CONTROLLER INFORMATION SHEET

Aromat FP Series

Overview

Maple Systems' OIT Family Operator Interface Terminals (Maple OITs) communicate with the Aromat FP Series of Programmable Logic Controllers (PLCs) using Aromat Communications protocol in a point-to-point single master, single slave format.

Compatible PLCs	
PLC Family	**PLC Model**
Aromat FP Series	FP0: C10RS, C14RS, C16P, C16T, C32P, C32T FP1: C14, C16, C24, C40, C56, C72 series FP2: C1, C1A FP3: AFP3210C, AFP3211C, AFP3220C, AFP6211, AFP6221 FP10SH: AFP3210C, AFP3211C, AFP3220C, AFP6211, AFP6221 FPM: C20R, C20T, C32T, C20RC, C32RC, C20TC, C32TC

Communications Cable

The Maple OIT should be connected to the programming port located on the front of the PLC. Refer to Technical Note 1061 for information on communication cable part numbers and cable assembly instructions. If you will be assembling your own communications cable, cable assembly instructions are also available on our web site at www.maple-systems.com.

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

Computer Link mode must be used.

Accessible PLC Memory

PLC Register Memory

The following table lists the PLC 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 PLC register memory is displayable in 16-bit or 32-bit formats on the Maple OIT.

PLC Register Address	PLC Register Description
WX 0 to 511	External Input
WY 0 to 511	External Output
WR0 to 886, 900 to 909	Internal Relay
LD 0 to 8446	Link Data Register
DT 0 to 10239, 9000 to 90254	Data Register
SV 0 to 3071	T/C Set Value
EV 0 to 3071	T/C Elapsed Value

PLC Discrete Memory

The following table lists the PLC 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. For registers X, Y, R or L, the hexidecimal digit is represented as the sub-element. The following discrete PLC memory is displayable in single-bit and bank formats on the Maple OIT.

PLC Bit Address	PLC Bit Description
X 00 to 511F	External Input
Y 00 to 511F	External Output
R 00 to 886F, 9000 to 909F	Internal Relay
L 00 to 639F	Link Relay
T 0 to 3071	Timer
T 0 to 3071	Counter

Important PLC 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.
On using Bank 8 or Bank 16 formats When using these formats to display information from PLC discrete memory, the bits displayed must start on a byte boundary. The byte boundaries leave no remainder when the following formula is used: (PLC discrete memory address - 1)/8.

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	9600	19200, 9600, 4800, 2400, 1200, 600, 300	Must match the PLC's port settings. Use the fastest baud rate supported by both.
Parity	Odd	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	1	1, 2	Must match the PLC's port settings.
Status Coils (optional)	R14	R0 to 886	Must be within the PLC's supported memory range. The hexidecimal digit is 0 and is not displayed.
Address	1	1 to 63	Must match the PLC's Address.
Source Address, Destination Address	N/A		
Password	N/A		
Message Request Register (optional)	DT254	DT0 to 10239	Must be within the PLC's supported memory range.
Current Message Register (optional)	DT255	DT0 to 10239	Must be within the PLC's supported memory range.
Function Key Coils (optional)	R100	R00 to 8860	Must be within the PLC's supported memory range.
Screen Dependent Function Key Coils (optional)	R80	R00 to R8860	Must be within the PLC's supported memory range. Applies to OITs with Screen Dependent Function Keys.
	R8 (OIT5400)	R0 to 886 (OIT5400)	Must be within the PLC's supported memory range. Applies to OITs with Screen Dependent Function Keys. The hexidecimal digit is 0 and is not displayed.
Control Key Coils (optional)	R6	R0 to 886	Must be within the PLC's supported memory range. The hexidecimal digit is 0 and is not displayed.
Status LED Coils (optional)	R15	R0 to 886	Must be within the PLC's supported memory range. Applies to OITs with Status LEDs. The hexidecimal digit is 0 and is not displayed.
Function Key LED Coils (optional)	R12	R0 to 886	Must be within the PLC's supported memory range. Applies to OITs with Function Key LEDs. The hexidecimal digit is 0 and is not displayed.

PLC Error Messages

The following error messages are related to PLC protocol (indicated by “PLC: xxxx...”):

“PLC: Invalid Access of Word Register...” Attempted to access a Word (16-bit) register in a Bit or Byte wise fashion or to write to a read-only Word register. Using OITware-200, correct the screen register’s format or read/write access.
“PLC: No Connection Error...” The OIT cannot communicate with the PLC during initialization. This is most likely due to a bad connection (cable, connector or attachment faulty) or loss of proper power to the PLC. Remote possibilities include severe noise, a faulty PLC or faulty OIT.
“PLC: No Response Error...”, “PLC: Data Reception Error...”, “PLC: Bad Block Check Code (BCC)...”, “PLC: Invalid PLC Address...” The OIT cannot communicate properly with the PLC after initialization. This is most likely due to noise, a bad connection (cable, connector or attachment faulty) or loss of proper power to the PLC. Remote possibilities include a faulty PLC or faulty OIT.
“PLC: Undefined Error...”, “PLC: NACK Error...”, “PLC: WACK Error...”, “PLC: Duplicate Port Error...”, “PLC: Transmission Format Error...”, “PLC: Hardware Error...”, “PLC: Unit No. Error...”, “PLC: Unsupported Error...”, “PLC: No Response Error...”, “PLC: Buffer Closed Error...”, “PLC: Time Out Error...”, “PLC: BCC Error...”, “PLC: Format Error...”, “PLC: Unsupported Command Error...”, “PLC: Procedure Error...”, “PLC: Link Set Error...”, “PLC: Simultaneous Operating Error...”, “PLC: Transmit Disable Error...”, “PLC: Busy Error...”, “PLC: Parameter Error...”, “PLC: Data Error...”, “PLC: Registration Error...”, “PLC: PLC mode Error...”, “PLC: Protected Error...”, “PLC: Address Error...”, “PLC: No Data Error...” The PLC reported an error. For further information, refer to the Aromat documentation or contact Aromat technical support.

“PLC: Invalid Command...”, “PLC: Invalid Register...”, “PLC: Invalid Access of Bit Register...”, “PLC: Invalid Access of Word Register...”, “PLC: Invalid Address...” “PLC: Invalid Data Pointer...”, “PLC: Procedure/Data Internal Error...” An internal error occurred in the OIT. Contact Maple Systems technical support.