

KINCO Servo Quick Start Guide

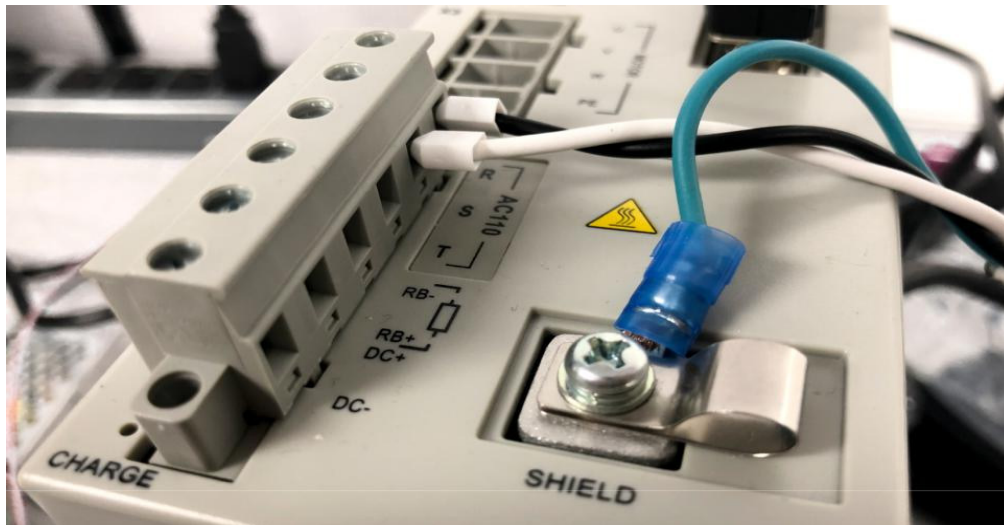
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Needed: Kinco Servo Package (motor, driver, phase and encoder cables), 24V power supply, UT232R-200 Communication Cable (FDxx2S), Flat head screw driver, Kinco Servo+ Software.

1. Remove drive from packaging and affix associated terminal plug to X2, X3 and X7



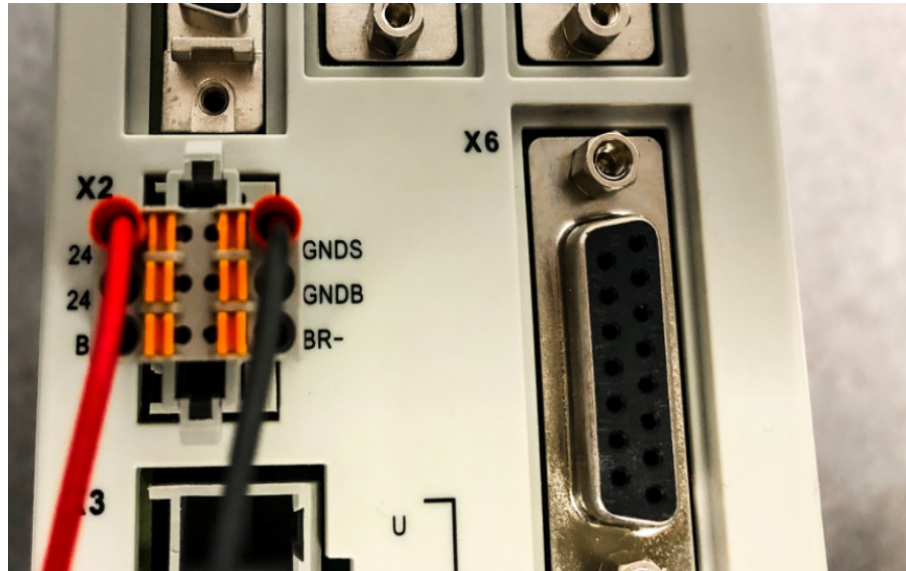
2. With the power disconnected, connect the power wires to the input terminals.



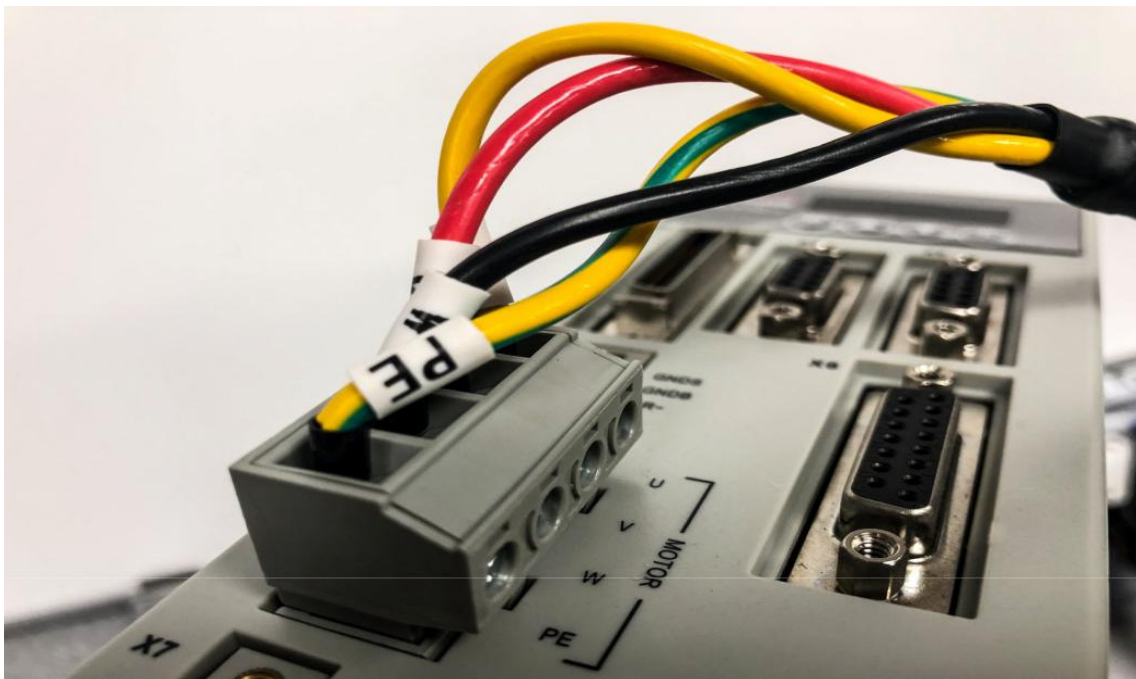
- a. For FD4x2S modules, apply line voltage to R terminal on connector X7, apply Neutral to S terminal on X7 and connect Ground to Shield screw on chassis. Leave T terminal floating.
- b. For FD3x2S modules, Apply line voltage to L (R) and Neutral to N (S) on X7 terminal.

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3. Connect a 24Vdc power source to 24VS and GNDS on X2, this will power the display LEDs and EEPROM logic
 - a. For the FDxx2S models, a 24Vdc power supply is required to power the control logic of the driver
 - b. For motors with a Friction Brake, another 24Vdc must be applied to the 24VB and GNDB terminals



4. Connect the Motor phases (ferruled and labeled) to the mating terminals on X3.

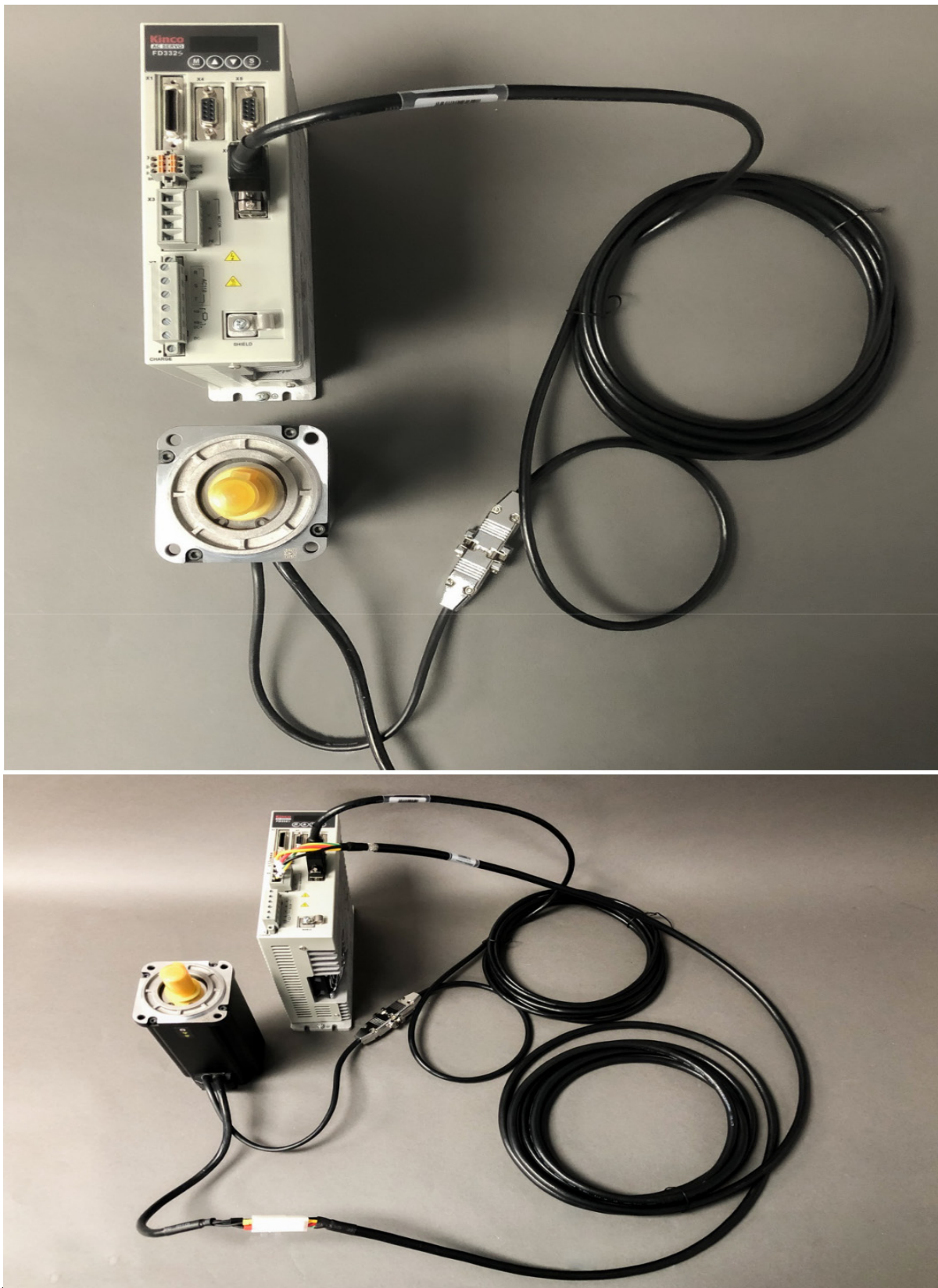


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5. Connect the Encoder cable to mating terminal X6.



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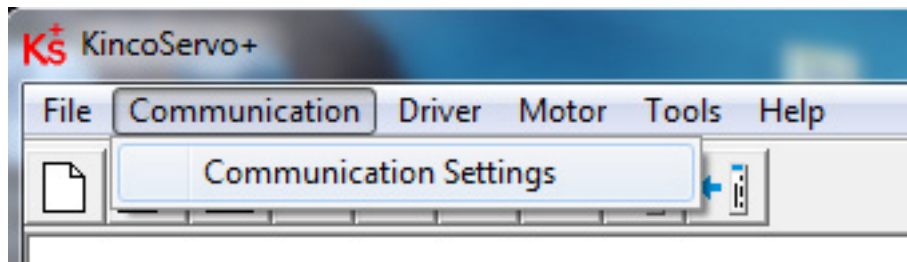
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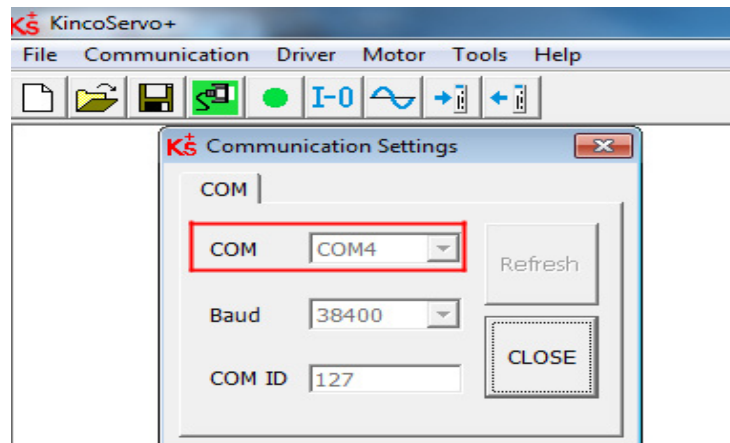
6. For programming, attach programming cable to drive connector X5 and connect to a COM port on your computer.



- a. For FDxx2S, an RS232 cable (DB9) is required for the X5 connector.
7. Apply both line power and 24VOC power to the unit and the LEDs should display “FFF.F” by default.
8. Open Kinco Servo+ Software and establish communication to the driver.



- a. At the drop-down tabs, Select Communication > Communication Settings
 - i. Use the dropdown to select the appropriate COM port to which X5 is connected
 - ii. Baud is default 38,400 and COM ID is default 127.

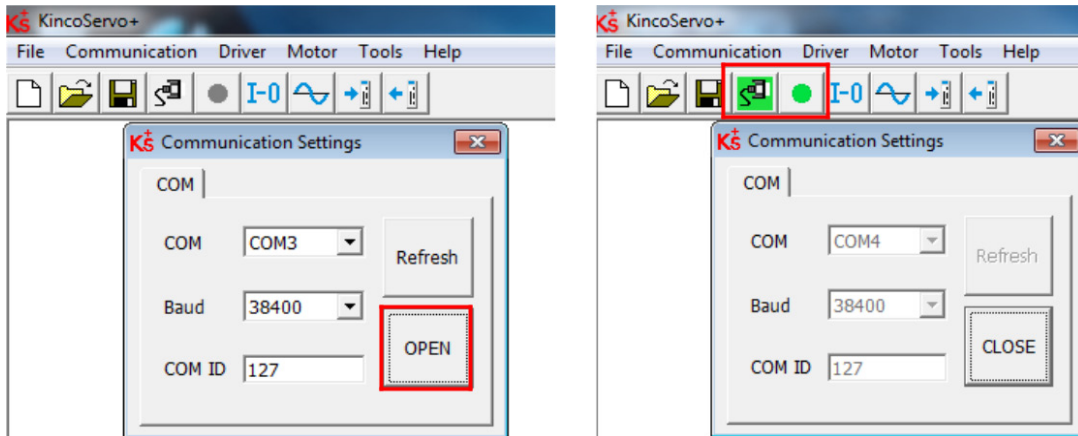


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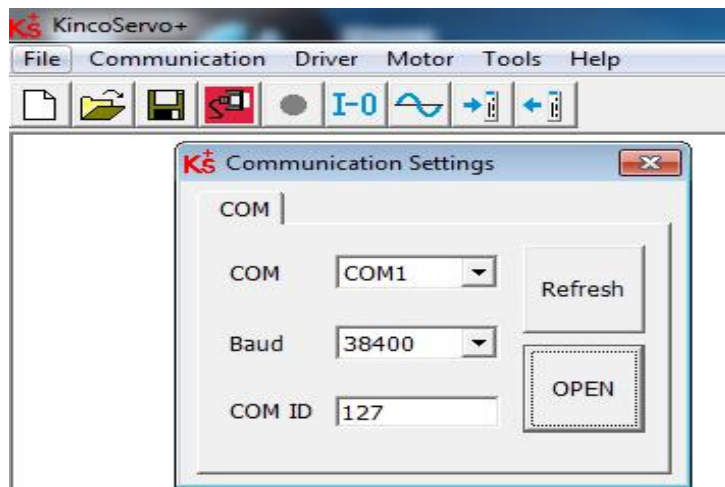
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- b. Press the “Open” Button and it should change to “Close”
 - i. The Cable and Error buttons below the drop down menu should illuminate Green



- ii. If so, close out of “Communication Settings” by pressing the red “x” at the top right corner

Note: If these are Red, there is an Error. Press the red button and review the error list. Check your wiring appropriately



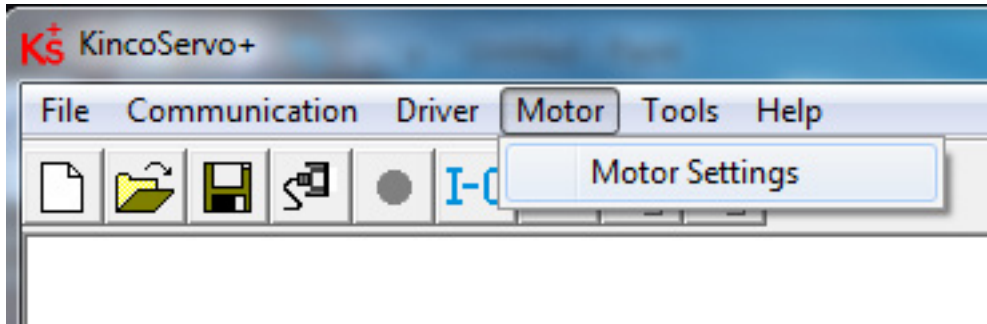
- 9. Change the motor settings on the drive to the motor for your system
 - a. On the Servo Motor label, there is a “Motor Code” value that is “####/X#” format



Note: This code is either entered onto the LEDs or on the PC. Since we are programming via PC, we need the “X#” code which is “E8”

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- b. In the drop down list, go to Motor > Motor Settings

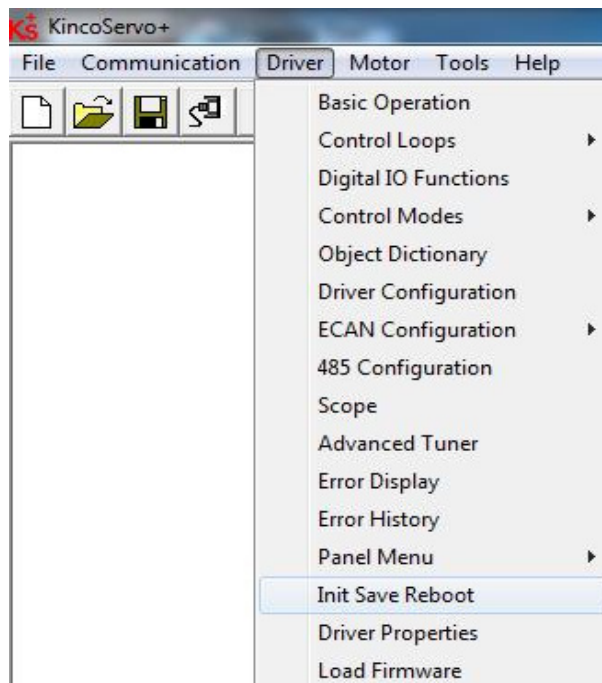


- i. The 3rd line will say "Motor_Num" which is defaulted to value "K@". On the "Value" column, change this to the "X#" value we found earlier.

N	Index	Type	Name	Value	Unit
0	60F612	uint16	Motor_IIt_Real		%
1	641016	uint16	Motor_Using		ASCII
2	641001	uint16	Motor_Num	E8	ASCII
3	641002	uint8	Feedback_Type		HEX
4	641003	uint32	Feedback_Resolution		inc/r
5	641004	uint32	Feedback_Period		DEC
6	641005	uint8	Motor_Pole_Pairs		2p/r
7	641006	uint8	Commu_Mode		DEC
8	641007	int16	Commu_Curr		Ap
9	641008	uint16	Commu_Delay		ms
10	641009	uint16	Motor_IIt_I		Ap
11	64100A	uint16	Motor_IIt_Filter		S
12	64100B	uint16	Imax_Motor		Ap
13	64100C	uint16	L_Motor		mH
14	64100D	uint8	R_Motor		Ohm
15	64100E	uint16	Ke_Motor		Vrms/krpr
16	64100F	uint16	Kt_Motor		Nm/Arms
17	641010	uint16	Jr_Motor		kg*cm^2
18	641011	uint16	Brake_Duty_Cycle		%
19	641012	uint16	Brake_Delay		ms
20	641013	uint8	Invert_Dir_Motor		DEC
21	641015	uint16	Motor_Current_BW		Hz
22	641017	uint8	Addition_Device		DEC
23	641018	int16	Temp_Motor_Ref		DEC
24	641019	int16	Temp_Motor		DEC

Note: hit "Enter" to save your values

- ii. The 2nd line will still say K@ after pressing enter. Go to drop down lists, Driver > Init Save Reboot and press “SaveMotor Parameters” then Press “Reboot”.



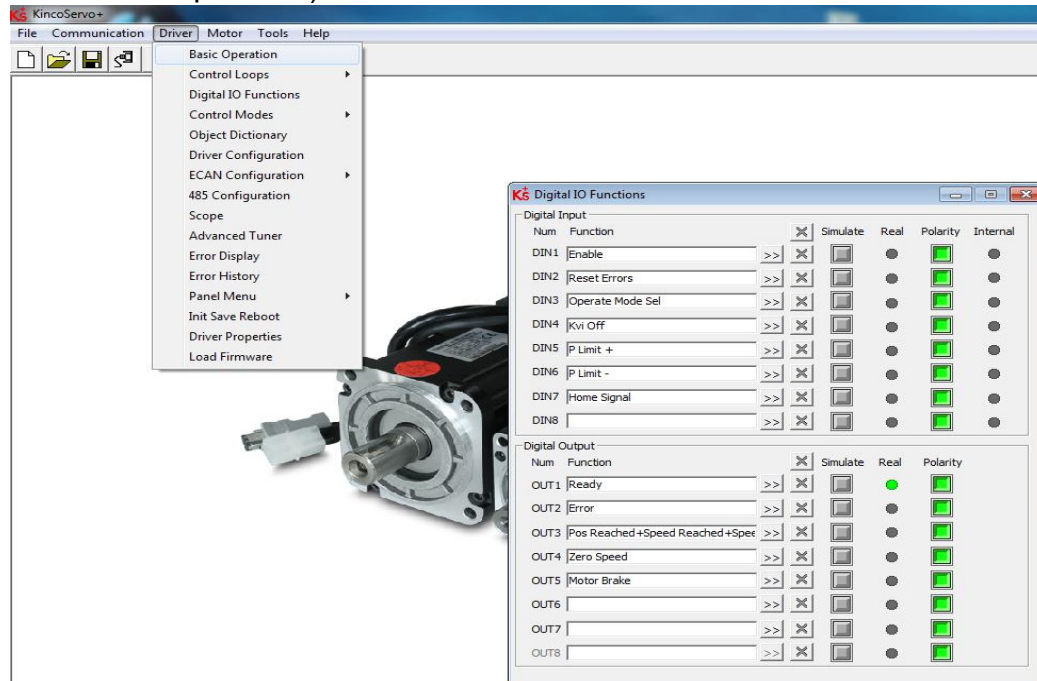
- iii. This should update the “Motor_Using” line to match the Motor_Num line and the values should update accordingly.
- iv. If your motor has a brake, edit line 22 “Addition_Device” to a value of 1, save motor parameters again, and reboot the driver again.

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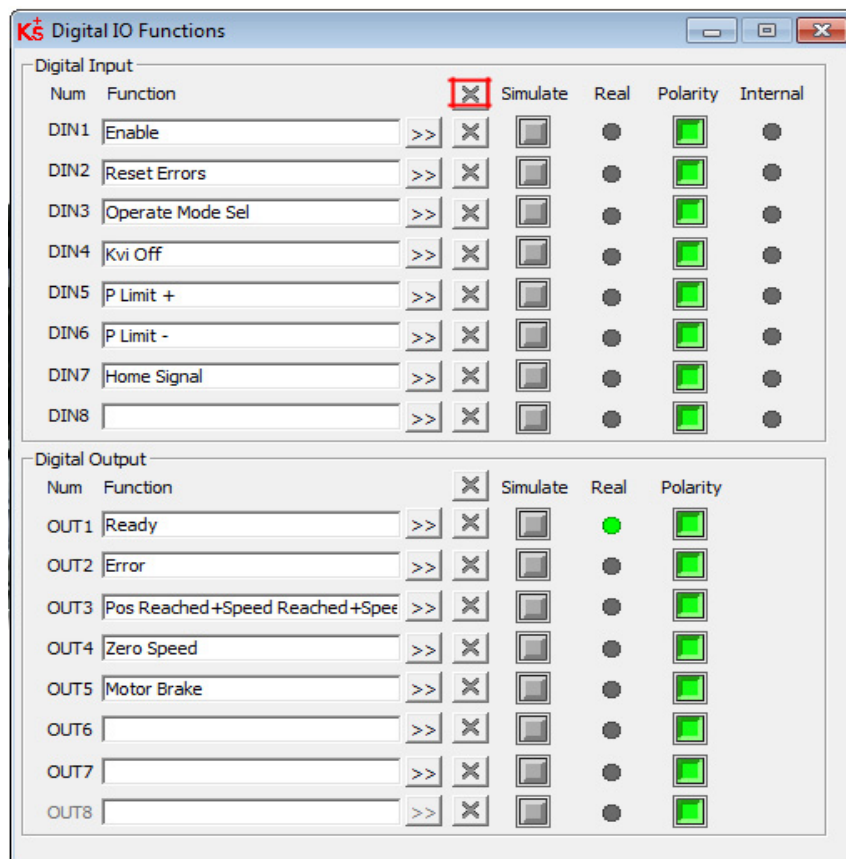


10. Set up I/O to test your system

- With the motor sitting freely, open both the I/O and basic operation (drop down list, Driver > Basic Operation).



- Clear all DIN functions by selecting the top "X" to the left of the "Simulate" text on "Digital IO Functions" Screen.



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- c. On Basic Operation Screen, set the following:
 - i. NUM 6 “Operation Mode” change to “3: Speed Control”

N	Index	Type	Name	Value	Unit
0	606100	int8	Operation_Mode_Buff		DEC
1	604100	uint16	Statusword		HEX
2	606300	int32	Pos_Actual		inc
3	606C00	int32	Speed_Real		rpm
4	607800	int16	I_q		Ap
5	268000	uint16	Warning_Word		HEX
6	606000	int8	Operation_Mode		DEC
7	604000	uint16	Controlword		HEX
8	607A00	int32	Target_Position		inc
9	608100	uint32	Profile_Speed		rpm
10	608300	uint32	Profile_Acc		rps/s
11	608400	uint32	Profile_Dec		rps/s
12	60FF00	int32	Target_Speed		rpm
13	607100	int16	Target_Torque%		%
14	607300	uint16	CMD_q_Max		Ap
15	20200D	int8	Din_Mode0		DEC
16	20200E	int8	Din_Mode1		DEC
17	269000	uint8	Encoder_Data_Reset		DEC

Note: “3” references accel/decel parameters and “-3” does not

- ii. NUM 10 “Profile_Acc” set to 100 rps/s
- iii. NUM11 “Profile_Dec” set to 100 rps/s
- iv. NUM12 “Target Speed” set to 500 rpm
- v. NUM15 “Din_Mode0” set to 3 DEC
- vi. NUM16 “Din_Mode1” set to -3 DEC

N	Index	Type	Name	Value	Unit
0	606100	int8	Operation_Mode_Buff		DEC
1	604100	uint16	Statusword		HEX
2	606300	int32	Pos_Actual		inc
3	606C00	int32	Speed_Real		rpm
4	607800	int16	I_q		Ap
5	268000	uint16	Warning_Word		HEX
6	606000	int8	Operation_Mode	3	DEC
7	604000	uint16	Controlword		HEX
8	607A00	int32	Target_Position		inc
9	608100	uint32	Profile_Speed		rpm
10	608300	uint32	Profile_Acc	100	rps/s
11	608400	uint32	Profile_Dec	100	rps/s
12	60FF00	int32	Target_Speed	500	rpm
13	607100	int16	Target_Torque%		%
14	607300	uint16	CMD_q_Max		Ap
15	20200D	int8	Din_Mode0	3	DEC
16	20200E	int8	Din_Mode1	-3	DEC
17	269000	uint8	Encoder_Data_Reset	1	DEC

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d. On Digital IO Functions Screen, set the following:

- i. DIN1 > Enable
- ii. DIN2 > Reset Errors
- iii. DIN3 > Invert Direction
- iv. DIN4 > Operate Mode Sel

Note: Change these settings by pressing the ">>" Button and checking the check box next to the command function and pressing "ok" on the bottom right of the pop up window.

Digital Input				
Num	Function	Simulate	Real	Polarity
DIN1	Enable	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DIN2	Reset Errors	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DIN3	Invert Direction	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DIN4	Operate Mode Sel	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DIN5		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DIN6		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DIN7		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
DIN8		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Digital Output				
Num	Function	Simulate	Real	Polarity
OUT1	Ready	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
OUT2	Error	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
OUT3	Pos Reached+Speed Reached+Speed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
OUT4	Zero Speed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
OUT5	Motor Brake	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
OUT6		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
OUT7		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
OUT8		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

11. Test your system

- a. On the Digital IO Functions screen, click the grey simulate button for DIN/Enable". The simulate button will turn green.
 - i. You should get motion out of your motor at 500 RPM, if there is no motion, an error has occurred. Check that you have power to the unit and open the error menu to confirm. After confirmation, simulate DIN 2 "Reset Errors" and attempt to Enable the system again.
- b. The Basic Operation Screen shows Real Time Motion in the green filled boxes. Notice the Pos_Actual is increasing and Speed_Real is oscillating around 500 RPM. The LED display on the drive should show a value of 500.
- c. The Operation_Mode value should read "3", and the Controlword should say "2F".
 - i. Simulate DIN3 to show the speed change to -500, Pos_Actual reduce and the motor will reverse direction.
- d. By Simulating DIN4 "Operate Mode Sel", the Operation_Mode will change between "3" and "-3" depending on the state of that input.
 - i. Reduce Target Speed to roughly 100 RPM and invert direction on your system to notice the impulse when the accel/decel parameters are not considered.

12. Refer to other documentation for wiring / set up of different control methods.