ADM200
Modbus Communications

18th September 2020 I Version 01

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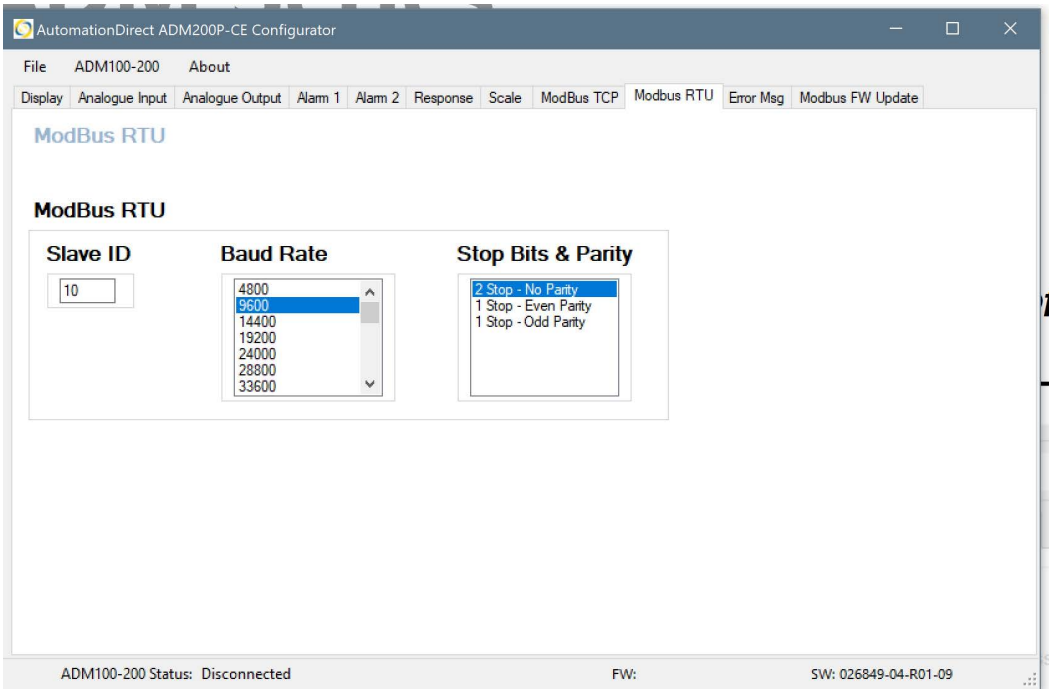
1 About this document

This document describes the use of ModBus in the ADM200.
ModBus is implemented in the ADM200 to enable the reading of the measured value and the status of the alarms. Configuration of the ADM200 measurements can be performed by using the ADM100-200 Series configurator. This document defines the configuration and usage of the ModBus features of the ADM200 for both ModBus RTU and ModBus TCP. The readable registers are common to both ModBus communication methods.

By default both the ModBus RTU and ModBus TCP/IP interfaced are enabled. To configure, please use the ADM200 configurator which is available from:
https://www.automationdirect.com/support/software-downloads?itemcode=ADM%20Configurator

2 ADM Configuration: Modbus RTU.



2.1 Slave ID

Any value between 0 and 255 can be entered.

2.2 Baud Rate

The following baud rates are supported.

Baud Rate					
4800	9600	14400	19200	24000	28800
33600	38400	43200	48000	52800	57600
62400	67200	72000	76800	81600	86400
91200	96000	100800	105600	110400	115200
120000	124800	129600	134400	139200	144000
148800	153600	158400	163200	168000	172800
177600	182400	187200	192000		

2.3 Stop Bits & Parity

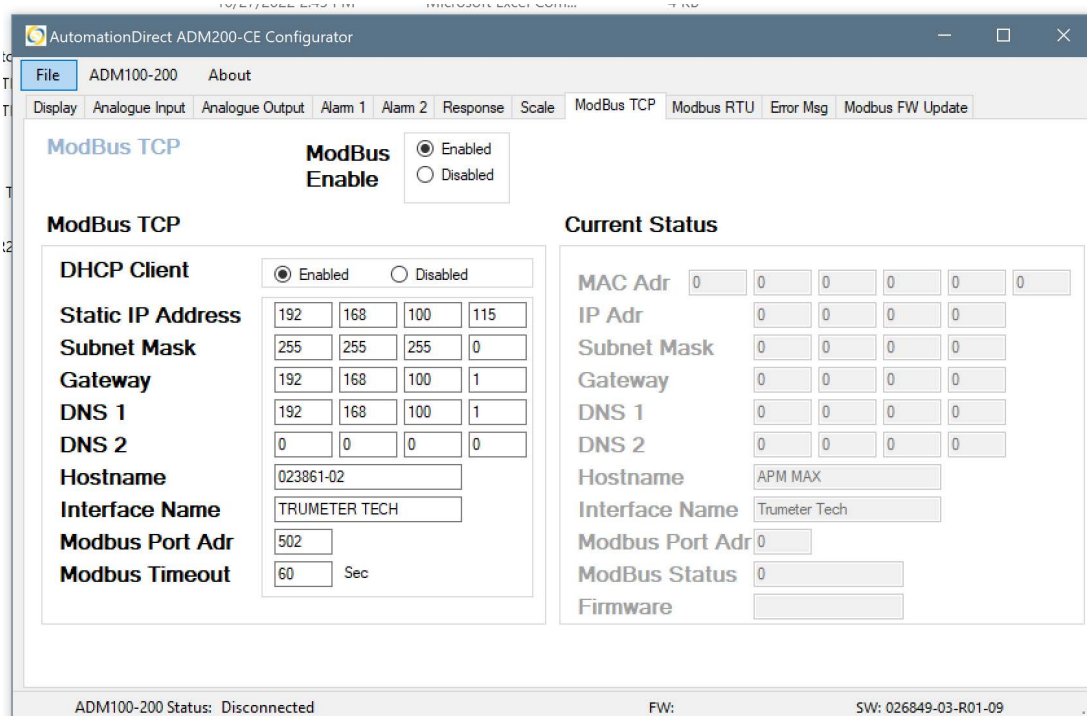
The following combinations of Stop bits, and Parity bits are supported.

- 2 Stop bits and No Parity bits
- 1 Stop bit and an Even Parity bit.
- 1 Stop Bit and an Odd Parity bit.

2.4 Modbus RTU function Code Support

Function Code 4 – “Read Input Register” is supported.

3 ADM Configuration: Modbus TCP.



3.1 ModBus Enable

Enable and disable are selectable.

3.2 DHCP Client

Enable and disable are selectable.

3.3 Configurable options

The following parameters are adjustable. IP address and Subnet Mask are only adjustable if DHCP is disabled.

Parameter
IP address
Subnet mask
Gateway
DNS 1
DNS 2
Hostname
Interface Name
Modbus port address
Modbus timeout period

3.4 Modbus TCP function Code Support

Function Code 4 – “Read Input Register” is supported.

4 Register Map for ModBus RTU & ModBus TCP

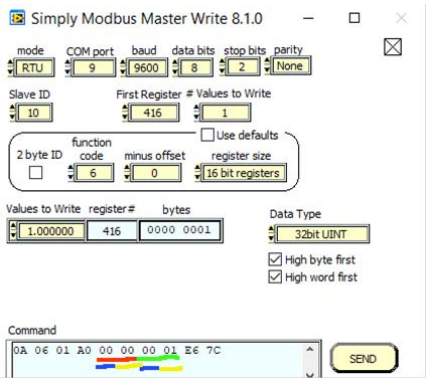
There are 6 readable registers available from the ADM200

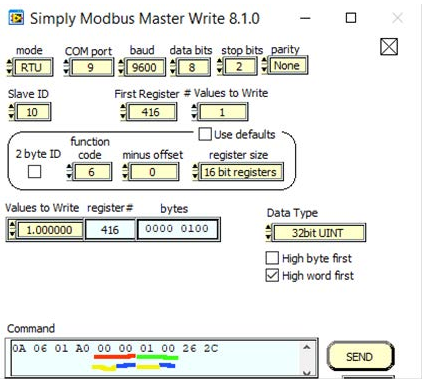
Input registers		
Address	**Type**	**Details**
1 - 2	32bit Float	Displayed Value, after configuration
3 - 4	32bit Float	Measured Value, before user offsets are applied
5	16bit int	Alarm 1 Status
6	16bit int	Alarm 2 Status

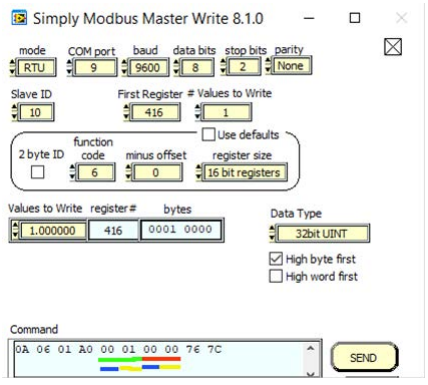
4.1 Modbus sentence protocol

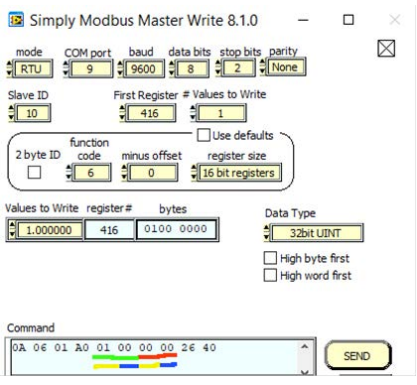
High byte (Big Endian) and High word (Big Endian). The most significant word is sent first. Each 16 bit word is sent as two 8 bit bytes, the most significant byte is sent first.

Red shows the high word, Green shows the low word
Blue shows the high byte, Yellow shows the low byte







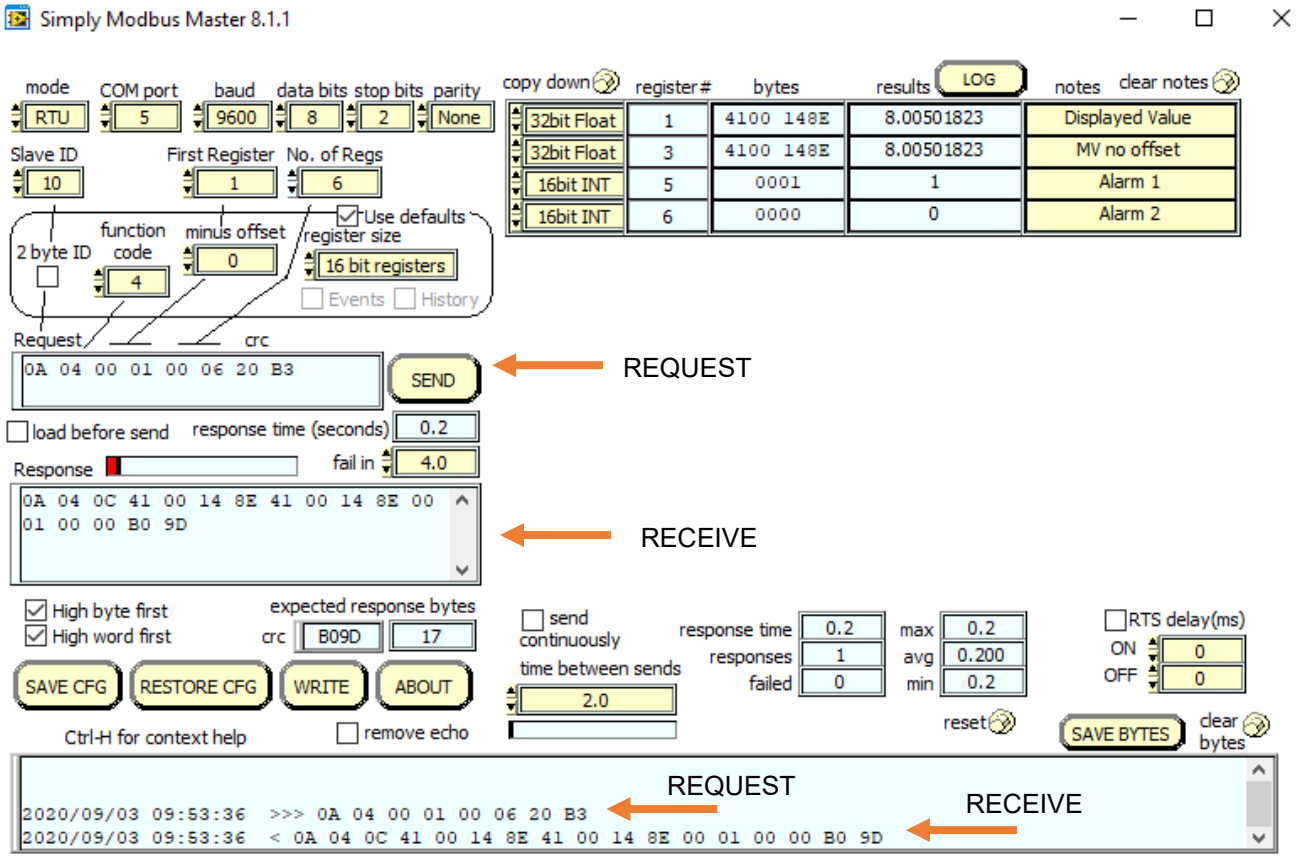


5 Modbus Communication Examples

In the following example SimplyModbus (https://www.simplymodbus.ca) has been used to communicate with the ADM200.

Send:	0A 04 01 00 06 (request values in 6 - 16 BIT registers)
Displayed Value:	41 00 14 8E (Hex) 8.00501823
Measured Value with no offset:	41 00 14 8E (Hex) 8.00501823
Alarm 1:	Active
Alarm 2:	Not Active

5.1 Modbus RTU communication example



5.2 Modbus TCP communication example