



# Trio Motion Technology

## Motion Coordinator Controllers

### Overview

Maple Systems’ **BLU300 Series** Operator Interface Terminals (Maple OITs) communicate with Motion Coordinator Controllers using the Modbus protocol. When configured with BlueLeaf configuration software, the Maple OIT is the master in a point-to-point single master, single slave format or a single master, multiple slaves format (except for MC202).

Compatible Controllers	
Family	Model
Motion Coordinator Controllers	MC202, EURO205, MC206, MC216

### Communications Cable

The Maple OIT should be connected to the Motion Coordinator serial communications port 1 (RS232) or port 2 (RS485). 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](http://www.maple-systems.com/cables.htm).

**NOTE:** Connection to the MC202 requires P349 RS-485 adapter. For more information, please consult Trio Motion Technology Tech Note TN30-02.

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

# Controller Settings

The serial port on the motion controller must be configured for Modbus RTU using the Address and SETCOM command. The Modbus protocol is initialized by setting the mode parameter of the SETCOM instruction to 4. The ADDRESS parameter must also be set before the Modbus protocol is activated.

**Example:** ADDRESS=1  
 SETCOM(9600,8,1,2,1,4) ‘set up port 1 as MODBUS port at 9600 baud

ADDRESS=1  
 SETCOM(19200,8,1,2,2,4) ‘set up the RS485 port at 19200 baud

Name	Default	Options
Communication address	1	1-32
Baud rate	9600	1200, 2400, 4800, 9600, 19200 or 38400
Parity	Even	None, Even, Odd
Data Bits	8	7 or 8
Stop Bits	1	1 or 2

# Accessible Controller Memory

## Register Memory

Register Memory

The following table lists the controller’s register memory ranges that the Maple OITs are able to access. Please note that your controller’s memory range may be *smaller* or *larger* than that supported by these OITs. The following register memory can be displayed in 16 or 32 bit format on the Maple OIT.

PLC Register Type	Address Range	Format	PLC Register Description
3x	1-65535	dddd (d=decimal)	Input Registers (Read Only)
4x	1-65535	dddd	Holding Registers

Sw3x	1-65535	dddd	Input Registers (Word Swap) <sup>1</sup>
Sw4x	1-65535	dddd	Holding Registers (Word Swap) <sup>1</sup>

<sup>1</sup> The Sw3x and Sw4x registers read and write to the same memory areas as the 3x and 4x respectively. However, these registers swap the word order when 32-bit values are used.

## Discrete Memory

The following table lists the controller's discrete memory ranges that Maple's OITs are able to access. Please note that your controller's memory range may be *smaller* or *larger* than that supported by Maple's OITs. The following discrete memory is displayable in single-bit format on the Maple OIT.

PLC Register Type	Address Range	Format	PLC Register Description
0x	1-65535	dddd (d=decimal)	Output Coils
1x	1-65535	dddd	Input Coils (Read Only)
Bit3x	1.00-65535.15	dddd.bb (b=bit#)	Input Register Bits (Read Only) <sup>2</sup>
Bit4x	1.00-65535.15	dddd.bb	Holding Register Bits <sup>2</sup>

<sup>2</sup> The Bit3x and Bit4x coils read and write to the same memory as the 3x and 4x registers respectively. However, these coils allow access to individual bits within the memory registers. The bit number is specified by using the '.' followed by the bit number, 0-15.

## Important Memory Considerations

If your controller's memory range is smaller than the range supported by Maple's OITs, it is possible to configure the Maple OIT to monitor a memory address which does not exist. Since this can cause unpredictable results, when you configure the Maple OIT please ensure that all selected memory addresses are valid for the controller model.

Do not configure the Maple OIT to write to any memory address which should only be written to by the controller.

### Accessing the 1XXXX Coils or 3XXXX Registers

Although the OITware-200 configuration software allows the programmer to select read/write access for 1XXXX and 3XXXX memory, these controller memory areas are designed to be read only.

### On using Bank 8 or Bank 16 formats

When using these formats, each controller coil (bit) is individually displayed in terms of 1 and 0, with the lowest addressed coil displayed in the left-most position in the field. Therefore, if using coils 00001-00016, then 00016 is the least significant bit displayed in the right-most position and 00001 is the most significant bit displayed in the left-most position. The address used must start on a byte boundary when using these formats, which can be determined if the first coil's address, minus 1 and then divided by 16, leaves no remainder.

# BlueLeaf Communication Settings

The following table lists the communications settings that must be configured in BlueLeaf software. These settings can be found in the Tools...HMI-PLC Communications Settings menu.

- The **Recommended Settings** column provides recommended settings based upon the default settings most commonly used in the Trio Motion Technology controller
- The **Options** column lists BlueLeaf's options; your controller may not support every option.

Name	Default	Options	Important Notes
PLC Type	Modbus RTU Master (Modicon, etc.)		
Com Port	RS232	RS232, RS485 (2-wire only)	Tools...Set HMI-PLC Port
Baud Rate	19200	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	2	1, 2	Must match the Modbus port settings
Parity	None	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).