



Industrial Indexing Systems

Emerald EMC-2000™ Series

Overview

Maple Systems’ **Silver Series/HMI500 Series** Operator Interface Terminals (Maple OITs) communicate with Industrial Indexing Systems’ (IIS’s) Emerald EMC-2000 Motion Controllers using the ESC protocol in a point-to-point single-master, single-slave format. Please refer to the *Silver Series Operation Manual* (Maple P/N 1010-1001) for information on how to connect multiple Maple OITs to a single controller port using the EZware-500 configuration software.

| Compatible Controllers | |
|------------------------|------------------|
| Family | Model |
| Motion Controllers | Emerald EMC-2000 |

Communications Cable

Connect the Maple OIT to Port 1 or Port 2 of the controller using RS232.

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.

Accessible Controller Memory

Register Memory

The following table lists the controller's register memory ranges that the Maple OITs are able to access. Please note that your controller's memory range may be smaller or larger than that supported by these OITs. The following register memory can be displayed in 16-, 32-, or 64-bit format on the Maple OIT.

| PLC Register Type | Address Range | Format | PLC Register Descriptions |
|-------------------|---------------|---|---|
| SD | 0-FFFF | hhhh (h=hexadecimal) ex.: 0000= 0xBC000000 | Short Data (2 bytes). Note: use one-word format. |
| LD | 0-FFFF | hhhh (h=hexadecimal) ex.: FFFF= 0xBC00FFFF | Long Data (4 bytes). Note: use two-word format. |
| FD | 0-FFFF | hhhh (h= hexadecimal) | Double Float Data (8 bytes). Note: use four-word format. |

Note: All of the data registers are created dynamically when the Emerald EMC-2000 controller program is built and loaded into the controller. Please refer to the IIS Emerald EMC-2000 operations manual for more information on how to access these registers.

Discrete Memory

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

| PLC Bit Type | Address Range | Format | PLC Bit Descriptions |
|--------------|---------------|-----------------|----------------------|
| CS | 1-32 | ddd (d=decimal) | Controller status |
| DS | 1-320 | ddd | Device status |
| GH | 1-16 | ddd | Global H/W PLC |
| GS | 1-16 | ddd | Global S/W PLC |
| I | 1-64 | ddd | Inputs |
| LH | 1-144 | ddd | Local H/W PLC |
| O | 1-64 | ddd | Outputs |
| T | 1-16 | ddd | Timers |
| UF | 1-64 | ddd | User flags |

Important Memory Considerations

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

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

EZware-500 Settings

The following table lists the communications settings that must be configured in EZware-500. These settings can be found in the Edit-Set System Parameters menu under the PLC tab.

Please note:

- The **Recommended Settings** column provides the recommended setting based upon default settings most commonly used in the Emerald EMC-2000 controllers.
- The **Options** column lists EZware-500's options; your controller may not support every option.

| Name | Recommended Setting | Options | Important Notes |
|-----------------------------|----------------------|-----------------------------------|---|
| PLC type | IIS Emerald EMC-2000 | | |
| Serial port I/F | RS-232 | RS-232, RS-485 | |
| Data bits | 8 | 7 or 8 | Must match the PLC's port setting |
| Stop bits | 1 | 1 or 2 | Must match the PLC's port setting |
| Baud rate | 19200 | 9600, 19200, 38400, 57600, 115200 | Must match the PLC's port setting. Use the fastest baud rate supported by the PLC |
| Parity | None | Even, Odd, None | Must match the PLC's port setting |
| HMI station no. | 0 | 0-255 | Does not apply to this protocol |
| PLC station no. | 0 | 0-255 | Does not apply to this protocol |
| Multiple HMI | Disable | Disable, Master, Slave | Use for multiple OITs. |
| HMI-HMI link speed | 38400 | 38400, 115200 | Use for multiple OITs. |
| PLC time out constant (sec) | 3.0 | 1.5 to 5.0 | Adjust if longer timeout is required. |
| PLC block pack | 0 | 0-10 | See <i>Silver Series Operation Manual</i> (P/N 1010-1001). |