CONTROLLER INFORMATION SHEET

CTC (Control Technology Corp.)

Automation Controller Series

Overview

Maple Systems' OIT Family Operator Interface Terminals (Maple OITs) communicate with CTC (Control Technology Corporation) automation controllers using the CTC Serial Data communication protocol. When configured with the OITware-200, the Maple OIT is the master in a point-to-point single master, single slave format.

Compatible Controllers	
Family	**Model**
CTC Series	2200(XM), 2400 (iE, iEA), 2600(XM), 2601, 2700, 2800(iE, iEA), 28EAXM, Multipro Family, 2216 RS232 or 2716 Dual Channel RS232 Communications Module

Communications Cable

The Maple OIT should be connected via 3-wire RS232 to the COMM port on the CTC automation controller.

For a list of communications cables offered by Maple Systems as well as cable assembly instructions, please contact Maple Systems at (425) 745-3229, or you can visit us on the web at www.maple-systems.com. For a comprehensive listing of all of our cables, please ask for Technical Note 1061.

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

Name	Default	Options	Important Notes
Baud Rate	9600	300-38, 400	Must match the controller's port setting. Use the fastest baud rate supported by both the Controller and the OITware-200.
Parity	None	Even/Odd/ None	Must match the controller's port settings.
Data Bits	8	7 or 8	Must match the controller's port settings.
Stop Bits	1	1 or 2	Must match the controller's port settings.
Message Request Register	133	133-500	Must be within controller's supported memory range.
Current Message Register	134	133-500	Must be within controller's supported memory range.

Accessible Controller resources, special I/O or external devices

The following table lists the controller register memory ranges that Maple 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.

For Register Monitors

Resources/Devices	Address Range	Access	Preferred Format
Analog Input	1-128	Read Only	1/0, On/Off, ASCII String
Analog Output	1-128	Read/Write	1/0, On/Off, ASCII String
Controller -- Reset	N/A	Read/Write	1/0, On/Off, ASCII String
Controller -- Start/Stop	N/A	Read/Write	1/0, On/Off, ASCII String
Counter	1-8	Read/Write	Long Decimal
Data Table Location -- Row -- Column	1-32000 1-255	Read/Write	Decimal
Digital Input	1-1024	Read Only	1/0, On/Off, ASCII String
Digital Output	1-999	Read/Write	1/0, On/Off, ASCII String
Flag	1-32	Read/Write	1/0, On/Off, ASCII String
Register	1-32766	Read/Write*	Long, Decimal

(*) Please refer to CTC controller's reference manual to see what registers are Read/Write, Read Only, or Write Only.

For Function and Screen-Dependent Function Keys

Resources/Devices	Address Range	Access	Preferred Format
Analog Output	1-128	Read/Write	Push ON/OFF, Momentary
Controller -- Reset	N/A	Read/Write	Momentary
Controller -- Start/Stop	N/A	Read/Write	Push ON/OFF, Momentary
Digital Output	1-999	Read/Write	Push ON/OFF, Momentary
Flag	1-32	Read/Write	Push ON/OFF, Momentary

Important Controller 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 controller memory addresses are valid for the controller model.
Do not configure the OIT to read/write to any controller memory address which should only be written to by the controller.
Some registers can be interchangeably accessed in OITware-200: Register 1-8 = Counter 1-8 (Read/Write in Long or Decimal format) Register 1001-1999 = Digital Output 1-999 (Read/Write in bit format) Register 2001-3024 = Digital Input 1-1024 (Read in bit format)
Note when using Registers 128 (Phantom Register): In order to configure Register 128 in OITware-200, you need to assign a positive number to Register 127 (Pointer to Phantom) first. In other words, programmer should write a positive value to Register 127 before reading or writing register 128 in the OIT. Otherwise, CTC controller will send an error message to OIT.
Note when using Registers 9000 (Special Purpose Register): In order to configure Register 9000 in OITware-200, you need to write positive numbers (e.g. Row number and column number) to Register 131 (Data Table Row Pointer) and Register 132 (Data Table Column Pointer) first. In other words, programmer should write positive values to Register 131 and 132 before configuring register 128 in the OIT. Otherwise, CTC controller will send an error message to OIT.
If you want to access Motor/Servo current position, position error, or velocity, please refer to CTC Reference Manual for the right register numbers.
Accessing the digital and analog inputs and some registers: although the OITware-200 configuration software allows Read/Write access to these memory areas, they are designed to be Read Only.

OITware-200 Settings

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

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

Name	Setting	Options	Important Notes
Baud Rate	9600	300-19200	Must match the controller's port settings. Use the fastest baud rate supported by both the controller and the OITware-200.
Parity	None	Even, Odd, None	Must match the controller's configuration settings.
Data Bits	8	7, 8	Must match the controller's configuration settings.
Stop Bits	1	1, 2	Must match the controller's configuration settings.
Message Request Register	133	133-500	Must be within the controller's supported memory range.
Current Message Register	134	133-500	Must be within controller's supported memory range.

Error Messages

"Communication Error"
The OIT does not receive a valid response. Check the cable and connectors for integrity. Move cables away from noise sources. Check for proper grounding and power supply.

"Illegal Register Num"
Illegal register number specified. The register may be Read Only or Write Only, or not within the supported address range.

"Error: Sent Checksum" & "Error: Rcvd Checksum"
Checksum error or end of packet is greater or less than FF.

"Value out of range OR Input Number N/A:
Value out of range (input number not present in controller)

"Long format N/A"
Long format is not allowed. Use decimal or signed format instead.

"Invalid Command"
The protocol driver is requested to perform an invalid command.