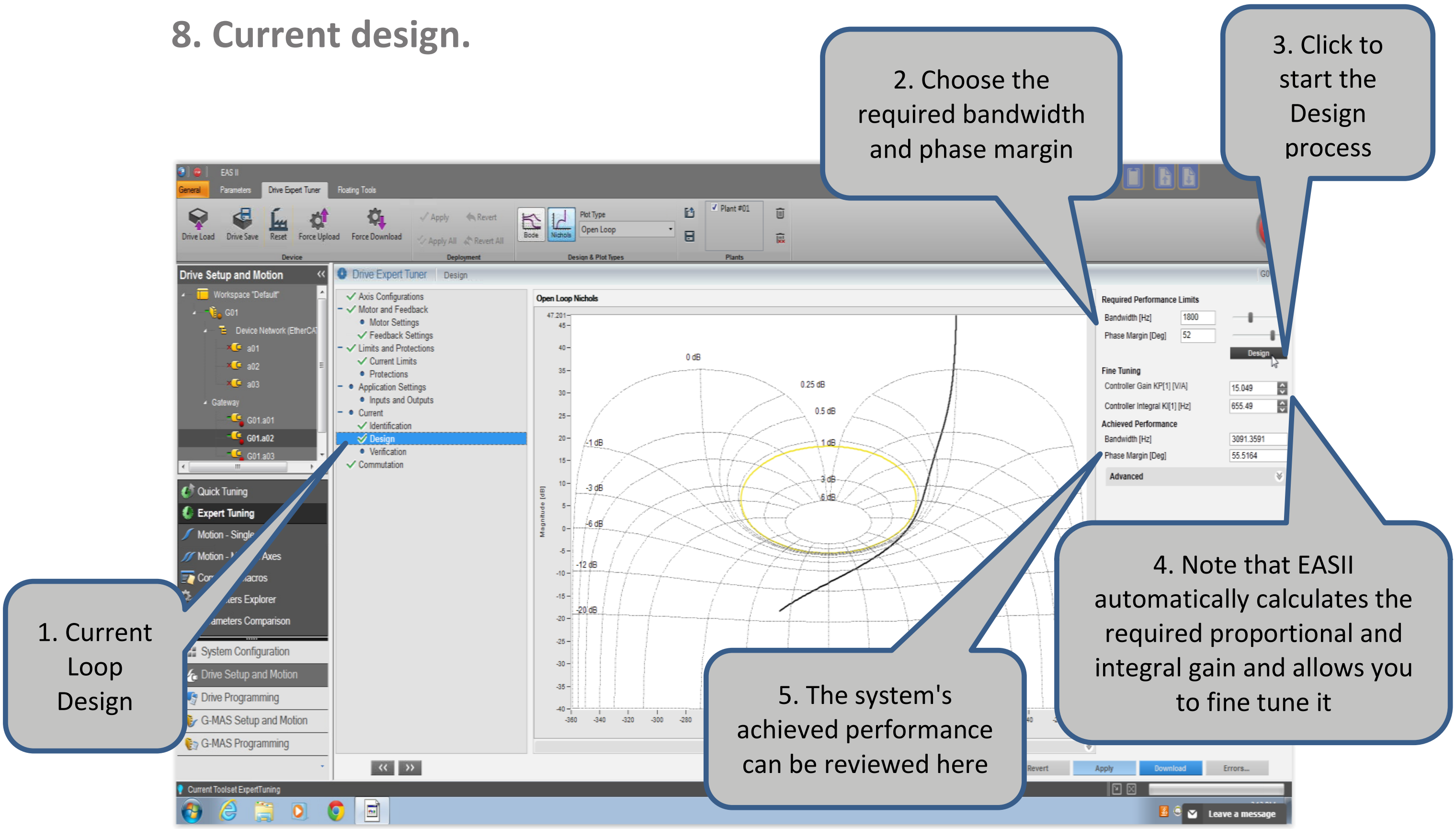
6. Application Settings.



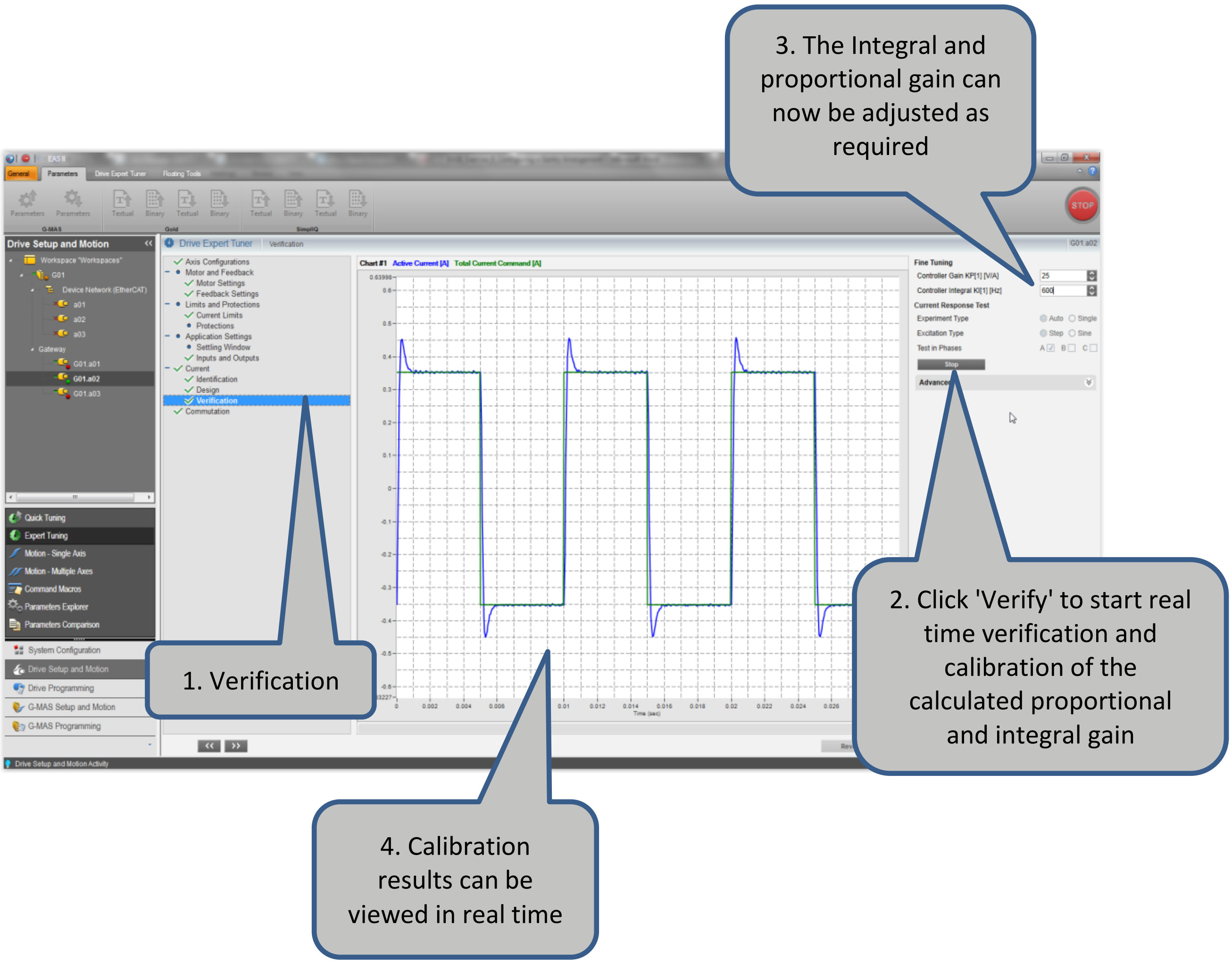
7. Perform the Identification process for the current loop.



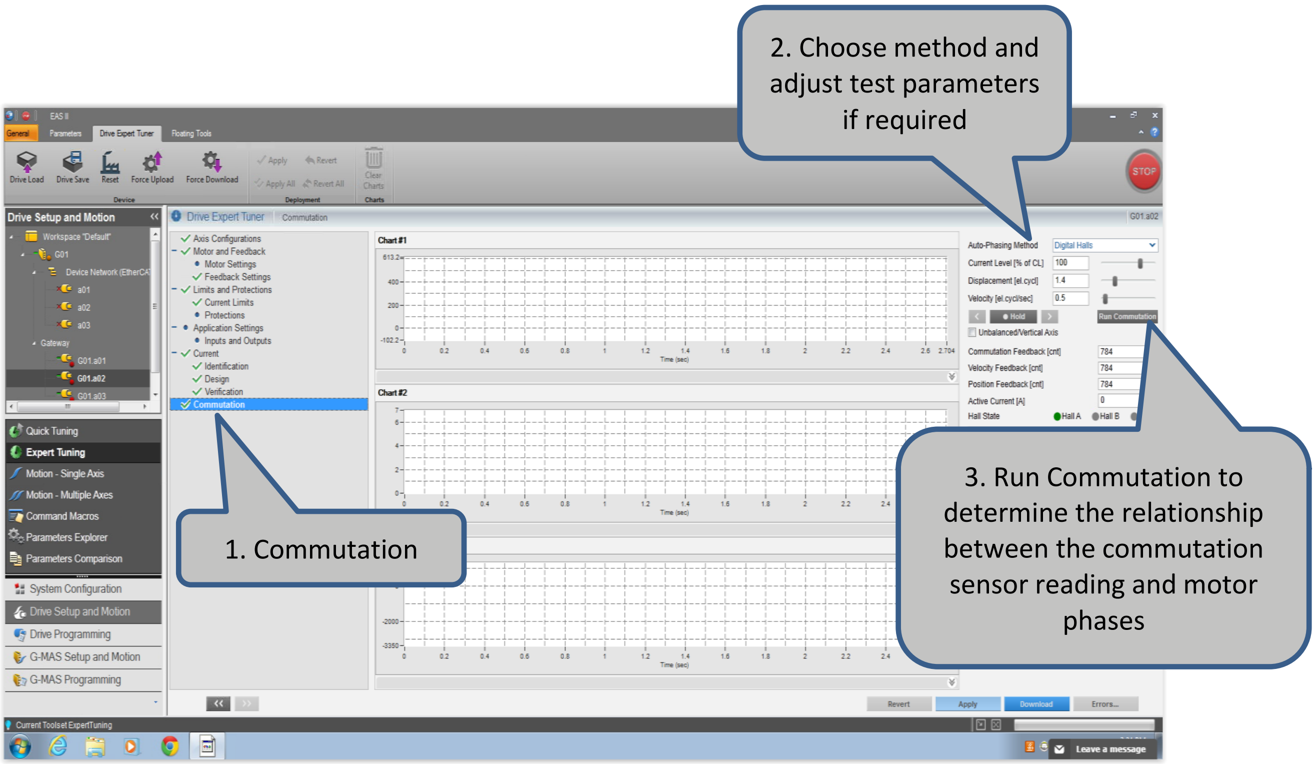
8. Current design.



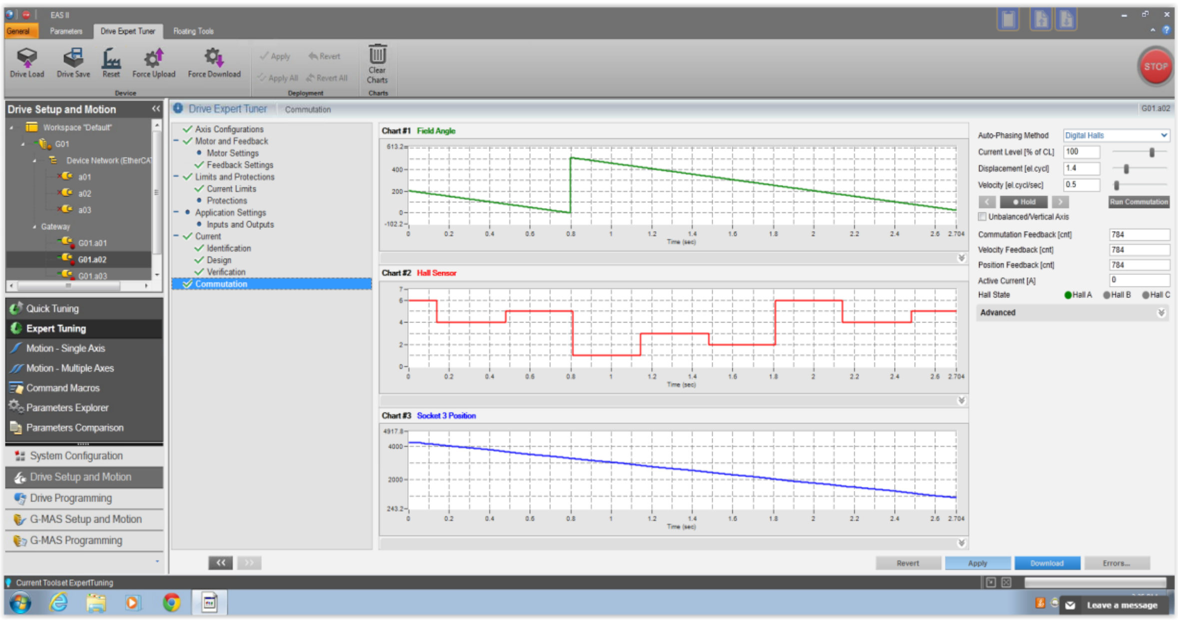
9. Test the Current loop performance in real time.



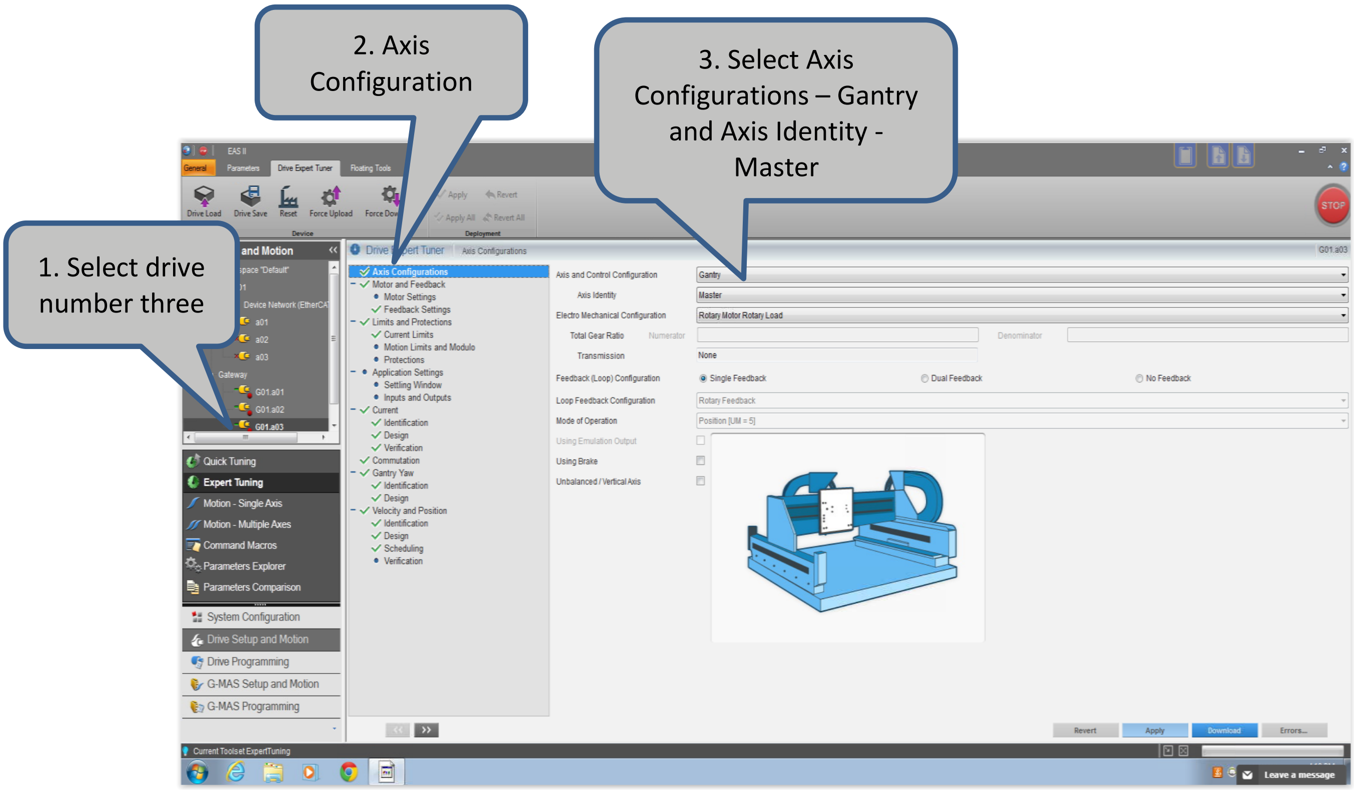
10. Run Commutation.



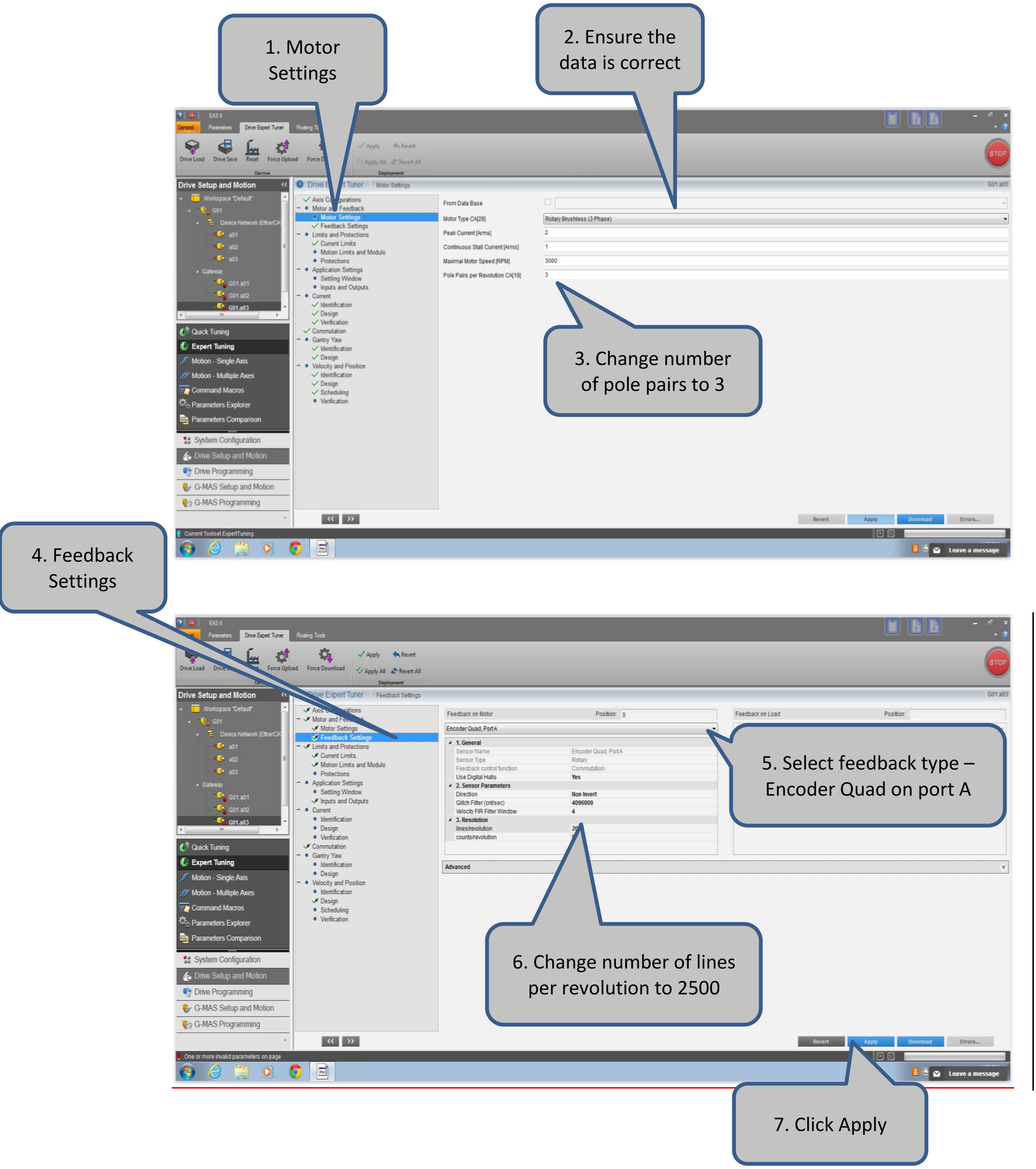
Commutation results



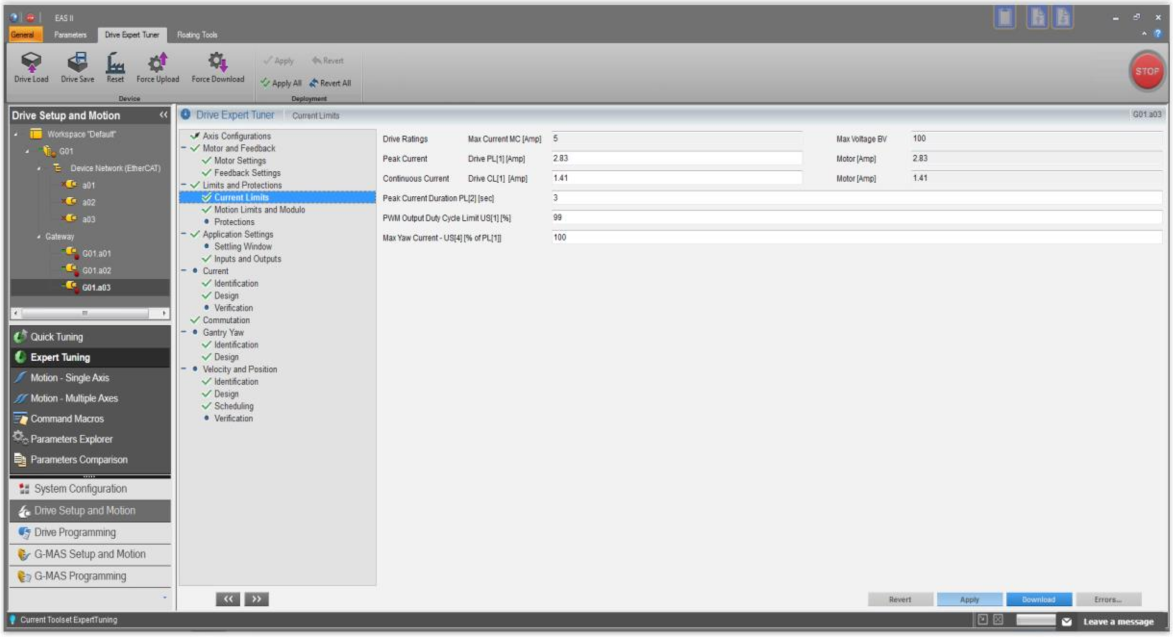
11. Now, switch to the drive that will be used as the Master:

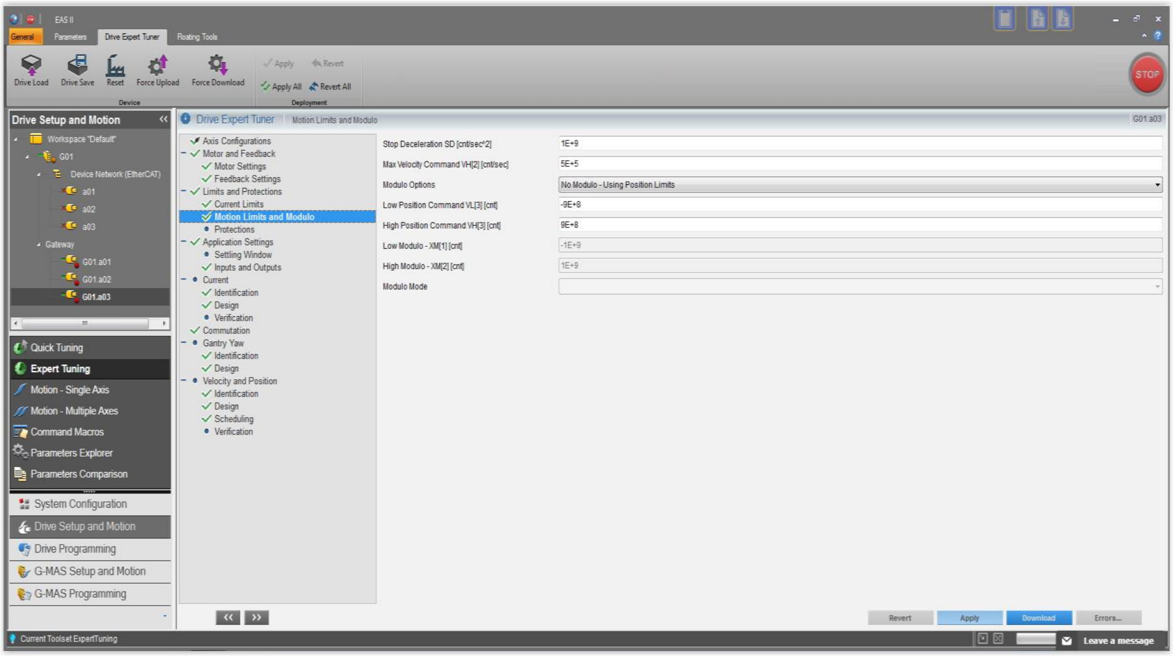


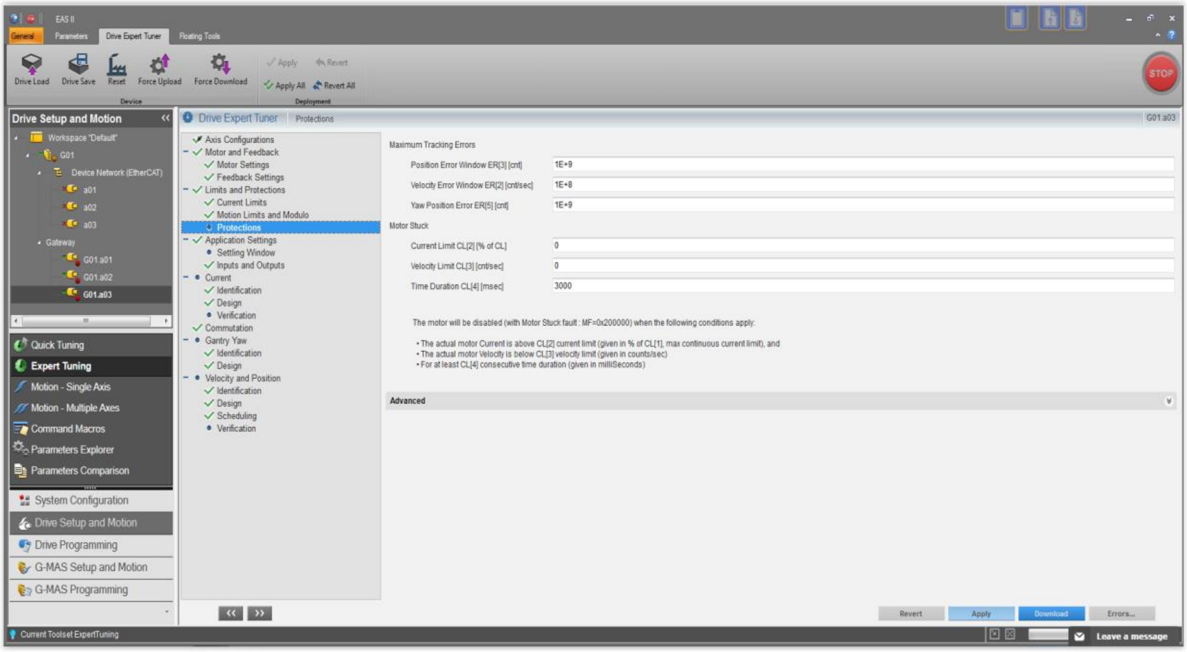
13. Master Motor and Feedback.

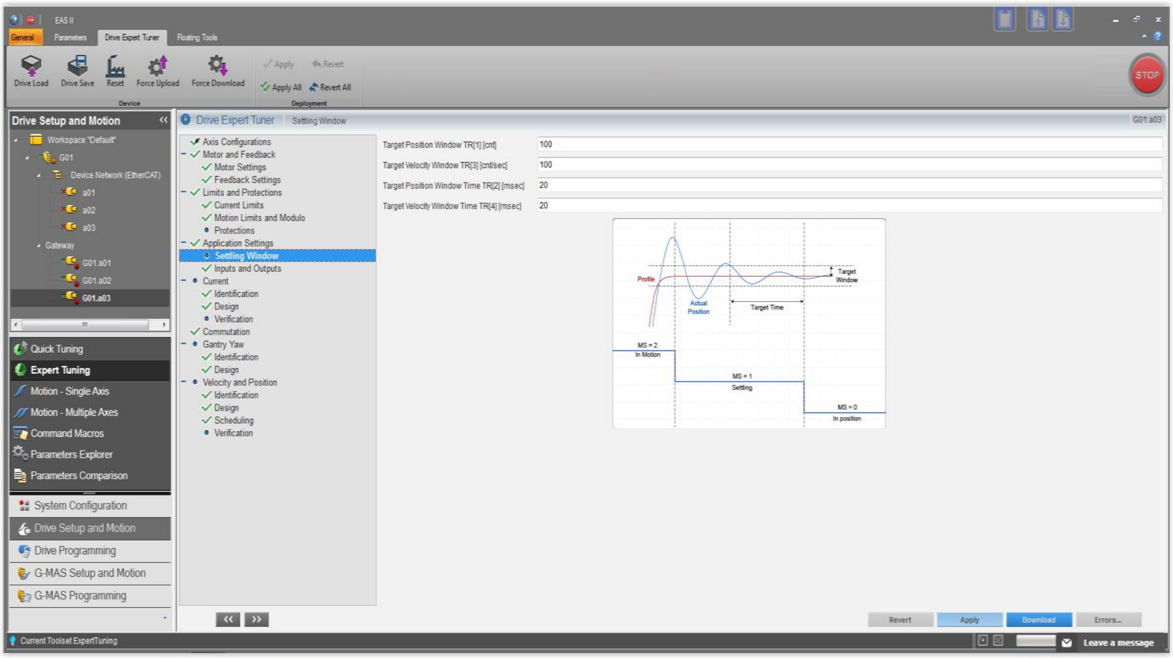


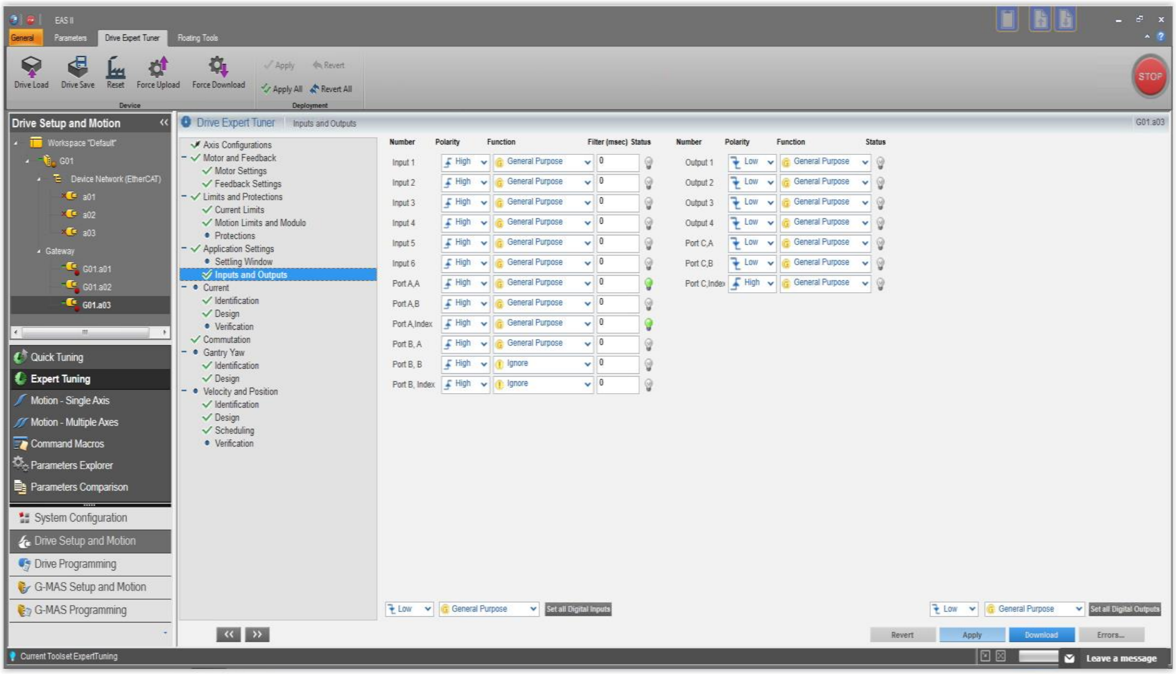
14. Continue with the Limits and Protections, Application Settings, Current and Commutation stages as performed with the slave.

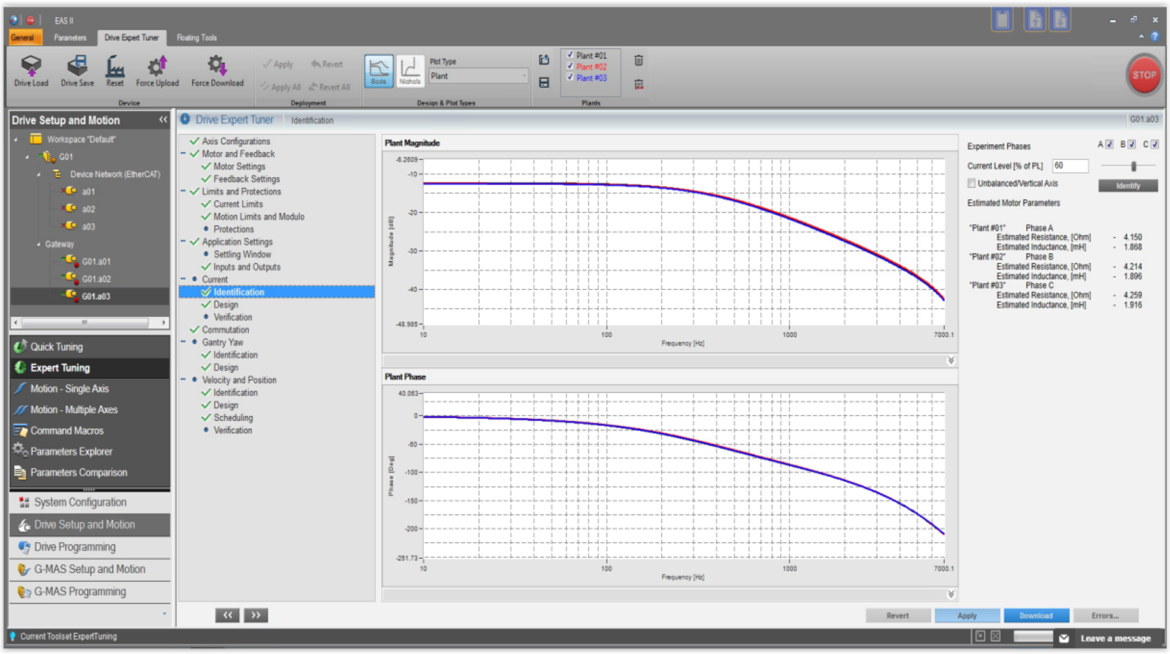


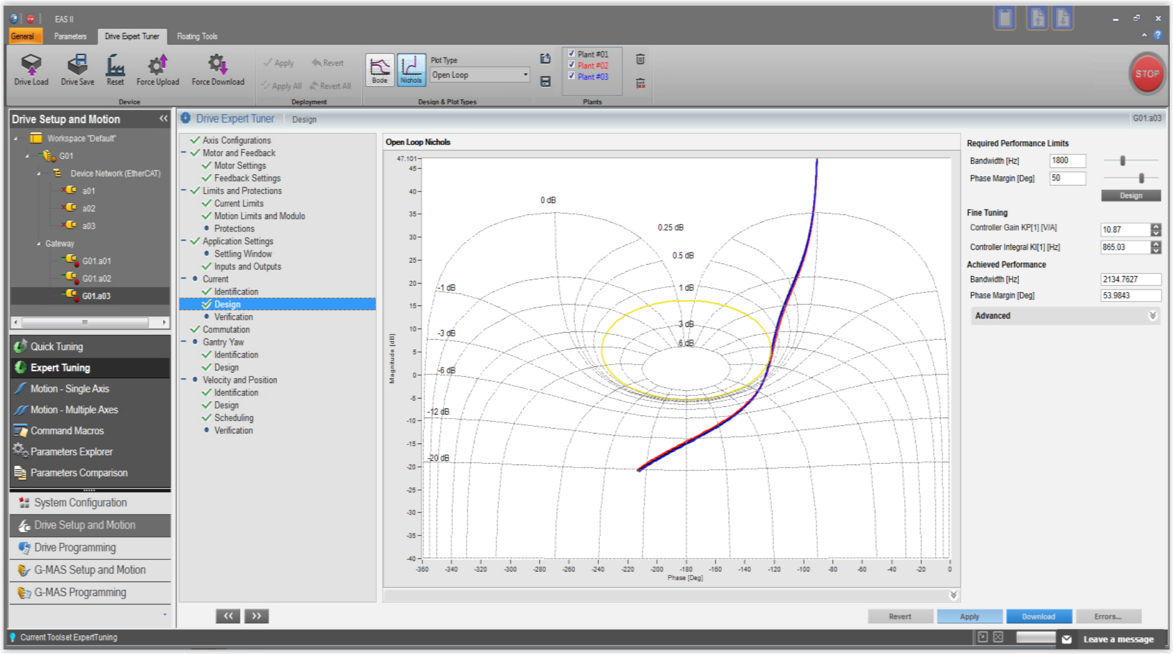


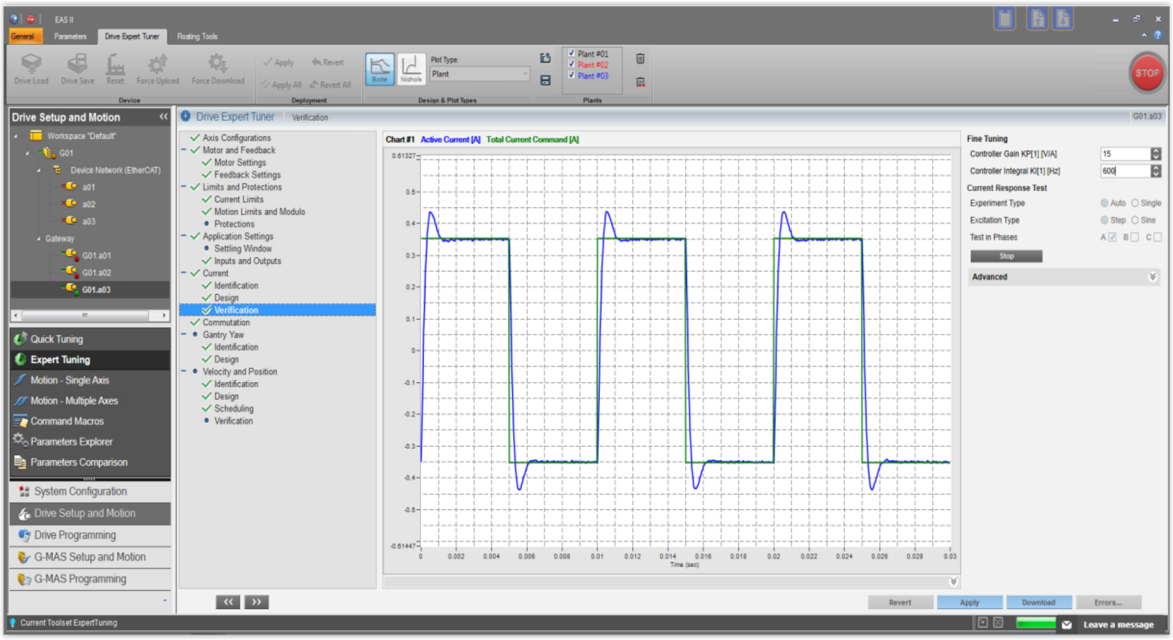


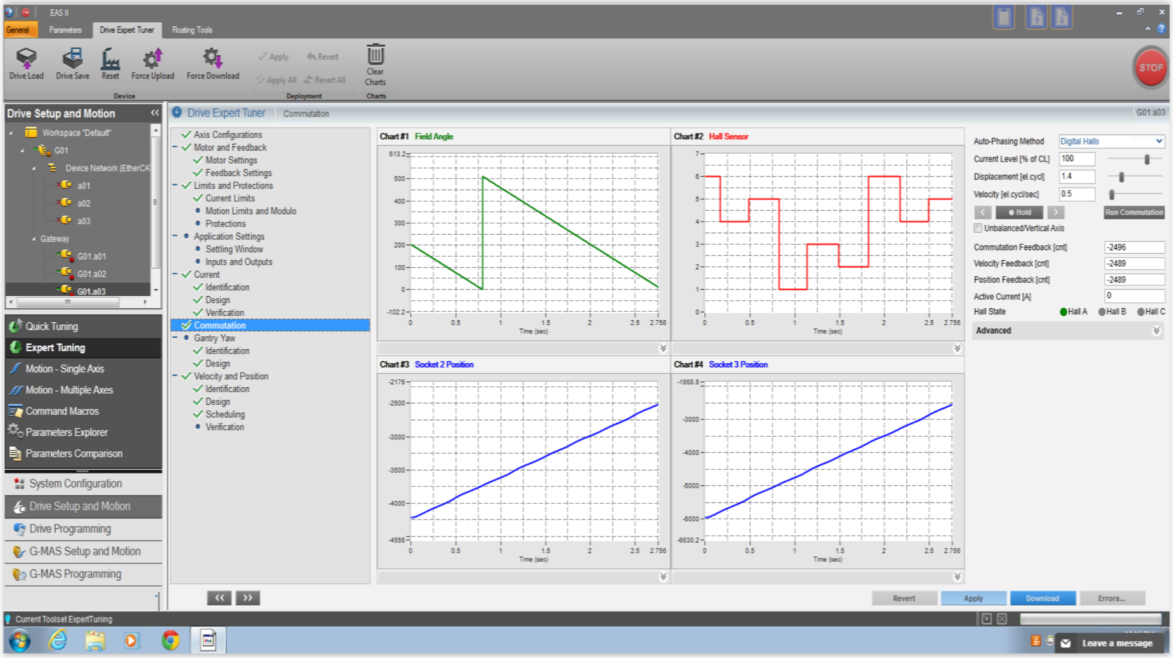




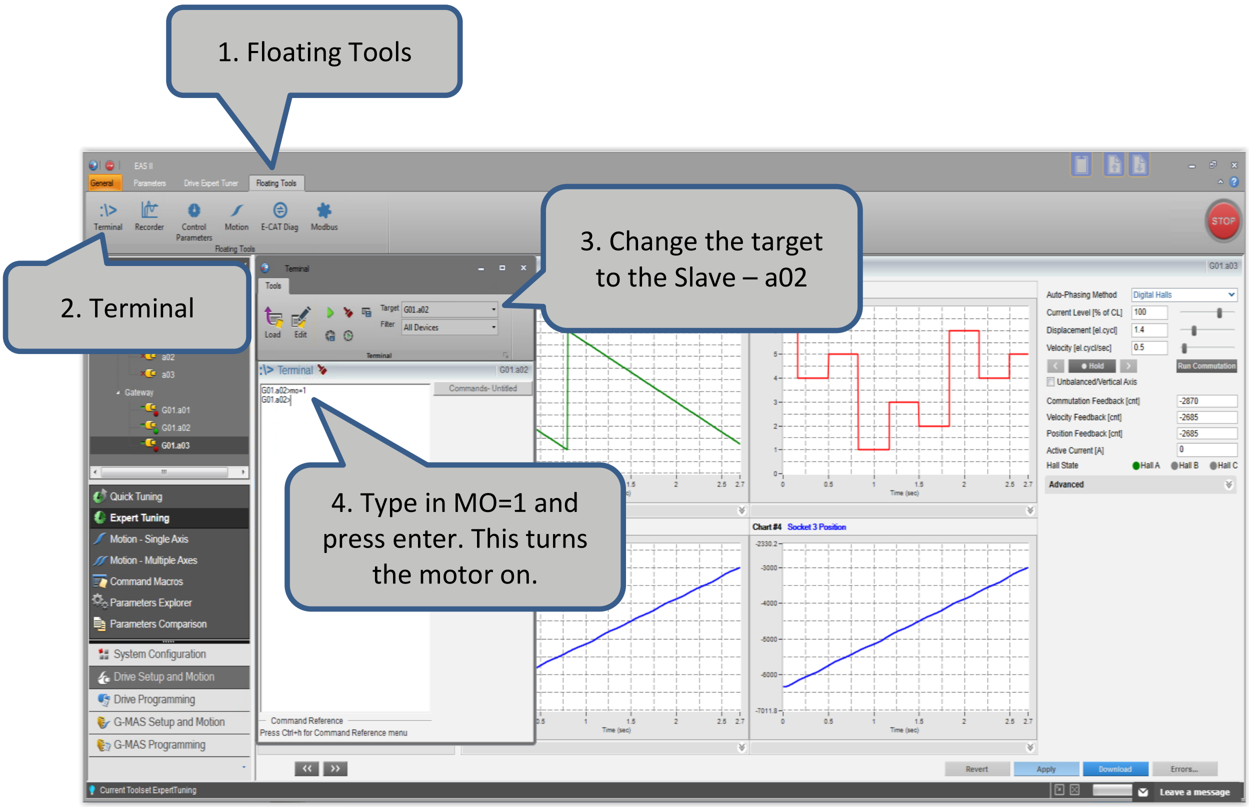




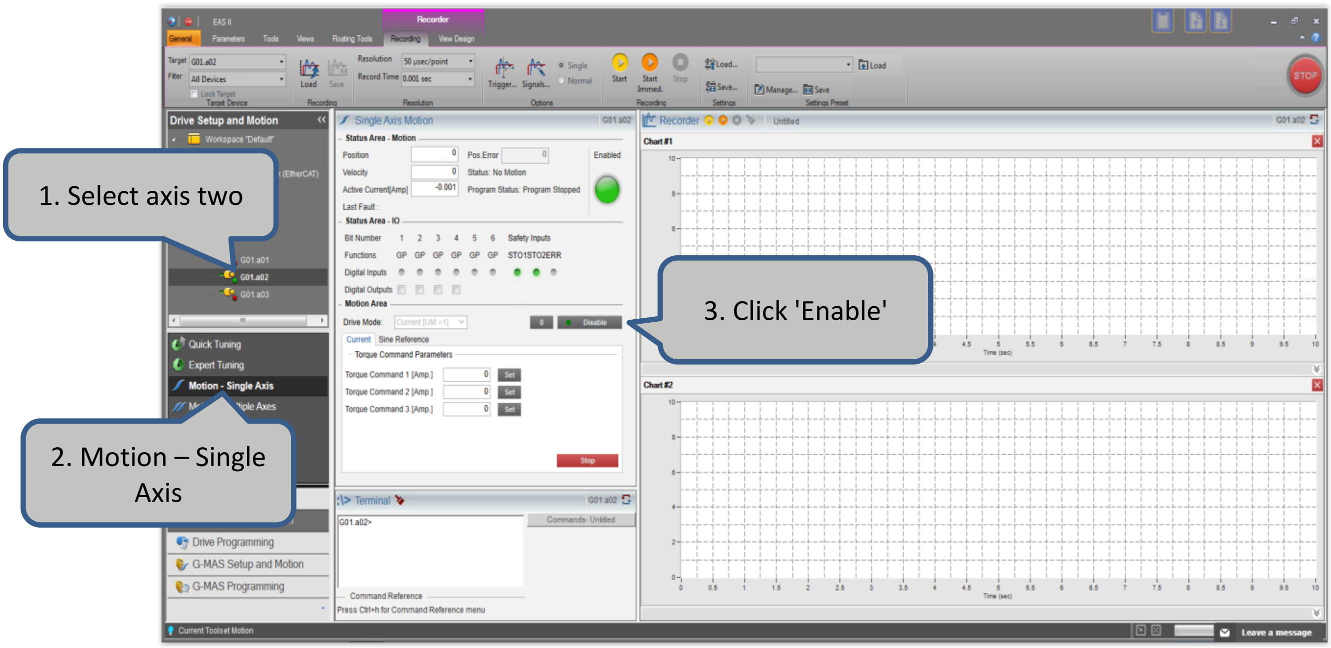




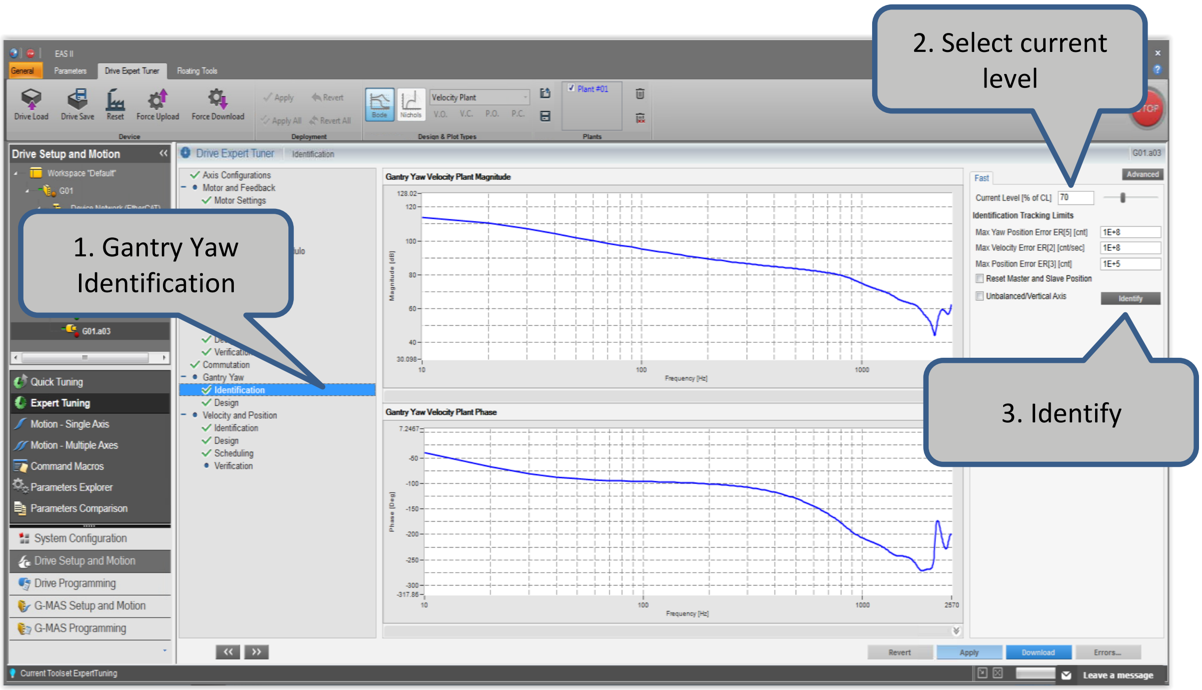
15. Turn the Slave motor on. This is necessary for the Master Gantry Yaw identification.

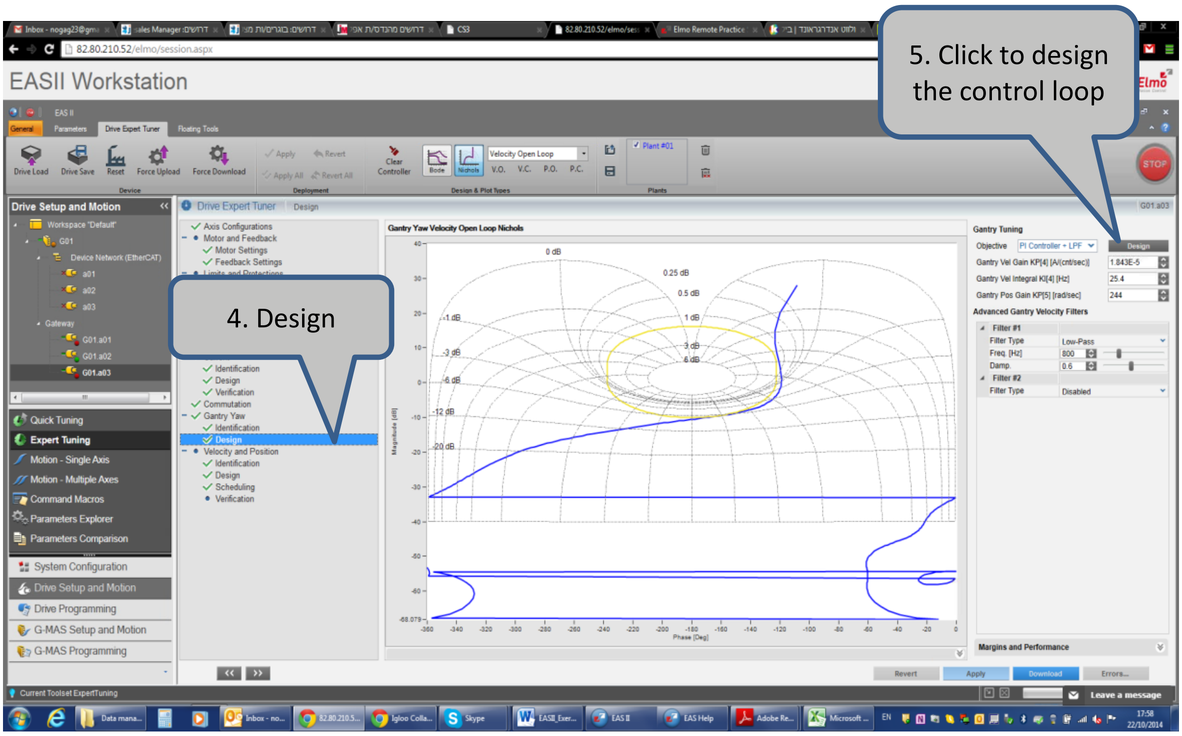


Another way of doing this is via the Motion – Single Axis activity:

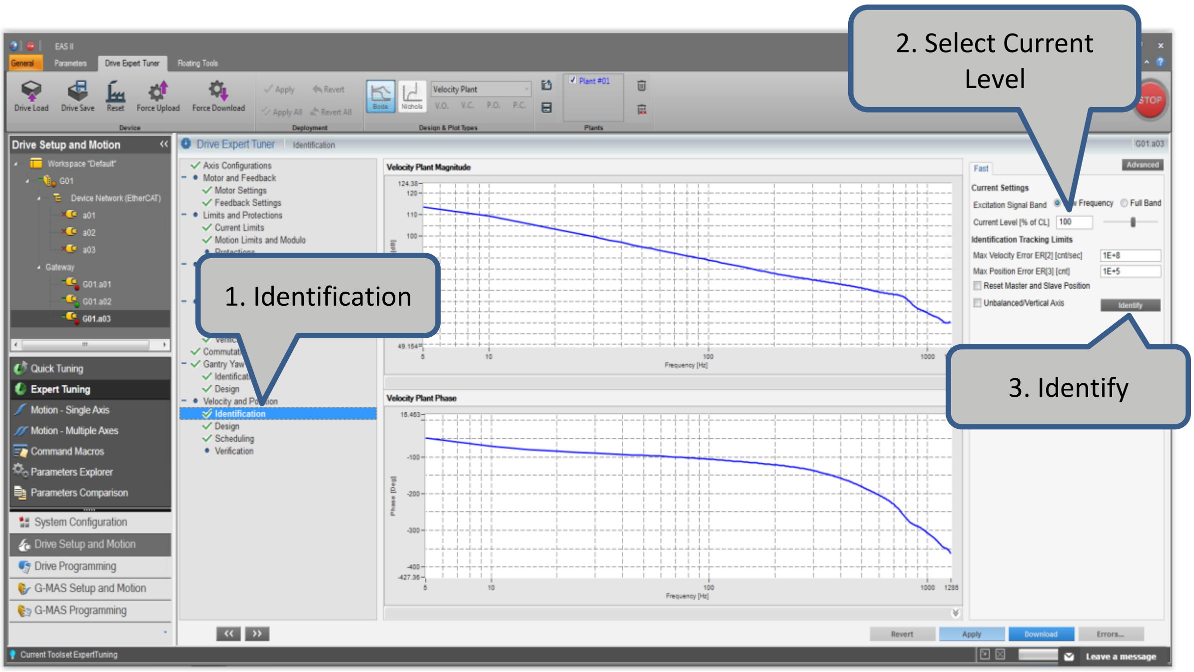


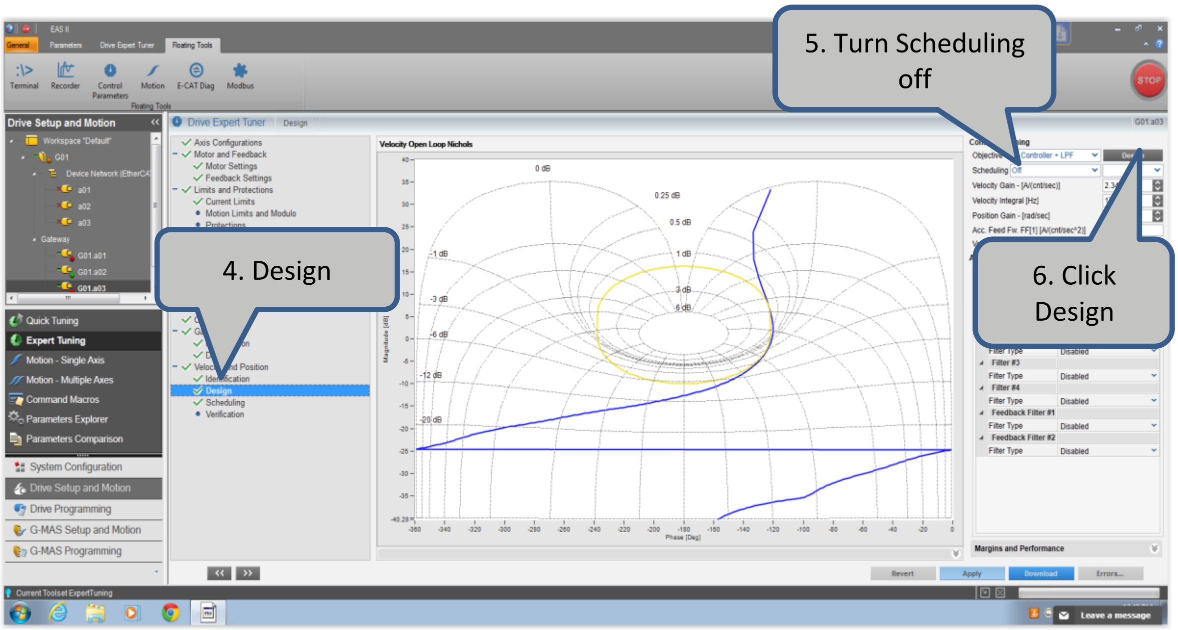
16. Return to the Master's expert tuning and continue with the Gantry Yaw tuning.





17. Velocity and Position.





18. Verification.