

Supported Modbus Function Codes

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Presentation

This section lists the supported Modbus function codes and their effect on controller memory variables for:

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- Modbus Serial IOScanner, page 136
- Modbus TCP, page 136
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Modbus Serial

The following Modbus requests are supported:

Supported Modbus Function Code Dec (Hex)	Supported Sub-Function Code	Description
1 (1 hex) or 2 (2 hex)	—	Read multiple internal bits %M
3 (3 hex) or 4 (4 hex)	—	Read multiple internal registers %MW
5 (5 hex)	—	Write single internal bit %M
6 (6 hex)	—	Write single internal register %MW
8 (8 hex)	0 (0 hex), 10 (0A hex)...18 (12 hex)	Diagnostics
15 (0F hex)	—	Write multiple internal bits %M
16 (10 hex)	—	Write multiple internal registers %MW
23 (17 hex)	—	Read/write multiple internal registers %MW
43 (2B hex)	14 (0E hex)	Read device identification (regular service)

NOTE: The impact of Modbus function codes used by a master M221 Logic Controller depends on the slave device type. In the major types of slave device:

- Internal bit means %M
- Input bit means %I
- Internal register means %MW
- Input register means %IW

Depending on the type of slave and the slave address, an internal bit should be a %M or %Q; an input bit should be a %I or %S, an input register should be a %IW or a %SW and an internal register should be a %MW or a %QW.

For more details, refer to the documentation of the slave device.

Modbus Serial IOScanner and Modbus TCP IOScanner

This table lists the Modbus function codes supported by the Modbus Serial IOScanner and Modbus TCP IOScanner:

Function Code Dec (Hex)	Description	Available For Configuration	Maximum Length (Bits)
1 (1 hex)	Read multiple bits (coils)	Channel	128
2 (2 hex)	Read multiple bits (discrete inputs)	Channel	128
3 (3 hex)	Read multiple words (holding registers)	Channel	125
4 (4 hex)	Read multiple words (input registers)	Channel	125
5 (5 hex)	Write single bit (coil)	Channel Initialization Value (default message type for initialization values)	1
6 (6 hex)	Write single word (register)	Channel Initialization Value	1
15 (0F hex)	Write multiple bits (coils)	Channel Initialization Value	128
16 (10 hex)	Write multiple words (registers)	Channel Initialization Value	123
23 (17 hex)	Read/write multiple words (registers)	Channel (default message type for channel configuration)	125 (read) 121 (write)

Modbus Mapping Table for Modbus TCP

Modbus TCP slave devices support a subset of the Modbus function codes. Function codes originating from a Modbus master with matching unit ID are directed to the Modbus mapping table and access network objects (%/WM and %QWM) of the controller. Refer to Modbus TCP Slave Device I/O Mapping Table, page 102.