



# Koyo

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

### Overview

Maple Systems' **BLU300 Series** Human-Machine Interface Terminals (Maple HMIs) communicate with Koyo PLCs using the K Sequence protocol. When configured with BlueLeaf Software, the Maple HMI is the master in a point-to-point single master, single slave format.

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, D2-250 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](http://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 *Full Duplex* 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.

## 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.

PLC Register Type	Address Range	Format	PLC Register Description
V	0-41237	00000 (o=octal)	Data Memory Registers
V (T)	Use V0-V377	000	Timer Accumulators (current values)
V (C)	Use V1000-V1377	0000	Counter Accumulators (current value)
P	0-37777	00000	Indirect Memory

### 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 Register Description
X	0-1777	0000 (o=octal)	Input Coils
Y	0-1777	0000	Output Coils
C	0-3777	0000	Control Relay Coils
S	0-1777	0000	Stage Coils
T	0-377	000	Timer Status Bits
CT	0-377	000	Counter Status Bits
GX	0-3777	0000	Remote Inputs

GY	0-3777	0000	Remote Outputs
SP	0-3777	0000	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.

## **BlueLeaf Communication Settings**

The following table lists the communications settings that must be configured in BlueLeaf software. These settings can be found in the Tools...**HMI-PLC Communications Settings** menu. 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 BlueLeaf's options; your PLC may not support every option

<b>Name</b>	<b>Recommended Settings</b>	<b>Options</b>	<b>Important Notes</b>
PLC type:	Koyo DL05, 105, 205, 350, 405		
Com Port:	RS232	RS232, RS485 (2-wire only)	Tools...Set HMI-PLC Port
Baud Rate:	9600	4800, 9600, 19200, 38400, 57600, 115200	Must match the PLC's port setting. Use the fastest baud rate supported by the PLC.
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.
Parity:	Odd	Even, Odd, None	Must match the PLC's port setting.
Net Addr.:	1	N/A	Does not apply to this protocol.