



LCDA-608S

Digital DC Servo

Instruction Manual



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一、 Installation

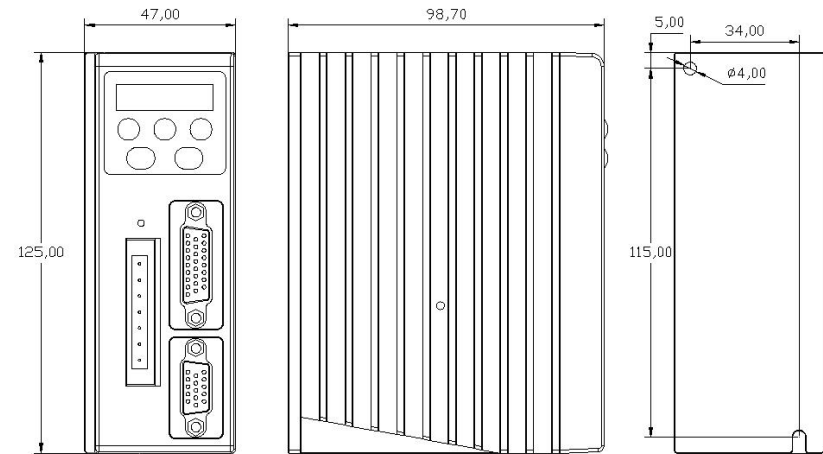
1、 Electrical index

- Voltage input range: DC : 36V~50V
- Maximum output current: 30A
- Pulse form: pulse + direction, CW / CCW
- Logic input current: 10 ~ 20mA
- Impulse response frequency: 0 ~ 200kHz
- Insulation resistance: 500M

2、 Environmental indicators

- Storage temperature: -20 °C ~ 80 °C
- Operating temperature: 0 °C ~ 55 °C
- Humidity: 90% RH (non-condensing)
- Vibration frequency: less than 0.5G (4.9m / s 2) 10Hz ~ 60Hz
(not continuous operation)

3、 Installation dimension drawing (mm)



P1 Driver installation dimensions

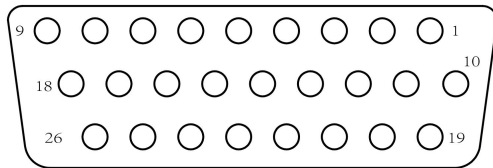
二、Wiring

1、Driver terminal description

1) Definition of power terminals

No.	Symbol	Function definition
1	DC+	DC power supply terminal (36-50VDC) 400W recommended 48V
2	GND	
3	BR	External braking resistor
4	U	Motor power line terminal See the label on the motor for the wiring color
5	V	
6	W	
7	none	

2) Driver control terminal definition (26 pin DB plug)



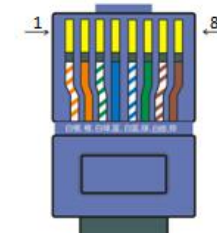
Terminal welding surface

Pin	Symbol	Definition	Pin	Symbol	Definition
1	PUL-	Pulse input negative	18	ALM-	Alarm output negative
2	PUL+	Pulse input positive	10	+5V	5V power output
3	DIR-	Direction input negative	26	GND	Internal power ground
4	DIR+	Direction input positive	20	EA+	A phase differential pulse feedback output
5	ENA+	Enable input positive	21	EA-	
6	ENA-	Enable input negative	22	EB+	B-phase differential

7	Pend+	Positioning completion output is positive	23	EB-	C-pulse feedback output
8	Pend-	Positioning completion output is negative	24	EZ+	Z-phase differential pulse feedback output
9	ALM+	Alarm output is positive	25	EZ-	

3) Communication port pin definition (RJ45 network port)

Pin	Definition
3	GND
5	TXD
7	TXD



Communication line with computer

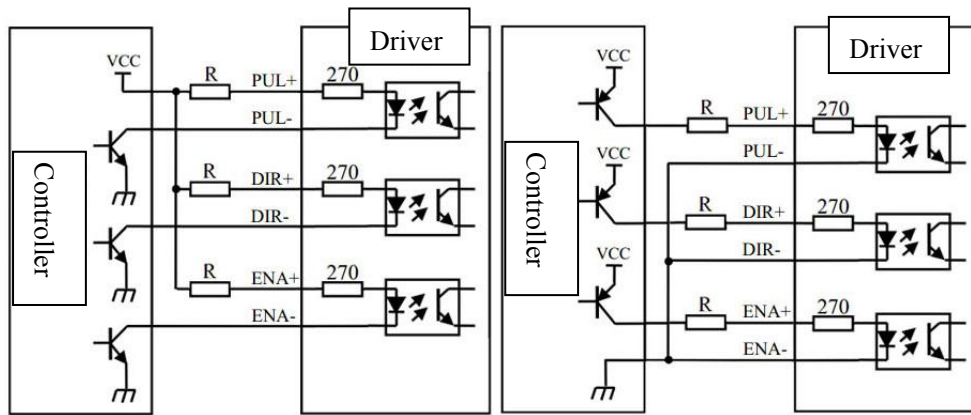
PC terminal (9-pin female)		Drive end (network port)
2 (RXD)		5 (TXD)
3 (TXD)		7 (RXD)
5 (GND)		3 (GND)

4) Definition of driver encoder terminals (15-pin DB plug)

Pin	Symbol	Color	Definition
1	EA+	yellow	Encoder A signal is positive
2	EB+	green	Encoder B signal is positive
3	GND	black	Encoder power ground

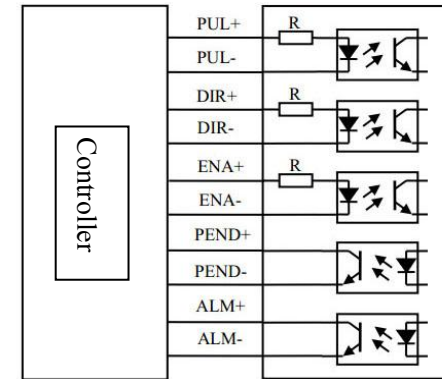
4	EZ+	Brown	Encoder Z signal is positive
6	HW+	White	Encoder W signal is positive
7	HU+	gray	Encoder U signal is positive
8	HV+	Orange	Encoder V signal is positive
10	EZ-	Brown black	Encoder Z signal negative
11	EA-	Yellow black	Encoder A signal negative
12	EB-	Green black	Encoder B signal negative
13	VCC	red	Encoder + 5V input

2、Control port wiring



P2 Common anode connection

P3 Common cathode connection

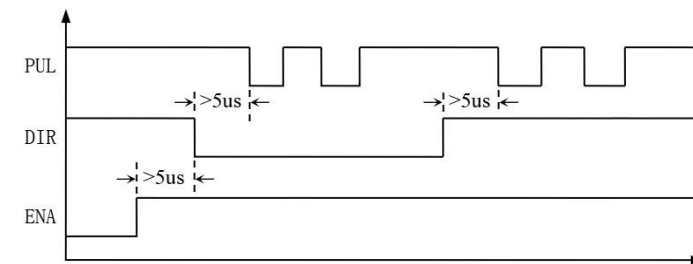


P4 Differential signal input and output signal connection

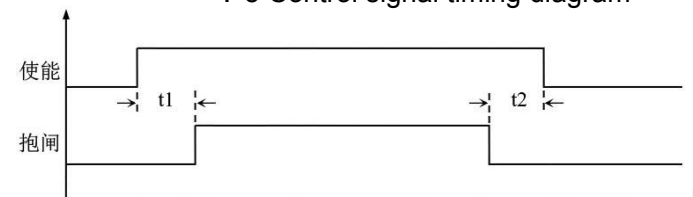
Note: 1) When the control signal voltage VCC = 24V, the current limiting resistor R = 1.5K;

2) When the control signal voltage VCC = 5V, the current limiting resistor R = 0;

3、Control signal timing diagram



P5 Control signal timing diagram



P6 Motor brake signaltiming diagram

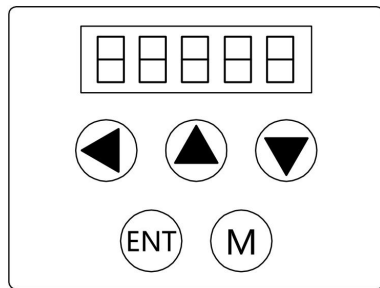
Note: t1: Delay brake opening time

t2: Delay brake closing time

三、Parameter settings

This series of drivers can be set directly through the keypad of the driver. The debugging panel and debugging steps are as follows:

1、Introduction to the debug panel



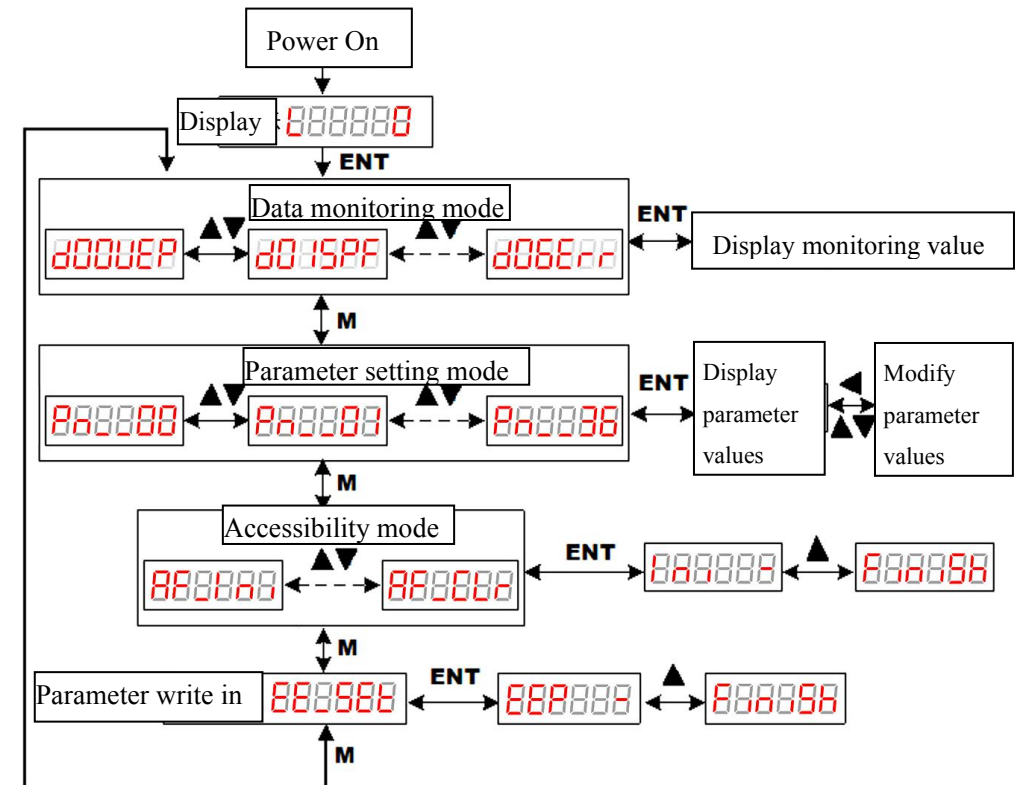
Key	Key Description
	Input bit (blinking) shift left
	Switch sub menus, increase values
	Switch sub-menus, decrease values
	Enter submenu, confirm input
	Switchable between modes




2、Data monitoring




LED display	Description
	The current position error is converted to the number of code disk lines
	Current speed feedback (rpm)
	Current speed reference (rpm)
	Number of pulses after 4 times the frequency of the current position feedback code disc, calculated from power-on initialization

	Given the original number of pulses at the current position, it is calculated from power-on initialization
	Current current peak (mA)
	Displays the current fault value.

3、Operating procedures



Restore factory settings: Press  key change to “AF_Ini”, then press  key, display “Inl -”, then press  key, the setting is down when the screen display “Finish”

Clear alarm log: Press  key change to “AF_CLr”, then press  key, display “CLr -”, then press  key, the setting is down when the screen display “Finish”。

Parameter write in: Press  键 key change to “EE_Set”, then press  key, display “EEP -”, then long press  **key for 5 seconds**, the setting is down when the screen display “Finish”。

4、Specific parameter description

Serial number	Parameter name	Parameter range	Defaults	Description
PA_000	Electronic gear molecule	1~32767	1	
PA_001	Electronic Gear Denominator	1~32767	1	
PA_002	Input pulse filter cutoff frequency	1~500	70	
PA_003	Speed sampling filter cutoff frequency	100~2000	800	
PA_004	Current loop filter cutoff frequency	350~2500	1100	
PA_005	Single and double pulse selection	0~1	0	0:PUL+DIR 1:CCW/CW

PA_006	Pulse active edge selection	0~1	0	
PA_007	Positive direction level selection	0~1	0	
PA_008	Control mode selection	1~3	1	1: external pulse 2: internal position 3: internal speed
PA_009	Current loop scale factor	200~32767		
PA_010	Current loop integration coefficient	0~32767		
PA_011	Speed loop high-speed proportionality factor	100~32767	3200	
PA_012	Speed loop low speed proportionality factor	100~32767	2900	
PA_013	Speed loop integration coefficient	0~32767	400	
PA_014	Position loop high-speed proportionality factor	10~32767	2700	
PA_015	Position loop low speed proportionality factor	10~32767	2200	
PA_016	Speed feedforward coefficient	0~1000	400	
PA_017	Acceleration feed-forward coefficient	0~32767	0	
PA_018	Gravity compensation coefficient	20~180	100	
PA_019	Friction compensation method	0~1	0	
PA_020	Friction compensation coefficient	20~180	100	
PA_021	Peak current limit	100~19456	18432	
PA_022	Continuous output current	35~8687	8687	

	limit			
PA_023	Maximum speed limit	1~100	100	
PA_024	Number of motor pole pairs(Do not change it)	2~30	4	
PA_025	Yard line	1000~32768	1024	
PA_026	Motor selection (Divided into 4 pairs of poles and 5 pairs of poles motors)	1~100	13	12:200W(4 pairs) 13:400W(4 pairs) 14:200W(5 pairs) 15:400W(5 pairs)
PA_027	Manufacturer parameters	0~32767	40	
PA_028	First notch point frequency	500~5000	5000	
PA_029	First notch point depth	0~20	8	
PA_030	Second notch point frequency	500~5000	5000	
PA_031	Second notch point depth	0~20	8	
PA_032	Number of command loops for the first segment	0~32767	50	
PA_033	Low position of the first position instruction	0~32767	0	
PA_034	First speed	7000~13000	10600	
PA_035	First period plus time	1~200	100	
PA_036	Number of second position command cycles	0~32767	50	
PA_037	Low position of second position instruction	0~32767	0	
PA_038	Second speed	7000~13000	9400	
PA_039	Second period plus time	1~200	100	
PA_040	3rd position command circle	0~32767	50	
PA_041	The third position instruction low	0~32767	0	

PA_042	Third speed	7000~13000	11200	
PA_043	Third period plus time	1~200	100	
PA_044	The fourth stage position command	0~32767	50	
PA_045	Low position of fourth position command	0~32767	0	
PA_046	Fourth speed	7000~13000	8800	
PA_047	Fourth period plus time	1~200	100	
PA_048	Position tracking error limit	0~32767	10000	
PA_049	In-place output error limit	0~32767	4	

四、Alarm processing

Alarm code	Fault description	Troubleshooting
ER_001	Overcurrent alarm	1. Motor line power line short circuit or motor failure; 2. The current loop parameter of the driver is too large; 3. If there is no error in the above two check points, it may be an internal failure of the driver, which needs to be returned to the factory for testing.
ER_002	Over-voltage alarm	1. The power supply voltage is too high or the voltage is unstable. Check whether the transformer output voltage is normal; 2. The internal fault of the driver needs to be returned to the factory for testing.
ER_003 ER_010	Encoder failure	1. The encoder cable is disconnected or has poor contact. 2. The drive encoder input circuit is damaged.

ER_004	Overload alarm	The motor is stalled or the load is too large.
ER_005	Phase sequence error	1. The phase sequence of the motor line is wrong. 2. The encoder wire phase sequence is wrong or the encoder is damaged.
ER_007	Excessive position deviation	1. The phase sequence of the motor power line is reversed. Check the line sequence according to the label on the motor. 2. Looseness, poor contact, or breakage of the motor power line or encoder line will cause this failure. If there is a spare cable, try the cable;
ER_008	Brake failure	1. The brake current of the driver is too large. 2. The brake circuit of the driver is damaged.

Appendix: DC servo motor parameters

400WDC servo motor parameter

Project	Parameter	Unit
Rated output power	400	W
Rated voltage	48	VDC
Rated speed	3000	rpm
Peak speed	3200	rpm
Rated torque	1.27	N.M
Peak torque	2.54	N.M
Rated current	11+/-10%	Ams
Peak current	22+/-10%	Ams
Torque coefficient	0.12+/-10%	N.m/Ams

Back EMF Constant	7.0+/-10%	V/KRPM
Line-to-line resistance	0.27+/-10%	Ω
Line-to-line inductance	0.56+/-20%	mH
Moment of inertia	0.58+/-10%	Kg.m ² *10 ⁻⁴
Number of pole pairs	5	pairs of poles
Encoder	2500PPR	Incremental
Motor protection level	IP54	
Brake holding torque	No	N.m
Brake holding voltage	No.	DC
Insulation class	F class	
Insulation resistor	>200m Ω	DC500V
Turn around	Seen from the motor shaft extension end, it rotates counterclockwise (CCW)	

