



Twido PLCs

Overview

Maple Systems' **BLU300 Series** Operator Interface Terminals (Maple HMIs) communicate with **Twido PLCs** using the Modbus RTU protocol. The BLU300 acts as the "master" device in a single master, multiple slave format.

- Ability to use High Word First format or Low Word First format for 32-bit data stored in 4x memory
- Ability to read/write to individual bits in 4x memory
- Ability to set a turnaround delay that can be used to slow the rate at which the HMI polls the PLC/controller for data

Communications Cable

The Maple OIT should be connected to the Twido port configured for Modbus.

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 HMI or loss of communications can result.

Controller Settings

The Modbus port on the Controller must be set to Modbus Slave in order to properly communicate with the HMI (master).

If using Port 1 of the Twido, the DPT signal must be tied to ground. Then the controller will use the port configuration set in the application to determine the type of communication.

Accessible Memory

Register Memory

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

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 ¹	Input Registers (Word Swap) ¹
Sw4x	1-65535	dddd	Holding Registers (Word Swap) ¹

¹ 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 HMIs are able to access. Please note that your controller's memory range may be *smaller* or *larger* than that supported by Maple's HMIs. The following discrete memory is displayable in single-bit format on the Maple HMI.

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	1/0-65535.15	dddd/bb (b=bit#)	Input Register Bits (Read Only) ²
Bit4x	1/0-65535.15	dddd/bb	Holding Register Bits ²

² 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.

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 Twido PLC
- The **Options** column lists BlueLeaf's options; your controller may not support every option.

Name	Default	Options	Important Notes
PLC Type	Modicon PLC - Modbus RTU Mode		
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*, 1-255	Must match the Controller's port setting (configure in each object attribute).

*Net addr is reserved for broadcast messages. When this address is used, the HMI does not expect a reply, and therefore will not display register info for this address.