



Modbus RTU Slave

Overview

Maple Systems' **Blue/BLU300 Series** Operator Interface Terminals (Maple OITs) communicate with any device that uses the Modbus RTU protocol and originates binary messages as a master device. The Blue Series uses the **MODBUS RTU Slave** protocol driver, to allow the slave in a point-to-point single master, single slave, or single master, multiple slave format. RS485 networking is supported to connect multiple Blue Series MODBUS slave devices to a single MODBUS master device.

Communications Cable

The Maple OIT should be connected to the device's Modbus port.

A list of communications cables offered by Maple Systems as well as cable assembly instructions to assist you in assembling your own communications cable are available on our website at www.maple-systems.com/cables.htm.

WARNING: If your communications cable is not wired exactly as shown in our cable assembly instructions, damage to the OIT or loss of communications can result.

Controller Settings

The Modbus port on the Controller must be set to RTU master mode in order to properly communicate with the OIT (working as a slave).

Accessible Memory

Register Memory

The following table lists Maple OIT register memory ranges that any host device using Modbus RTU Slave are able to access. The memory areas in the OIT are non-retentive. All data stored in the memory area is erased when power is removed from the OIT. The following register memory is displayable in 16 or 32 bit formats on the Maple OIT.

Modbus Address	Corresponding Blue Series Register Address
40001-42048	@V0-@V2047

Discrete Memory

Modbus Address	Corresponding Blue Series Register Address
00001-01024	@B0-@B1023

The following Modbus RTU function codes are supported by this communication driver.

Data Type	Read/Write	Description	Uses Modbus Code
0x	R	Read a coil	0x01
0x	W	Write to a single coil	0x05
0x	W	Force multiple coils	0x0F
4x	R	Read a holding register	0x03
4x	W	Preset single register	0x06
4x	W	Write to multiple registers	0x10

No support is provided for Input Status or Input Registers; therefore, function codes 0x02 and 0x04 are not supported.

BlueLeaf Communication Settings

The following table lists the communications settings that must be configured in BlueLeaf. These settings can be found in the **Tools...HMI-PLC Communication Settings** menu under the PLC tab.

- the **Recommended Settings** column provides the recommended setting based upon default settings most commonly used in Modbus Devices
- the **Options** column lists BlueLeaf's options; your controller may not support every option

Name	Default	Options	Important Notes
PLC type:	Modbus Slave (RTU Mode)		
Com Port:	RS232	RS232, RS485	Tools...Set HMI-PLC Port
Baud Rate:	9600	115200, 57600, 38400, 19200, 9600, 4800	Must match the Modbus port settings. Use the fastest baud rate supported by both.
Data Bits:	8	7, 8	Must match the Modbus port settings
Stop bits:	1	1, 2	Must match the Modbus port settings
Parity:	Even	Even, Odd, None	Must match the Modbus port settings
Net Addr.:	1	0-255	Must match the Controller's port setting (configure in each object attribute)