

QS7 Modbus protocol

QS6 / QS7 series servo drives support five kinds of the most common commands, using the Modbus-RTU protocol

Communication format is 8 data bits 1 stop bit no parity

Function code	Meaning
01	Read output point status
02	Read input point status
03	Read parameter
04	Set output
05	Write parameter

The following are assumptions device address is 1

Data format

Start bit	Still time than 10ms
Set address	1 byte
Function code	1 byte
Data	N byte
CRC checksum	2 byte
Stop bit	Still time than 10ms

01 Function code

Function : Read Output point status, current outputs for three

Command Information Format

Address	01H
Command	01H
Start address	00H(high bit) 00H(low bit)
Output Number	00H(high bit) 01H(low bit)
CRC checksum	FDH(low bit) CAH(high bit)

Response information format

Address	01H
Command	01H
The number of data (number of output / 8)	01H
Output status	00H(high bit) 01H(Low bit)
CRC checksum	??H(low bit)

	??H(high bit)
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02 Function code

Function: Read input status, the current input 15

0000H - servo enable

0001H - INTH

0002H - Alarm Clear

0003H - Mode

0004H - origin found

0005H - CW Limit

0006H - CCW Limit

0007H – U, V, W encoder failure

0008H - U phase

0009H - V phase

000AH - W phase

000BH - A phase

000CH - B phase

000DH - Z phase

000EH – A, B, Z encoder failure

Command information format:

Address	01H
Command	02H
Start address	00H(high bit) 00H(low bit)
Input Number	00H(high bit) 01H(low bit)
CRC checksum	??H(low bit) ??H (high bit)

Response information format

Address	01H
Command	02H
The number of data (number of output / 8)	01H
Input status	00H(high bit) 01H(Low bit)
CRC checksum	??H(low bit) ??H(high bit)

03 Function code

Function: Read parameters and drive status

P0-P63 parameter address is assigned to 0000H - 003F

0800H - motor speed

0801H - motor current

0802H - motor load ratio

0803H - motor position low bit

0804H - motor position High bit
 0805H - input pulse low bit
 0806H - input pulse High bit
 0807H - position deviation
 0808H - pulse frequency
 0809H - analog input value
 080AH - Alarm Code
 080BH - the internal position of the motor state (0-stop 1-running)

Command Information Format: 01 03 00 02 00 01 25 CA

Address	01H
Command	03H
Start bit position (With word calculation)	00H(high bit) 02H(low bit)
The number of data	00H(high bit) 01H(low bit)
CRC Checksum	25H(low bit) CAH(high bit)

Response information Format

Address	01H
Command	03H
The number of data (with byte calculation)	02H
Starting address 0002H content	01H(high bit) 90H(low bit)
CRC Checksum	??H(low bit) ??H(high bit)

05 Function codes:

Function: Set the output, the output is automatically controlled by the program in general, therefore it can only be used when the communications test mode

0000H - Coin signal
 0001H - alarm output
 0002H - brake output

Command Information Format

Address	01H
Command	05H
Output address	00H(high bit) 00H(low bit)
Output value	ffH(high bit) 00H(low bit)
CRC Checksum	??H(low bit) ??H(high bit)

Response information format

Address	01H
Command	05H

Output address	00H(high bit) 00H(low bit)
Output value	ffH(high bit) 00H(low bit)
CRC checksum	??H(low bit) ??H(high bit)

06 Function codes:

Function: Write Parameters

P0-P63 parameter address is assigned to 0000H - 003F

Communication Control Address:

Address: 0100H - servo lock and loose shaft control

Data Content: 0000-- loose shaft

0001 - Lock shaft

Address: 0101H - Servo state control

Data Content:

0001 - Stop

0002 - Start the first paragraph

0003 - Start the second paragraph

0004 - start the third paragraph

0005 - Start the fourth paragraph

FFFH - Specific function to save all parameters to FLASH

Command information format

Address	01H
Command	06H
Start data address	00H(high bit) 02H(low bit)
Data content	01H(high bit) 91H(low bit)
CRC checksum	??H(low bit) ??H(high bit)

Response information format

Address	01H
Command	06H
Start data address	00H(high bit) 02H(low bit)
Data content	01H(high bit) 91H(low bit)
CRC checksum	??H(low bit) ??H(high bit)