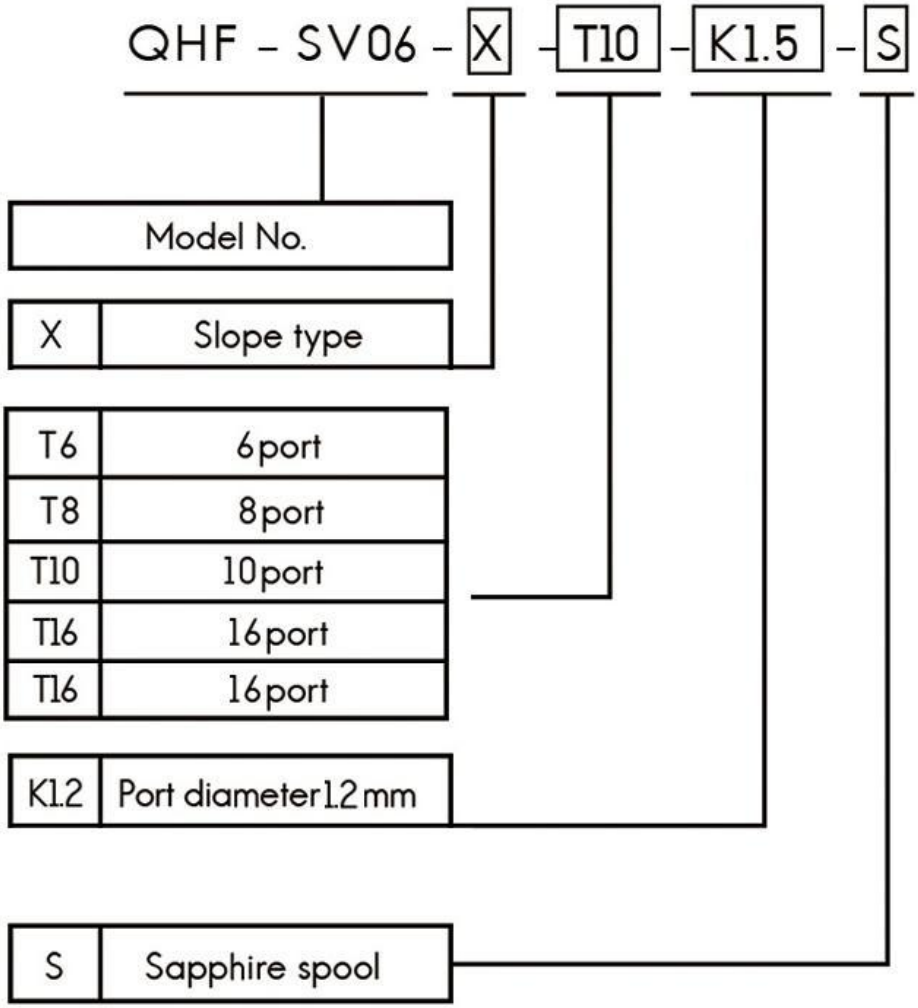
Model No.



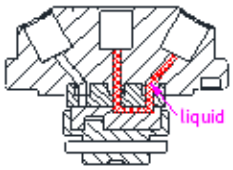
Example:

QHF-SV06-X-T6-K1.2-S refers to SV06 6 port selector valve with orifice 1.2mm and sapphire valve spool

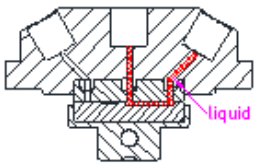
Technical Parameter

Valve configuration	6/8/10 port	12 port	16 port
Orifice	1.2mm	1.0mm	1.0mm
Fluid path	PCTFE valve head + Sapphire valve spool		
Dead volume	5.41μL	6.08μL	10.4μL
Port to port volume	27.5μL	22.43μL	33.68μL
Max drive power (torque)	2.6N/m	3.0N/m	3.5N/m
Secondary drive power (torque)	0.32N/m	0.36N/m	0.42N/m
Pressure rating	0-1.0Mpa (air) 0-1.6Mpa (water)		
Detection	auto-detect original position when powered on (when selectively open or close the valve)		
Liquid temperature	0-150℃		
Connection	1/4-28UNF Female		
Replaceable parts	stator replaceable, sealed rotor unreplaceable		
Transposition	random start to different ports		
Driver	non-optional (Integrated)		
Switch speed	≤5s/circle		
Communication	RS232/RS485: 9600bps, 19200dps, 38400dps, 57600dps, 115200dps		
	CAN: 100Kbps, 200Kbps, 500Kbps, 1Mbps		
Address & Parameter settings	Communication Interface		
Power supply	DC24V/3A		
Maximum power	60W		
Working environment	-10℃ - 50℃ ≤80% relative humidity, non-condensing		
Dimension (L*W*H)	60*51*145.8mm	60*51*156.5mm	60*51*175.5mm
Net weight (kg)	0.73kg	0.86kg	1.02kg
OEM support for special application requirements			

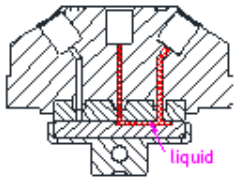
Port to Port Volume



6/8/10 Port

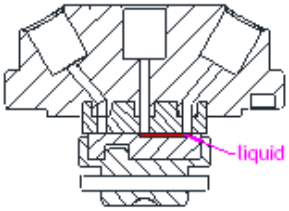


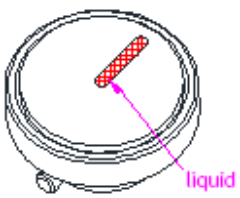
12 Port



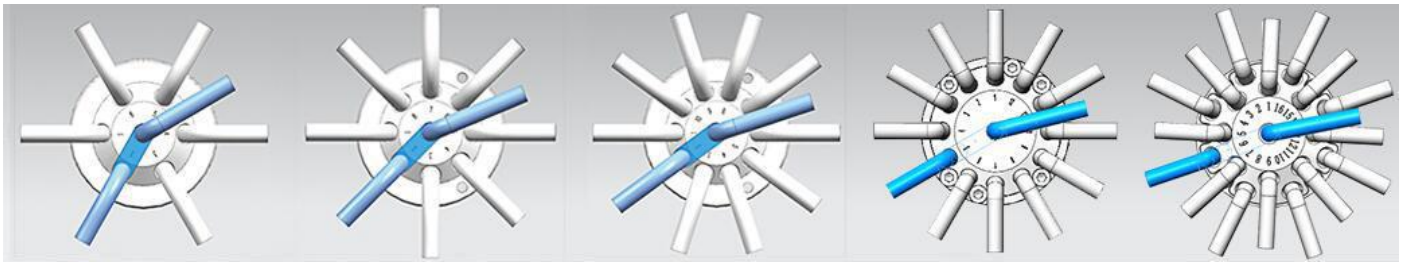
16 Port

Dead Volume





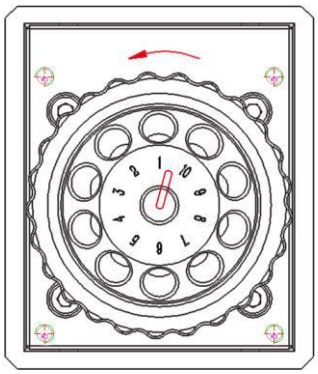
Valve Configuration



6 Port | 8 Port | 10 Port | 12 Port | 16 Port

Valve Reset

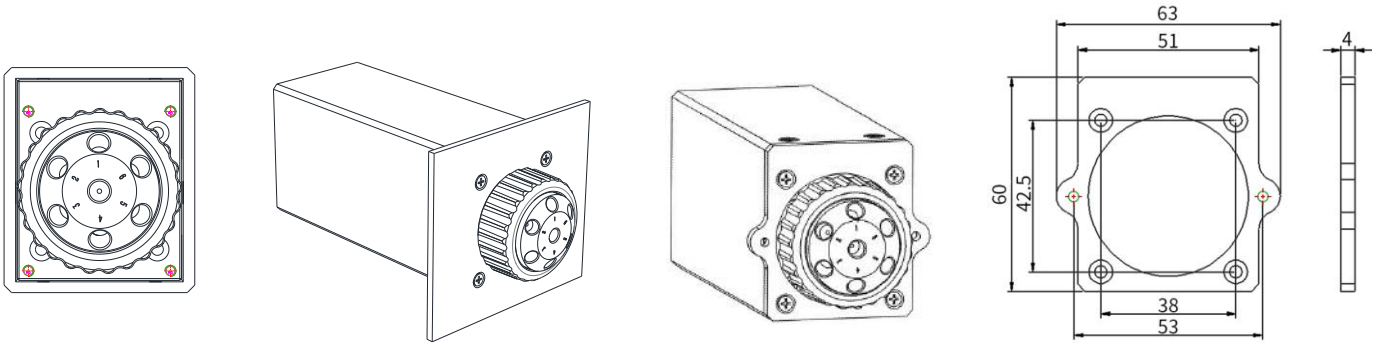
Reset Direction: Counterclockwise
Reset Position: Between port 1 and maximum port number (6/8/10/12/16), when rotor at reset position, it does NOT connect to any other ports.



Dimension (unit: mm)

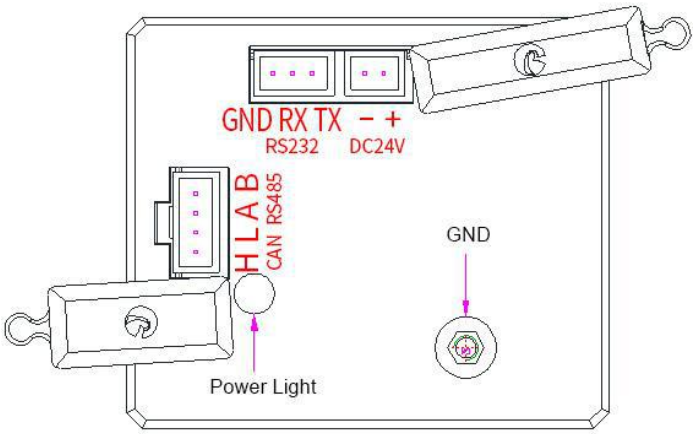
SV-06 Dimension.pdf

Mounting Size (unit: mm)



Please contact customer service if you need 2D and 3D file, thanks for cooperation!

Driver Port



Port Name	Function
+	DC24V positive
-	DC24V negative
TX	RS232 TX
RX	RS232 RX (Data output)
GND	GND
H	CANH
L	CANL
A	RS485 A
B	RS485 B

Driver Control Instruction

The data between selector valve and upper monitor (PC, PLC, Raspberry Pi, micro-controller) was transmitted by serial communication RS232/RS485/CAN
Communication Form: Asynchronous serial communication; Command and data frames are sum check 2 Byte; Commands and data are hexadecimal numbers; Command parameters saved by little-endian mode.
Communication Interface: RS232 or RS485 or CAN
Communication Mode: Bidirectional asynchronous; master-slave mode
Baud rate: 9600bps,19200bps,38400bps,57600bps,115200bps (RS232/RS485) / 100K, 200K, 500K, 1M (CAN)
Data bit: 8
Even-odd Check: None
Response Time: <1 second

Common Command (send command 8 bytes / received command 8 bytes)

Send Command (Monitor)

BO	B1	B2	B3	B4	B5	B6	B7
Start code	**Address**	**Function**	**Status Parameter**		**End code**	**Sum check**	
STX	ADDR	FUNC	1-8 bit	9-16 bit	ETX	Low byte	High byte

First byte “STX” = Start code (CCH)
Second byte “ADDR” = Address of slave device (0x00~0xFF)
Third byte “FUNC” = Function code
Forth Fifth byte = Status parameters of function code
Sixth byte = End code (DDH)
Seventh Eighth byte = Sum check code from byte 1 to 6

Response Command (Slave)

BO	B1	B2	B3	B4	B5	B6	B7
Start code	**Address**	**Function**	**Status Parameter**		**End code**	**Sum check**	
STX	ADDR	FUNC	1-8 bit	9-16 bit	ETX	Low byte	High byte

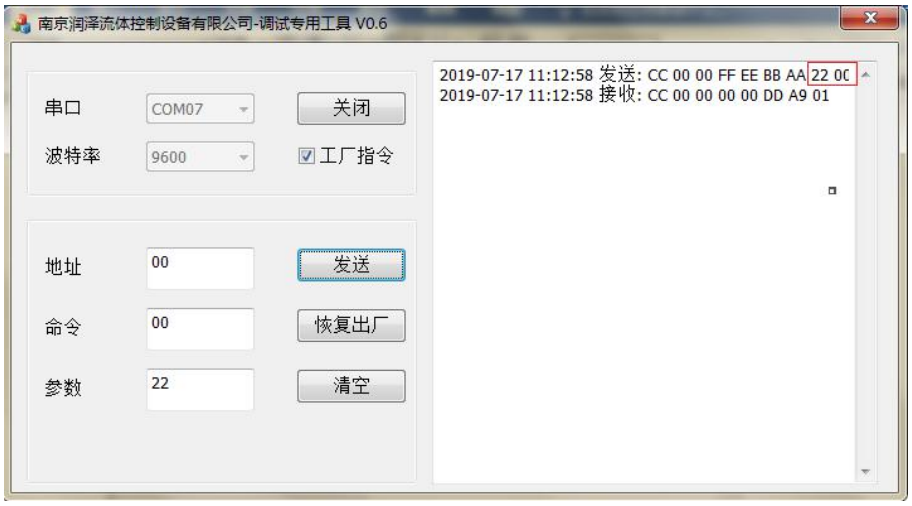
First byte “STX” = Start code (CCH)
Second byte “ADDR” = Address of slave device (0x00~0xFF)
Third byte “FUNC” = Function code
Forth Fifth byte = Status parameters of function code
Sixth byte = End code (DDH)
Seventh Eighth byte = Sum check code from byte 1 to 6

Common Command

Command Type	Command code	Instruction	Parameter (B3, B4)	Response Parameter (B3, B4)
Query Command	Ox21	Query RS232 baud rate	0x0000	Factory default 9600bps (B4 =0x00) B3=0x00 baud rate 9600bps B3=0x01 baud rate 19200bps B3=0x02 baud rate 38400bps B3=0x03 baud rate 57600bps B3=0x04 baud rate 115200bps
	0x22	Query RS485 baud rate	0x0000	
	0x23	Query CAN baud rate	0x0000	B3B4=0x0000 100Kbps B3B4=0x0001 200Kbps B3B4=0x0002 500Kbps B3B4=0x0003 1Mbps
	0x2e	Query automatic reset when power on	0x0000	(B4=0x00) B3=0x00 Non-auto reset when power on B3=0x01 automatic reset when power on
	0x30	Query CAN destination address	0x0000	B3=0xXX (B4=0x00) XX = 00~FF, default as 00
	0x3e	Query current located port	0x0000	B3B4 = Current position of coded disc
	0x3f	Query current firmware version	0x0000	B3B4 = Software version number (hexadecimal)
Control Command	0x44	Motor runs by coded disc, auto-select optimal path	Port No. (1-Max. port)	RS232: B2=0x00 B3B4= Internal data (randomly appears) RS485: B2=0xFE B3B4=0x0000
	0x45	Reset	0x0000	RS232: B2=0x00 B3B4= Internal data (randomly appears) RS485: B2=0xFE B3B4=0x0000
	0x49	Strong stop	0x0000	B3B4=Rest steps
	0x4a	Query motor status	0x0000	B3B4=0x0000

	Response Code (B2)	Parameter Instruction
Response Status	0x00	Normal status
	0x01	Frame error
	0x02	Parameter error
	0x03	Optocoupler error
	0x04	Motor busy
	0x05	Motor stalling
	0x06	Unknown position
	0xfe	Task suspension
	0xff	Unknown error

Factory Command (send command 14 bytes / received command 8 bytes)



Send Command (Monitor)

B0	B1	B2	B3,B4,B5,B6	B7	B8	B9	B10	B11	B12	B13
Start code	Address	Function	Password	Function Parameter				End code	Sum check	
STX	ADDR	FUNC		1-8 bit	9-16 bit	17-24 bit	25-32 bit	ETX	Low byte	High byte

First byte “STX” = Start code (CCH)
Second byte “ADDR” = Address of slave device (0x00~0xFF)
Third byte “FUNC” = Function code
Forth to Seventh byte = Password of factory command
Eighth to Eleventh byte = Parameters of function code
Twelfth byte = End code (DDH)
Thirteenth to fourteenth byte = Sum check code from byte 1 to 12

Response Command (Slave)

BO	B1	B2	B3	B4	B5	B6	B7
Start code	**Address**	**Function**	**Status Parameter**		**End code**	**Sum check**	
STX	ADDR	FUNC	1-8 bit	9-16 bit	ETX	Low byte	High byte

First byte “STX” = Start code (CCH)
Second byte “ADDR” = Address of slave device (0x00~0xFF)
Third byte “FUNC” = Function code
Forth Fifth byte = Status parameters of function code
Sixth byte = End code (DDH)
Seventh Eighth byte = Sum check code from byte 1 to 6

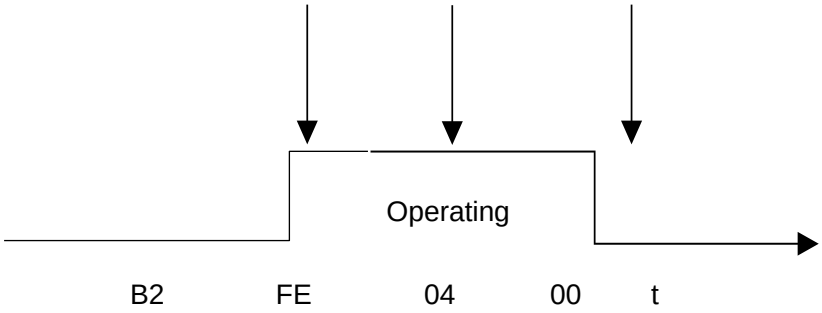
Factory Command

Command Type	Command code	Instruction	Parameter (B3, B4)	Response Parameter (B3, B4)
Factory Command	**0x00**	Set device address	0x0000~x00FF	Address: 0~255
	0x01	Set RS232 baud rate	0x0000~0x0004	Factory default 9600bps (B4 =0x00) B3=0x00 baud rate 9600bps B3=0x01 baud rate 19200bps B3=0x02 baud rate 38400bps B3=0x03 baud rate 57600bps B3=0x04 baud rate 115200bps
	0x02	Set RS485 baud rate	0x0000~0x0004	
	0x03	Set CAN baud rate	0x0000~0x0003	B3B4=0x0000 100Kbps B3B4=0x0001 200Kbps B3B4=0x0002 500Kbps B3B4=0x0003 1Mbps
	0x0E	Set automatic reset when power on	0x0000~0x0001	B3B4=0x0000 Non-auto reset when power on B3B4=0x0001 Automatic reset when power on
	Ox10	Set CAN destination address	0x0000~0x00FF	Address: 0~255

Instructions:

(1) Code B2 in response command means current motor status. Only when B2=0x00 motor works normally. Other status parameters are in above table.

When device controlled by RS485 and send control command B2-0x44 or 0x45, status parameter in response command is FE (task suspending) which means motor is working as command told, if now send other commands (except for query command), the status parameter in response command will be 04 (motor busy), if send polling command 0x4a, the status parameter in response command will be 00 (motor under normal status).



① Send control command (B2=0x44 or 0x45), received code FE (task suspending)

② Send query command 0X4A, received code 04 (motor busy)

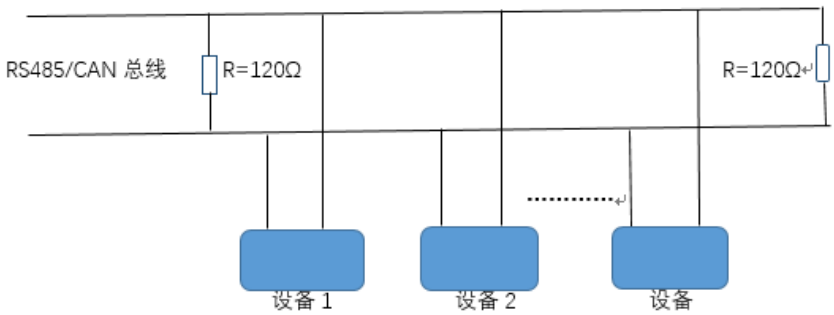
③ Send query command 0X4A, received code 00 (motor under normal status)

(2) Parameter B3,B4 in response command make sense only when send query command; when send setting or control command, response parameters make no sense with default 00 00. When send query command and parameter B2 in response command is 00, then response parameter B3, B4 make sense, received value is the query result. E.g. when send inquiry command 0x21 (query RS232 baud rate), response command B3 B4 = 04 00, it means baud rate of RS232 is 115200bps.

Note: all command parameters set and saved by little-endian mode. Little-endian means lower data bit saved in the lower address bit, higher data bit saved in the higher address bit.

Application Notice

- Please ensure input voltage was as required
- Please use original serial port lines
- Communication RS232, RS485, CAN are under Non-isolation mode, hot swapping unsupported.
- Please cover the unused ports with suitable coned plugs when laid aside to avoid impurity substance and air
- Please don't depart all parts on the device and keep all the labels safe and sound in case of warranty service
- Please read above operation instructions and communication protocols carefully, do not input data randomly.
- When control several instruments through RS485 and CAN, impedance matching need to be considered.



RUNZE FLUID

Nanjing Runze Fluid Control Equipment Co.,Ltd
No.9 Tianxing West Road Dongshan Street Jiangning District
Nanjing City, Jiangsu Province, China
Mobile: +86 17366384502
Email: min.zhu@runzeliuti.com
Contact: Julie Zhu