

Nanjing Runze Huid Control Equipment Co.,Ltd is a high-tech enterprise who devote ourselves to research and develop high precision analytical parts such as syringe pumps, multiport valves, plastic fittings, peristaltic pumps, gastight syringes, customized dispensing systems that play an important role in medical analysis instruments, environmental on-line analyzers, industrial production line, laboratory and biological analyzers.





SV-06 Multiport Selector Valve Quick Use Guide



润泽流体 Runze Fluid NANJING RUNZE FLUID CONTROL EQUIPMENT CO.LTD



1. RS232 Debugging Tool Description

1.1 RS232 Debugging Tool: MotorTester V0.6.exe

Since there is no RS232 communication interface on the computer now, you need to use a USB serial converter to realize the communication. Select the com port of the computer from the serial drop-down box in Figure 1-1, and you can check which serial port the current device is connected to from the Device Manager of the computer. (As shown in Figure 1-1, several com ports may be displayed, and you need to test one by one to determine which com port can communicate.)



Figure 1-1

In Figure 1-2, the baud rate is the baud rate of the lower computer and the factory default value is 9600bps. After setting the serial port and baud rate, click the "Open" and input the address, command and parameter. The command corresponds to various command codes of B2, and the parameter corresponds to B3, B4. If it is a factory command, you need to tick the factory command box; if it is a common command, no need to tick it. After setting, click "Send" and the command display box on the right can display the code currently sent and the response code received.



串口	COM08 - 关闭		
波特率	9600	命令显示框	
地址	B1下位机地址 发送		
命令	B2各种命令输入恢复出厂		
参数	B3,B4命令参数 清空		



The "Clear" button in the tool refers to clear the content of the command display box on the right, and "Restore Factory" is to restore all the settings of the injector valve to the factory default settings.

Note: The input of address, command and parameter box are all hexadecimal numbers.

1.2 RS232 Communication Examples

①Send command: Set RS232 baud rate

B0	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13
0xCC	0x00	0x01	0xFF	0xEE	0xBB	0xAA	0x04	0x00	0x00	0x00	0xDD	00	05

Response command

B0	B1	B2	B3	B4	B5	B6	B7
0xCC	0x00	0x00	0x00	0x00	0xDD	0xA9	0x01

Because setting the RS232 baud rate is a factory command, check the "Factory Command" box, and the actual operation result is shown in Figure 1-3:



串口	COM05 +	关闭	:23 友迭: CC 00 01 FF EE BB AA 04 00 00 00 DD 00 05 :23 接收: CC 00 00 00 00 DD A9 01
波特率	9600 -	☑ 工厂指令	
地址	00	发送	
命令	01	恢复出厂	
参数	04	清空	

Figure 1-3

In the received command, B2=00, indicating that the switching value is operating normally and the setting is successful.

②Send command: Query reset speed

B0	B1	B2	B3	B4	B5	B6	B7
0xCC	0x00	0x2b	0x00	0x00	0xDD	0XD4	0x01

Response command:

B0	B1	B2	B3	B4	B5	B6	B7
0xCC	0x00	0×00	0XC8	0x00	0xDD	0x71	0x01

The query command is a common command, and the actual operation result is shown in Figure 1-4:

串口	COM05 -	关闭	2016-12-11 11:40:11 友达: CC 00 2B 00 00 DD D4 01 2016-12-11 11:40:11 接收: CC 00 00 C8 00 DD 71 02
波特率	9600 -	□工厂指令	
地址	00	发送	
命令	2b	恢复出厂	
参数	00	清空	

Figure 1-4



Note: The parameter bit in the response command is C8 00, because it is stored in little-endian mode, the low bit of data is stored in the low bit of the address, The hexadecimal 0x00C8 is converted into a decimal number as 200, so the reset speed is 200 revolutions per minute.



2. RS485 Debugging Tools Description

2.1 RS485 Debugging Tool : MotorTester V0.6.exe

S485 and RS232 communication share the same debugging tool, and the usage methods are the same, here no longer say. You can refer to the introduction of RS232 debugging tool. Here are a few examples.

①Send command: Query the current state of the motor

B0	B1	B2	B3	B4	B5	B6	B7
0xCC	0x00	0x4a	0x00	0x00	0xDD	0XF3	0x01

Response command:

B0	B1	B2	B3	B4	B5	B6	B7
0xCC	0×00	0x00	0x00	0x00	0xDD	0XA9	0x01

The actual operation result is shown in the Figure 2-1:

串口	COM07 -	关闭	2016-12-07 16:16:33 友达: CC 00 4A 00 00 DD F3 01 2016-12-07 16:16:33 接收: CC 00 00 00 00 DD A9 01
波特率	9600 👻	□工厂指令	
地址	00	发送	
命令	4a	恢复出厂	
参数	00	清空	

Figure 2-1

In the received command, B2=00, indicating that the switching valve is in normal state.

②Send command: 0x45 Reset

B0	B1	B2	B3	B4	B5	B6	B7
0xCC	0x00	0x45	0x00	0x00	0xDD	0×EE	0x01

Response command:



B0	B1	B2	B3	B4	B5	B6	B7
0xCC	0x00	0xFE	0x00	0x00	0xDD	0xA7	0x02

The debugging result is shown in the Figure 2-2 :

串口	COM11 *	关闭	2016-12-14 08:49:34 接收: CC 00 FE 00 00 DD A7 02 2016-12-14 08:49:34 接收: CC 00 FE 00 00 DD A7 02 2016-12-14 08:49:50 发送: CC 00 44 02 00 DD EF 01
波特率	9600 👻	■工厂指令	2016-12-14 08:49:50
地址	00	发送	
命令	4a	恢复出厂	
参数	00	清空	

Figure 2-2

③Send command: Multi-port valve to No.1 port position

B0	B1	B2	B3	B4	B5	B6	B7
0xCC	0x00	0x44	0x01	0x00	0xDD	0×EE	0x01

Response command :

B0	B1	B2	B3	B4	B5	B6	B7
0xCC	0x00	0xFE	0x00	0x00	0xDD	0xA7	0x02

The debugging result is shown in the Figure 2-3 :

串口	COM11 ~	关闭	2016-12-13 16:36:35 发法: CC 00 44 01 00 DD EE 01 2016-12-13 16:36:35 接收: CC 00 FE 00 00 DD A7 02
波特率	9600 -	□工厂指令	
地址	00	发送	
命令	44	恢复出厂	
参数	01	清空	





Note: B2=0xFE in the response command is normal, which means to execute the command

④Send command: 0x49 Stop forcibly

B0	B1	B2	B3	B4	B5	B6	B7
0xCC	0x00	0x49	0x00	0x00	0xDD	0xF2	0x01

Response command:

B0	B1	B2	B3	B4	B5	B6	B7
0xCC	0x00	0x00	0x00	0x00	0xDD	0xA9	0x01

The debugging result is shown in the Figure 2-4 :

串口	COM11 *	关闭	2016-12-13 16:48:26 接收: CC 00 49 00 00 DD E2 01 2016-12-13 16:48:26 接收: CC 00 FE 00 00 DD A7 02 2016-12-13 16:48:30 发送: CC 00 49 00 00 DD F2 01
波特率	9600 👻	□工厂指令	2016-12-13 16:48:30
地址	00	发送	
命令	49	恢复出厂	
参数	00	清空	

Figure 2-4

Note: Send the reset operation command "0x45" after sending the "force stop" command



3. CAN Debugging Tools Description

3.1 CAN Debugging Tool: CANTest

The start interface is shown in Figure 3-1 and this manual uses the CANTest V2.23.exe version.

● 运择设备 · 帧D显示方式: 十六进制	· 指式 SJA1000表存获指式(ID集左对齐) · 📦 建续显示 🔢 🎪 通道	1 🗘 显示频数 💋 Language - 🕻	1 软件更新 🛜	
	 び録() (100000000000000000000000000000000000	× ま和cx通道 Ga [04 ■		
	与学程时/ch	1974A22	22174570	30110

Figure 3-1

After opening the CAN debugging tool, there will be an interface as shown in Figure 3-1 above. Step 1, select the baud rate, and then click "OK" to enter the interface as shown in Figure 3-2 below.

CANTest	ZLG广州取运	电子股份有限公	公司 版权所有 - [US	BCAN1 设备:0 通道	10]			AN. 10		×-
通道选择设备	• 朝D显示	访式: 十六进	■ × 相式: SJA	1000寄存器格式(IC	等左对齐) 🔹 🚺	📦 继续显示 📘	1 🖉 ikin 🗘 1	远晚故 💋 Langua	9= • 🙋 \$214,936 🍃	
USBCAN1 ig		×								4 Þ 🗙
4 1210 E	3.8动 8	3 停止 👗 关闭	1 🛸 定位 📍 清空	😡 🚓 👘 🖓 🔛	运作 - 🗌 🧿 接收	1919 - C		😸 🖄 DBC 🔓 🚍	日保守 🎯 停止保存	
序号	传输方向	时间标识	051D	财相式	NFI	救援长度	数据(HEX)			
9										
基本操作										
发送方式:	正常发送	• • •	导次发送甲帧 (每次发送 [10	Ni ⊏Na	0每发送一帧通5				
帕类型	标准帧	- 4	(III (III)) 0000000	Ma our	0 01 02 03 04 05	05 07 (
隙格式	封闭的	•	发送次款: 1	每次发送间	Kā(as): 0	-	定止			
显本操作 電	服操作								In the second	
						发送	耗酎(s):	发送校数: 0	接收帧数: 0	浩空计数

Figure 3-2

Step 3, after clicking "Start", you can input the command to run, or you can click "Confirm and Start CAN" in the step 2 in Figure 3-1, so you don't need to click "Start" again and you can directly



input the command to run. Input the "Frame ID" (address) and "Data", and then click "Send" . For example, input the command 0x4A to query the motor status, as shown in Figure 3-3.

● 法报设备・ 執切显示方式 十六进制 ・ 格式: SJA1000寄存器格式(JD象左对齐) ● 建块显示 ● 建块显示 ● 建块显示 ● この表数 ② Language・ ② Language・ ③ 大川 ● ● この表数 ② Language・ ③ Language・ ③ 大川 ● ● この表数 ③ Language・ ③ Language・ ③ ● <th>● 送得设备、 軟10量示方式 十六进制 ● 格式、SJA1000高存器格式(ID条注对) ● 登場显示 ● 登場 ● 日本 ●</th> <th>CANTest</th> <th>ZLG广州致远</th> <th>远电子股份有限公</th> <th>同版权所有 - [USB</th> <th>CAN1 设备:0 通道</th> <th>:0]</th> <th></th> <th>the little</th> <th>-</th> <th>_ D _ X</th>	● 送得设备、 軟10量示方式 十六进制 ● 格式、SJA1000高存器格式(ID条注对) ● 登場显示 ● 登場 ● 日本 ●	CANTest	ZLG广州致远	远电子股份有限公	同版权所有 - [USB	CAN1 设备:0 通道	:0]		the little	-	_ D _ X
USBCANI 设备の 通道の ×	USBCANI 设备:0 通道:0 × ● 補波设置 28 自动 28 停止 26 关闭 32 定位 9 清空 14 保存 自设备操作 0 接收时间防讯 0 除融发送帧 0 显示发送帧 0 DBC 14 实时保存 19 件集存 序号 传输方向 时间标识 包口	选择设备	t→ 帧ID显	示方式:十六进制	I ▼ 格式: SJA:	1000寄存器格式(ID	靠左对齐) 👻 🚺	◆ 继续显示	📗 🤣 滾动 🚺 显示帧数	💋 Language 🕶	🚺 软件更新
◆ 建炭设置 38 目前 28 停止 26 失闭 10 定位 5 清空 4 保存 ma 设备操作・ 0 接收时间际识・ 0 降磁发送帧 S 显示发送帧 30 DBC 1 实时保存 69 停止保存 序号 停範方向 时间标识 帧ID 帧格式 100克里 数据标 数据化表 数据(HEX) 00000000 发送 元 0x00000000 数据帧 标准帧 0x08 cc 00 4a 00 00 dd f3 01 00000001 接收 0x00082e 0x00000000 数据帧 标准帧 0x08 cc 00 00 00 0d da 9 01	▲建放设置 38 目前 28 停止 至 关闭 ● 定位 ● 清空 ● 保存 ● 设备操作 ● 设备操作 ● ② 接收时间际识 ● ② 隐藏发送帧 ◎ DBC □ 实时保存 ⑧ 停止保存 序号 传输方向 时间标识 較D 較指式 較美型 数据长度 数据(HEX) 00000000 发送 无 0x0000000 数据帧 标准帧 0x08 cc 00 4a 00 00 dd f3 01 00000001 接收 0x00082e 0x00000000 数据帧 标准帧 0x08 cc 00 00 00 dd a9 01	USBCAN1 ថ្ង	备:0 通道:0	×							4 ⊳
序号 传输方向 时间标识 使口 較惰式 較美型 数据长度 数据(HEX) 00000000 发送 无 0x00000000 数据帧 标准帧 0x08 cc 00 4a 00 00 dd f3 01 00000001 接收 0x00082e 0x00000000 数据帧 标准帧 0x08 cc 00 00 00 0d da9 01	序号 侍毓方向 时间标识 顿口 帧相式 帧类型 数据长度 数据(HEX) 00000000 发送 无 0x0000000 数据帧 标准帧 0x08 cc 00 4a 00 00 dd f3 01 00000001 接收 0x000022e 0x00000000 数据帧 标准帧 0x08 cc 00 00 00 0d da 9 01 基本操作	🔌 澽波设置	8 启动	🖁 停止 🐹 关闭	<table-cell> 定位 🎈 清空</table-cell>	🔒 保存 💼 设备	鼻作 🔹 🙆 接收	时间标识• 😋	隐藏发送帧 🐳 显示发送帧	💖 DBC 📙 实时保i	字 🞯 停止保存
0000000 发送 无 0x00000000 数据帧 标准帧 0x08 cc 00 4a 00 00 dd f3 01 00000001 接次 0x00082e 0x00000000 数据帧 标准帧 0x08 cc 00 00 00 dd a9 01	00000000 按注 无 0x0000000 数据帧 标准帧 0x08 cc 00 4a 00 00 dd f3 01 000000001 接收 0x00082e 0x00000000 数据帧 标准帧 0x08 cc 00 00 00 00 dd a9 01 基本操作	序号	传输方向	时间标识	帧ID	帧格式	帧类型	数据长度	数据(HEX)		
		0000000	发送 接收	无 0x00082e	0x0000000 0x00000000	数据帧 数据帧	标准帧标准帧	0x08 0x08	cc 00 4a 00 00 dd f3 01 cc 00 00 00 00 dd a9 01		
发送方式: 止客友送 ▼ ● 每次友送早晌 ● 每次友送 ● ● ● ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○		至44991F 发送方式 帧类型 帧格式	: 正常发送 : 标准帧 : 数据帧	▼ (°每	取力のHEX): 00000000 気圧のHEX): 00000000 気法次数: 1	每次发送 10 数据 0HEX): CC 每次发送间	帧 □ 帧1 00 4A 00 00 DD 鬲(ms): 0	D每发送—帧递 F3 01	智 发送 停止		

Figure 3-3

Figure 3-3 shows the commands sent and received in the middle. Other options when inputting the command, such as: sending mode, frame type, frame format, the number of transmissions, etc. generally use the default options and no need to be changed.

3.2CAN Communication Example

①Send command: 0x45 Reset

B0	B1	B2	B3	B4	B5	B6	B7
0xCC	0x00	0x45	0x00	0x00	0xDD	0xEE	0x01

Response command:

B0	B1	B2	B3	B4	B5	B6	B7
0xCC	0x00	0x00	0x00	0x00	0xDD	0xA9	0x01

The debugging result is shown in the Figure 3-4 :



CANTest 2	ZLG广州较i	远电子股份有限的	公司版权所有 - [USE	ICAN1 设备:0 通道	:0]		Name Wilson		
选择设备	◆ 帧ID显	示方式: 十六进制	则	1000寄存器格式(ID	靠左对齐) 🔻 🚺	🔪 继续显示 📘	📘 🤷 滾动 🚺 显示帧数	💋 Language 🕶	(2) 软件更新
USBCAN1 设	备:0 通道:0	×							4 Þ ×
🛛 🔌 濾波设置	38 启动	送 停止 🐹 关闭	3 🕒 定位 🎅 清空	🔒 保存 💼 设备	操作 🔹 🙆 接收	时间标识 🕶 🕑	隐藏发送帧 🗳 显示发送帧	🧐 DBC 📙 实时保	存 🛞 停止保存
序号	传输方向	时间标识	帧ID	帧格式	帧类型	数据长度	数据(HEX)	0	-
0000000 00000001	发送 接收	无 0x002215	0x00000000 0x00000000	数据帧 数据帧	标准帧 标准帧	0x08 0x08	cc 00 45 00 00 dd ee 01 cc 00 00 00 00 dd a9 01		
									-
金平)第11	正堂发祥		再次发送单帖 C	每次发送 10	Фå 🗆 Фåт	D每发送——帖递+	e		
±+++-πi.	行业的公社		ATT OFFICE (00000000	the own . [[]		RE 01	<u></u>		
顺关尘.	117/ETW	'				_			
甲质格式:	安沢 1店 平贝	•	友医八毂: -	母次友送间	m∑l (ms): U		1 6 11.		
基本操作高	级操作								
				发送耗	时(s): 0.002	发送射	b数: 1 接收	(帧数: 1	清空计数

Figure 3-4

In the received commands, B2=00 indicates that the selector valve is operating normally and the reset is successful.



4. Examples of Operation Steps (Take RS232 as an example)

Setting operating steps:

1. Start the device and power on

2. If you need to restore the factory settings, click the factory reset; if not, set the items that you want to change directly.

3. After the setting is completed, the device needs to be restarted (when restarting the device,

the 24V power supply needs to be cut off) to make the setting item effective

Example 1: Set the RS232 baud rate:

1. Click the factory command (see Figure 4-1)

串口	COM03 *	关闭	2017-06-21 18:24:30 发送: CC 00 01 FF EE BB AA 01 (2017-06-21 18:24:30 接收: CC 00 00 00 00 DD A9 01
波特率	9600 -	☑工厂指令	
地址	00	发送	
命令	01	恢复出厂	
参数	01	清空	

Figure 4-1

2. Input the address in the address bar as 00 (the default value is 00, if the address has been modified, enter the modified address) Input the code 01 for the setting speed in the command line, then input the code 01 for the required speed in the parameter line and click to send. At this time, the response command shown in the figure above (Figure 4-1) is correct.

3. Cancel the checked factory command (Figure 4-2)



串口	COM03 *	关闭	2017-06-21 18:24:53 友达: CC 00 21 00 00 DD CA 01 2017-06-21 18:24:53 接收: CC 00 00 01 00 DD AA 01
波特率	9600 *	□工厂指令	
地址	00	发送	
命令	21	恢复出厂	
参数	00	清空	



4. Query the setting speed, input the setting speed code 21 in the command line, input the parameter 00 in the parameter line, click to send, and the response command as shown in the figure above is correct, that the data B3 is 01 which means the setting is correct.

5. Query the baud rate, if correct, restart the device (when restarting, the 24V power supply needs to be cut off), and the RS232 baud rate setting takes effect.

6. After restarting the device, connect the device and select the set baud rate (as shown in Figure 4-3)

串口	COM03 -	关闭	2017-06-21 18:32:02 友达: CC 00 21 00 00 DD CA 01 2017-06-21 18:32:02 接收: CC 00 00 01 00 DD AA 01
波特率	[19200 ··]	□工厂指令	
地址	00	发送	
命令	21	恢复出厂	
参数	00	清空	



串口	COM03 *	关闭	2017-06-21 18:38:32 发运: CC 00 4A 00 00 DD F3 01 2017-06-21 18:38:32 接收: CC 00 00 00 00 DD A9 01
波特率	19200 -	□工厂指令	
地址	00	发送	
命令	4a	恢复出厂	
参数	00	清空	

Example 2: Query motor status (as shown in Figure 4-4)

Figure 4-4

1. Input 00 in the address bar (if the address is changed, input the changed address)

2. Input the 4A command I (inquiry motor status) n the command bar

3. Input 00 in the parameter bar (if the input is not 00, the return result is 02 means parameter error)

4. After the input is completed, click the send button, and then the motor status data will be returned

Example 3: Control the device to switch to Port 4

1. Use the reset command 45, input 00 in the address bar (if the address is changed, input the changed address), input 45 (reset command) in the command bar, input 00 in the parameter bar, click to send, and the switching valve will go to the reset position. The reset position is between port No. 1 and port No. 10, at this time the common port is not connected with any port.

2. (If the input value of the parameter bit is not 00, the receiving code will report 02 means parameter error)



串口	COM03 *	关闭	2017-06-22 09:07:03 发送: CC 00 45 00 00 DD EE 01 2017-06-22 09:07:03 接收: CC 00 00 00 00 DD A9 01
波特率	19200 -	□工厂指令	
地址	00	发送	
命令	45	恢复出厂	
参数	00	清空	

3. Use command 44, input 00 in the address bar (if the address is changed, input the changed address), input 44 in the command bar (The motor rotates through the code disc, and the optimal path is automatically selected), input 04 in the parameter bar and click to send. The switching valve will rotate to port 4 which is connected to the common port now. The received command after turning to the port 4 is as shown in Figure 4-6

串口	COM03 v	关闭	2017-06-22 08:58:15 发送 2017-06-22 08:58:16 接收	CC 00 44 04 00 DD F1 01 CC 00 00 00 00 DD A9 01
波特率	19200 -	□⊥/ 指令]	
地址	00	发送		
命令	44	恢复出厂		
参数	04	清空		

Note: The parameter here cannot be 00, otherwise 02 (parameter error) will be returned.