

ZLAC8015D SOFTWARE INSTRUCTION

--TORQUE MODE

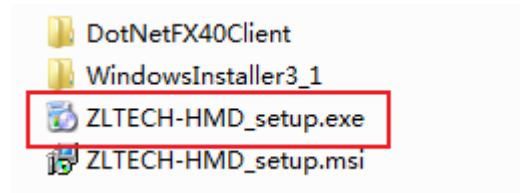
Version	Detail	Date
V1.0	First Edition	2020-10-19

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1. INSTALL SOFTWARE

1. Prepare a computer with Windows system, copy the installation package to any folder.

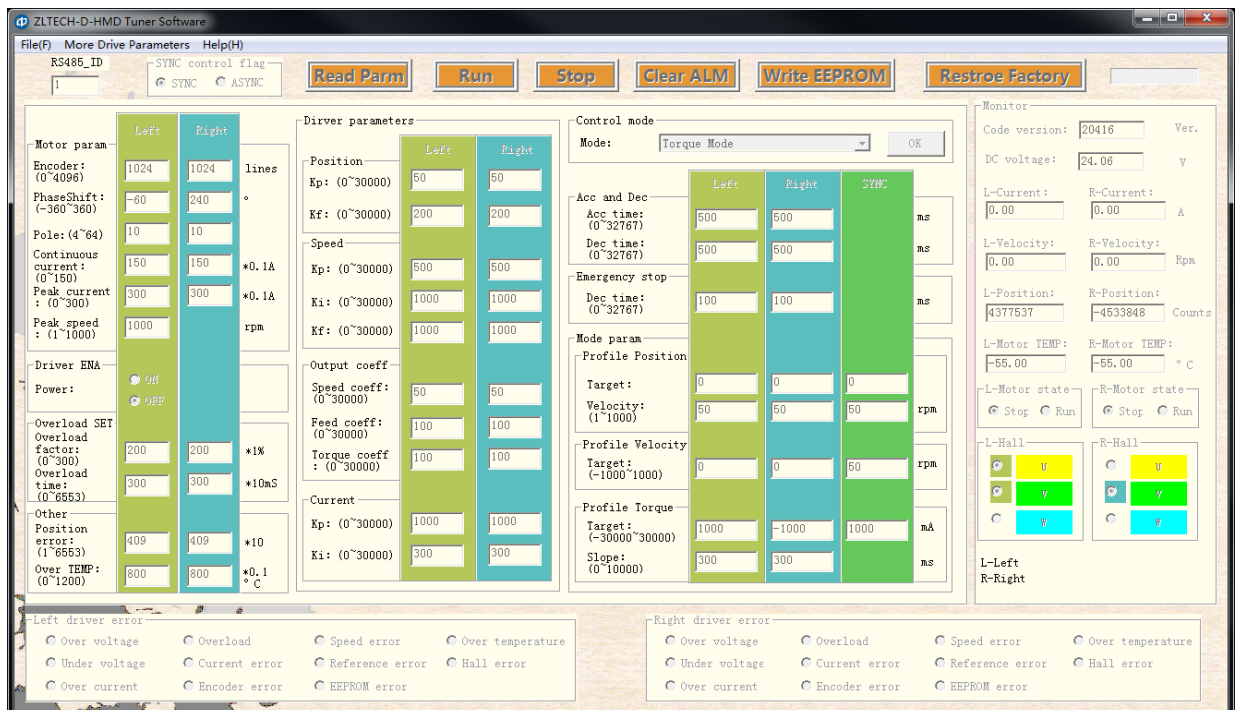


2. Open the installation file in the red box above.

3. A shortcut of ZLTECH driver software is generated on the desktop finally.

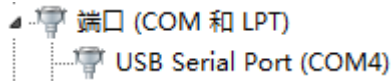


4. Open the software, and the software interface appears as shown below.



2. OPEN SOFTWARE

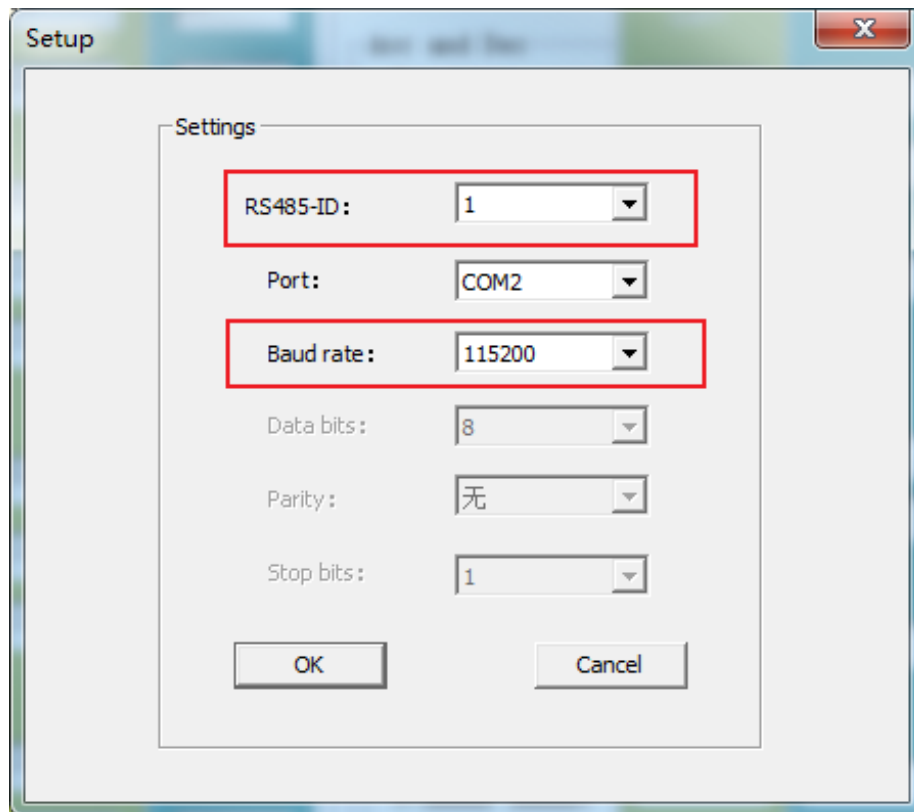
1. Use USB to convert RS485 port to connect the driver to the computer, and check if the COM port of computer's device manager identifies the corresponding serial device.



As shown in the above picture , the current COM4 is connected to a USB serial device.

Note: User needs to provide their own USB to RS485 adapter module

2. Open the software, click "**File-Serial Port Configuration**", after confirming that the configuration is correct, click "**Apply Settings**" to make the configuration take effect;

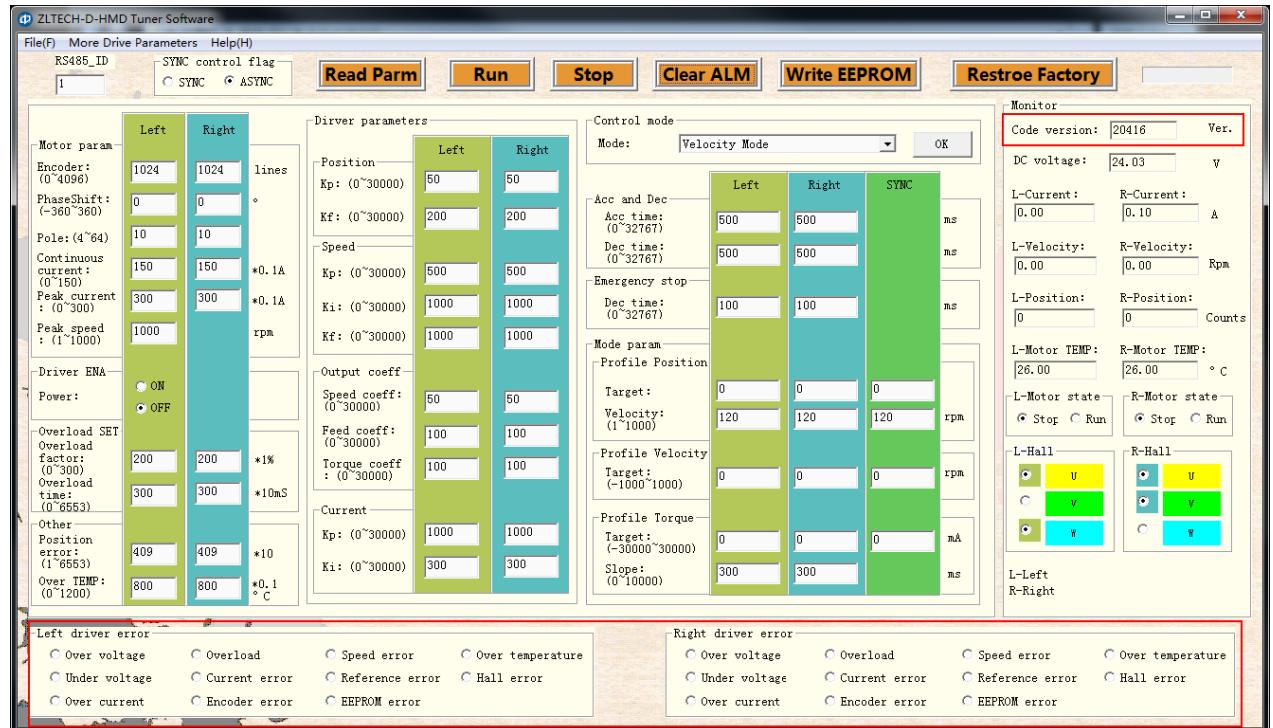


RS485 address: select the corresponding address according to the DIP switch (default is 1).

Serial port number: select the corresponding interface according to the COM port of the device manager.

Baud rate: default is 115200.

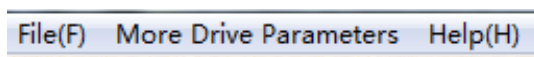
3. Open the serial port, click **"File-Open Serial Port"** to automatically read the driver parameters.



Note: Please note that Ver. is the latest version. if the version you use is not the latest version, please contact us in time to upgrade.

3.SOFTWARE INTERFACE FUNCTION DESCRIPTION

1. Menu bar description

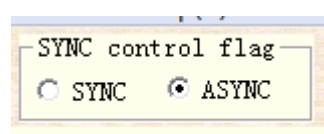


File: configure the serial port, restore parameters from the hard disk to the software interface, or save the software interface parameters to the hard disk.

More Drive Parameters: configure IO port function, configure RS485 or CAN communication parameters, configure emergency stop mode, etc.

Help: View driver manuals, communication manuals, etc.

2. Control Flag



Through the control flag, you can choose to control the left motor and right motor synchronously or asynchronously.

3. Control bar



Read Parm: read the current parameters of the driver to the interface

Run: switch the control state of the driver to the enabled state (the motor cannot rotate freely in the enabled state) (the driver must work in any control mode of position/velocity/current).

Stop: switch drive control state to stop state.

Write EEPROM: write parameters on the software interface to EEPROM.

Restore Factory: restore the driver parameters to the default values and write them into EEPROM.

4. Motor Parameters

Motor param	Left	Right	
Encoder: (0~4096)	1024	1024	lines
PhaseShift: (-360~360)	0	240	°
Pole: (4~64)	10	10	
Continuous current: (0~150)	150	150	*0.1A
Peak current : (0~300)	300	300	*0.1A
Peak speed : (1~1000)	1000		rpm

Note: Please fill in the above parameters under the guidance of the manufacturer, please do not modify them at will!

5. Power on and Enable

Driver ENA	<input type="radio"/> ON		
Power:	<input checked="" type="radio"/> OFF		

Select whether the initial control state of the driver after power-on is enable state or shutdown state.

6. Failure configuration

Overload SET			
Overload factor: (0~300)	200	200	*1%
Overload time: (0~6553)	300	300	*10mS
Other			
Position error: (1~6553)	409	409	*10
Over TEMP: (0~1200)	800	800	*0.1 °C

Overload factor: this factor * rated current is the threshold value of overload fault judgment.

Overload time: the time that the output current of the driver is allowed to reach the overload current, and the overload fault will be triggered after exceeding it.

Position error: the maximum allowable difference between the feedback position and the target position, and the position error will be triggered after exceeding it (position error is only valid in position mode);

Over TEMP: the upper limit of the allowable motor temperature, if exceeded it, over TEMP error will be triggered.

7. Driver PID Parameters

Monitor	
Code version:	20416 Ver.
DC voltage:	23.95 V
L-Current:	R-Current:
0.00	-0.10 A
L-Velocity:	R-Velocity:
0.00	0.00 Rpm
L-Position:	R-Position:
3860	6843 Counts
L-Motor TEMP:	R-Motor TEMP:
-55.00	-55.00 °C
L-Motor state	R-Motor state
<input checked="" type="radio"/> Stop <input type="radio"/> Run	<input checked="" type="radio"/> Stop <input type="radio"/> Run
L-Hall	R-Hall
<input checked="" type="radio"/> U	<input type="radio"/> U
<input checked="" type="radio"/> V	<input checked="" type="radio"/> V
<input type="radio"/> W	<input type="radio"/> W
L-Left R-Right	

Note: About the adjustment method, please refer to 5. PID adjustment (P9).

8. Control Modes

Control mode	
Mode:	Velocity Mode
OK	

The driver supports 3 control methods: Position Mode (relative/absolute)/Velocity Mode/Torque Mode. The default control mode is Velocity Mode.

Note: In absolute position mode, the absolute position origin point needs to be set. For details, please refer to address 0x2006.

9. Monitor Panel

Left driver error			
<input type="radio"/> Over voltage	<input type="radio"/> Overload	<input type="radio"/> Speed error	<input type="radio"/> Over temperature
<input type="radio"/> Under voltage	<input type="radio"/> Current error	<input type="radio"/> Reference error	<input type="radio"/> Hall error
<input type="radio"/> Over current	<input type="radio"/> Encoder error	<input type="radio"/> EEPROM error	

Right driver error			
<input type="radio"/> Over voltage	<input type="radio"/> Overload	<input type="radio"/> Speed error	<input type="radio"/> Over temperature
<input type="radio"/> Under voltage	<input type="radio"/> Current error	<input type="radio"/> Reference error	<input type="radio"/> Hall error
<input type="radio"/> Over current	<input type="radio"/> Encoder error	<input type="radio"/> EEPROM error	

Note: Please refer to Appendix A (P13) for detailed fault description.

4. CONTROL INSTRUCTION IN TORQUE MODE

1. Configure the torque mode, click "OK" to make the configuration effective.

Control mode	
Mode:	<div> Torque Mode </div>
<div>OK</div>	

2. Click "Start" to enable the driver.

Run

3. Fill in the target current and slop, press the space key to make the filled value valid, and the motor run.

Profile Torque			
Target: (-30000~30000)	1000	-1000	1000 mA
Slope: (0~10000)	300	300	ms

Note: The target current value of right driver will be inverted automatically by software.

5. PID REGULATION

Dirver parameters		
	Left	Right
Position		
Kp: (0~30000)	50	50
Kf: (0~30000)	200	200
Speed		
Kp: (0~30000)	500	500
Ki: (0~30000)	1000	1000
Kf: (0~30000)	1000	1000
Output coeff		
Speed coeff: (0~30000)	50	50
Feed coeff: (0~30000)	100	100
Torque coeff: (0~30000)	100	100
Current		
Kp: (0~30000)	1000	1000
Ki: (0~30000)	300	300

Output coefficient:

Speed coefficient: the smaller the value, the smoother the speed, that is, the slower the response.

Feed coefficient: default value.

Torque coefficient: default value.

Current Loop:

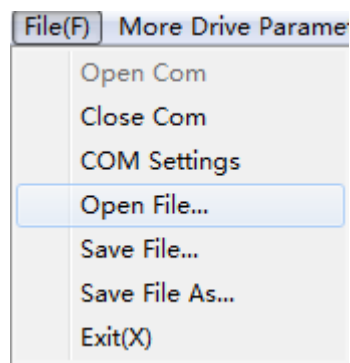
Kp/Ki: Current loop gain, the larger the value, the faster the current response and the larger the torque output. Excessive large value may cause motor jitter and increase noise.

Note: The above parameters will take effect immediately, but they will be lost after power-off, so they need to be confirmed to write to EEPROM to save.



6. WRITE PARAMETERS/SAVE PARAMETERS

1. Click "File"-"Open File" to import the parameters of the local storage parameters (*.txt format) into the current software interface, click "Write to EEPROM" to write











the parameters to the driver and save them.



2. Click "File"-"Save As" to save the current parameters of the software interface to the computer. Click "Save" to overwrite the current parameters to the local document. Save the parameter file format as *.txt text format.

 ZLLG45ASM200.txt
 ZLLG55ASM150.txt

APPENDIX A. FAULT DESCRIPTION

Status	Situation	Status indicator LED description	
Over-Voltage	The power supply voltage exceeds the maximum rated voltage.	1 Red	
Under-Voltage	The power supply voltage is lower than the minimum working voltage.	2 Red	
Over-Current	Phase current through the motor exceeds short-circuit between phases	3 Red	
Over-Load	The phase current through the motor exceeds the set overload current	4 Red	
Current out-of-tolerance	Control current and output current are out of tolerance	5 Red	
Position out-of-tolerance	The given position is out of tolerance with the output position	6 Red	
Speed out-of-tolerance	The given speed and output speed are out of tolerance	7 Red	
Internal reference error	Internal fault of the driver	8 Red	
Parameter reading error	EEPROM parameters read error	9 Red	
HALL fault	The HALL cable is not plugged in or the signal is incorrect	10 Red	
High motor temperature	Motor temperature is too high	11 Red	