

NCSERVO
'TROL'

DZPR[®] C NCSERVO
ONTROL.com

伺服驱动器用户手册

Technical Manual

淼信科技

MIAOXIN Electrical Co., Ltd

[Http://www.cncservocontrol.com](http://www.cncservocontrol.com)

Safety precautions

To ensure the safe use of this product, the following safety signs must be observed so as to avoid damage to personnel or equipment.

 警告 Notice	Indicates that an error operation can cause danger, mild or moderate bodily harm, damage to equipment, or even fire.
 危险 Danger	Represents an error operation that raises danger, causing injury or death.
	Inhibit operation.
	Indicates that operations must be performed.

After the arrival of the product, the following important matters must be observed when confirming, installing, wiring, running, maintaining and checking the products:

- Notes on installation:

 警告 Notice
It is strictly prohibited to install in humid and corrosive environment, flammable gas environment, near combustible and dust, metal powder environment, otherwise there may be electric shock and fire.

- Precautions for wiring:

!^{警告} Notice

- ▲ The ground terminal of the servo driver must be earthed. Otherwise, an electric shock and fire may occur.
- ▲ Strictly prohibit the servo driver output terminals U, V, W connected to three-phase power supply, otherwise it may hurt and cause fire.
- ▲ 220V drive is strictly prohibited to connect to the 380V power supply, otherwise you can get an electric shock and a fire.
- ▲ Make sure the power terminals and motor terminals are tightened, or there may be a fire.

- Considerations for runtime:

!^{危险} Danger

- ▲ In operation, it is strictly forbidden to touch any rotating parts, or you may be injured.
- ▲ In operation, do not touch the motor and drive, or you may be burned.

!^{警告} Notice

- ▲ Before running, you must select the correct motor type, otherwise, may be injured, damage to equipment.
- ▲ Before running, you must set the user parameters that suit the application. Otherwise, you

may be harmed and damage the equipment.

- ▲ Before running, make sure that the machine can be stopped at any time, or you may get injured.

● Precautions for maintenance and inspection:



- ▲ Do not touch the inside of servo drive, or you may get an electric shock.
- ▲ After closing the power supply, it is strictly forbidden to touch the terminal within 5 minutes. Otherwise, the residual voltage may cause an electric shock.
- ▲ Disassembly servo motor is not allowed, otherwise it is possible to get an electric shock.

Catalog

The first chapter: product inspection and installation 错误!未定义书签。

1.1 Product inspection - 14 -

1.2 id label - 14 -

1.3 Product front panel - 15 -

1.4 Driver specification - 17 -

1.5 Servo motor installation - 19 -

1.6 Motor rotation direction - 21 -

1.7 Servo unit and motor model adaptation - 21 -

The second chapter wiring - 24 -

2.1 System composition and connection - 24 -

2.1.1 220V servo driver wiring diagram - 24 -

2.1.2 80V servo driver wiring diagram - 25 -

2.1.3 Wiring instructions - 26 -

2.1.4 Wire specification	- 27 -
2.1.5 Strong terminal description.....	- 28 -
2.2 CN1 communication interface	- 30 -
2.3 CN2 control interface.....	- 32 -
2.4 CN3 encoder interface	- 42 -
2.3 Standard connection.....	- 44 -
2.3.1 Position control wiring diagram (Standard Version)	- 44 -
2.3.2 Position control wiring diagram (Advanced Edition).....	- 45 -
2.3.3 Speed / torque control wiring diagram (Standard Version)	- 46 -
2.3.4 Speed / torque control wiring diagram (Advanced Edition).....	- 47 -
The third chapter shows and operates.....	- 48 -
3.1 Panel composition.....	- 48 -
3.1.1 Display and button (Standard Edition)	- 48 -
3.1.2 Display and button (Advanced Edition).....	- 49 -

3.2 Mode work change.....	- 49 -
3.3 Monitoring mode (Dn) operation	- 50 -
3.4 Auxiliary mode (Fn) operation.....	- 51 -
3.5 User parameter mode (Pn) operation	- 63 -
The fourth chapter, Pn function parameter.....	- 65 -
4.1 Parameter settings panel action.....	- 65 -
4.2 Parameter list.....	- 65 -
4.2.1 System control parameter	- 65 -
4.2.2 Position control parameter	- 71 -
4.2.3 Speed control parameter.....	- 75 -
4.2.4 Torque control parameter	- 77 -
4.2.5 Extended control parameter.....	- 79 -
4.3 Parameter detail	- 82 -
4.3.1 system parameter.....	- 82 -

4.3.2 Position control parameter	- 120 -
4.3.3 Speed control parameter.....	- 133 -
4.3.4 Torque control parameter	- 142 -
4.3.5 Extended control parameter.....	- 151 -
4.4 Port function detail	- 157 -
4.4.1 SigIn input port function detailed	- 157 -
4.4.2 SigOut output port function detailed	- 162 -
The fifth chapter monitoring parameters and operation	- 165 -
5.1 Monitor panel operation	- 165 -
5.2 List of monitoring parameters.....	- 165 -
The sixth chapter, alarm and treatment.....	- 167 -
6.1 Alarm clearing operation.....	- 168 -
6.2 Alert content and Countermeasures.....	- 168 -
6.3 Other fault phenomena and treatment measures	- 178 -

The seventh chapter is Modbus serial communication..... - 185 -

7.1 Introduction to Modbus Communications - 185 -

7.1.2 Coding meaning - 185 -

7.1.3 data structure - 186 -

7.2 Communication protocol architecture - 187 -

7.3 Common command code - 189 -

7.3.1 Read multiple registers - 189 -

7.3.2 Write single register - 193 -

7.3.3 Diagnosis - 196 -

7.3.4 Write multiple registers - 200 -

7.3.5 Check code calculation - 205 -

7.3.6 Exception code - 210 -

7.4 Servo parameter, status information, communication address - 212 -

The eighth chapter, operation and adjustment - 213 -

8.1 Inching operation - 214 -

8.2 Push-button speed control - 214 -

8.3 Gain tuning..... - 216 -

8.3.1 System inertia identification..... - 217 -

8.3.2 Automatic gain adjustment - 221 -

8.3.3 Manual gain adjustment..... - 223 -

8.3.4 Jitter suppression method..... - 225 -

The ninth chapter, servo unit control structure and example - 227 -

9.1 Position control example - 227 -

9.1.1 Position control structure diagram - 227 -

9.1.2 Example of position control..... - 227 -

9.2 Example of speed control..... - 228 -

9.2.1 Speed control structure diagram..... - 228 -

9.2.2 Example of speed control..... - 228 -

9.3 Torque control example - 229 -

9.3.1 Torque control structure diagram - 229 -

9.3.2 Example of torque control - 229 -

9.4 Electronic gear ratio calculation..... - 230 -

9.5 Example of electronic gear ratio - 233 -

9.5.1 ball screw..... - 233 -

9.5.2 Round table..... - 234 -

9.5.3 Belt + pulley - 235 -

The tenth chapter, the use of absolute servo unit..... - 236 -

10.1 Absolute data output mode - 236 -

10.2 Absolute data transceiver timing..... - 238 -

10.3 ABZ pulse frequency division output..... - 246 -

10.4 Initialization of absolute encoder - 246 -

10.5 Installation of absolute encoder batteries..... - 247 -

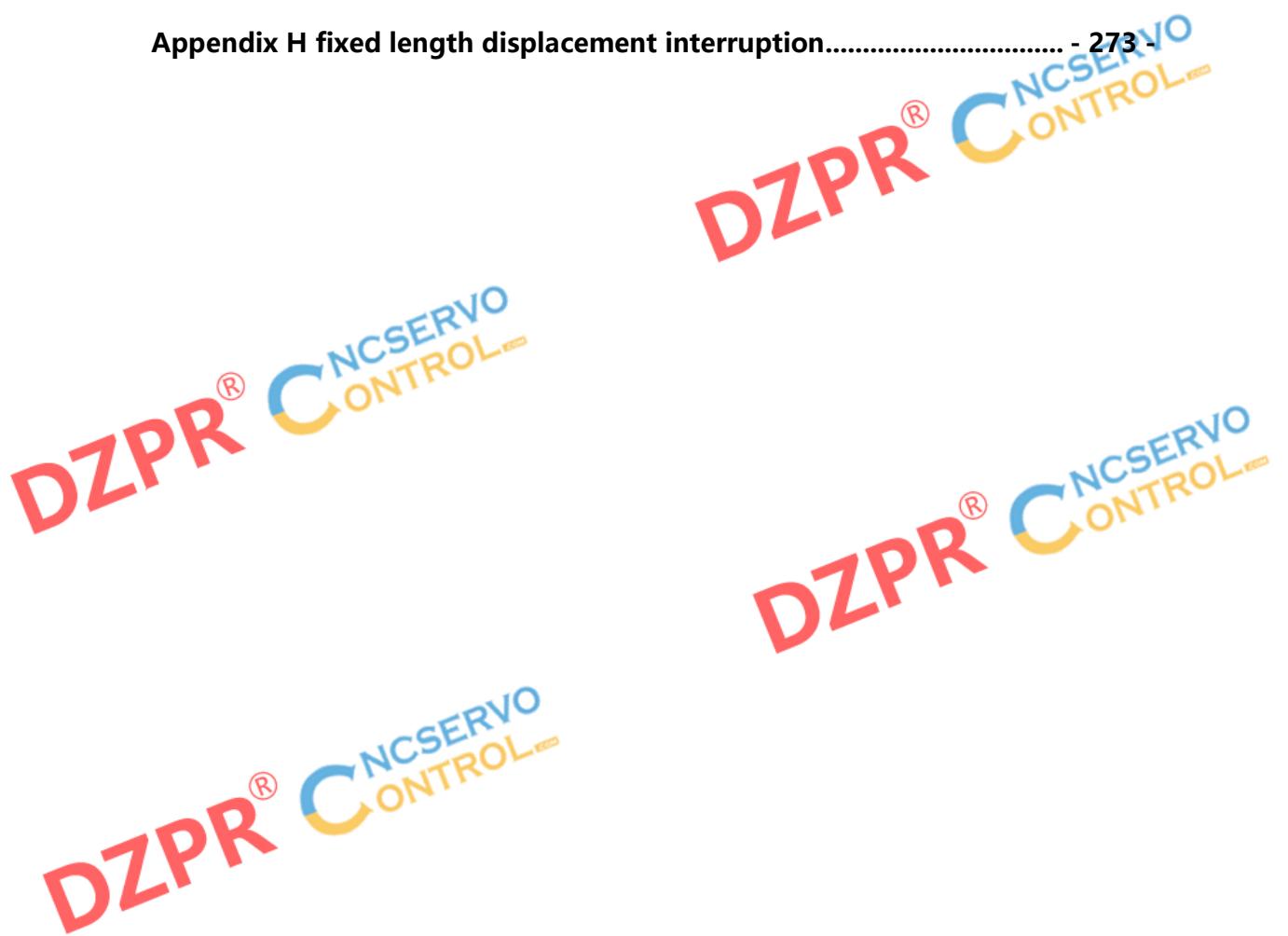
Appendix.....	- 250 -
 Appendix A gain switching.....	- 250 -
 Appendix B control mode switching.....	- 251 -
B.1 Position / speed control mode switching	251
B.2 Position / torque control mode switching.....	- 253 -
B.3 Speed / torque control mode switching	- 254 -
 Appendix C servo drive operation timing	- 255 -
C.1 ON/OFF timing of motors at rest.....	255
C.2 ON/OFF timing of motor operation.....	- 256 -
C.3 Timing of alarm when servo ON	- 257 -
 Appendix D electromagnetic brake	- 257 -
 Appendix E regenerative braking resistor.....	- 258 -
 Appendix F origin regression.....	- 260 -
F1.1 Origin regression operation step.....	- 260 -

F1.2 Origin regression trigger timing - 261 -

F1.3 Origin regression, combination model, time series - 265 -

Appendix G internal position control..... - 271 -

Appendix H fixed length displacement interruption..... - 273 -



The first chapter: product inspection and installation

1

1.1 Product inspection

The products in the factory have done a complete functional test, in order to prevent the process of transporting products caused by negligence are not normal, please check the following items after unpacking:

- Check whether servo drive and servo motors are the same as those ordered.
- Check the servo driver and servo motor for damage and scratching. Please do not wire or send electricity when causing damage in transit.
- Check that the servo drive and servo motor are loose or loose. Is there a loose screw, whether the screws are not locked or broken.
- Check that the rotor shaft of the servo motor can rotate smoothly by hand. The motor with the brake can not be rotated directly.

If any of the above is out of order or abnormal, please contact us immediately.

1.2 id label



Danger: Please follow the instructions, installation, wiring and use, be sure to reliably grounding

High-voltage power supply: Please don't disassemble the driver during the 5 minutes when the power is on and the power is cut off, so as to prevent electric shock

For full user manual

or check our authorized distributor information,

Please contact

sales@cncservocontrol.com