



Koyo

DL05, 06, 105, 205, 405 Series DL305 (D3-350 CPU)

Overview

Maple Systems' **Silver Series/HMI500 Series** Human-Machine Interface Terminals (Maple HMIs) communicate with Koyo PLCs using the K Sequence protocol. When configured with EZware-500, the Maple HMI is the master in a point-to-point single master, single slave format. Please refer to the *Silver Series Installation and Operation Manual* for information on connecting multiple Maple HMIs to a single PLC port.

Compatible PLCs	
Family	Model
DL05 Series	D0-05 Micro PLC
DL06 Series	D0-06 Micro PLC
DL105 Series	F1-130 Micro PLC
DL205 Series	D2-230, D2-240, D2-25, D2-260 CPUs
DL305 Series	D3-350 CPU only
DL405 Series	D4-430, D4-440, D4-450 CPUs

Communications Cable

The Maple HMI should be connected to the serial port located directly on the CPU.

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 HMI or loss of communications can result.

PLC Settings

The PLC must not have a password.
PLC must be set for <i>Full Duplex</i> operation.

PLC must be set for <i>No Hardware Handshaking</i> .
The PLC must be set to use the 'K' Sequence Protocol.
The PLC must be set to Station Number 1.
The D2-240 CPU has a two-position switch on the which changes the Operating Mode of the PLC (<i>RUN/TERM</i>). Set this switch to the <i>TERM</i> mode when communicating with the HMI.
The D2-250, D3-350, D4-430, D4-440, and D4-450 CPUs have a three-position switch on the which changes the Operating Mode of the PLC (<i>RUN/TERM/STOP</i>). Set this switch to the <i>TERM</i> mode when communicating with the HMI.
When using the D4-440 CPU, you must set the station number to 1.

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, 32, or 64 bit format on the Maple HMI.

PLC Register Type	Address Range	Format	PLC Register Description
V (R)	0-77777	00000 (o=octal)	Data Registers

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.

PLC Bit Type	Address Range	Format	PLC Bit Description
X (I)	0-77777	00000 (o=octal)	Input Bits
Y (Q)	0-77777	00000	Output Bits
C (M)	0-77777	00000	Internal Control Relays
T	0-77777	00000	Timer Status Bit
CT (C)	0-77777	00000	Counter Status Bits

Memory Not Supported

The following PLC memory areas are not currently supported by the Maple HMIs:

- GX (Remote I/O)
- S (Stage Memory)
- SP (Special Relays)

Important PLC 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-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 the default settings most commonly used in the Koyo PLC
- the **Options** column lists EZware-500's options; your PLC may not support every option

Name	Recommended Settings	Options	Important Notes
PLC type:	Koyo DL05, 105, 205, 350, 405		
Serial port I/F:	RS232 or RS485	RS232, RS485	
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:	9600	9600,19200, 38400,57600, 115200	Must match the PLC's port setting. Use the fastest baud rate supported by the PLC.
Parity:	Odd	Even, Odd, None	Must match the PLC's port setting.
HMI station No.:	0	N/A	Does not apply to this protocol.
PLC station No.:	1	0-127	Must match the PLC's station no.
Multiple HMI:	Disable	Disable, Master, Slave	use for multiple HMIs
HMI-HMI link speed:	38400	38400, 115200	use for multiple HMIs
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 Installation and Operation Manual</i>