ENRON Modbus Protocol

Connector Configuration Parameters

Mom. Time X50ms

There are four types of Coil Writes to the Omnii-Comm with Modbus protocol; standard, momentary, timed and "special". The coil address used determines the type of output. Coils between 1 thru 4096 are treated as standard Modbus latched coils. They are controlled using Modbus function codes 5 and 15 to set and reset the coils. Coils number 5001 thru 5500 are "Momentary". Physically they correspond to the first 500 standard coils. Momentary coils automatically return to their original state after a fixed period of time. This time is set by the value entered in Mom. Time multiplied by 50 msec. Coils numbered 6001 thru 6500 are timed outputs. They also map to the first 500 standard coils. Timed coils automatically return to their original state after a variable period of time. This time is set by writing to Holding Registers 6001 thru 6500. There are three "special" coils; 6501 Freeze Analogs, 6502, Freeze Accumulators and 6503 Freeze both Analogs and Accumulators.

Resync TimeX10ms

Modbus RTU messages use a 3.5 character "silent" time for message framing. Entering a number in this field will override the 3.5 character time to the time value entered here times 10 msec.

RTS ON DelayX10ms

Enter a number from 0 to 255 (0 to 2.55 seconds) to delay sending a message after turning on Request To Send (RTS). Commonly used with modem communication to allow additional time for the modems to synchronize.

RTS OFF DelayX10ms

Enter a number from 0 to 255 (0 to 2.55 seconds) to keep RTS on after a message has been sent. Commonly used to keep a radio on for a short period of time at the end of a message.

Handshake Option

If Full Handshake is selected the Omnii-Comm will assert RTS and wait for CTS before sending a message. RTS will be turned off after the message has been sent. If Constant Carrier is selected the Omnii-Comm will assert RTS when it sends its first message and leave it asserted. It will wait for CTS before sending. If Ignore CTS is selected, RTS will be asserted before sending a message and removed at the end of the message. The CTS input will be ignored. If No Handshake is selected, RTS will be asserted when the Omnii-Comm sends its first message. RTS will not be turned off at the end of the message. The CTS input will be ignored. If Activity Monitor is selected, the Omnii-Comm will check the DCD input before sending a message. If DCD is ON, the Omnii-Comm will delay sending the message.

Option Bit Parameters

Master or Slave

Check this box if using the Omnii-Comm as a Modbus Master. Clear it for slave operation.

Use Radio Key

If checked, Bit 0 in a register specified by the "Radio Key Address" on the Header configuration screen will be turned ON before a message is sent and turned OFF after the message has been completed.

Protocol Extension Table Parameters

The Protocol extension table is used to define additional parameters required for Modbus operation. Click on the box to enable the Protocol Extension Table. Click on the button to bring up the specific options as detailed below.

First/Last 32 bit register

Enter the Holding Register Number that you want to use for the First 32-bit data value in the database. ENRON Modbus typically uses addresses between 7001 and 7128.

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Poll Table Read Parameters

Modbus Address

The address of the Modbus Slave that data will be read from.

Modbus Function Code

The type of data that will be read. Valid selections are Coils (00000), Input Status (10000), Holding Registers (40000) or Input Registers (30000)

Starting Reg or Coil

The starting coil number or register number to use for the Read operation.

Number to Read

The number of Coils or Registers to Read

Bytes Expected

The number of bytes expected to be returned. If the Modbus device returns more or less data than expected the Omnii-Comm will generate an error.

Poll Table Write and Error Parameters

Modbus Address

The address of the Modbus Slave that data will be written to.

Modbus Function Code

The type of data that will be written. Valid selections are Coil (00000), Holding Register (40000), Multiple Coils (00000) or Multiple Holding Registers (40000)

Starting Reg or Coil

The starting coil number or register number to use for the Write operation.

Number to Write

The number of Coils or Registers to Write.

Bytes to Write

The total number of bytes to Write

Note: System Error Protocol Definitions are the same as Poll Table Write and Error Parameters

Database Extension Table Parameters

Index	Name	Size:Max Length
3	# Coils (#cards) Coils Series 00000 points	2:256
4	# Holding Regs Holding Registers Series 40000 points	2:256
5	32-bit RegsHolding Registers Range determined in Protocol Extension Table	4:128