Serial Drive Manual

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1、ComSet Interface

1.1 Interface Introduction



ld	Function
1	Select the device model, which is the connected driver model
2	Select the serial port and the drive needs to be installed when connecting to the motor using
	the module
3	Select serial bit rate, default 19200
4	Select site number, default 1
5	Site search, which can be searched when there is only one driver connected and the site is
	not confirmed
6	Connect and disconnect

1.2 Connection Preparation

1.2.1 Drive Installation

Right-click My Computer - Manage, open the computer management interface, select Device Manager.



If ① USB Serial Port appears on other devices, Right-click - Update driver choose to browse

my computer to find driver, click Browse, select driver folder, ok click next, driver is installed.



After the driver installation is successful, you can see USB Serial Port under the port option, and the driver installation is successful.



1.2.2 Set Connection Parameters

Select the device model, the device model needs to be consistent with the connected driver model, and then select the serial port, that is, the device access computer out of the serial port, if you first open the software in the access serial module, you need to press the refresh key, re-read the serial port, and then select the correct serial port. Then select the serial Baud Rate, the default Baud Rate is 19200, just select. Finally, the site number, generally if no modification default is 1, confirm it.

Once you've confirmed it's all done, tap Connect, and the software jumps to the device monitoring interface.

2、Control Interface

2.1 Interface Introduction

The device monitoring interface is divided into 6 parts, Model Information、 Motion Control、 Input ports、 Basic setting、 Device monitoring and Output ports.

ःक#\$ Simp	ole Tuner P	ro V3.31						- 🗆 🗙
ComSet	Control	Parameter List	Programming	Monitor				Disconnected
-Model	Info			\frown		®	Basic setting	
1 Dev	vice model	DS-CLS9-FRS4-01	4	ΊΠ			4 Current(mA)	1000
НЖ	version	0.00		ЦС			Microstep(ppr)	1000
SW	version	0.000		<u> </u>			Pulse mode	Pulse+Dir 🗸
				101/01		OL		
Motio	n Control-						-Device monitorin	۶
Con	ntrol mode	External pulse c	∨ Set po	sition 0			5 Voltage(V)	0.00
Но	ming mode	Fwd to orign	Homing	offset 0			Temperature(°C)	0.0
Max	velo for	1000	Max vel	lo for 1	000		Target Position	0
Max	velo for	100	spd op	eration 0			Aotual Position	0
jog	operation		Command	rositon [Motor current(A)	0.000
	Rel.Pos	Jog+	Mov Fwd	Spd run	Homing		Motor velocity (RPS)	0.00
	11		NF 70 1			\exists	Driver status	0:Error
L	Abs. ros	Jog-	Mov Bwd	Stop	Err Clea	r	Error info ?	0:Normal
Input	ports						Output Ports	
3 n	R1 () [0:I	nvalid port 🗸	Inig IN5 (0:Inva	lid port 🗸	Trig	6 Л1 🔿 100: Uni	iversal output \sim
п	R2 () 0:I	nvalid port 🗸 🗌	Trig IN6 (0:Inva	lid port 🗸	Trig	0UT2 O 100: Uni	iversal output \sim
п	13 🔿 0:I	nvalid port 🗸	Irig IN7 (0:Inva	lid port 🗸	Trig	0UT3 🔿 100: Uni	iversal output \sim
п	14 O 0:I	nvalid port 🗸	Trig ZStatus (0			0UT4 🔿 100: Uni	iversal output \sim

ld	Function
1	Displays the driver basic information
2	Set motion parameters and perform basic control and alarm clearing
3	Set the input ports configuration and software trigger
4	Set the run's microstep and current
5	Displays the current status of the device
6	Set the output ports configuration

2.2 Use Introduction

2.2.1 Model Information and Device monitoring

Both parts are display sections where product information is automatically read when

connected, and device detection is constantly updated to implement the real-time parameters of the device, including the real-time status of motors such as bus voltage driver temperature.

2.2.2 Basic setting and Motion Control

The first is to set the current setting and segmentation setting, the current setting value should be consistent with the motor current, the segmentation setting determines the number of pulses per revolution of the motor, generally after the first set-up will not change. Then there are the parameters and the corresponding functions.

-Motion Control			-
Control mode	Pulse control	\sim	Set position 30
Homing mode	O:Fwd to origin	\sim	Homing offset 40
Max velo for pos operation 1	1000		Max velo for 5 1000 spd operation 5
Max velo for jog operation 2	100		Command Posit 60

ld	Affected Button	Function
1	Rel.Pos, Abs.Pos,	Setting the position mode velo unit (0.01rps) is
	Mov Fwd, Mov Bwd	independent of microstep
2	Jog+, Jog-	Set Jog mode velo
3	Set position	When set position is pressed, replace the actual
		position with the value in the box
4	Homing	Set orign offset, Pulses entered in the extra motion
		box after the return-to-origin motion ends
5	Spd run	Set velo mode velo
6	Rel.Pos, Abs.Pos,	Set the number of pulses to run
	Mov Fwd, Mov Bwd	

The main concern is the speed of several movements, the units are 0.01rps, do not calculate the subdivision, directly calculate the number of laps per second.

The specific position of operation needs to refer to the instruction position and the actual position, the motor without the encoder cannot display the actual position, always show 0, the motor with the encoder will show the actual position. The operation of all buttons modifies the command position, which is always equal to the actual position in closed-loop mode. Open loop mode may appear deviation, after power-up the default command position is 0, that is, the default origin, the relationship between the instruction position and segmentation is: segmentation set a pulse to run a circle, such as segmentation set 1000, when the command position is 1000, the motor is rotating forward, the command position is -1000, the motor is running a circle in reverse.

Then there is the control mode, the internal pulse control is directly through the drive motor control, can be directly used in the software interface of the ten buttons to achieve motor control. The button functions as follows:

1 Rel. Pos	Jog+	5 Mov Fwd	7 Spd run	9 Homing
2 Abs. Pos	4 Jos-	6 Mov Bwd	8 Stop	10 Err Clear

ld	Data reference	Action
1	Position mode velo	Instruction position increases running pulse num. Move
	Running pulse num	backward when the motor actually moves the circle
		(Microstep/Running pulse num), with a symbol, running
		pulse num is negative.
2	Position mode velo	Set the instruction position to running pulse num and
	Running pulse num	the motor runs to the command position.
3	Jog mode velo	Move forward at Jog mode velo while holding.
4	Jog mode velo	Move backward at Jog mode velo while holding.
5	Position mode velo	Same Rel.Pos as the Id 1
	Running pulse num	
6	Position mode velo	Instruction position increases running pulse num. Move
	Running pulse num	forward when the motor actually moves the circle
		(Microstep/Running pulse num), with a symbol, running
		pulse num is negative.
7	Velo mode velo	Run at velo mode, and the command position
		automatically increases by microstep
8	Null	Stop running while running
9	Null	Make Homing mode, This is explained separately below.
10	Null	Clear the alarm when there is an alarm.

The operating logic of Homing mode is shown in Figure 2.1Homing+ and Figure 2.2 Homing-



Figure2.2 Homing-

2.2.3 Input ports and Output ports

The input port configuration allows for simple control through external triggering, and the functionality of the same name in the drop-down list and the button above is not repeated, mainly the function not mentioned above.

Function Id	Function	Note
0	Make the port invalid, no action	
7	Let the port stop quickly, faster than slow down	
9	Triggers a limit+ signal	Used at the homing
10	Triggers a limit- signal	Used at the homing
16	Start running multiple segments	
17	Pause running multiple segments	
18	Stop running multiple segments	
20	The motor is offline when triggered and resumes	
	when it is not triggered	
25	Input program bit0	
26	Input program bit1	
27	Input program bit2	
28	Input program bit3	
29	Input program bit4	

First is input port configuration

Function id 25-2's input program bit is described in the following multi-segment uniform. The next is output port configuration

Function Id	Function	Note
100	Universal output, which can be triggered by modifying	
	parameters	
101	No alarm status triggered	
102	Positioning completes the trigger	
103	Triggered when the enables control to servo ON	
104	Invalid	

3、Parameter List Interface

3.1 Interface Introduction

Parameter List Interface is mainly to adjust the movement parameters and parameters bulk import, most of the parameters by our engineers to match, this section mainly describes the parameters commonly used to need to be modified in the parameter setting interface and parameters import and export methods.

3.2 Parameter Introduction

Parameter category	Address	Function
Basic para	298	Serial Port Rate
Basic para	299	Station No.
Input port logic	429	Input port logic
Output port setting	428	Universal digital output control
Output port setting	430	Output port setting

The main parameters that need to be used are as follows

Serial bit rate is the serial baud rate on the interface, the default is 19200, need to change can be changed manually, but should not exceed the driver support on-line.

The station number corresponds to the site number on the connection interface, 485 bus can be connected to many devices at the same time, in the middle through the modbus protocol communication, each machine's site number should be the only one at this time need to modify the site number to achieve multi-device access and control.

Input port logic can change the input port trigger logic, input range is 0-65535, where bit0bit6 corresponds to in1-in7, when the corresponding bit data is 1, the logic of the input port inversion, here is an example, when the address 429 (input port settings) data is 1, bit0 s 1, and then in1 logic inversion, default trigger, when there is signal input, trigger end.

IN1	IN2	 IN7	Data
0	0	 0	0
1	0	 0	1
0	1	 0	2
1	1	 0	3
1	1	 1	127

The output port logic is modified the same as the input port logic, which is not repeated here. Universal digital output control corresponds to universal digital output, which can be controlled directly from the data at the output port when the universal output is set up in the output port configuration. The input range is 0-15, the data bit0-bit3 corresponds to out1-out4, for example, when the address 428 (universal digital output control) data is 1, then bit0-1 then out1 in the universal output mode output high level.

OUT1	OUT2	OUT3	OUT4	Data
0	0	0	0	0
1	0	0	0	1
0	1	0	0	2
1	1	0	0	3
1	1	1	1	15

4、Programming Interface

4.1 Programming Feature Introduction

Multi-segment position mode is a way to combine multiple position segments in a certain order, trigger motion through an external IO signal, and complete a series of position segment actions. This function can be regarded as a multi-segment combination of position mode, the user can several segments of the description parameters such as deceleration, pulse number, etc. are stored in the EEPROM in advance, need to enable these position segments when only need to provide a trigger signal to complete the work.

4.2 Programming Writing

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Multi-segment functions can write multiple paragraphs, each of which can set its own motion, supporting up to 16 paragraphs, each of which must end with a paragraph to trigger properly. Paragraph content can be randomly arranged, first in the command bar drop-down, select the need for instructions, most instructions only parameter one can enter the corresponding parameters, here alone about Delay function and velo mode.

Delay function first is the delay time unit ms, the second is the jump line number, the third fixed input 0 can be, but when using Delay function should be set at least 1ms delay, otherwise it will not be able to use normally.

Spd run runs at the set speed, and the run time can be set by a delay jump at the back, as an example.

mSet	Control	Parameter List	rogramming	Monitor		•	Connected
.ine	Progam	CMD	Paral	Para2	Para3	Motion Control	
0	0	Set start velo	100			Target Position	0
1	0	Set pos velo	1000			Command Position	2000
2	0	Set Acc	50				
3	0	Set Dec	50			Jog	Jog+
4	0	Rel.Pos	20000			Abs. Pos	Rel.Pos
5	0	Spd run	2000				
6	0	Delay function	2000	7	0	Stop	Homing
7	0	Set pos velo	3000				Err Clear
8	0	Abs.Pos	0				
9	0	Delay function	1000	10	0	Program Control	
10	0	Abs.Pos	20000			Current Line	0
11	0	Delay function	0	8	0	Program NO.	0
12	0	Program end				Set program NO.	0
13						Street	C
14						Start	Suspend
15							Stop
16							
17						Imput	Export
18							

This is a multi-segment, 0-3 line set the running parameters, the fourth line relative movement runs to 20000, then the fifth line starts running at 2rps, the sixth line is set to run 2s, then jumps to the 7th line, and then the 8th line resets Position speed is 3rps, run to 0 at 3rps absolute position, then line 9 delays 1s, jumps to line 10, absolute position runs to 20000, then row 11 delays 1s jumps to line 8, and loops continuously. The end of the paragraph on the twelfth line marked the end of the multi-paragraph.

4.3 Programming Segment Selection

The choice of multi-segment paragraph number is based on multi-segment bit, multisegment bit needs to be entered through the input port, the multi-segment bit has a total of four digits, the default is all 0, you can set the multi-segment bit at the input port, and then triggered by input, below is the relationship between multi-segment bit and multi-segment selection.

BitO	Bit1	Bit2	Bit3	Bit4	段数
0	0	0	0	0	0
1	0	0	0	0	1
0	1	0	0	0	2
1	1	0	0	0	3
1	1	1	1	1	31

For example, when bit1 is at high level, the number of segments is selected as 2, and when starting multiple segments is enabled, a multi-segment with segment number 2 runs

Input ports	
IN1 ()	25:Program bit0 v Trig IN5 () 29:Program bit4 v Trig
IN2 🔵	26:Program bit1 v Trig IN6 () 0:Invalid port v Trig
IN3 🔿	27:Program bit2 V Trig IN7 () 0:Invalid port V Trig
IN4 🔿	28:Program bit3 🗸 🛛 Trig ZStatus 🔿

🎟 Simple Tuner Pro V3.31 - 🗆 🗙							
ComSet	Control	Parameter List	rogramming	Monitor		•	Connected
Line	Progam	CMD	Para1	Para2	Para3	 Motion Control 	
0	0	Abs.Pos	1000			Target Position	30000
1	0	Program end				Command Position	2000
2	1	Abs.Pos	2000				
3	1	Program end				Jog-	Jog+
4	2	Abs.Pos	30000			Abs. Pos	Rel.Pos
5	2	Program end				Stor	Vening
6	3	Abs.Pos	40000			Stop	noming
▶ 7	3	Program end					Err Clear
8						Pro more Constant	
9						-rrogram Control	
10						Current Line	0
11						Program NO.	0
12						Set program NO.	0
13						Start	Suspend
14							
15							Stop
16							
17						Imput	Export
18						✓ Read	Write
<					>	Areau	

Clicking to Start will start the Progam 2 to run to 30000 in Target Position.