

## Steps for setting up a Multi-Spindle System

1. Ensure that all controllers being used in the Multi-Spindle System have the latest Multi-Spindle application version installed.

- a. See link below for latest version on our SendSafely Site.

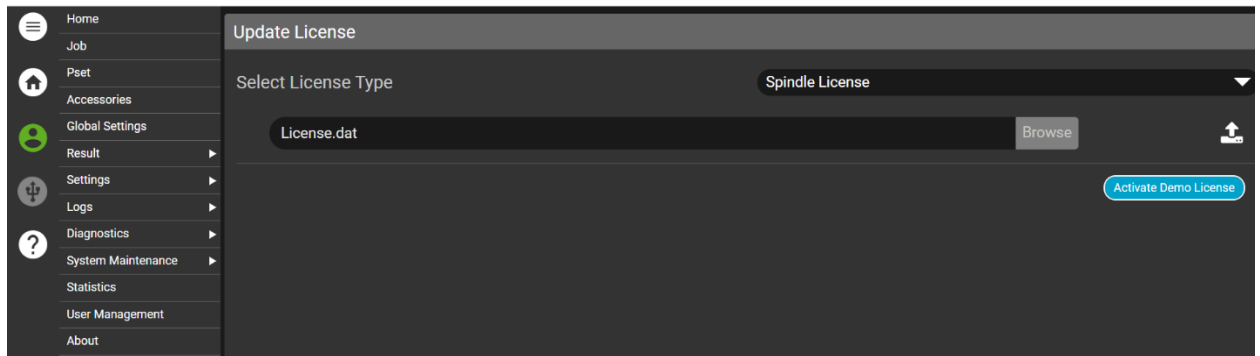
<https://filesafe.ingersollrand.com/receive/?packageCode=R0xH0I3CZTge7FOI2JUtkroDyi qJLwx fULry0BLVYno#keycode=AFFzeIR6NhkhOTThScIWRyjOe9J-2x9fbcDhTjLCgkk>

- b. Updating instructions can be found here: <https://irtoolhelp.ingersollrand.com/hc/en-us/articles/20072012542483-Updating-a-QCD-Controller-to-the-Multi-Spindle-Platform-Powerhead-or-Single-Spindle->

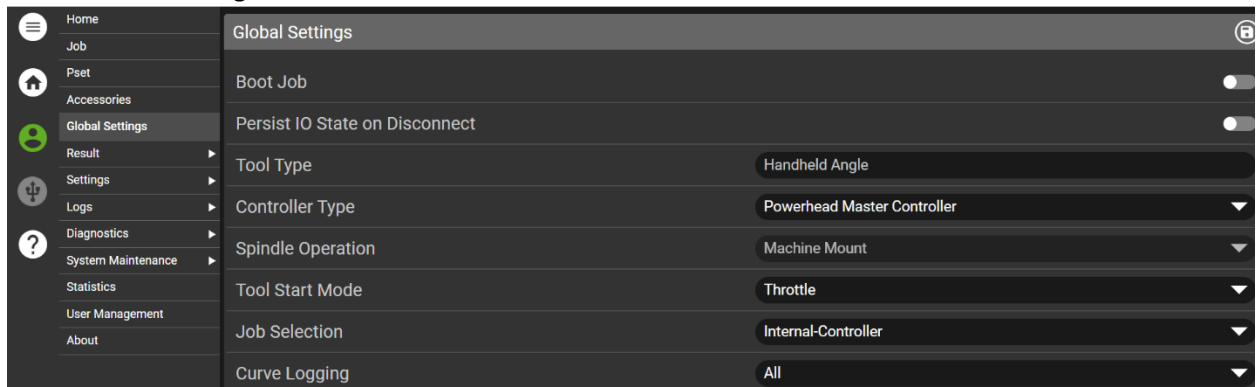
2. Connect all controllers to the same Network switch using Ethernet Port 0 on the controller. Ensuring the IP Addresses are set appropriately.

3. Once all controllers are updated, update the license for the Master Controller. Be sure to choose Spindle License. To obtain a Master Controller License see link:

<https://irtoolhelp.ingersollrand.com/hc/en-us/articles/20475410106899-Obtaining-a-Master-Controller-License-for-a-Powerhead>

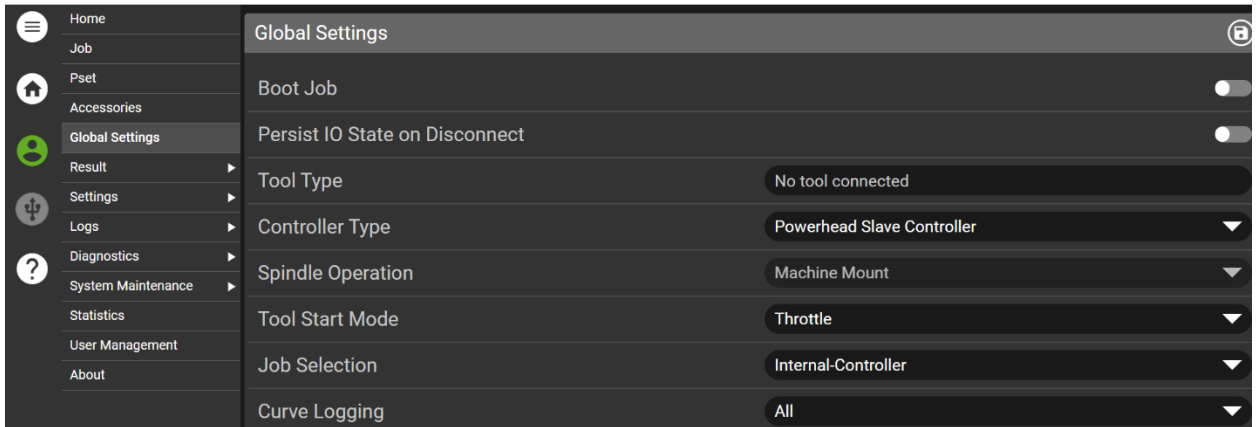


4. Go to Global Settings and select Powerhead Master Controller and select the Save icon.



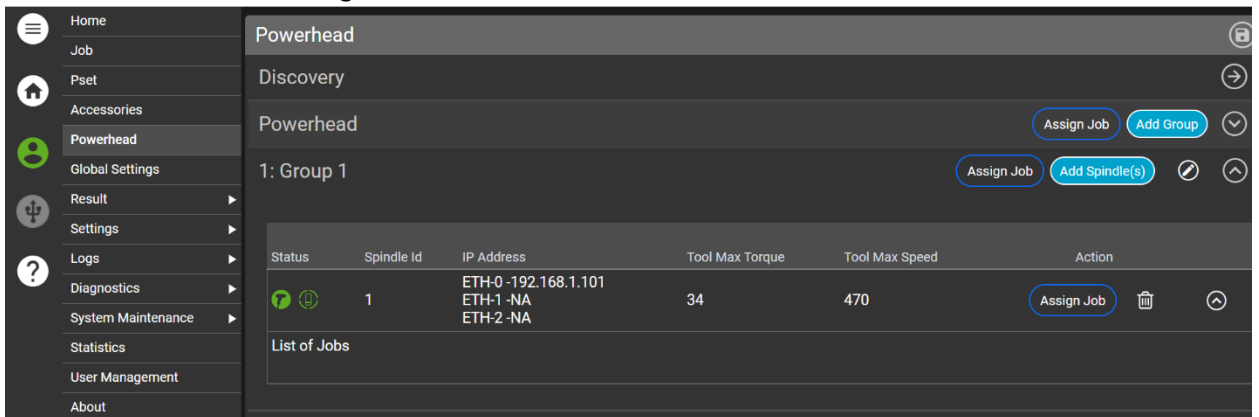
**Note:** By Default the Job Selection is Internal-Controller.

- On the Slave Controllers, go to Global Settings and select Controller Type and Powerhead Slave Controller and select the Save icon.

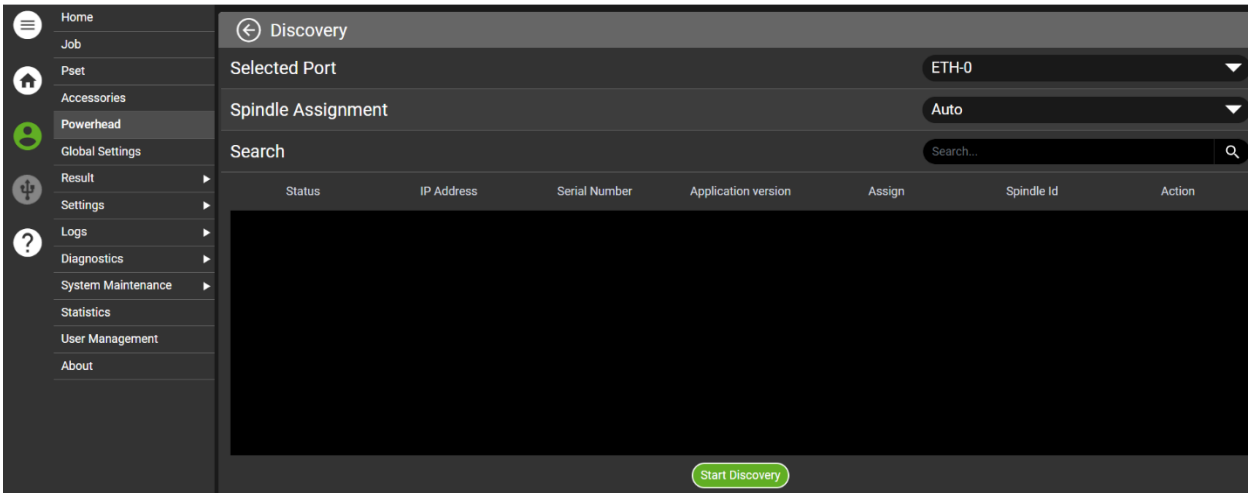


**Note: Only the controller updated with the Multi-Spindle License will have the Powerhead Master Controller option.**

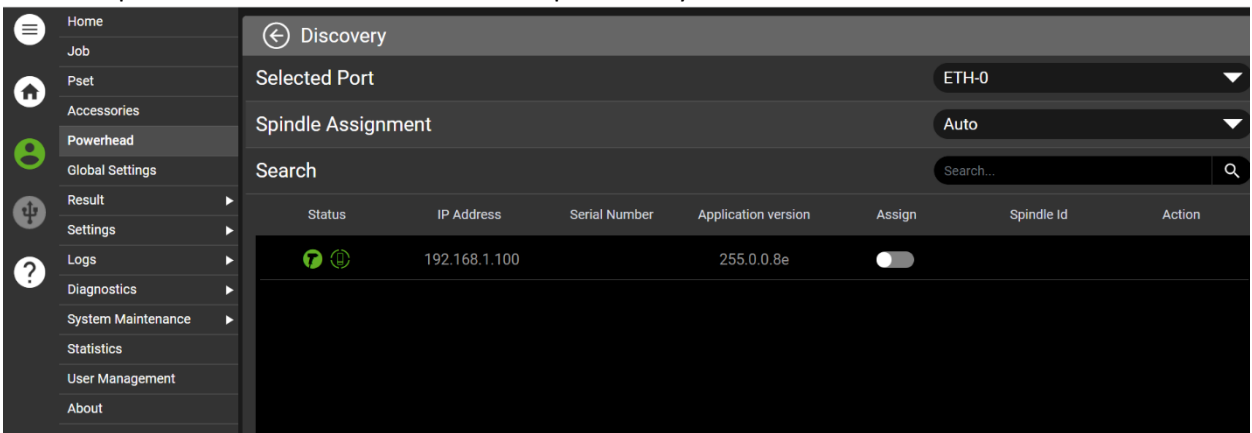
- Once all controllers are setup for the Master/Slave configurations you can begin to create your Powerhead setup.
- From the Master Controller go to the Powerhead screen.



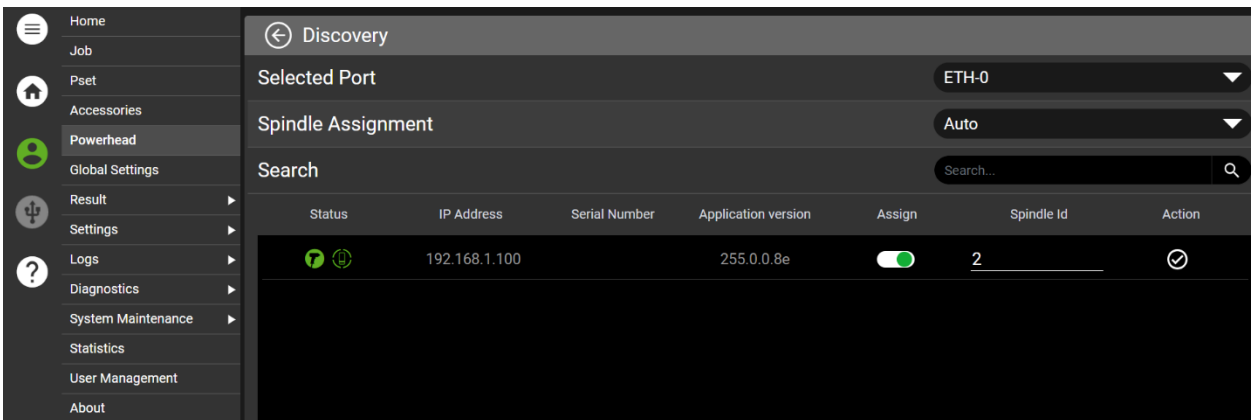
- Select Discovery.

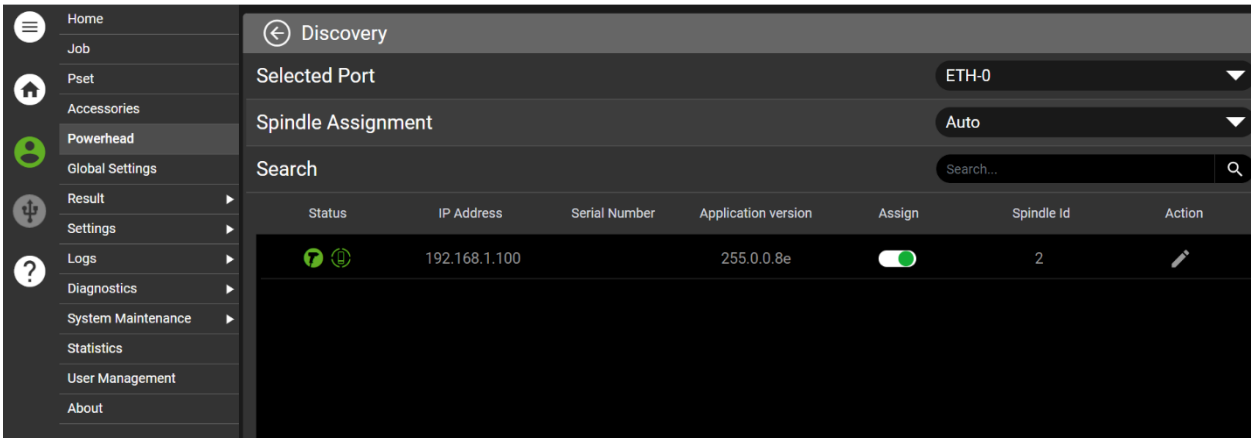


9. Select the correct Ethernet Port and set the Spindle Assignment to Auto.
10. Select the Start Discovery button.
11. After all Spindles are discovered select the Stop Discovery button.



12. Enable the slider to Assign each Spindle to the Powerhead and select the check button under Action.

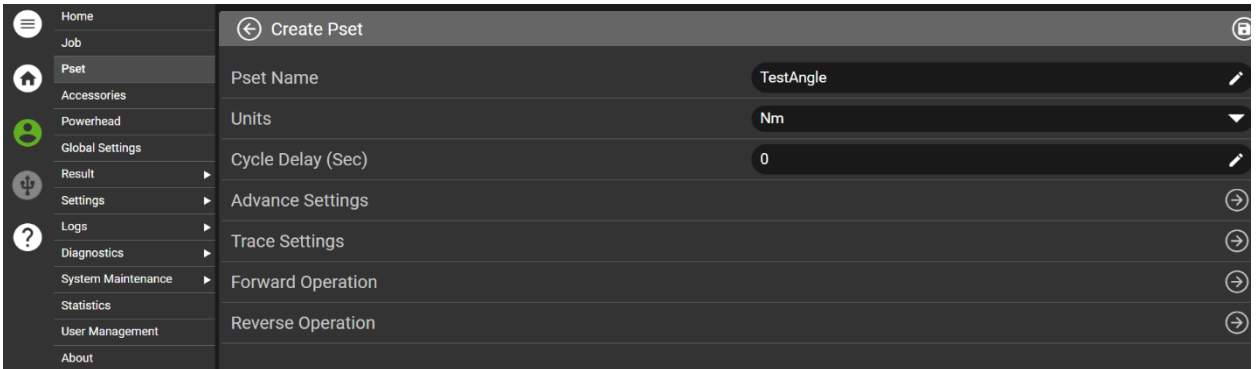




13. Once all Spindles are assigned to the Powerhead, you can program Psets, Jobs and Groups for the Powerhead.

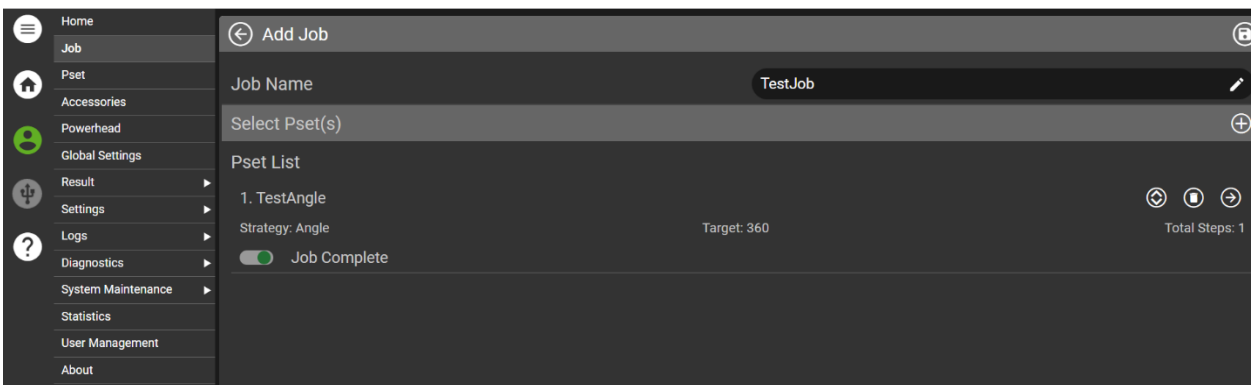
14. On the Master, go to Pset to program the desired strategy.

15. Once the Pset is created select the Save icon.



16. On the Master, go to Job to program the desired Job for the Powerhead.

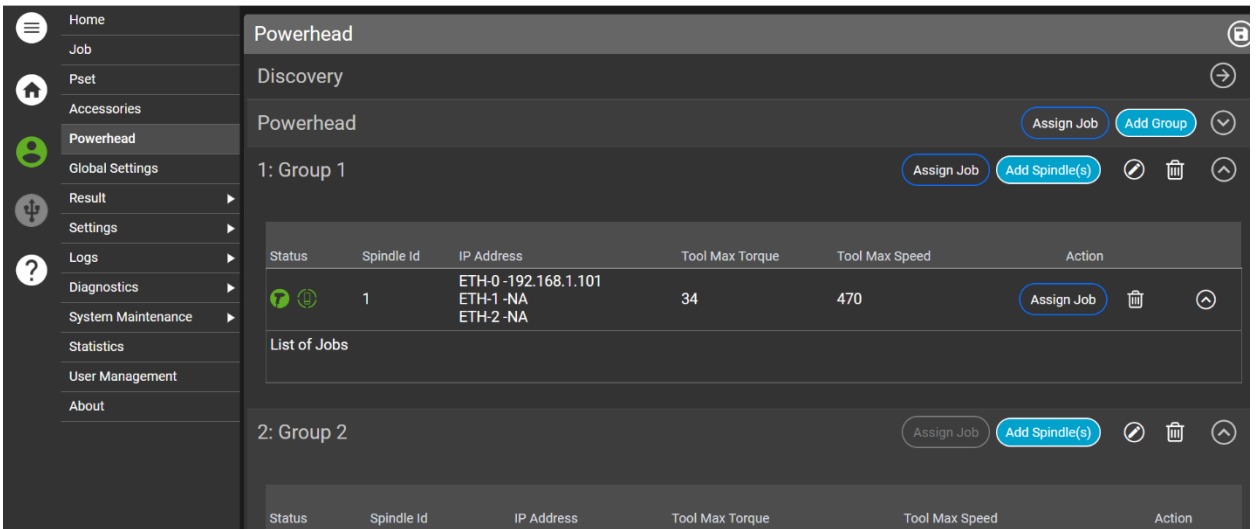
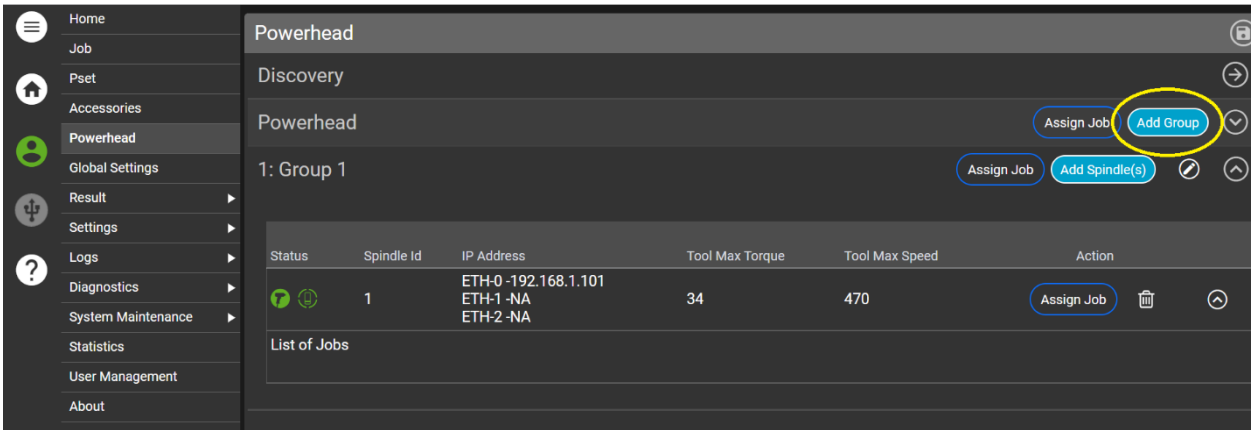
17. Once the Job is created select the Save icon.



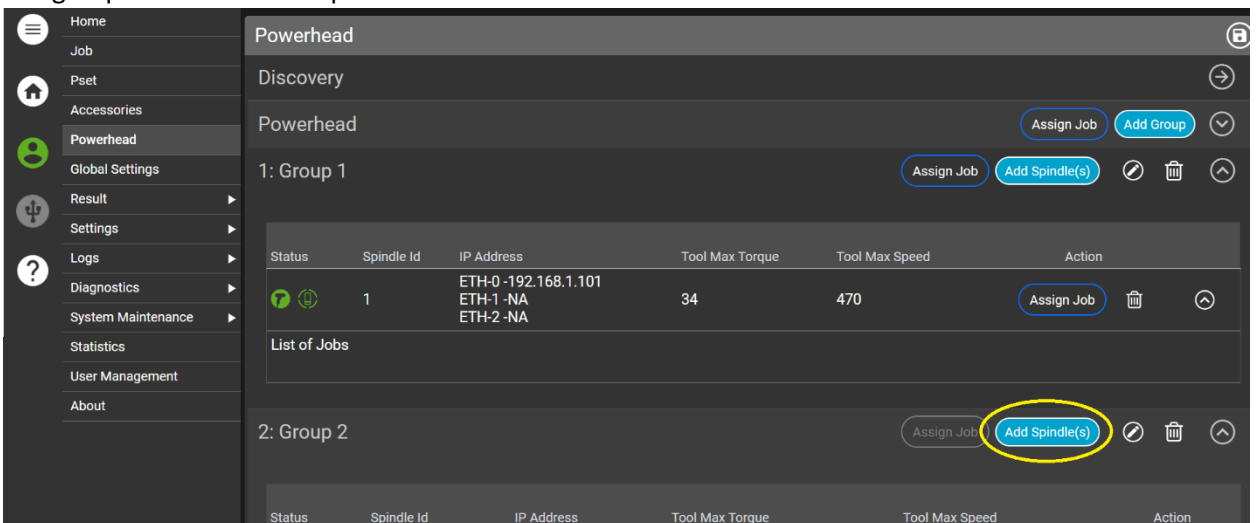
18. Once Psets and Jobs are created you can add Groups and Assign Jobs to the Powerhead.

19. On the Master, go to Powerhead.

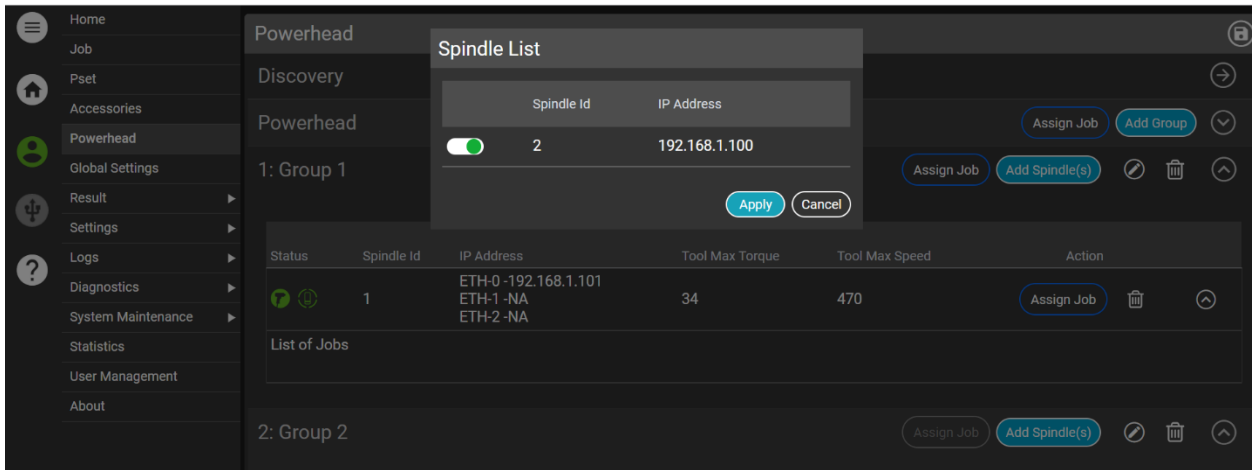
20. Select Add Group.



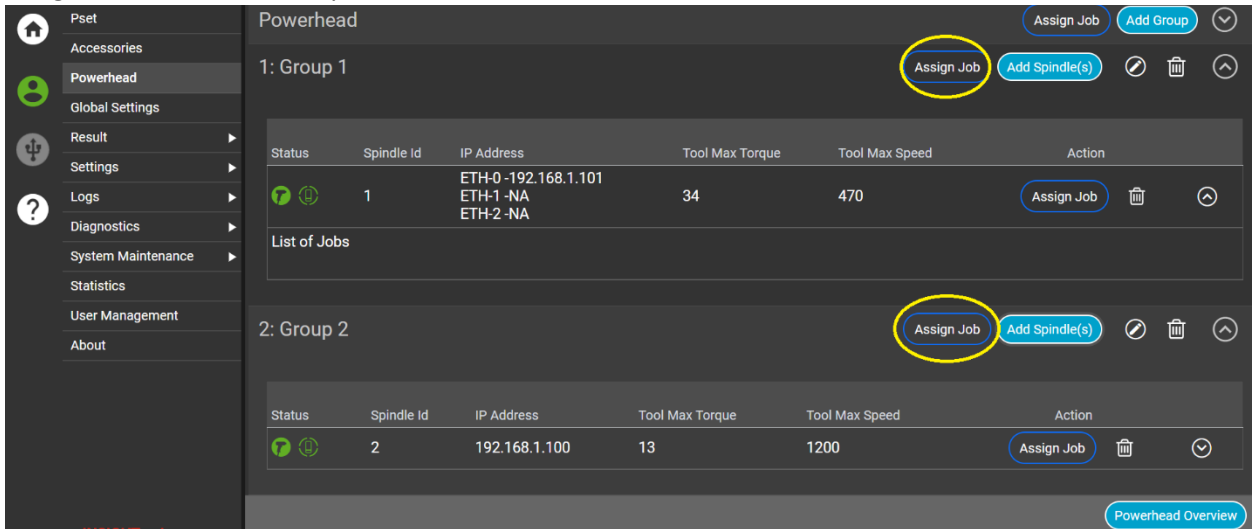
21. Once the Groups are created you can add the Spindles to the desired Group. For this setup I am using 2 spindles and 2 Groups.



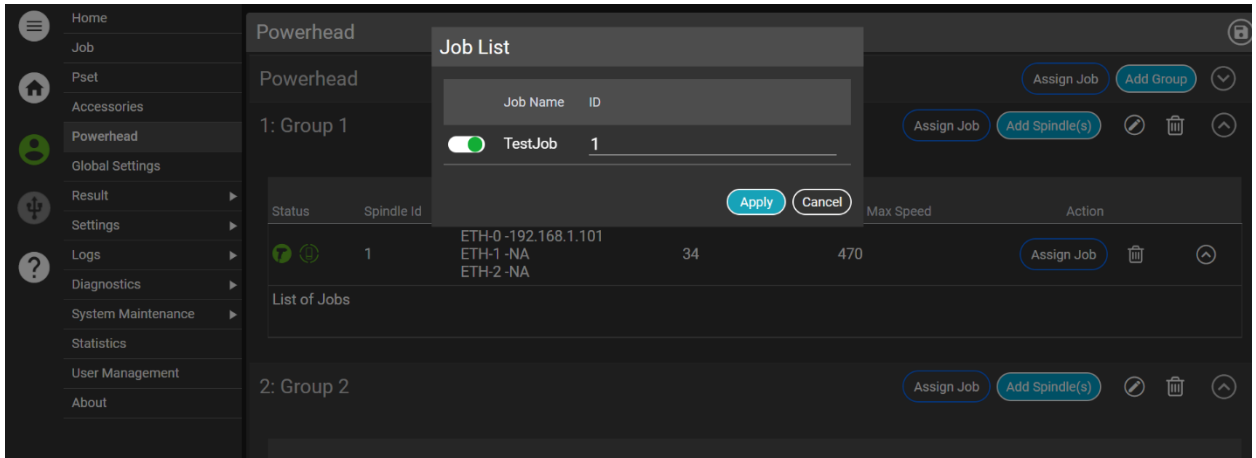
22. After selecting Add Spindle(s), Enable the slider and select Apply.



23. Assign the Jobs to the Groups.



24. After selecting Assign Job, Enable the slider and select Apply.



25. Do this for all Groups in the Powerhead. When finished, select the Save icon.

The screenshot shows the 'Powerhead' interface with two groups. Group 1 has Spindle Id 1, IP Address ETH-0 -192.168.1.101, ETH-1 -NA, and ETH-2 -NA, with Tool Max Torque 34 and Tool Max Speed 470. Group 2 has Spindle Id 2, IP Address 192.168.1.100, Tool Max Torque 13, and Tool Max Speed 1200. Both groups have a 'List of Jobs' section containing '1: TestJob'. The 'Assign Job' button for Group 1 is highlighted with a blue circle.

Status	Spindle Id	IP Address	Tool Max Torque	Tool Max Speed	Action
	1	ETH-0 -192.168.1.101 ETH-1 -NA ETH-2 -NA	34	470	<a href="#">Assign Job</a>

List of Jobs  
1: TestJob

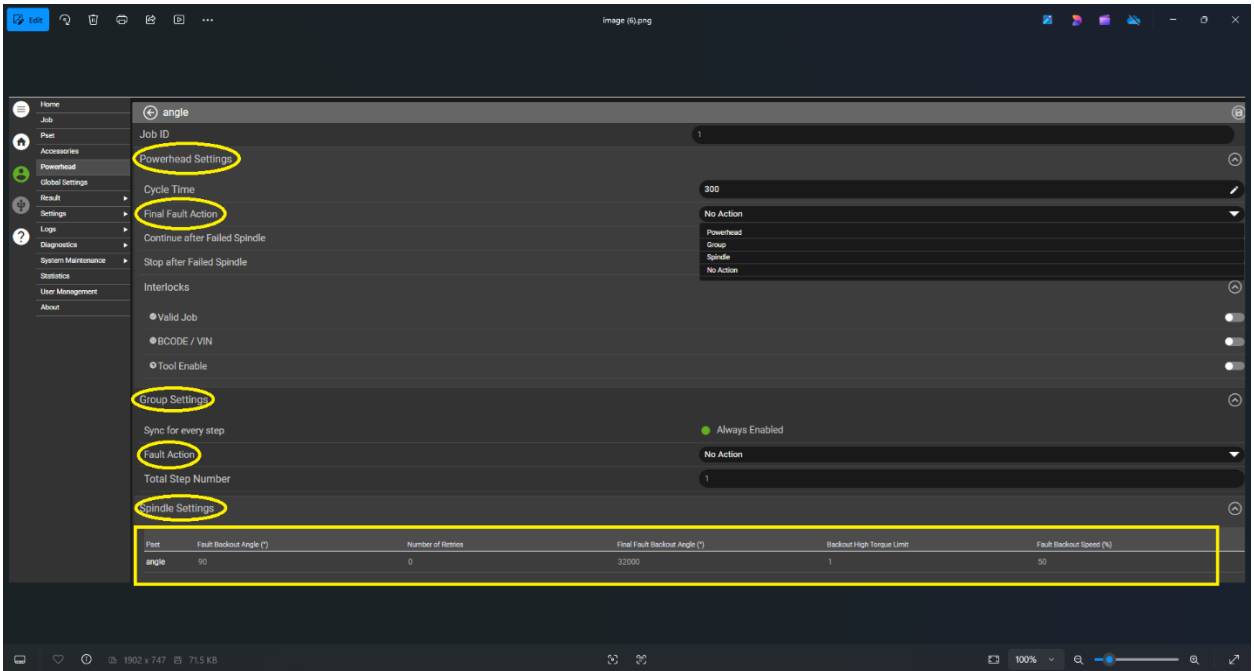
Status	Spindle Id	IP Address	Tool Max Torque	Tool Max Speed	Action
	2	192.168.1.100	13	1200	<a href="#">Assign Job</a>

List of Jobs  
1: TestJob

26. To Program and View the Powerhead Parameters for each Group, select the Settings icon.

This screenshot is identical to the previous one, but the settings icon (a gear) in the 'List of Jobs' section for Group 1 is highlighted with a yellow circle.

27. This is where you can make changes to the Powerhead Settings (Final Fault Action), Group Settings (Fault Action), Interlocks, and Spindle Settings.



28. After modifying the settings, select the Save icon.

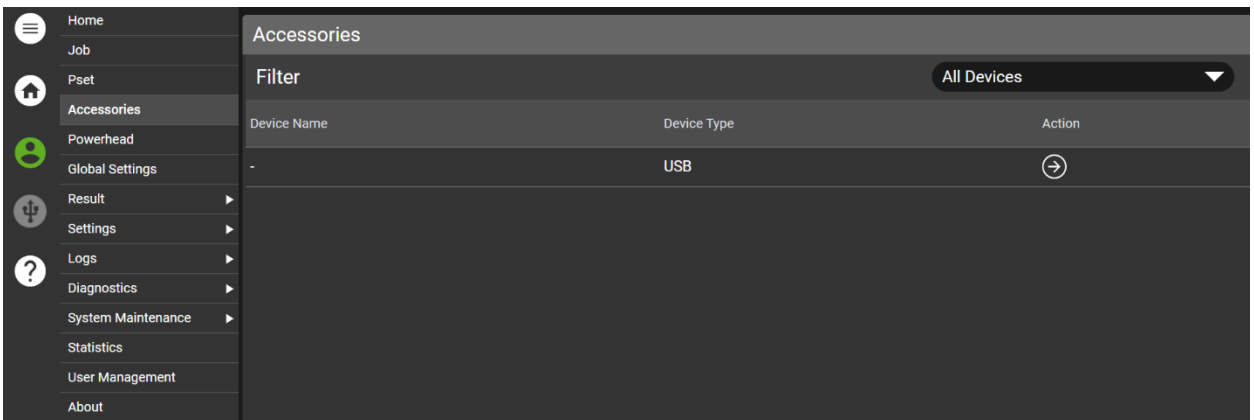
29. The Powerhead is now programmed.

30. To activate the spindles in the Powerhead, at a minimum, an external Start and Direction input has to be sent to the Master Controller. For this system, DIO is being used.

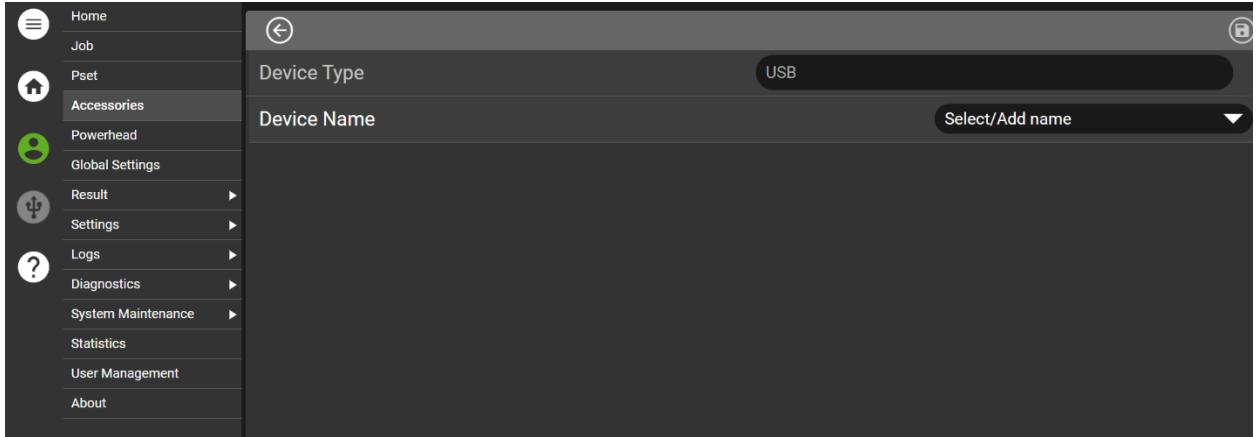
31. Plug the DIO box into the controller.

32. You will see a message that a New Device is connected to the controller, please update name.

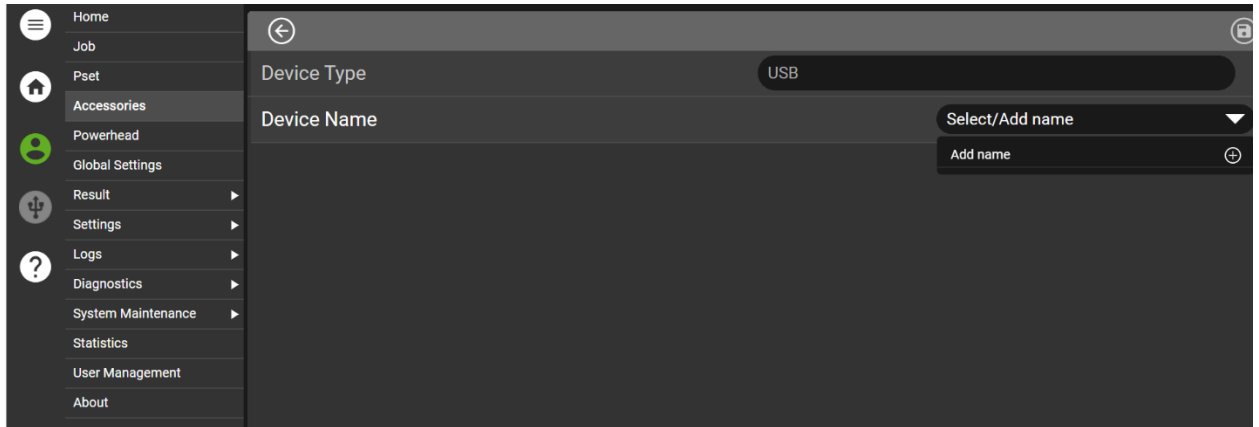
33. Go to Accessories.



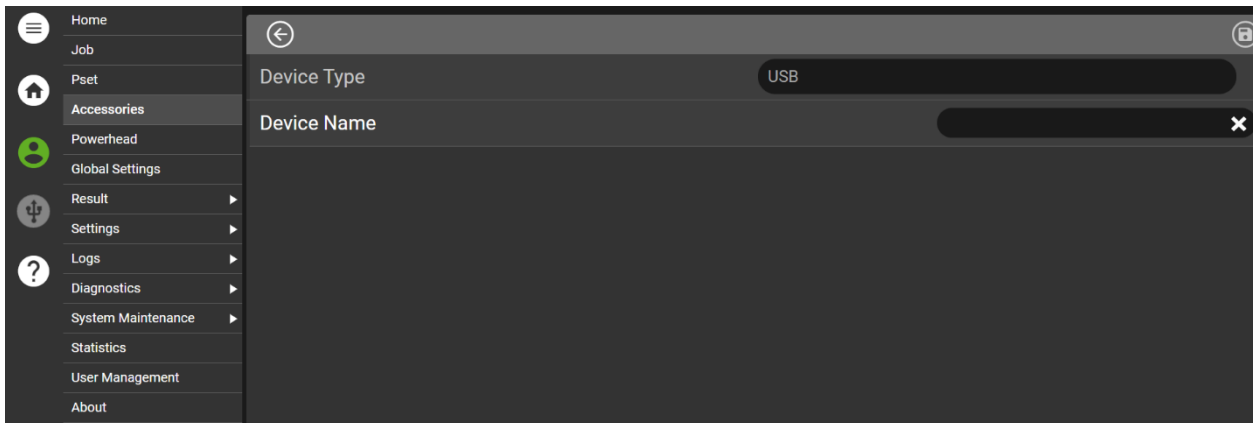
34. On the connected device, select the right arrow icon under Action.



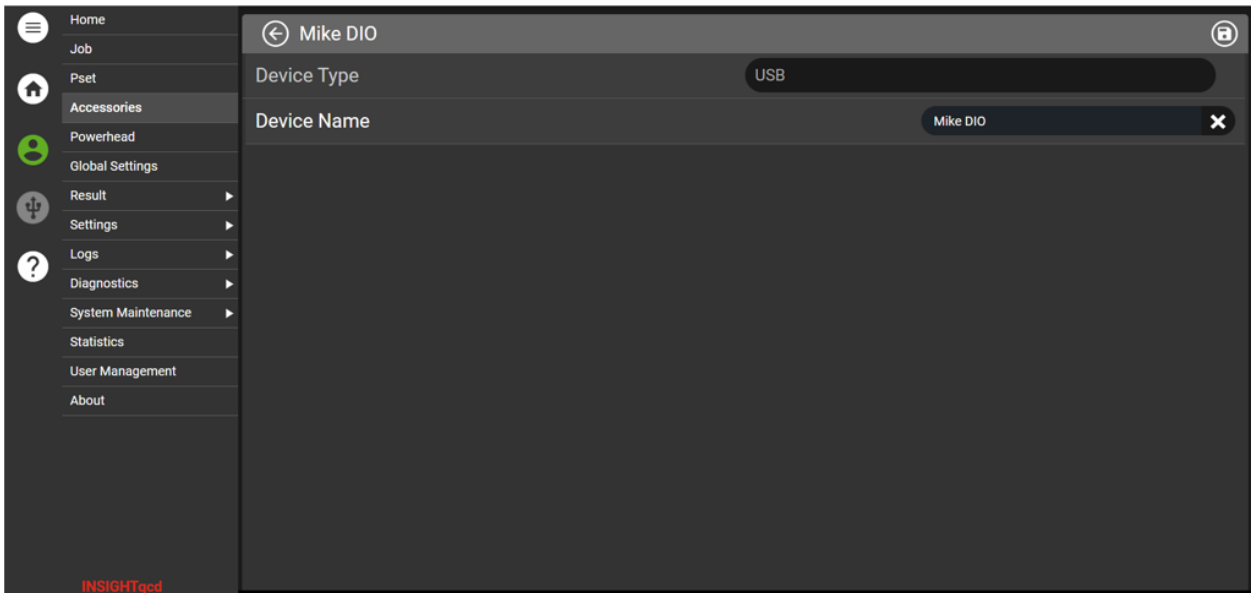
35. Select the Down Arrow on Select/Add name.



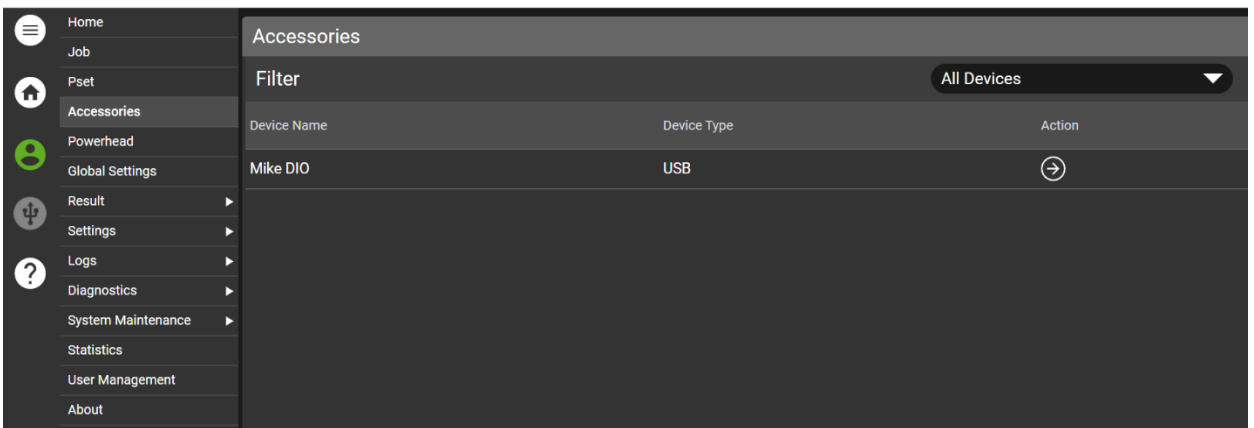
36. Select the + icon for Add name.



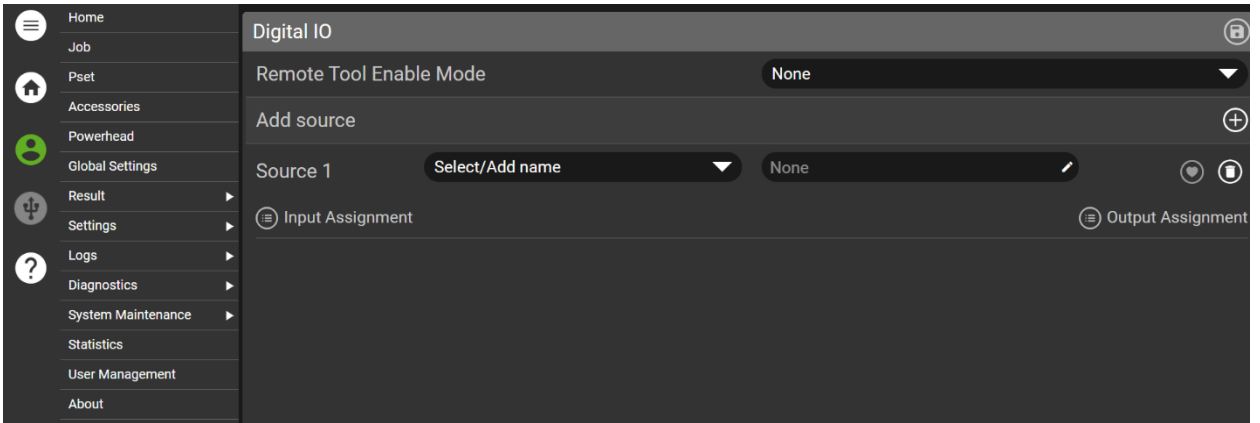
37. Add the name.



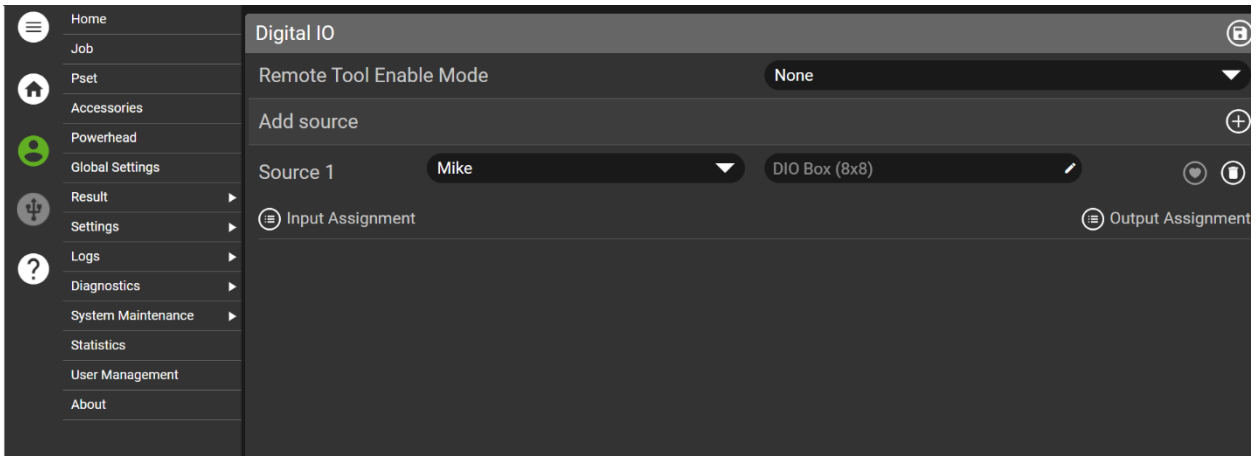
38. Select the Save icon and the Device Name will be in the list.



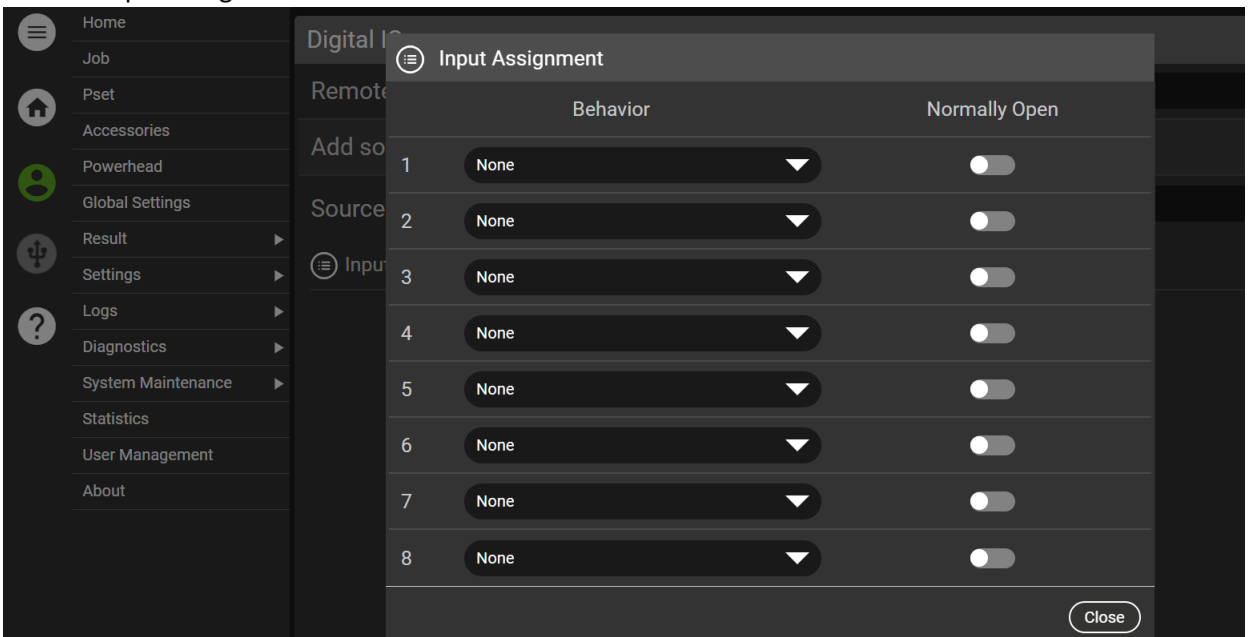
39. Go to the Settings-Digital I/O screen.



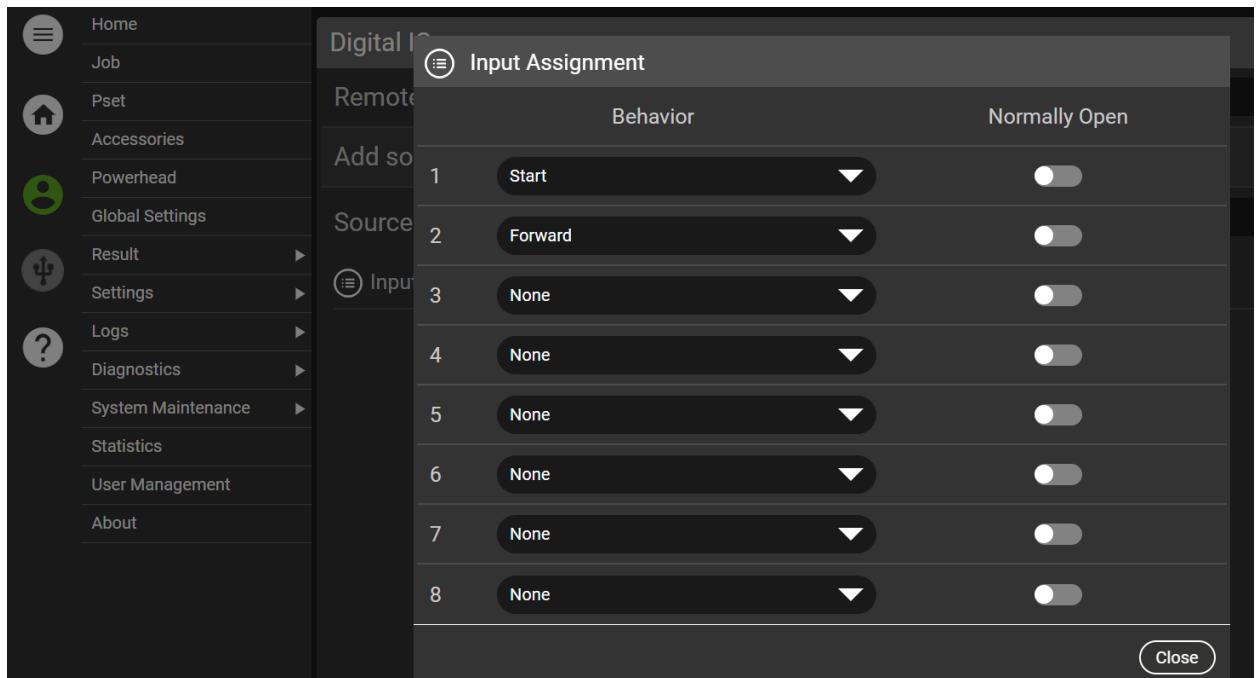
40. For Source 1, select the Device.



41. Click on Input Assignment.



42. Add a Behavior for Start and Forward.



43. Select the Close button, then the Save icon.

44. Go to the Home screen. On the Master Controller select Job 1. The Powerhead will run Job 1 if the Start and Forward Inputs are Active.

45. The Master Controller will show the results for all Spindles.

Job ID - 1      Spindle Id      1 / 1

Master: 1      360(°)      TestJob :TestAngle      1 / 1

Spindle: 2      361(°)      TestJob :TestAngle      1 / 1

192.168.1.101      NA