

EX9024-M Quick Start

- 1. The default setting is MODBUS mode after Power On.**
- 2. Using INIT pin to contact with GND pin then Power On will enter Normal mode.**
- 3. Command: \$00P0 is set EX9024-M to Normal mode after Repower On. On normal mode, user can set other setting like address, Baudrate, (Please check the EX9000 user manual).**
- 4. Command: \$AAP1 is set to MODBUS mode after Repower On.**
- 5. Under Normal mode that Command: \$AAP can check which mode it is after Repower On.**

Response:

!AA10=Normal

!AA11=MODBUS

The Modbus protocol was originally developed for Modicon controllers by Modicon Inc. Detailed information can be found at <http://www.modicon.com/techpubs/toc7.html>. Visit <http://www.modbus.org> to find more valuable information.

9000M series modules support the Modbus RTU protocol. The communication Baud Rates range from 1200bps to 115200bps. The parity, data bits and stop bits are fixed as no parity, 8 data bits and 1stop bit. The following Modbus functions are supported.

03(0x03) Read Back Multiple Channel Output Value

Request

00	Address	1 Byte	1-247
01	Function code	1 Byte	0x03
02~03	Starting channel	2 Bytes	0x0000~0x0003
04~05	Channel numbers	2 Bytes	0x0001~0x0004

Response

00	Address	1 Byte	1-247
01	Function code	1 Byte	0x03
02	Byte count	1 Byte	N* x 2
03	Output channel read back value	N* x 2 Byte	0x0000~0x3FFF

N*=Number of output channels

Error Response

00	Address	1 Byte	1-247
01	Function code	1 Byte	0x83
02	Exception code	1 Byte	Refer to the Modbus standard for more details.

06(0x06) Write Single Channel Output

Request

00	Address	1 Byte	1-247
01	Function code	1 Byte	0x06
02~03	Starting channel	2 Bytes	0x0000~0x0003
04~05	Output channel value	2 Bytes	0x0001~0x3FFF Refer Output type & Data Format Table

Response

00	Address	1 Byte	1-247
01	Function code	1 Byte	0x06
02	Starting channel	2 Byte	0x0000~0x0003
03	Output channel value	2 Byte	0x0001~0x3FFF Refer Table A Output type & Data Format

Error Response

00	Address	1 Byte	1-247
01	Function code	1 Byte	0x86
02	Exception code	1 Byte	Refer to the Modbus standard for more details.

Output type & Data Format Table

Type Code	Output Range	Data Format	Max.	Min.
30	0 to 20mA	Hexadecimal	3FFF	1FFF
31	4 to 20 mA	Hexadecimal	3FFF	2665
32	0 to 10V	Hexadecimal	3FFF	1FFF
33	-10V to +10V	Hexadecimal	3FFF	0
34	0 to +5V	Hexadecimal	2FFF	1FFF
35	-5V to +5V	Hexadecimal	2FFF	0FFF

****Channel output value should be in hexadecimal form and should be between range of maximum & minimum value that depend on each type code.**

16(0x10) Write Multiple Channel Output

Request

00	Address	1 Byte	1-247
01	Function code	1 Byte	0x10
02~03	Starting channel	2 Bytes	0x0000~0x0003
04~05	Output channel numbers	2 Bytes	0x0000~0x0004
06	Byte count	1 Byte	2 x N*
07~	Output channel value	N* x 2 Byte	0x0001~0x3FFF Refer Output type & Data Format Table

N*= Output channel numbers

Response

00	Address	1 Byte	1-247
01	Function code	1 Byte	0x10
02~03	Starting channel	2 Bytes	0x0000~0x0003
04~05	Output channel numbers	2 Bytes	0x0000~0x0004

Error Response

00	Address	1 Byte	1-247
01	Function code	1 Byte	0x90
02	Exception code	1 Byte	Refer to the Modbus standard for more details.

Output type & Data Format Table

Type Code	Output Range	Data Format	Max.	Min.
30	0 to 20mA	Hexadecimal	3FFF	1FFF
31	4 to 20 mA	Hexadecimal	3FFF	2665
32	0 to 10V	Hexadecimal	3FFF	1FFF
33	-10V to +10V	Hexadecimal	3FFF	0
34	0 to +5V	Hexadecimal	2FFF	1FFF
35	-5V to +5V	Hexadecimal	2FFF	0FFF

****Channel output value should be in hexadecimal form and should be between range of maximum & minimum value that depend on each type code.**