



Entertron Industries

Programmable Controllers

Overview

Maple Systems' OIT Family Operator Interface Terminals (Maple OITs) communicate with Entertron Industries controllers using the Entertron Modbus protocol software, Part Number V4.MODBUS. The Modbus software gives you full Modbus capability. When programmed using the Entertron-Modbus protocol in OITware-200, the Maple OIT is the master in a point-to-point single master, single slave format.

Compatible PLCs	
Family	Model
Programmable Controllers	SK1600-R-SA, Elite 2000, Smart-Pak, Smart-PAK Plus

Communications Cable

The Maple OIT should be connected to the serial communications 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 Maple OIT or loss of communications can result.

PLC Settings

Use the Modbus Protocol Software, part number V4.MODBUS.

PLC Modbus address is set in one of the internal registers (TC243) in the PLC system.

TC243 - Address 27 and 47 are forbidden by Entertron and stated to provide unpredictable results if utilized.

Accessible PLC Memory

Register Memory

The following table lists the PLC's register memory ranges that Maple's OITs are able to access. Please note that your PLC's memory range may be *smaller* or *larger* than that supported by Maple's OITs. The following register memory is displayable in 16-bit or 32-bit formats on the Maple OIT.

PLC Register Address	PLC Register Description	Access
300001 to 365536	Input Registers, 16 Bit Format	Read Only
400001 to 465536	Holding Registers, 16 Bit Format	Read/Write

Discrete Memory

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

PLC Bit Address	PLC Bit Description	Access
000001 to 065536	Coils, Bit Format	Read/Write
100001 to 165536 (PLC Dependent)	Inputs, Bit Format	Read Only

Important Memory Considerations

If your PLC'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 PLC model.

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

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.

The Entertron systems only have one bank of registers for user information. Therefore, the information accessed from a Read Holding or Read Input Register is the same.

OITware-200 Settings

The following table lists the communications settings that must be configured in OITware-200.

Please note:

- the Default column lists OITware-200's default setting; your PLC's default may be different
- the Options column lists OITware-200's options; your PLC may not support every option

Name	Default	Options	Important Notes
Baud Rate	19200	19200, 9600, 4800, 2400, 1200, 600, 300	Must match the PLC's port settings. Use the fastest baud rate supported by both.
Parity	None	Even, Odd, None, Mark, Space	Must match the PLC's port settings.
Data Bits	8	7, 8	Must match the PLC's port settings.
Stop Bits	2	1, 2	Must match the PLC's port settings.
Status Coils	385	000001 to 065536 400001 to 465536	Must be within the PLC's supported memory range.
Address, Source Address	N/A		
Destination Address	1	1 to 247 (Excludes 27 & 47)	Must match the PLC Address.
Password	N/A		
Message Request Register	400001	000001 to 065536 400001 to 465536	Must be within the PLC's supported memory range.
Current Message Register (optional)	400003	000001 to 065536 400001 to 465536	Must be within the PLC's supported memory range.
Function Key Coils (optional)	401	000001 to 065536 400001 to 465536	Must be within the PLC's supported memory range.
Screen Dependent Function Key Coils (optional)	369	000001 to 065536 400001 to 465536	Must be within the PLC's supported memory range. Applies to OITs with Screen Dependent Function Keys.
Control Key Coils (optional)	433	000001 to 065536 400001 to 465536	Must be within the PLC's supported memory range.
Status LED Coils (optional)	1	000001 to 065536 400001 to 465536	Must be within the PLC's supported memory range. Applies to OITs with Status LEDs.
Function Key LED Coils (optional)	417	000001 to 065536 400001 to 465536	Must be within the PLC's supported memory range. Applies to OITs with Function Key LEDs.