

C O N T R O L L E R I N F O R M A T I O N S H E E T

Maple Model(s)	PLC or Controller
HMI5000 Series	Aerotech Motion Controllers (Serial)



Summary

Maple Systems' **HMI5000 Series** Human/Machine Interface Terminals (Maple HMIs) communicate with Aerotech controllers using the programming port located on the front of the PLC. When configured with EZware-5000, the Maple HMI is the master in a point-to-point single master, multiple slave format.

Compatible PLCs

PLC Family	PLC Model
Soloist, Ensemble	All

Communications Cable

The Maple HMI connects to the connector on the front of the controller. 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.maplesystems.com.

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 controller must be set for ModbusRTU Slave.

The Aerotech Modbus RTU program must be loaded into the controller.

Accessible PLC Memory

Register Memory

The following table lists the PLC's register memory ranges that the Maple HMIs are able to access. Please note that your PLC'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

(Note: d=decimal)

PLC Register Type	Address Range	Format	PLC Register Description
4x	1-65535	dddd	Holding registers
5x	1-65535	dddd	Same as the 4x type, but swaps the word order for 32-bit values
6x	1-65535	dddd	Same as the 4x type, but executes a single-word write

Discrete Memory

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

(Note: d=decimal)

PLC Bit Type	Address Range	Format	PLC Bit Description
4x_Bit	100-6553515	ddddbb	Bits in a Holding Register
6x_Bit	100-6553515	ddddbb	Bits in a Holding Register, but will be written by a single-word write

Supported Modbus Function Codes

PLC Register Type	Modbus Function Code (Read / Write)
4x	03 / 16
5x	03 / 16
6x	03 / 06
3x_Bit	03 / Not Applicable
4x_Bit	03 / 16
6x_Bit	03 / 06

Important Memory Considerations

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

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

EZware Settings

The following table lists the communications settings that must be configured in EZware. These settings can be found in the *Edit-System Parameters* menu under the *Device* tab. Please note:

- The **Recommended Settings** column provides the recommended setting based upon the default settings most commonly used in the Aerotech Motion Controllers.
- The **Options** column lists EZware's options; your PLC may not support every option.

Name	Recommended Settings	Options	Important Notes
Name:	<i>Soloist</i> or <i>Ensemble</i> , as appropriate		Description label
HMI or PLC	PLC		
Location		Local, Remote	Select <i>Local</i> if PLC directly connected to HMI, <i>Remote</i> if PLC connected thru another HMI.
PLC type:	Modbus RTU Master		
PLC I/F:	RS232	RS-232, RS-485 2W, RS-485 4W, Ethernet, USB	Must match the controller port setting.
PLC default station no.:	1	0-255	Must match the node address assigned to the PLC.
Setting: COM:	COM1	COM1-COM3	Serial port of the HMI connected to the controller.
Settings: Baud rate	9600	9600, 19200, 38400, 57600, 115200	Must match the Modbus port setting. Use the fastest baud rate supported by the controller.
Settings: Data Bits	7	7 or 8	Must match the Modbus port setting.
Settings: Stop Bits	2	1 or 2	Must match the Modbus port setting.
Settings: Parity:	Even	Even, Odd, None	Must match the Modbus port setting.
Settings: Timeout (sec)	1.0	0.1 to 25.5	Adjust if longer timeout is required.
Settings: Turn around delay (ms):	0	0-1000	Timeout period between HMI polls.
Settings: Send ACK delay :	0		Not Applicable
Settings: Parameter 1:	0		Not Applicable

Name	Recommended Settings	Options	Important Notes
Settings: Parameter 2:	0		Not Applicable
Settings: Parameter 3:	0		Not Applicable
Interval of block pack (words):	5	0-512	See <i>HMI5000 Series Programming Manual</i> (Maple p/n 1010-1007)
Max. read-command size (words):	120		Not Adjustable
Max. write-command size (words):	120		Not Adjustable