

Xinje servo software

User manual

Wuxi Xinje Electric Co., Ltd.

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1.1 Servo connect to PC

The communication mode between the upper computer software and the servo driver is wired communication. The DB9 cable is connected to the computer (the laptop needs to add a USB convertor), and the other end is connected to the servo driver. The connection mode is as follows.



1.2 Start [driver communication]

Click **(**communication **)** on the main interface, pop up **(**communicate with drive **)** window, which will show drive and motor information.

Xinje Servo Drive Debugging Software File(F) Tool(T) Option(O) Help(H)				-		_			arvo is in h	– 🗆 X
Communication 💭 Parameter 📐 Wave	Curve 🔉 Gain Adjustr	nent 🤤 Mechanical Pro	perties	r Comparison U Fast Do	wnload 🕨 Test Run	Encoder S	etting 🛛 🖳 Monitor 🧃	Alarm		J State
Parameter ×										•
i Open(O) 💾 Save(S)										
Overview 🗸	Read Wri	te Search:	Restore							
Overview Överview of P group	Serial Number	Name		Set Value	Uni t	Min		Max	Default Value	^
Function selection PO	P0-01	Control mode 1		2	-	1		10	6	
	P0-02	Control mode 2		6	-	1		10	6	
Speed control parameter P3	P0-03	Enable mode		2	-	0		3	1	
-Signal parameter setting P5	P0-04	Rigid level		15	-	0		63	15	
P2 correlation control paramete Communication parameter setting	P0-05	Rotation direction d	Communicate wit	th Drive			×	1	0	
- Sampling configuration paramete	P0-06	The load type	Drive Information		Motor Information			10	0	
Full closed loop function param Drive Parameters PE	P0-07	First inertia ratio	Servo Model:	DS5E-20P7-PTA	Motor model:	MS5S-80ST-	-C02430B-20P7	50000	500	
U group monitors state contents	P0-09.0	Input pulse command	Firmware Version:	3770	Motor code:	5011		1	0	
V1 group	P0-09.2	Input pulse command	Hardware Version:	3121	Rated speed:	3000rpm		£	£	
	P0-10.0	Pulse instruction fo	Run Time:	786:32:29	Maximum speed:	5200rpm		2	2	
	P0-11~P0-12	pulses per rotate	Power on Times:	17	Rated current:	4A		99999999	10000	
	P0-13	Electronic gear mole			Peak current:	12Å		65535	1	
	P0-14	Electronic gear deno			Rated torque:	2.39Nm		65535	1	
	P0-15	Pulse frequency corr			Feedback accuracy	: 131072		10000	1000	
	P0-16	Speed command pulse						10000	100	
	P0-23	The pulse deviation						65535	2000	
	P0-24.0	Discharge resistor p	SerialPort Au	to Connect Disconne	et	OK	Cancel	2	0	
	P0-25	Discharge resistance						65535	100	
	Notes: Control mode 1 1- Internal torgue mode 2- External malog torgue mode 3- Internal typed mode 4-External malog torgue mode 5- External mode mode 6-External mode mode 7-External mode mode									
< >	Modify:OFF Effectiv OFF	e:Power Modify Effective	Anytime Power off	Modify:OFF ffective:immediately	Modify: Anytime E: immediatel	ffective .y	Modified	Only Axi	s-1 can be modified	Modify: Prohibited
Communication statum on line - Eachle	Drive to may DEEE 2007 I	TA Matastran MCEC 9	005T C03430B 30D7 Va							

1.3 Close **[** communicate with drive **]** window

Click of (communicate with drive) window to close the window.

1.4 【Communicate with drive】 window

Communicate with Drive	×
Drive Information	Motor Information
Servo Model: DS5E-20P7-PTA	Motor model: MS55-80ST-C02430B-20P7
Firmware Version: 3770	Motor ² code: 5011
Hardware Version: 3121	Rated speed: 3000rpm
Run Time: 785:49:21	Maximum speed: 5200rpm
Power on Times: 17 1	Rated current: 4A 2
	Peak current: 12A
	Rated torque: 2.39Nm
	Feedback accuracy: 131072
2 4 5	6 7
SerialPort Auto Connect Discon	unect OK Cancel

Area 1: drive information

Area 2: motor information

Note: if the servo motor is not connected, the information displayed in area 2 will be incomplete, and the motor model and motor code will not be displayed.

Area 3: serial port configuration

SerialPort

Click [serial port], pop up [connect servo] window, click drop down box to set the serial port number, baud rate, data bit and so on. Please check P7-10 to know the RS232 parameters.

Connect Servo	×
SerialPorts:	C0M3 ~
BaudRate:	19200 ~
StopBits:	8
Parity:	Even 🗸
DataBits:	2 ~
Servo Type:	Single Axis \sim
Station1:	1
	OK Cancel

Note: if the serial port configuration is correct, the information will be displayed in area 1 and area 2. If the configuration is wrong or the serial port is occupied, the [communicate with drive] window will display [current serial port is not available, please check and configure the serial port again].

Area 4: auto connect

Auto Connect

The automatic connection is only valid when the station number is 1. Automatic connection can automatically find the serial port that can communicate with the servo and read the information of the driver and motor. Area 5: disconnect

Disconnect

Click **[**disconnect] to disconnect the connection between software and drive.

Area 6: ok

OK

Area 1 and area 2 display the correct information, and there is no prompt [no servo connection or servo not powered up], click OK to exit [communicate with drive], starts reading data at the same time. As shown in the following figure, the progress bar (data reading progress) is displayed in the lower right corner of the interface during data reading.



Area 7: cancel

Cancel

Close [communicate with servo] window.

2 Basic introduction

2.1 File type

In the files used by servo software, in order to identify different function files, different file name suffixes are used to distinguish them. Please do not change the suffix, otherwise, the servo software unable to read.

Project files	Fie name.SPRO
Parameter setting-parameter file	Fie name.SVO
Curve collection-data file	Fie name.CSV (open with Excel)
Curve collection-image file	Fie name.emf/.png/.gif/.jpg/.tif/.bmp
Curve collection-export data	Fie name.csv(open with Excel)
Realtime monitor-recording file	Fie name.RSVM
Realtime monitor - image file	Fie name.emf/.png/.gif/.jpg/.tif/.bmp
Mechanical properties- data file	Fie name.SVP
Mechanical properties - image file	Fie name.emf/.png/.gif/.jpg/.tif/.bmp

2.2 Main interface

🛛 Xinje Servo Drive Debugging Software		2				4		
ile(F) Tool(T) Option(O) Help(H)		2				Servo	is in hh sta	ate
Communication 💭 Parameter 🔃 Wave	Curve 😲 Gain Adjustm	hent 🤟 Mechanical Properties 🔢 Parameter	r Comparison 🔮 Fast Down	iload 🕨 lest Run 🔛 Enco	oder Setting 🔄 Monitor	Alarm	15 11 00 500	
Parameter ×								
🖥 Open(O) 💾 Save(S)					3			
verview ~	Read Writ	e Search: Restore						
-Overview -Overview of P group	Serial Number	Name	Set Value	Unit	Min	Max	Default Value	
- Function selection PO	P0-01	Control mode 1	2	-	1	10	6	
- Advanced tuning parameters P2	P0-02	Control mode 2	6	-	1	10	6	
- Speed control parameter P3 - Internal position parameter P4	P0-03	Enable mode	2	-	0	3	1	
-Signal parameter setting P5	P0-04	Rigid level	15	-	0	63	15	
	P0-05	Rotation direction definition	0	-	0	1	0	
	P0-06	The load type	0	-	0	10	0	_
Drive Parameters PE	P0-07	First inertia ratio	5000	1%	0	50000	500	
U group monitors state contents	P0-09.0	Input pulse command positive direction	0	-	0	1	0	
- U1 group	P0-09.2	Input pulse command filtering time	f	-	0	£	£	
U2 group U3 group	P0-10.0	Pulse instruction form	2	-	0	2	2	
	PO-11~PO-12	pulses per rotate	10000	1 pul	0	99999999	10000	
	P0-13	Electronic gear molecules	1	-	0	65535	1	
	P0-14	Electronic gear denominator	1	-	0	65535	1	
	P0-15	Pulse frequency corresponding to rate	1000	100Hz	1	10000	1000	
	P0-16	Speed command pulse filtering time	100	0.01ms	0	10000	100	
	P0-23	The pulse deviation limit	2000	0.01圈	0	65535	2000	
	P0-24.0	Discharge resistor power protection	0	-	0	2	0	
	P0-25	Discharge resistance power value	100	w	1	65535	100	
	Notes: Control mode 1 1- Internal torque mo 2- External analog to 3- Internal speed moo 5- Internal position 6-External pulse posi 7-External pulse spee	l orque mode erd mode mode tion mode da mode						
< 5 <u>6</u> >	Modify:OFF Effective OFF 7	Power Modify:Anytime Effective:Power off E	Modify:OFF ffective:immediately	Modify:Anytime Effective immediately	Modified	Only Axis-1 can	be modified Modify	Prohibited
Communication status: on-line Enable	Drive type: DS5E-20P7-P	TA Motor type: MS5S-80ST-C02430B-20P7 Ve	ersion:3770				8	v2.3 2021

Area 1: toolbar

Area 2: function bar

Area 3: function display area (when offline, parameter setting, gain adjustment, test run, monitor and alarm functions are not available. When online, all functions are open)

Area 4: display the current status of servo

In the servo state display, the letter description (bb: idle state; Run: running; P-OT: forward drive forbidden state; N-OT: reverse drive forbidden state)

Area 5: display the communication status of upper computer. When offline, double-click to pop up the communication interface with drive. When online, double-click to change to offline.

Area 6: display enable status. When P0-03 is 2, double-click is valid, enabling is on or off, double click is invalid in other enabling mode.

Area 7: display driver model, motor model and firmware version information.

Area 8: display the upper computer version number.

Samua	Function										
Servo	Communi	Parameter	Curve	Realtime	Gain	Mechanical	Parameter	Test run	Monitor	alarm	
series	-cation	setting	collection	monitor	adjust	properties	compare				
DS3	\checkmark	\checkmark	\checkmark				\checkmark	\checkmark	\checkmark	\checkmark	
DS3E	\checkmark	\checkmark	\checkmark				\checkmark	\checkmark	\checkmark	\checkmark	
DS5L	\checkmark										
DS5B	\checkmark										
DS5E	\checkmark										
DS5C	\checkmark										
DS5F	\checkmark										
DS5K	\checkmark										
DF3E	\checkmark										
DS5L1	\checkmark										
DS5C1	\checkmark										
DS5N	\checkmark										
DM5F	\checkmark										

Different drives support different functions. Please refer to the following table:

3 Menu

3.1 File

Click the file in the menu bar to pop up the drop-down box, including new project, open project, save project, close project and exit function.

File(F) Tool(T) Option(O) Help(H)

3.1.1 New project

	Click	new project	in	[file]	to open the select servo model dialog box
--	-------	-------------	----	--------	---

🔁 Choose Servo Mod	el	\times
Servo Series: DS3E_L DS5E DS5L DS5C DS5C1 DS5F DS5K DF3E DS5L1 DS5N DM5F	Servo Model: DS3-20P2-PNA DS3-20P7-PTA DS3-20P7-PTA DS3-20P7-PTA DS3-20P1-PQA DS3-20P2-PQA DS3-20P4-PQA DS3-20P7-PQA DS3-21P5-PQA DS3-21P5-PQA DS3-41P5-PQA DS3-41P5-PQA DS3-41P5-PQA DS3-415P0-PQA	Firmware: 3220 3250 3260 3270 3280
		OK Cancel

Open the new project offline, select the servo model to create a new one, and the similarities and differences of servo will not be detected.

Open the new project online and select the servo model to create. If the firmware is the same as the current servo model, a prompt box pops up, and click OK to disconnect the upper computer from the servo.



Open the new project online and select the servo model to create a new project. If it is the same as the current servo model and the firmware version is different, a prompt box will pop up and the connection with the servo will be automatically disconnected.



Open the new project online and select the servo model to create. If the firmware version is different from the current servo model, a prompt box pops up, and click OK to disconnect the upper computer from the servo.



3.1.2 Open project

Open the saved file.

Click [file] [open project], pop up the open project dialog box.

Open file format includes .spro/.svo/.svp/.svm.

🗐 Open				×
← → 、 ↑ 📙 《 伺服 → 伺服上位机保存文件 →	文件工程	∽ ē	Search 文件工程	م
Organize 👻 New folder				
 Name DS5E-20P7-PTA_366D_20180628020845.sp DS5E-20P7-PTA_3640_20180915104601.spro DS5E-20P4-PTA_3620_2018033013420.spro DS5E-20P4-PTA_3710_20180921040213.spro DS5E-20P7-PTA_372C_20190221014452.sp DS5E-20P7-PTA_3730_20190307025052.spro DS5E-20P7-PTA_3740_20190801092345.spro DS5E-20P7-PTA_374C_20191021035836.sp DS5C-22P6-PTA_3732_20201228034526 DM5F-20P4-PTA_3741_20201113021655 2 DS5C-20P4-PTA_3741_20201113021655 2 	Date modified 9/18/2018 1:46 PM 9/18/2018 1:46 PM 9/18/2018 1:46 PM 9/21/2018 4:01 PM 2/21/2019 1:44 PM 3/7/2019 3:01 PM 6/13/2019 9:57 AM 8/1/2019 9:57 AM 10/22/2019 8:59 AM 1/21/2021 4:29 PM 3/4/2021 2:19 PM 3/9/2021 9:15 AM	Type SPRO File SPRO File	Size 20 KB 85 KB 5 KB 43 KB 108 KB 5 KB 2 KB 5 KB 41 KB 40 KB 8 KB 53 KB	
File <u>n</u> ame:	5,5,5,5,5,1,5,1,11	×	SPRO (*.spro) SPRO (*.spro) SVO (*.svo) SVP (*.svp)	
			SVM (*.svm) RSVM (*.rsvm)	

If the project file (. SPRO) and parameter file (. SVO) opened are different from the current servo drive model, a prompt box will pop up and the connection with the servo will be automatically disconnected.



If the driver model is the same as the motor model and the firmware version is different, [version conversion] appears;



If the driver model, motor model and firmware version are the same, open the file directly;

If the current servo software is offline, open the project file directly.

3.1.3 Save porject

Save the file of [parameter], [curve collection], [mechanical properties] as .SPRO files.

🔁 Op	pen				×
~ ·	→ 🔹 🛧 📙 < 文档(E:) > 伺服 > 伺服	L位机保存文件 > 文件工程	~ (5 Search 文件工程	Q
Orga	anize 🔻 New folder			:== :==	- 🔳 🕐
	^ Name	Date modified	Туре	Size	^
	DS5E-20P7-PTA_3710_20180913095700	.spro 9/18/2018 1:46 PM	SPRO File	34 KB	
	DS5E-20P7-PTA_366A_2018061501434	5.sp 9/18/2018 1:46 PM	SPRO File	5 KB	
	DS5E-20P7-PTA_366D_2018062802084	5.sp 9/18/2018 1:46 PM	SPRO File	20 KB	
-	DS5E-20P7-PTA_3640_20180915104601	.spro 9/18/2018 1:46 PM	SPRO File	85 KB	
	DS5B-20P4-PTA_3620_2018033013420.	spro 9/18/2018 1:46 PM	SPRO File	5 KB	
	DS5E-20P4-PTA_3710_20180921040213	.spro 9/21/2018 4:01 PM	SPRO File	43 KB	
4	DS5E-20P7-PTA_372C_20190221014452	2.sp 2/21/2019 1:44 PM	SPRO File	108 KB	
J	DS5E-20P7-PTA_3730_20190307025052	.spro 3/7/2019 3:01 PM	SPRO File	5 KB	
	DS3-20P2-PNA_3220_20190613095738	.spro 6/13/2019 9:57 AM	SPRO File	2 KB	
	DS5F-20P7-PTA_3740_20190801092345	.spro 8/1/2019 9:12 AM	SPRO File	5 KB	
	DS5E-20P7-PTA_374C_20191021035836	5.sp 10/22/2019 8:59 AM	SPRO File	41 KB	
	DS5C-22P6-PTA_3732_20201228034526	5 1/21/2021 4:29 PM	SPRO File	40 KB	
	DM5F-20P4-2A_3770_20210304021926	.spro 3/4/2021 2:19 PM	SPRO File	8 KB	
1	DS5C-20P4-PTA_3741_2020111302165	5 2 3/9/2021 9:15 AM	SPRO File	53 KB	
	DS5C-20P4-PTA_3741_20201113021655	5_2 3/9/2021 9:15 AM	SPRO File	53 KB	~
		2 // 0 /2024 0 / 0 43 4	0000 51		
	File name:			SPRO (*.spro)	~
				Open	Cancel

3.1.4 Close project

Close all the current interfaces and the software is offline.

🔀 Xinje Servo Drive Debugging Software		_	
File(F) Tool(T) Option(O) Help(H)			
📴 Communication) 🔅 Parameter 📐 Wave Curve 🞊 Gain Adjustment 💁 Mechanical Properties 🔢 Parameter Comparison 🕲 Fast Download 🕨 Test Run 📵 Encoder Setting 📳 Monitor 🔺 Alarm 🛛 Set	rvo not	connected	
Comparison where the second			2 20210517
Communication status: on-line		Vé	.5 20210017 .:

3.1.5 Exit

Pop up a prompt box to exit the software.

Question		×
? Are y	ou sure to close tl	ne software?
	ОК	Cancel

3.1.6 Version conversion

When the driver model and motor model of the project file (pro) or parameter file (SVO) saved in the history are the same as the servo currently connected, but the firmware version is different, the following dialog box will appear to prompt the user whether to convert the version.



If the user clicks OK, the software starts version conversion; If the user clicks cancel, the version conversion will exit and the software will be offline automatically.

If the stored parameters need to be manually modified during version conversion, the following interface will be displayed:

Version o	f the convers	ion (3730->3770)										\times
duis	รพ	Chan	ges in	Sej	Attribut	Attribute							_
		mean	ing	Va	3770SN				P0-28.0				^
0	PO-28.0	Have		2	Version				3730				
0	PO-28.1	Have	1	0	Online Va	alue			2				
0	P0-68.0~1	Have		10	Vnit				-	2			
0	P0-68.2~3	Have		0	Min				0				
0	PO-69.0	Have		1	Max				3				
0	P0-69.1	Have		0	Default Value				2				
0	P0-69.2	Have		0	3730relevant parameter				PO-28 Notes: Servo overtravel stop mode				
۲.				>					in the over after stopp received	travel din ing, and	rection is the comman	torque s O nd is	~
-3730Rel:	ated paramet	ers a	nd their at	tribut	es	2							
SN			Version	File	Value	Min	Max		Uni t	Descript	ion		
P0-28			3730	2		0	3	-	-	Notes: Se	rvo overt	ravel s.	
					4								
If the in	f the interface parameter is out of range, the online value of the target version will be used. 5 OK												

Area 1: displays the parameters that need to be manually modified by the user during version conversion.

Area 2: displays the properties of parameters in the project file that need to be converted. Note: the display parameter is the parameter related to the selected parameter in area 1.

Area 3: display the properties of the selected parameters in area 1, which is convenient for modifying the setting value. Area 4: prompt.

Area 5: confirm the modification of parameters and complete version conversion. The save prompt is displayed at the same time.

Question		\times
?	Whether to save the converted version of the file project?	
	OK Cancel	

If the user clicks OK, save the project file; Click cancel to exit the interface and display the converted project file.

Note:

(1) The title of the interface will show which version of the current version conversion is

(2) The parameter serial number displayed in area 1 is the parameter serial number of the current servo version

(3) The setting value displayed in area 1 is the setting value of the relevant parameters in the project file to be converted, not the current servo setting value

(4) The settings in area 1 can be modified

(5) If the modified value is out of range, the following dialog box will appear and the set value will be restored.



3.2 Tool

File(F) Tool(T) Option(O) Help(H)

3.2.1 Gear ratio calculation



🔁 Electronic gear ratio conver	rsion tool		– 🗆 X
☐-Mechanical structure — Ball screw — Round table — Belt + pulley	Mechanical specifications: Ball screw pitch: Reduction ratio:	6 • • mm 1 • / 1 •	
	Encoder resolution: 1 Command unit:	17 Bit ✓ 0.001 ↔ mm	Calculatio
	Number PO-11~PO-12	PO-13 PO-14 PO-92~	PO-93 PO-94~PO-95

For example:

Mechanical structure: ball screw

Ball screw pitch: 6mm

Mechanical reduction ratio: 1:1

Encoder resolution: 17 bits

1 command unit: 0.001

Click [calculate] to get three setting schemes

Method 1: P0-11~P0-12=6000, P0-13=1, P0-14=1, P0-92~P0-93=1, P0-94~P0-95=1

Method 2: P0-11~P0-12=0, P0-13=8192, P0-14=375, P0-92~P0-93=1, P0-94~P0-95=1

Method 3: P0-11~P0-12=0, P0-13=0, P0-14=0, P0-92~P0-93=8192, P0-94~P0-95=375

Example of electronic gear ratio setting:

Step	Ball screw	Round table	Belt + pulley		
	Load shaft P P: pitch 1rotate = P command unit	Load 1 shaft = $\frac{360^{\circ}}{\text{command unit}}$	Load shaft D: pulley diameter 1rotate = $\frac{\pi D}{command unit}$		
1	Ball screw pitch: 6mm	1-circle rotate angle: 360 °	Pulley diameter: 100mm		
1	Machine deceleration ratio: 1:1	Deceleration ratio: 1:3	Deceleration ratio: 1:2		
2	Encoder resolution 131072	Encoder resolution 131072	Encoder resolution 131072		
3	1 command unit: 0.001mm	1 command unit: 0.1 $^{\circ}$	1 command unit: 0.02mm		
4	6mm/0.001mm=6000	360/0.1=3600	314mm/0.02mm=15700		
_	P0-11=6000	P0-11=3600 ×1/3=1200	P0-11=15700 ×1/2=7850		
5	P0-12=0	P0-12=0	P0-12=0		
6	B/A=131072/6000	B/A=131072/1200	B/A=131072/7850		
7	P0-13=131072 P0-14=6000 After reduction P0-13=8192 P0-14=375	P0-13=131072 P0-14=1200 After reduction P0-13=8192 P0-14=75	P0-13=131072P0-14=7850After reductionP0-13=65536P0-14=3925Conver to second gear ratioP0-92=5536P0-93=6P0-94=3925P0-95=0		

3.2.2 Calculator

Click **[**tool**]**, **[**calculator**]**, it will pop up below interface:

Calculator			_	\Box \times
≡ Scie	entific			U
				0
DEG	F-E			
MC	MR	M+ M-	- MS	Mř
⊿ Trigono	metry \lor .	f Function $\scriptstyle{ imes}$		
2 nd	π	e	С	$\langle X \rangle$
x ²	½x	<i>x</i>	exp	mod
$\sqrt{2}\sqrt{x}$	()	n!	÷
x ^y	7	8	9	×
10 ^x	4	5	6	-
log	1	2	3	+
In	+/_	0		=

3.3 Help

File(F) Tool(T) Option(O) Help(H)

3.3.1 Software help

Click **[**help**]**, **[**software help**]** to show the software manual.

3.3.2 Version

Click [help], [version] to show below interface:



3.4 Option

Choose the language.

4 Parameter

4.1 Open the parameter configuration

Click [parameter] to show the parameter setting interface:

Communication	🔅 Parameter	📐 Wave Curve	🗘 Gain Adjustment	🎭 Mechanical Properties	Parameter Comparison	🔮 Fast Download	▶ Test Run	😫 Encoder Setting	📮 Monitor	🔥 Alarm

Parameter									
Copen(O) Save(S)									
- Overview	Aead Writ	e Search:	Kestore		ar. 1.	**	w	n (,), y)	
- Overview of P group	Serial Number	Nane Control and 1	0	et value	Unit	Jun I	Max 10	Default Value	i i
Control parameter P1	10 01	Control mode 1	e 6			1	10	e	
- Advanced tuning parameters P2 	P0=03	Enchla made			-	0	3	1	
-Internal position parameter P4	10-03	Pinid lund	2			0	3 67	1	
	10 04	Regid Level	0	,	_	0	1	0	
Communication parameter settin	10-05	notation direction definition	0		-	0	1	0	
-Full closed loop function paramet	10-06	ine load type	0		-	0	10	0	
- Drive Parameters PE	10-07	first inertia ratio	50	.00	18	-		500	
- 10 group	P0-09.0	Input pulse command positive d	irection U		-		1	0	
	P0-09.2	Input pulse command filtering	tine ±		-	0	£	±	
	P0-10.0	Pulse instruction form	2		-	0	2	2	
us group	P0-11~P0-12	pulses per rotate	10	0000	1 pul	0	99999999	10000	
	P0-13	Electronic gear molecules	1		-	0	65535	1	
	P0-14	Electronic gear denominator	1		-	0	65535	1	
	P0-15	Pulse frequency corresponding	to rate 10	000	100Hz	1	10000	1000	
	P0-16	Speed command pulse filtering	tine 10	00	0.01ms	0	10000	100	
	P0-23	The pulse deviation limit	20	000	0.01圈	0	65535	2000	
	P0-24.0	Discharge resistor power prote	ction 0		-	0	2	0	
	P0-25	Discharge resistance power val	.ue 10	00	¥	1	65535	100	
	P0-26	Discharge resistance	80)	Ω	1	500	80	
	P0-27	Servo OFF stop mode	0		-	0	5	0	
	P0-28.0	Servo overrange stop mode	2		-	0	3	2	
	Notes: Control mode 1 1- Internal torque mo 2- External analog to 3- Internal speed mod 4-External analog spe 5- Internal pulse position 6-External pulse spee 8-XHET bus torque mod	l Jode Serque mode esé mode mode Litorn mode de mode Se							
< >>	Modify:OFF Effective	Power Modify: Anytime	Rffecti	lodify:OFF Mod	ify:Anytime Effective	Modified	Only Axis-1 can b	e Modify:Prohibi	ted

4.2 Open parameter files



The upper computer opens the parameter file online.

1. When the open parameter file has the same driver model, the same motor model and the same firmware, the open file parameters will be displayed. At the same time, the difference between the current connected servo parameters will be compared, which is indicated by bright blue.

Serial Number	Name	Set Value	Unit	Min	Max	Default Value
P0-01	Control mode 1	1	-	1	10	6
P0-02	Control mode 2	6	-	1	10	6
P0-03	Enable mode	1	-	0	3	1
P0-04	Rigid level	15	-	0	63	15
P0-05	Rotation direction definition	1	-	0	1	0
P0-06	The load type	0	-	0	10	0
P0-07	First inertia ratio	4880	1%	0	50000	500
P0-09.0	Input pulse command positive direction	0	-	0	1	0
P0-09.2	Input pulse command filtering time	£	-	0	£	£

2. The firmware of the opened parameter file is different, and the drive model is the same, so version conversion is required.

Quest	ion								\times			
(File ve is diffe	rsion of tl erent, whe	he proj ether t	ject o co	and the c nvert?	urrent v OK	ersion of t	he servo Cancel				
Version o	of the convers	ion (3730-:	>3770)									×
Axis	SN	Changes is	n	Se Vo	Attribut	e						
0	P0-28.0	Have		2	3770SN				PO-28.0			
0	P0-28.1	Have		0	Version	1			2			_
	PO-68.0~1	Have		10	Unit	n de			-			_
	P0-68 2~3	Нате		0	Min				0			
	P0-69_0	Нате		1	Max				3			
	P0-69 1	Have		0	Default V	/alue			2			
	P0-69 2	Howo			3730relev	vant para	meter		PO-28			
<	10 03.2	have		>					Notes: S O-Decele in the c after st received	Servo overtravel eration to stop 1 overtravel direct topping, and the	stop mode : The torqu ion is O command is	ue 🗸
_3730Rel	ated paramet	ers and th	eir att:	ribut	es							
SN		Vers	ion	File	Value	Min	Max	U	nit	Description		
P0-28		3730		2		0	3	-		Notes: Servo	overtravel	. s
If the i	nterface par	ameter is	out of :	range	, the onlin	ne value	of the targ	et version	a will b	e used.	(ОК

3. The open parameter file has different motor model, same drive model and same firmware. A prompt will pop up to confirm whether it is online.

Question		\times
?	The motor code of the current file does not match the motor code of the drive. Please confirm if you are online.	
	OK Cancel	

4. Open the parameter file, drive model is different, motor model is the same, firmware is the same, pop-up prompt box, and then offline.



4.3 Parameter save



Save the current servo driver model, motor model, firmware version and P group parameters.

4.4 Read parameter



Read the current servo data, display the read success dialog box, prompt the user that the data reading completed.

4.5 Write parameter

Read Write Search: Restore	
----------------------------	--

After modifying the parameter setting value, click write parameter to open the write prompt interface.

4.6 Search parameter

Read	Write	Search:		Restore
------	-------	---------	--	---------

Search is to search the parameter serial number and name, support accurate search and fuzzy search, and press enter to search. The parameters searched are displayed in the first row of the table, and press enter to display the next parameter of the current search. Search results are displayed in a loop.

Read Wri	te Search: Control Restore]				
Serial Number	Name	Set Value	Unit	Min	Max	Default Value
P0-02	Control mode 2	6	-	1	10	6
P0-03	Enable mode	2	-	0	3	1
P0-04	Rigid level	15	-	0	63	15
P0-05	Rotation direction definition	0	-	0	1	0
P0-06	The load type	0	-	0	10	0
		1				

4.7 Restore

	Read	Write	Search:	Restore
--	------	-------	---------	---------

Click **(**restore **)** when the enable is shut down. The confirmation dialog box will pop up, and click OK to restore the factory parameters.



If the current servo is in the enabled state, click it and the following dialog box will appear to prompt the user. The user needs to turn off the enable to restore the factory settings.



5 Waveform curve

5.1 Collect curves

The results of the motor action waveform are measured and displayed by drawing the waveform curve, which can be saved as the waveform data file.

File(F) Tool(T) Option(O) Hel	p(H)				
📲 Communication 🛛 🎲 Parameter	🟷 Wave Curve 📌 Gain Adjustme	nt 🛭 🎭 Mechanical Properties	Parameter Comparison	🕓 Fast Download	
Parameter X	Collect Curves				
	Realtime Observation				

Click [waveform curve], [collect curves] to pop up the curve collection window:



5.1.1 Open files

Open the history saved curve data file and display the image (the file path is displayed at the top of the software).



If the chart data file opened is incorrect, the following dialog box will be displayed to prompt the user.



5.1.2 Save files



Save the collected data to the local.

The button here Save(S), what is saved is the sampled data and sampling configuration information (save format is. SVM).

5.1.3 Curves

The results of measuring motor action waveform can be displayed in the figure. By configuring sampling mode, sampling frequency, sampling period and sampling proportion, click to read data, and the graph of the measuring object will be displayed.



Waveform display area (Move the oscillogram: Ctrl + left click, and then move the mouse to drag the oscillogram to move. If the mouse has a wheel, press and hold the wheel to move the mouse and drag the oscillogram to move it.) Right click the curve area to pop up the menu.

		save as		
	export data			
	show point value			
	~	Horizontal_zoom		
	~	Vertical_zoom		
		Revert to the last zoom		
		Revert to the original scale		
R	ligh c	lick curve area —— 【save as】	: save the sampling data image (file name .emf/.png/.gif/.jpg/.tif/.bmp).	
R	ligh c	lick curve area —— 【export c	ata] : save the graph data (file name is .csv, open it with Excel).	
R	Righ click curve area — 【show point value】: mouse passing the point, it will show or hide the value.			
R	ligh c	lick curve area —— 【horizon	al zoom]: horizontal zoom the appointed area.	
R	ligh c	lick curve area —— 【vertical	zoom : vertical zoom the appointed area.	
R	ligh c	lick curve area —— [revert to	the last zoom]: the waveform curve restores the last scale.	
R	ligh c	lick curve area —— [revert to	the original scale]: the waveform curve is restored to the original scale.	
С	Ordina	ate area: double click the ordina	te area to open the coordinate axis attribute dialog box, modify the power value.	

Axis Properties \times ¥1 axis shows 10°n power n = 0 ÷ + Y2 axis shows 10[°]n power n = 0 0 + Y3 axis shows 10[°]n power n = ¥4 axis shows 10[°]n power n = 0 ÷ OK Cancel

display and adjust the ordinate value (x * 10 ^ power value)

Abscissa area: double click the abscissa area to switch between sampling [/ time] and [/ ms].

5.1.4 Sampling mode/period

1. Configure sampling mode, sampling frequency, sampling period and sampling proportion.

Sampling Mode/Interv	al chart 1 channel setting chart 2 cha	nnel setting chart 3	3 channel setting chart 4 channel setting
Sampling Mode:	2-motion trigger \sim Sampling Periods:	1170	Sampling Axis: Axis1 🗸 🗸
Sampling Frequency:	1000	100	

Common sampling mode:

(1) Manual trigger - after the upper computer software configures this mode, the servo power on will always collect data.

When the servo is not enabled, manual trigger can also obtain data.

(2) Motion trigger - after the upper computer software configures this mode, the PLC sends pulse command to make the

motor rotate, and the software detects the existence of servo data area, and the data turns green (collectable)

(3) Enable trigger - after the upper computer software configures this mode, the servo is enabled, and the software detects

that the servo data area exists, and the data becomes green (collectable).

(4) Alarm trigger - after the upper computer software configures this mode, the servo will give an alarm, and the software

will detect the existence of servo data area, and the data will turn green (collectable).

(5) Turn off enable trigger - after the upper computer software configures this mode, the servo is not enabled, and the

software detects that the servo data area exists, and the data turns green (collectable).

Sampling frequency: the smaller the sampling frequency, the longer the sampling time.

Sampling period: set the sampling period, or automatically calculate the maximum sampling period of the current servo according to the configured channel, and write it to the servo.

2. Configure sampling channel, drop down to select the channel to sample, and can support manual input of sampling channel to configure the data to be sampled.

Sampling Mode/Interval chart 1 chann	el setting chart 2 channel setting chart 3 channel setting chart 4 channel setting
CH1: Axis1 V Show	CH2: Axis1 V Show CH3: Axis1 V Show CH4: Axis1 V Show
Position command (command unit) \sim	Position feedback (command unit) v

: You can change the color of the corresponding channel curve display.

Select whether the corresponding channel curve is displayed.

Virtual channel:

At present, the existing virtual channel: speed (virtual channel RPM), acceleration (virtual channel RPM / ms).

When the user configures a channel, if the channel configuration value with virtual channel is configured, the corresponding virtual channel will be automatically added in the channel configuration drop-down box; If the channel configuration with virtual channel is cancelled, the corresponding virtual channel will be automatically removed from the channel configuration drop-down box.

For example, channel configuration [position command], speed command (virtual channel RPM)] is automatically added in the channel configuration drop-down box; Channel configuration [position feedback], speed feedback (virtual channel RPM)] is automatically added in the channel configuration drop-down box; Channel configuration [speed feedback (RPM)], add [acceleration (virtual channel RPM / ms)]. If the channel is not configured with [position command], [position feedback] or [speed feedback (RPM)], the drop-down box will automatically delete [speed command (virtual channel RPM)], [speed feedback (virtual channel RPM)] or [acceleration (virtual channel RPM / MS)].

Note: the actual meaning of virtual channel configuration value in servo is the same as [no sampling], both are 0.

5.1.5 Sampling process

Sampling Process		
SaveSetup:	~	Save
Reset	Manual	Read

Save setting: save the sampling configuration.

• : The saved name of the sampling setting information saved by the user is displayed, which is

convenient for the user to select. After the user selects and clicks, the sampling configuration information corresponding to the save name will be displayed in the [sampling mode / interval]. The user does not need to configure the sampling settings one by one.

Software enable: enable mode is valid when clicking in software enable mode.

Manual trigger: this function is effective when the sampling mode is manual trigger mode.

Read data: after data acquisition, the button becomes clickable. Click read data to read data from the drive.

Data clearing: reset the sampling setting and clear the data in the sampling buffer of the drive, but the curve displayed on the interface will not be cleared.

5.1.6 Cursor compare



After the curve collection, the curve will be analyzed. Adding a cursor can accurately analyze the curve and get the comparison results.



Place the mouse on the cursor, press and hold the left button to drag the cursor, or left click the curve area to change the position of cursor 1, right click the curve area to change the position of cursor 2.

When there is a cursor, enter the value in the input box on the right side of the drop-down box and press enter. The cursor on the image refreshes and the table displays the comparison result (the position of the cursor shown in the table is the point on the curve where the x-axis coordinate is closest to the input value).

5.2 Realtime observation

Real time observation can continuously monitor the change of waveform. Click [waveform curve] to select real-time observation, and the real-time observation interface will pop up.

File(F) Tool(T) Option(O) Hel	p(H)
📲 Communication 🛛 🔅 Parameter	📐 Wave Curve 😰 Gain Adjustment 🦓 Mechanical Properties 📊 Parameter Comparison 🔮 Fast Download 🍵
Parameter ×	Collect Curves
🔚 Open(O) 💾 Save(S)	Realtime Observation

Ę	Position command (command unit) — Bus voltage (V) — Bus voltage (V) — Bus voltage (V)	Channel one
ΞŦ		Axis1 V M Show
Ť		Fosition command (comman
ŧ		Channel two
50 ±		Axisi V V Show
÷		Dus voltage (v)
Ŧ		thannel ihree
»‡		Buy voltage (V)
t		cl l z
ł		Auial 1 Show
50 		Bus voltage (V)
ŧ		Surling formers
t		100
• +		Samling time
Ŧ		100
ţ		Roohle Setting
50 +		Axis-1: Software
ł		
Ŧ		L
° +		

Real time monitoring can be open offline. When online, it can only be opened when the baud rate is 19200, 115200 and 512000, otherwise the following prompt box will pop up:

Tips	×
0	Currently, only the following baud rates support online real-time monitoring: 19200,115200,512000.
	ОК

5.2.1 Monitoring channel

Location instruction (before fil -: Drop down to select the sampling channel.

: The color of the corresponding channel curve.

Select whether the corresponding channel curve is displayed.

Axis1 •: The axis corresponding to the channel curve display.

Enable: Enable mode is valid in software enable mode.

Start: after selecting the channel, click Start, it will collect the data and display the curve, when the button

Start	changes to	Stop	. click	Stop	, realtime observation end, and the button	Stop
changes to	Start .		,			

5.2.2 Record the curve

After collecting real-time curve starts, click record to start recording real-time monitoring data.



After recording, click stop to open the confirm save recording dialog box. Click OK to open the Save As dialog box to save to local.





5.2.3 Play the curve



Turn off the opened history data and clear the interface curve.





Right click the curves to pop up the menu.



[save as] : save the sampling data image (file name .emf/.png/.gif/.jpg/.tif/.bmp).

[export data] : save the graph data (file name is .csv, open it with Excel).

[show point value] : mouse passing the point, it will show or hide the value.

[horizontal zoom] : horizontal zoom the appointed area.

【vertical zoom】: vertical zoom the appointed area.

[revert to the last zoom] : the waveform curve restores the last scale.

[revert to the original scale]: the waveform curve is restored to the original scale.

6 Gain adjustment

Gain adjustment is divided into fast adjustment and self-tuning. Fast adjustment is to find a suitable gain parameter by modifying the rigidity level. If the rigidity level does not meet the user requirements, the responsiveness parameter and rigidity parameter can be modified under the set rigidity level. Self-tuning is divided into internal instruction self-tuning and external instruction self-tuning. Self-tuning (internal command self-tuning) refers to the function of automatic operation (forward and reverse reciprocating motion) of servo unit without sending command from upper device, and adjusting according to mechanical characteristics during operation. Self-tuning (external instruction self-tuning) is the function of automatically adjusting the operation as the instruction from the upper device. For details, please refer to the user manual of DS5 series servo driver.

6.1 Fast adjustment

Click gain adjustment, select fast adjustment, and the fast adjustment interface will pop up.



Note: when the enable mode is 2, turn on the fast adjustment, and the upper computer will automatically turn off the enable.

6.1.1 Inertia identification

1. Jog configuration

Manual	Step1-1		
<pre></pre>	Limit Positon Speed:	100	Enable
4	-Step1-2		
Tog confi	Software Reverse Limit:	0	OK
9	-Step1-3-		
· · · · · · · · · · · · · · · · · · ·	- Software Forward Limit:	0	OK
		n	
	RW		FW

Setting-limit motion speed, click [servo enable].

Setting-software reverse limit, click (ok).

Setting-software forward limit, click **(**ok**)**, it will pop up below window, click ok.



2. Manual setting

Ste	p1- Select travel configuration, configure the trip
Manual	Step1-1
setting	Number of stroke cycles: 1.00
Jog configurat	Step1-2 Movement direction: Forward
On	() Rever se
	OK

Set the travel circles.

Set the motion direction, click ok. It will pop up below window, click ok.



2. return to safe position

(manual setting has no return to safe position).

Set regression speed, regression acceleration, click OK to pop up the prompt box.

Step2 - Return to safe location			[
Returning Speed(0.1rpm):	500 😫			Tips		×
Returning Acceleration Speed(ms):	100			1	Successful return to safe location!	
		OK			ОК	

4. Inertia setting

Setting-inertia status.

Setting-initial inertia.

Setting-max speed, click ok. After the inertia identification is successful, a prompt box will pop up.

-Step3 - Inertia s	etting		
Inertia Status:	Inertia identi: \smallsetminus		
Initial inertia:	500 🔶	Tips	\times
Max Speed:	1000		
Speed Loop Gain:	300	Inertia identification success! Inertia value: 0	
		ОК	

If the inertia identification is wrong, the error prompt box will pop up.



6.1.2 Rigidity level

1. Set the rigidity level

If the machine produces large noise, it is not suitable to increase the rigidity level. In the process of increasing the rigidity level, if resonance occurs, it is necessary to eliminate the resonance first, and then try to increase it.

-Rigid leve	l setting —									
Rigid	rating: 1	5			4					
0 1	0 20	30	40	50	63					
Recommend	led rigidity le	vel ———								
10~15 Large machinery										
15~20 Low-rigidity equipment such as timing belt										
20~30	High rigidity connection	equipment	such as so	20~30 High rigidity equipment such as timing belt connection						

If you modify the rigidity level parameter, the histogram will change.



2. Fine tuning parameters

If the rigidity level does not meet the requirements of use, the response parameters and rigid parameters can be modified under the set rigidity level. Generally, only the response parameter P2-49 needs to be modified.

Click $\stackrel{\text{\scriptsize V}}{\sim}$ Rigid parameter table can be displayed.



Parameter tuning		rar	ramet	ter tuning			
Responsive parameter	Help	Res	spon	sive parameter			Help
SN Name	Value Unit	SI	N	Name	Value	Unit	
P2-49 Model loop gain	4000 0.1Hz	P2-	-49	Model loop gain	4000	0. 1Hz	
	Edit Write				Edit	Wri	te
Rigid parameter 😽	Help	Rig	gid j	parameter 🚫			Help
		SI SI	N	Name	Value	Unit	^
		P1-	-00	The first speed loop gain	1400	0.1Hz	
		P1-	-01	The first speed loop integral t	454	0.01ms	
		P1-	-02	The first position loop gain	1200	0.1/s	
		P2-	-35	Torque command filter time cons	10	0.01ms	~
					Edit	Wri	te

Click [parameter edit], enter the editable state and the parameters can be written.

Respon	nsive parameter		Help	Respon	sive parameter		Help
SN	Name	Value	Unit	SN	Name	Value	Unit
P2-49	Model loop gain	4000	0. 1Hz	P2-49	Model loop gain	4000	0.1Hz
		Edit	Write			Monitor	Write

Click **[**parameter write **]**, pop up the inquiry box. Click OK to pop up the prompt box.



Click [monitor], in the monitoring state, the parameters cannot be edited or written.

Respon	nsive parameter		Help	Respon	sive parameter		Help
SN	Name	Value	Unit	SN	Name	Value	Unit
P2-49	Model loop gain	4000	0. 1Hz	P2-49	Model loop gain	4000	0.1Hz
	Л	loni tor	Write			Edit	Write

6.1.3 Command filter



Parameter reading: read the parameters P1-24 and P1-25 in the drive, and refresh the table.

Parameter writing: modify the parameters P1-24 and P1-25, and click parameter writing to write the parameters to the driver.

6.1.4 Simple monitor 1

Pulse deviation (pul): real time display of servo pulse deviation value.

Torque (%): real time display servo torque value.



6.1.5 Simple monitor 2



Example 1

Transmission ratio: 1:1

Load end movement per turn (mm): 5

Servo pulses per turn: 10000

Then the servo rotates for 1 turn and the load end moves for 5mm

When the simple monitor (1) is turned on during the servo operation, the real-time pulse deviation is about 1400 pulses. When the simple monitor (2) is turned on, the load end movement deviation is about 0.7mm.



Example 2

Transmission ratio: 1:2 Load end movement per turn (mm): 2mm Servo pulses per turn: 10000 Then the servo rotates for 1 turn and the load end moves for 1 mm

When the simple monitor 1 is turned on during the servo operation, the real-time pulse deviation is about 1400 pulses.



6.2 Self-tuning

6.2.1 Travel configuration

1. Jog configuration

Step1- Select travel configuration, configure the trip

Me	Step1-1		
nual	Limit Positon Speed:	100	Enable
u et	Step1-2		
ting	Software Reverse Limit:	0	OK
ų	Step1-3		
a a	Software Forward Limit:	0	OK
onfig	0		
uration	RW		FW

Limit motion speed, click [servo enable].

Software reverse limit, click (ok).

Software forward limit, click 【ok】. Pop up a prompt box, click OK.



2. Manual setting

Set the travel circles.

Set the movement direction, click OK, and a prompt dialog box will pop up. Click OK. Step1- Select travel configuration, configure the trip

Manual sett	01−1 Number of stroke cycles: 3.57
g. Step	01-2
Jog configu	Movement direction: Forward Reverse
ration	ОК
Tips	×
1	Travel configuration completed! Configure the number of turns:1circle.
	ОК

2. Return to safe position

(manually setting has no return to safe position.)

Set the regression speed and acceleration, and click OK to pop up the prompt box.

Returning Speed(0. 1rpm): 500	Tips X
Returning Acceleration Speed(ms): 100	Successful return to safe location!
ОК	ОК

Note: the maximum travel turns can be set to 30. If the travel of 40 turns is manually configured, the inertia identification is carried out according to 30 turns. After the inertia identification, the self-tuning is carried out, and the set travel is 30 turns.

6.2.2 Tuning configuration

1. Inertia setting

Setting - inertia state.

Setting - initial inertia.

Set the maximum speed. Click OK. After the inertia identification is successful, a prompt box will pop up.

-Step3 - Inertia s	etting		
- Inertia Status:	Inertia identification	~	
Initial inertia:	500		
Max Speed:	1000		
Speed Loop Gain:	300	-	
			OK
Tips Inertia id Inertia va	entification success! lue: 0		
	ОК		
	U.V.		

If the inertia identification is wrong, the error prompt box will pop up.



2. tuning parameter setting

Step4 - Tuning p	parameter configuration	
Setting Method:	No instruction auto-tuning(no inertia identification)	\sim
Mode Setting:	Rapid positioning(control overshoot)	\sim
Load Type:	Screw	\sim
Max Speed:	1000	
		OK

Mode	Explanation
Soft	Soft gain adjustment. Besides the gain adjustment, the notch filter is also adjusted automatically.
Rapid positioning	Make special adjustment for positioning purpose. In addition to the gain adjustment, it also automatically adjusts the model loop gain and notch filter.
Rapid positioning (control overshoot)	In the positioning of the use of non overshoot adjustment. In addition to gain adjustment, it is also automatically adjusted model loop gain and notch filter.

Load type	Explanation
Synchronous belt	It is suitable for the adjustment of low rigidity mechanism such as synchronous belt mechanism.
Lead screw	It is suitable for the adjustment of high rigidity mechanism such as ball screw mechanism. Please select this type if there is no corresponding mechanism.
Rigid joint	It is suitable for the adjustment of higher rigidity system.

6.2.3 Self-tuning

🗹 Default Parameter	Auto-tuning		S	tart	Quit	
Status Register	Current State	Update Paramet	ter	Value		^
auto-tuning stage		P0-07				
		P1-00				
		P1-01				
		P1-02				
		P1-10				
		P1-11				
		P1-12				
		P1-33				
		P2-00.0				
		P2-00.1				
		P2-00.2				
		P2-00.3				
		P2-01.0				
						× .

Click 【start tune】, wait for the tuning completion.

E	🔁 Self-updating						\times
1	l. Set the Limit Pos	ition 2. Auto-tunir	g Setting 3.	Auto-	tuning Au	tomatical	ly
	🗸 Default Parameter	Auto-tuning		S	Start	Quit	
	Status Register	Current State	Update Param	eter	Value		^
	auto-tuning stage	Wait for config	P0-07		0		
			P1-00		1350		
		_	P1-01	_	471		
		Tips		×	2530		
				1	0		
		Auto	-tunina success	1	50		
				1	0		
					2000		
			ОК		1		
		_	P2-00 1		- 0		
			P2-00 2		0		
			P2-00-2		1		
			12-00.3		1		
			rz-01.0		U		~

7 Mechanical properties

The mechanical system has a certain resonance frequency. When the servo gain is increased, it may produce continuous vibration near the mechanical resonance frequency. Generally, the gain can not continue to improve when the servo gain is between 400Hz and 1000Hz. The resonance frequency can be found in most cases through the mechanical properties function of the Xinje upper computer. At most, five frequency points can be set. After the vibration is eliminated, if it is necessary to improve the responsiveness, the gain can be further improved.



7.1 Open file

Mechanical Properties

🔚 Open(O) 💾 Save(S) 🛛 🚺 Measure(T)

Open the saved mechanical characteristic spectrum (amplitude frequency, phase frequency).

7.2 Save file

Mechanical Properties

Save mechanical characteristic spectrum (amplitude frequency, phase frequency), save format. SVP. If no measurement has been made, the following dialog box will pop up:



7.3 Measurement of mechanical properties

Mechanical Properties

Click [measure], it will show the measurement interface.

🔁 Measure		×
Condition		Mode
Measure Axis	Axis1 ~	🔿 Speed command Current feedback
Sampling Interval	9 ~	• Speed command Speed feedback
Signal Unit	Speed(rpm) v	
Start Frequency(hz)	10	Operation and Status
Stop Frequency(hz)	1000	
Signal Amplitude(rpm)	100	Enable
Total Time(ms)	1024	

It will show [measure] interface. Set the condition parameters and mode, click [enable], then click [v], to obtain the data of mechanical properties analysis.

Sampling interval: select the sampling interval and adjust the total time. Unit signal: select signal unit (for different signal units, the measurement modes are different). Start frequency and end frequency: the frequency range of detection is 10 ~ 1000Hz. Mode: select the measurement mode, that is, the object to be analyzed for mechanical characteristics.

When the unit signal is	Speed(rpm)	\checkmark , the measurement mode is	\odot Speed command Speed feedback .
When the unit signal is	Electricity(%)	, the measurement mode is	s 🖲 Current command Current feedback

7.4 Mechanical properties curves

The notch filter can suppress the mechanical resonance by reducing the gain at a specific frequency. After setting the notch filter correctly, the vibration can be effectively suppressed and the servo gain can be increased.



After the resonance of the motor occurs, click the mechanical properties measurement. After the mechanical properties measurement is completed, the mechanical properties curve will be generated. Click the check box displayed in the pointer to find the resonance frequency point. Click the left mouse button on the curve to get the amplitude frequency and phase frequency values. Input the frequency value into the frequency set by the notch filter and click write.



Area 1: frequency spectrum image display. Area 2: phase spectrum image display.

Right click the waveform curve area to pop up the right-click menu.



[save as] : save the sampling data image (file name .emf/.png/.gif/.jpg/.tif/.bmp).

[show point value] : mouse passing the point, it will show or hide the value.

[horizontal zoom] : horizontal zoom the appointed area.

[vertical zoom] : vertical zoom the appointed area.

[revert to the last zoom] : the waveform curve restores the last scale.

[revert to the original scale]: the waveform curve is restored to the original scale.

7.5 Filter width

The	filter	width-	
12			+

Filter width: the larger the filter width, the smoother the curve.



8.1 Test run interface

When the enable is shut off, click [test run], pop up the test run interface.

😰 Xinje Servo Drive Debugging Software File(F) Tool(T) Option(O) Help(H) 🗤 📲 Communication | 🎲 Parameter I her Run 😨 Encoder Setting | 🖾 Monitor 🔥 Alarm

Test-Run			×
Serial Number	Name	Set Value	Units
P3-18	Jog speed	100	rpm
νο-οο	Servo motor s		rpm
● Jog Run (Start) Test Run	C	C

If clicking **[**test run **]** when the servo is enabled, it will show below window.



If the value of jog speed is not a number, a prompt box will pop up.



If the value of jog speed exceeds the range, a prompt box will pop up.



8.2 Jog run



8.3 Test run



Click Start : servo is enabled.

Press and hold \bigcirc : motor will run forward. Press and hold \bigcirc : motor will run reverse.

44

Click [monitor] - [monitor], pop up the monitor interface.

🔁 Xinje Servo Drive Debugging Software

File(F) Tool(T) Option(O) Help(H)

🖏 Communication | 🌐 Parameter 📐 Wave Curve 🦚 Gain Adjustment 🗞 Mechanical Properties | 📊 Parameter Comparison 🙂 Fast Download 🕨 Test Run 😰 Encoder Setting 🗐 Monitor 🛕 Alarm

Monitor Free Monitoring

Monitor Input signal Output signal Signal Physical Logical Signal Physical Logical Output signal	200000 P	×
Input signal Output signal Signal Physical Logical Signal output		
Signal Physical Logical ^ Signal Physical Logical ^ Signal		
angat ingat output out	gical tput	^
/S-ON: Servo e SI1 S-ON COIN_HD positi None COI	N-HOLD	
/P-CON: Propor None P-CON COIN positioni SO1 COI	N	
/P-OT: Prohibi SI3 P-OT V-CMP same spe None V-C	MP	
/N-OT: Reverse None N-OT TGON rotation None TGO	N	
/ALM-RST: Aler SI2 ALM-RST S-RDY ready Zone S-R	DF	
/P-CL: Forward. 1. None P-CL CLT torque limit None CLT		
/N-CL: Reverse None N-CL VLT speed limi None VLT		
/SPD-D: intern None SPD-D BK brake inter None BK		
/SPD-A: Intern None SPD-A Warn None WAR	N	
/SPD-B: Intern None SPD-B NEAR None NEA	R	
/C-SEL: Contro None C-SEL ALM alarm SO2 ALM	[
/ZCLAMP: Zero None ZCLAMP V-RDY speed ar None V-R	ДY	
/INHIBIT: Comm None INHIBIT	D4	~
/G-SEL: Gain s None G-SEL		_
/CLR: Pulse of None CLR Status Value Unit		
/CHGSTP: Inter None CHGSTP The image of the second seco		
/I-SEL: Inerti None I-SEL V Turne 0 6 the metal		
Pulse v l 2 10		
Name Value Unit		
Encoder f 5050 1 encoder pulse		
Input com 0 2 1 instruction pulse		
Position 0 1 instruction pulse Terrere 0 6 the neted		
Encoder c 0 1 encoder pulse Poles d 0 1 instruction	1	
Encoder 1 5051 Encoder pulse Target 0 14	рште	
		~
Alarm status Analog quantity		
Name 5 Status State Notes Name 6 Va	lue Un	it
Warn 0 Normal running Analog input V-REF value 0	v	
ALM alarm 0 Normal running Analog input T-REF value 0	v	

- Area 1: display input signal status information. Green: signal input; White: no signal input.
- Area 2: display output signal status information. Green: signal output; White: no signal output.
- Area 3: display the pulse information received by the driver.
- Area 4: display the operation information of the drive.
- Area 5: display the alarm information of the drive.
- Area 6: display driver analog input signal information.

10 Free monitor

Click **[**monitor **]** - **[**free monitor **]**, pop up the free monitor interface.

ne use									
Xinje Serv File(F) To	vo Drive Debugging Software pol(T) Option(O) Help(H)								
Sommu Commu	unication 💭 Parameter 📐 Wa	ive Curve 🤹 Gain	Adjustment 🦓 Mechanic	al Properties 🛛 🚺 Param	eter Comparison	🕑 Fast Downl	oad 🕨 Test Ru	n 😨 Encoder Setting	Monitor Alarm
									Free Monitoring
Free Mo	onitoring second					aaaaaa 👖	×		
Monit	tor Delete Delete-	All Up D	own Top Bot	tom					
Axis	Serial Number	Name		Value	Unit				
Axis-1	VO-00	Servo moto	r speed	0 :	rpm				
Axis-1	VO-01	The input	speed command	0	rpm	_			
Axis-1	VO-02	Torque com	- mand	0	- % the rate	≥d			
	1	-							
⊡ - Ove									
	erview		Serial Number	- Name	1	Jnit	^		
<u> </u>	erview Overview of P grou Function select	up tion F	Serial Number VO-OO	- Name Servo motor	speed r	Jnit pm	^		
ē	erview Overview of P grou Function select Control paramet 	up tion F ☑ ter P1 ☑	Serial Number VO-OO VO-01	 Name Servo motor The input sport 	l speed r. peed r	Jnit pm pm	^		
Ē	erview Overview of P grou Function select Control paramet Advanced tuning Speed control p	up tion F ter P1 g pars parame	Serial Number VO-OO VO-O1 VO-O2	 Name Servo motor The input sp Torque comma 	speed r. peed r.	Jnit pm pm the	^		
	erview Overview of P grou Function select Control paramet Advanced tuning Speed control p Internal positi Signal paramete	ap tion F ter P1 g pars parame	Serial Number VO-OO VO-O1 VO-O2 VO-O3	 Name Servo motor The input sport Torque command Mechanical 	1 speed r, peed r, and % angle 1	Jnit pm pm the o	^		
	erview Overview of P grou Function select Control paramet Advanced tuning Speed control p Internal positi Signal paramete P2 correlation	up tion F ter P1 g pars parame on ps er set contr	Serial Number VO-OO VO-O1 VO-O2 VO-O3 VO-O4	 Name Servo motor The input sp Torque comma Mechanical a Electrical a 	I speed r. peed r. and % angle 1 angle 1	Jnit pm pm the o	^		
	erview Overview of P grou Function select Control paramet Advanced tuning Speed control p Internal positi Signal paramete P2 correlation Communication p Sampling confis	ap tion F ter P1 g pars parsme ton ps er set contr parsme contr parsme contr parsme contr parsme contr parsme contr c	Serial Number VO-OO VO-O1 VO-O2 VO-O3 VO-O4 VO-O5	Name Servo motor The input sp Torque comm Mechanical Electrical Bus voltage	speed r peed r and % angle 1 angle 1	Jnit pm pm the o	^		
	erview Overview of P grou Function select Control paramet Advanced tuning Speed control p Internal positi Signal paramete P2 correlation Communication p Sampling config 	up tion F g pars parsme on ps er set contr parame gurati op fur	Serial Number VO-OO VO-O1 VO-O2 VO-O3 VO-O4 VO-O5 VO-O6	 Name Servo motor The input sp Torque comma Mechanical a Electrical a Bus voltage IFM tempera 	speed r peed r and % angle 1 angle 1 V ture 0	Jnit pm the o	^		
	erview Overview of P grou 	ap tion F ter P1 g pars on ps ar set contr gurati op fur cs PE tate	Serial Number 100-00 100-01 100-02 100-03 100-04 100-05 100-06 100-07	 Name Servo motor The input sp Torque command Mechanical se Electrical se Bus voltage IPM temperation 	speed r, peed r, and % angle 1 angle 1 v ture 0 back %	Jnit pm the o 1°C the			

	VO-07	Torque feedback	% the	
Ul group	₩0-08~₩0-09	Pulse deviation	1 inst	
U2 group U3 group	₩0-10~₩0-11	Encoder feedbac	1 enco	
U4 group	₩0-12~₩0-13	Input command p	1 inst	
	₩0-14~₩0-15	Position feedback	1 inst	
	₩0-16~₩0-17	Encoder cumulat	1 enco	
< >	VO-18	Torque current	0.01A	~

Alarm

Click [alarm], the alarm interface pops up. When the driver gives an alarm, the alarm flashes to prompt the user.

Xinie Servo Drive Debugging Software File(F) Tool(T) Option(O) Help(H)



Clear Alarm Area 1:

code

clear the current alarm, the servo returns to the state before the alarm, or clear the alarm on the

drive panel.

Area 2: display the error code and alarm description when the alarm occurs.

Area 3: display the servo / click information when the alarm occurs.

Area 4: display 5 alarm records except current alarm.

Area 5: display the warning code and warning description when the warning occurs.

Area 6: display the cause of the alarm / warning and the method to solve the alarm / warning.

12 Parameter comparison

click [parameter comparison] to show the parameter comparison interface.

😥 Xinje Servo Drive Debugging Software File(F) Tool(T) Option(O) Help(H) 🔩 Communication | 🎲 Parameter 📐 Wave Curve 📌 Gain Adjustment 🎭 Mechanical Properties 📊 Parameter Comparison 🕐 Fast Download 🕨 Test Run 😮 Encoder Setting | 📮 Monitor 🛕 Alarm

Darameter Com					V				
Parameter Comp					~				
Original Data:	Interface \checkmark Axis: All \checkmark Servo typ	e∶DS5E∹	20P7-PTA Firmware version:3770						
Comparative Data:	omparative Data: Default V v Axis: All v Servo type:DS5E-20P7-PTA Firmware version:3770 Compare DataE								
Serial Number	Name	Axis	Original Data(Interface Value)	Axis	Comparative Data(Default Value)				
P0-04	Rigid level	Axis−1	30	Axis-1	15				
P1-00	The first speed loop gain	Axis-1	900	Axis-1	300				
P1-01	The first speed loop integral time co	Axis−1	707	Axis-1	2122				
P1-02	The first position loop gain	Axis−1	800	Axis-1	300				
P2-35	Torque command filter time constant 1	Axis−1	10	Axis−1	100				
P2-49	Model loop gain	Axis−1	3000	Axis-1	500				
					Quit				

Original Data:

Comparative Data: : The comparison Party of the data selected by the user.

Default V vinterface Value Driver Value File
: The object selected by the user for comparison (interface value, drive value, default value, file).
Compare
: When both parties need to compare is selected, click
Compare
button to start the comparison. After the comparison is completed, the comparison results will be displayed in the comparison results display area.
DataExport
: The data is saved in local, the format is .csv.

Quit

: exit the parameter comparison interface.

13 Encoder setting

13.1 Clear multi-turns

🔁 Xinje Servo Drive Debugging Software	
File(F) Tool(T) Option(O) Help(H)	
🗄 🖏 Communication 🎲 Parameter 📐 Wave Curve 🦚 Gain Adjustment 🦓 Mechanical Properties 📊 Parameter Comparison 🔇 Fast Download 🕨 Test Run	Encoder Setting E Monitor Alarm Clear Multiple Laps(P) Zero Calibration(Z)

The encoder needs to clear the number of multi turns in the servo bb state. The current number of multi turns absolute value U0-91 will be set to zero, and the current position feedback $U0-57 \sim U0-59$ of the absolute value encoder will also change.

13.2 Zero point calibration

🔁 Xinje Servo Drive D	ebugging Software						
File(F) Tool(T)	Option(O) Help(H)						
Communication	🙀 Parameter 📐 Wave Curve 🦚 Gain A	djustment 🖧 Mechanical Properties 🗍	Parameter Comparison	🔮 Fast Download 🕨	• Test Run 😫 E	incoder Setting E Monitor Clear Multiple Laps(P) Zero Calibration(Z)	🛕 Alarm

Zero point calibration, U0-94 \sim 97 is used to display the absolute position of the motor after calibration, and U0-94 \sim 97 will be set to zero after zero point calibration.

14 Motor selection tool

14.1 About motor selection tool

The motor selection tool consists of the following parts.

Component selection: input data of mechanism components and other components.

Motion model: input motion model

Motor selection: input search conditions to accurately determine the calculation results of all motors suitable for it.

14.2 Component selection

🔁 Motor Selection Tool			_	\times
New Open Save				
Parts selection Motion model Motor selection				
Add Del Cut Copy Insert				
垂直丝杆 齿轮齿条 ・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・	単一圆柱 惯量负载			>
title	itme val	unit		
	Single cylindrical inertia loadi			
density	7.9	g/cm^3		
Outer diameter	30	mm		
thickness	10	mm		
Remarks				
quality	0. 0558	kg		
Inertia	0. 0628	kg·cm^2		

14.2.1 Component connection

click [add] or [+] to enter component selection interface. It can be connected to the former component after selection, up to 20 components can be connected. Starting from the parts connected to the shaft side of the motor, push it to the load side step by step.

1. Selection of component block diagram

Click [add] (Insert to the right side of the part with the cursor) or [+] (insert to the end of the parts) to enter component selection interface, double click the required part or select the part and click OK to add the part.

Note: since the motor shaft is a rotary output, the components connecting the motor shaft side must also be rotary input components.

(rotation - linear motion, rotation - rotation, rotating load)

2. Delete the component

Select the component and click [delete] to delete it. (If the deletion of this part makes the front and back parts unable to connect, it cannot be deleted).

3. Cut the component

Select the component and click **[**cut **]** to cut the component. (If cutting this part makes it impossible to connect the front and back parts, it cannot be cut).

4. Copy the component

Select the component and click **[**copy**]** to copy the component.

5. Insert the component

Inserts the cut and copied parts to the right of the selected part (If the front and back parts cannot be connected after inserting the part, it cannot be inserted).

14.2.2 Component specification input

Select the part that you want to input data, and its parameters will appear below the part. Items in the default data should be changed as necessary.

The unit of each item value can be changed. When the unit is changed after data input, the data will be changed.

14.2.3 About mechanism components

➢ Rotation → linear motion (A component that converts a rotating input into a linear motion)

- Horizontal screw rod -- the mechanism that the screw rod rotates to drive the nut to move horizontally.
- Vertical screw rod -- the mechanism that the screw rod rotates to drive the workpiece to move vertically.
- Horizontal rotation of screw rod and nut -- the mechanism of screw rod horizontal movement driven by nut rotation.
- Vertical rotation of screw rod and nut -- the mechanism that the screw rod moves vertically driven by the rotation of nut.
- Horizontal conveyor belt -- a mechanism that drives the conveyor belt to move horizontally by rotating the driving pulley.
- Vertical conveyor belt -- the mechanism that drives the vertical movement of the conveyor belt by the rotation of the driving pulley.
- Horizontal rack and gear -- the mechanism that drives the rack to move horizontally by the rotation of the gear.
- Vertical rack and gear the mechanism that drives the vertical movement of the rack by the rotation of the gear.
- Roller feeding -- the mechanism that drives the sheet workpiece by the rotation of the driving roller.
- Running trolley -- the mechanism that the rotation of the axle drives the trolley to run.

▶ Rotation → rotation (A component that converts a rotating input into a rotating output to convey power)

- Coupling -- it is mainly used for power transmission of rotating parts, and can also be used for hollow inertia load.
- Reducer -- it is mainly used for reducer with input and output shaft, reducer and speed increasing mechanism, and can also be used for gear directly connected to motor alone.
- Gear -- a gear mechanism composed of teeth.
- Synchronous toothed belt--a mechanism that connects drive pulley and driven pulley by belt to convey power. Sprocket + chain can also be used.

➤ Linear motion → rotation (it can be connected to a mechanism with power transmission components that can convert linear motion input into rotary output)

• Rack and gear -- the mechanism that makes the rack move in a straight direction and drives the gear to rotate. It can be used horizontally and vertically.

• Screw rod -- the mechanism that makes the nut move in a straight direction and drives the screw rod to rotate. It can be used horizontally and vertically.

> Rotating load (load generated by rotating input, including inertia load, friction load and external force load)

- Single cylinder inertia load only inertia calculated from the shape of the workpiece is attached.
- Eccentric cylinder inertia load only the inertia calculated by the shape and eccentricity of the workpiece is added.
- Multi-section cylinder inertia load only the inertia calculated by the shape of the segment cylinder with up to three segments is attached.
- Prism inertia load only inertia calculated from the shape of the workpiece is attached.
- Eccentric prism inertia load only inertia calculated by shape and eccentricity of workpiece is added.
- Rotating external force component the rotating output part in front of it, acting on the external force load with directionality, can be used for the motion model only attached to a certain range.
- Rotating friction part butt joint the rotating output part in front and act on friction load without polarity (both directions of rotation can be acted on).
- Indexing table the load that increases the number of workpieces and eccentricity to act on the rotating axis of the indexing table.
- Inertia direct input attach known inertia values to the rotating output unit in front of it.

Linear motion load (load generated by linear motion input, including weight load, friction load and external force load)

- Additional single linear motion the weight of the workpiece is added to the part with linear output (e.g. horizontal screw rod). It can be used in both horizontal and vertical directions.
- Additional vertical linear motion with balancing device on the part with vertical linear output (e.g. screw rod vertical), it is attached by the mass of the workpiece with balancing device mechanism.
- The linear motion external force component connect the linear motion output component in the front and act with directional external force load. It can be used for the motion model which is only attached in a certain interval.
- Linear friction component connect the output component of linear motion butted in front, acting with the friction load without polarity (both directions of rotation can act).

14.3 Motion model

There are two input modes in the motion model, speed-speed reference and absolute position reference. The motion model can enter up to 100 lines.

14.3.1 Speed-speed reference

Plan the line chart according to the input time interval, motor speed or load angular speed.

You can input a motion model with input and rotation number changing during the motion. The following example shows that the final load is a linear load.

The first line: after 0.1 second, the load speed is accelerated from 0 to 500mm/s.

The second line: the load is maintained at a speed of 500mm/s for 0.8 seconds.

The third line: after 0.1 second, the load speed decelerates to 0 mm/s.

The fourth line: the load is maintained at the speed of 0 mm/s for 1 s.

The fifth line: the fifth line begins to move backward in the same pattern to return to its original position.

The negative number of motor speed and load speed indicates the rotation direction and moving direction of the motor.

Motor Selection Tool						– 🗆 X
New Open Save						
arts selection Motion mode	el Motor selection					
input method: Speed and sp	beed reference	✓ Add Inst	ert Del Clear Move-Up	Move-Down Cut Copy	Paste	
TotalTime	TimeInterval		MotorSpeed	LoadAngularVelocity	AbsoluteAngle	AngularAcceleration
5	s		r/min	r/min	度	rad/s^2
l 0.1	0.1		3000	238. 7324	71.6197	250
2 0.9	0.8		3000	238. 7324	1217.5353	0
3 1	0.1		0	0	1289. 155	-250
1 2	1		0	0	1289.155	0
5 2.1	0.1		-3000	-238. 7324	1217.5353	-250
3 2.9	0.8		-3000	-238. 7324	71.6197	0
3	0.1		0	0	0	250
400			Speed r	nodel		
100						
200	<u></u>					
100						
N 0		<u>`</u>				
P -100				į\		
-200				·····		/
S -300 ↓	· · · · · · · ·			· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · ·	
0.0	0.5	1.0	1.5 Tot:	2.0 al time (s)	2.0	3.0 3.5

14.3.2 Absolute position reference

In the specified time interval, set the time interval, absolute position, acceleration time and deceleration time to make the specified trapezoidal or triangular driving model. It is not allowed to input the motion model with speed change during the motion. The following is an example of a linear load as the final load.

The first line: move to 450mm within 1s, with acceleration time of 0.1s and deceleration time of 0.1s. The second line: stay at the absolute position 450 mm for 1 s.

The third line: move from 450 mm to 0 mm in absolute position within 1 s, in which the acceleration time is 0.1s and the deceleration time is 0.1s, indicating that the trapezoidal mode returns to its original position.



14.3.3 Motion model edit

1. Data input and change

Data input and change can only be edited for white cells, and gray cells can only be displayed and cannot be edited. Select edit object cells with the mouse or cursor and enter directly from the keyboard.

2. Unit change

When you enter a unit other than the default setting, you can change the unit individually. Use the mouse or cursor to select the unit you want to change. Double click to pop up the drop-down menu and select the unit you want to change.

3. Add, insert, delete and empty lines

To add a blank line, insert a blank line at the bottom. You must input data after adding a blank line. Line insertion, that is, the blank line is inserted above the line where the cursor is located. To delete a line is to delete the line where the cursor is located. Empty lines, the data in the speed reference and absolute position reference are all cleared.

4. Line move up and down

Line up, that is, move up one line the cursor located line, the curve will also change. Line down, that is, move down one line the cursor located line, and the curve will also change.

5. Cutting, copying and pasting of lines

To cut and paste a line, select the object line and cut it. At this time, you can paste the cut object above the selected line. To copy and paste a line, select the object line and copy it. At this time, you can paste the copied object above the selected line.

Note: if there are blank lines in the motion model, the velocity chart cannot be drawn correctly. When inserting blank lines, be sure to enter data.

14.4 Motor selection

After the input of the motion model is completed, click the motor selection to move to the motor selection interface.

14.4.1 Set the search conditions

Motor series: select motor series, MS, MS5, MS6.

Voltage: 220V or 380V.

Inertia type: MS series motors are not divided into inertia type, MS5 and MS6 series motors are divided into low inertia, medium inertia and high inertia.

Flange: motor flange selection.

Encoder type: select the motor encoder type.

Brake: select whether the motor holding brake is available or not.

Oil seal: select whether there is oil seal for motor.

Motor side cable interface type: MS5 series motor has S01 and S02 cable interface types.

Search condition	
Motor series:	All ~
Use voltage:	All ~
Inertia type:	All ~
Flange:	All ~
Encoder type:	All ~
Brake:	None 🗸
Oil seal:	Have \vee
Motor side cable interface type:	All ~

14.4.2 Indication level setting

If any value of each judgment item exceeds the set item value, the motor model will not be indicated.

-Indication level setting-

	Item value
\leq	30
\leq	6000
\leq	100
\leq	100
\leq	100
	·

14.4.3 List of calculation results

	motor model	Power (K₩)	Inertia ratio (times)		Rotating speed (r/min)		Load average (%)		Friction torque (%)		Max torque (%)		^
	MS5S-40STE-CS00330B-20P1-S02	0.1	0.919	0	3000	0	3.0644	0	0	0	2. 7631	0	
2	MS6H-40CM30B1-20P1	0.1	0.4702	0	3000	0	4.5888	0	0	0	4. 1375	0	
3	MS6H-40CS30B1-20P1	0.1	0.4702	0	3000	0	4.5888	0	0	0	4. 1375	0	
4	MS5S-40STE-CM00330B-20P1-S02	0.1	0.919	0	3000	0	3.0644	0	0	0	2. 7631	0	
5	MS5S-40STE-CM00330B-20P1-S01	0.1	0.919	0	3000	0	3.0644	0	0	0	2. 7631	0	
6	MS5S-40STE-CS00330B-20P1-S01	0.1	0.919	0	3000	0	3.0644	0	0	0	2. 7631	0	
7	MS5S-60STE-CS00630B-20P2-S02	0.2	0.2951	0	3000	0	3.2199	0	0	0	2. 4885	0	
0	WEEG COSTE GOODOOD CODO GOI	0.0	0.0051	0	2000	0	0.0100	0	0	0	0.4005	0	~

Motor model: display the motor model after judgment.

Power (KW): refers to the rated output power of the motor.

Inertia ratio (times): the ratio of load inertia and rotor inertia of motor shaft. If the judgment benchmark exceeds the recommended inertia ratio in the product catalog, it shall be expressed by \triangle .

Speed (r/min): the maximum speed of motor on the motion model is expressed in r/min (O below rated speed, exceeding rated speed but below maximum speed is \triangle and the maximum speed exceeding allowable is \times .)

Average load (%): the ratio of the average load torque and rated torque at run time is expressed in %. O is below 80% of judgement reference, and \triangle for more than 80% and less than 100%, over 100% is \times .

Friction torque (%): the ratio of friction torque and rated torque is expressed in %. O is below 80% of judgement reference, and \triangle for more than 80% and less than 100%, over 100% is \times .

Maximum torque (%): the ratio of the maximum torque and the allowable maximum torque is expressed in %. O is below 80% of judgement reference, and \triangle for more than 80% and less than 100%, over 100% is \times .

14.4.4 Details of the results

Double click the motor model name to open the motor details dialog box. Please confirm the contents according to the motor details.



15 Application of DM5F series in upper computer

15.1 X-Y image

After the upper computer is connected with DM5F series driver, X-Y image function is added in curve acquisition. Taking circular interpolation as an example, the X-Y image function is introduced.

1. PLC programming, using circular interpolation instruction to plan a circle, trigger sampling (can be triggered by motion, sampling ratio is 90), run the program, and then read the data, read the position instruction and position feedback of axis 1 and axis 2, as shown in the figure below.



2. click X-Y image

The x-axis and Y-axis of the first group select axis 1 position command and axis 2 position command respectively.

The x-axis and Y-axis of the second group select axis 1 position feedback and axis 2 position feedback respectively. After the curve is drawn, the fitted circle will be displayed.



3. Curve analysis

The maximum range here is related to the sampling frequency and the number of sampling periods.

Change the maximum value to 200, and click the curve drawing, as shown in the figure below.

Curve before adjustment

It can be seen here that when the starting point is 0 and rotates clockwise, the response time of the two axes has obvious deviation, and the servo rigidity needs to be adjusted.



4. Proportion factor

Click the proportion factor check box to adjust the proportion factor value.

The user can adjust the proportion factor according to the mechanical structure and pulse unit, and the default is 1:1.

Icon Color:		
Range:(/ms)	0 🛊 ~ 200 🛊	•
Scale Factor	r: 🔄 Show	
-First Group		
	🗹 Show	
X-Axis:	Axis=1_Position command \sim	
Y-Axis:	Axis=2_Position command \sim	
Second Grou	IP.	
	🗹 Show	
X-Axis:	Axis=1_Position feedbac \sim	
Y—Axis:	Axis=2_Position feedbac \sim	
	Curve drawing	

15.2 Parameter comparison

DM5F series driver parameter comparison is slightly different, you can choose axis 1 or axis 2.

Parameter Comparison – 🗆 🗙								
Original Data:	Interface 🗸 Axis:	Axis=1 \sim	Servo type:DM5F-20P7-2A Firmware version:3770					
Comparative Data:	Driver Val 🗸 Axis:	Axis=1 ∨	The selected object has no data, please choose again!	Compare	DataEx	port		
Serial Number	Name	Axis=1 Axis=2	Axis Original Data(Interface Value) Axis	Comparative Data(Dr	river Val	lue)		

For example, compare the drive value of axis 2 with the preset value of axis 2, as shown in the figure below.

😰 Parameter Comparison — 🗆 🗙									
Original Data: Comparative Data:	Interface Axis: Axis-2 Servo type:DMESF-20P7-2A Firmware version:3770 Default V Axis: Axis-2 Servo type:DMESF-20P7-2A Firmware version:3770 Compare								
Serial Number	Name	Axis	Original Data(Interface Value)	Axis	Comparative Data(Default Value)				
P2-17	Inertia identification and internal c		1000	Axis−2	0				
P3-14	Forward max speed instruction limit		5200	Axis-2	4000				
P3-15	Reverse max speed instruction limit		5200	Axis-2	4000				
P3-16	Internal forward speed limit of torqu		3000	Axis-2	2000				
P3-17	Internal reverse speed limit of torqu		3000	Axis−2	2000				
P3-21	Forward alarm speed		5720	Axis−2	4000				
P3-22	Reverse alarm speed		5720	Axis-2	4000				
P7-00	RS485 station number		2	Axis-2	1				
P7-10	RS232 station number(modified only on		2	Axis-2	1				
P7−11.0~1	RS232 baud rate		6	Axis-2	9				
P8-00	Sampling channel 1		0	Axis−2	203				
P8-01	Sampling channel 2		0	Axis-2	205				
P8-04	Sampling channel 5		0	Axis-2	301				
P8-05	Sampling channel 6		0	Axis-2	302				
P8-08	Sampling channel 9		0	Axis-2	1634				
P8-09	Sampling channel 10		0	Axis-2	4452				
P8-12	Sampling channel 13		0	Axis−2	502				
	·	-	- 		Quit				