CONTROLLER INFORMATION SHEET

Maple Model(s)	**PLC or Controller**
Graphic HMIs	Beckhoff Embedded PC

P/N: 1036-0219
Rev. 00   Date: 11/06/2015

Summary

Maple Systems Graphic HMIs communicate with Beckhoff Embedded PC controllers and allow the Graphic HMI to act as the master in a point-to-point single master, multiple slave format.

Communications Cable

The Graphic HMI should be connected to the device's Ethernet port.

Some controllers require straight through 10baseT Ethernet cables and others require crossover 10baseT Ethernet cables. A list of cables offered by Maple Systems as well as cable assembly instructions to assist you in assembling your own Ethernet cable is available on our website.

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.*
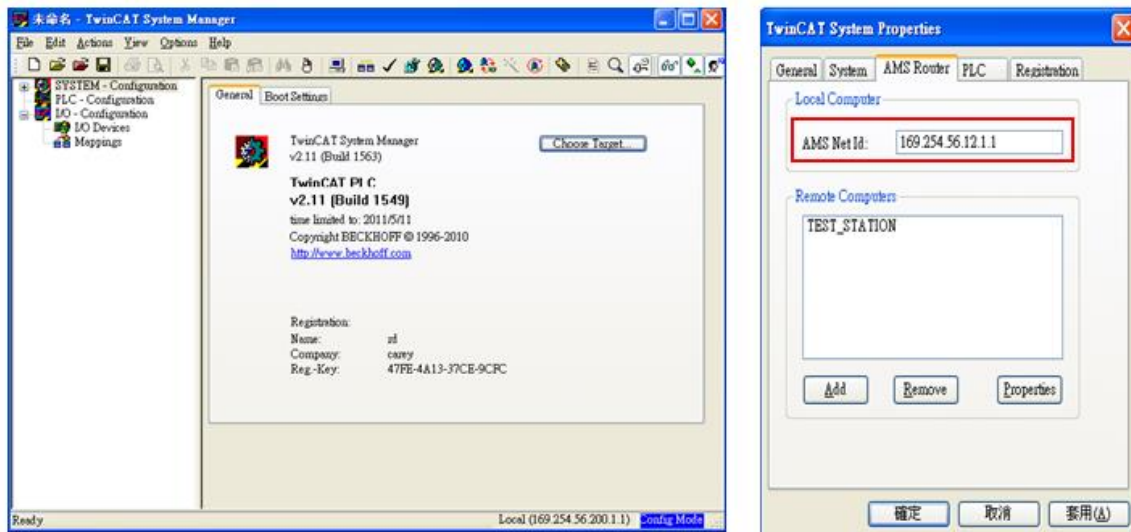

Controller Settings:
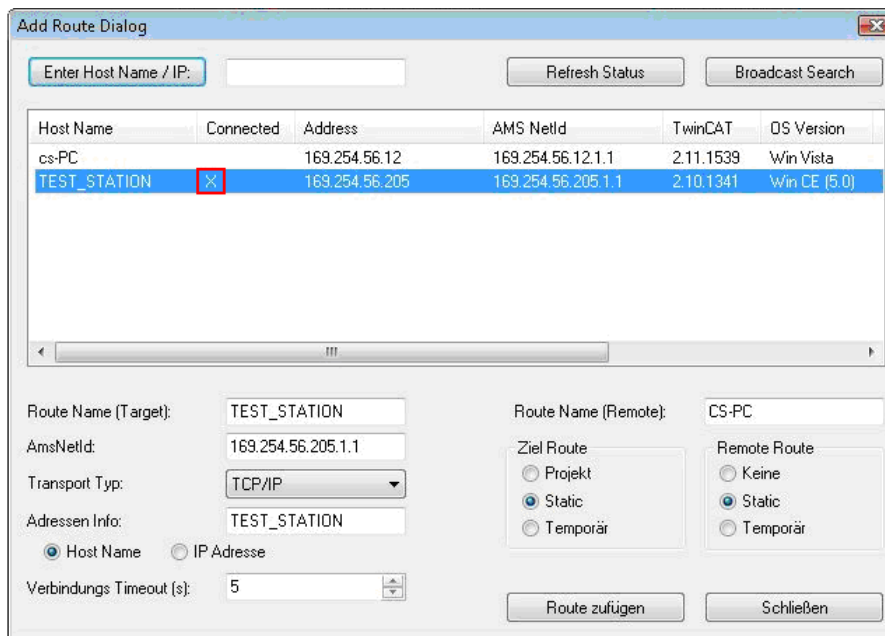
For TwinCAT:

1. Confirm the PC IP address.
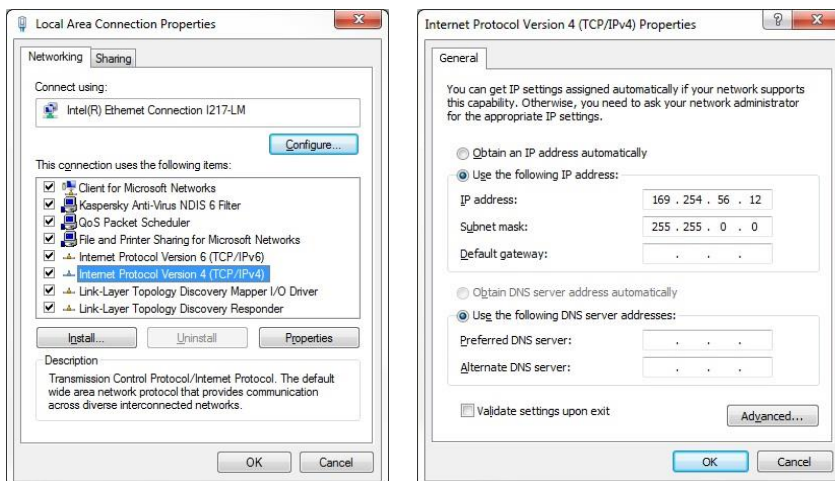
2. Open TwinCAT and set the IP address (for this example, 169.254.56.12.1.1).

3. Use TwinCAT to build a Route Table to make sure the system is connected. If PLC power turn OFF and then ON, repeat this step.
   Note: When the "X" is displayed under "Connected," the connection succeeded.

4. Open EZwarePlus. Select "Beckhoff Embedded PC" in the System Parameters > Device Properties window.

5. Open the "IP Address Settings" window and set the PLC IP address, TCP Port no. (48898 recommended), ADS port, and AMS NetID.
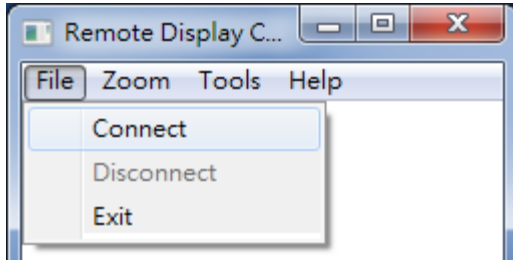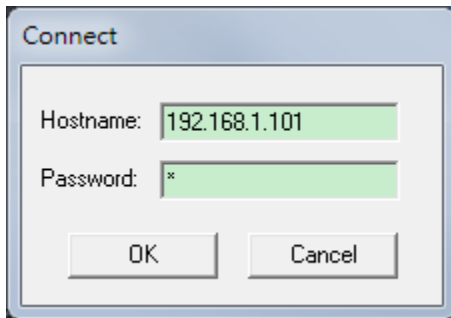
6. Run the on-line simulation.
   Note: If the project is downloaded to the HMI, set the HMI IP address to match the TwinCAT IP address setting (in this example, 192.254.56.12).
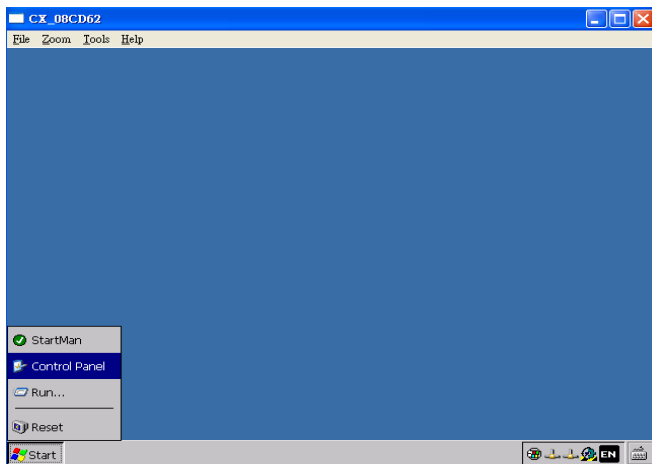
For CERHOST:

1. Execute CERHOST.exe to connect the PC to the PLC.

2. Enter the PLC IP address and password (default password = 1).
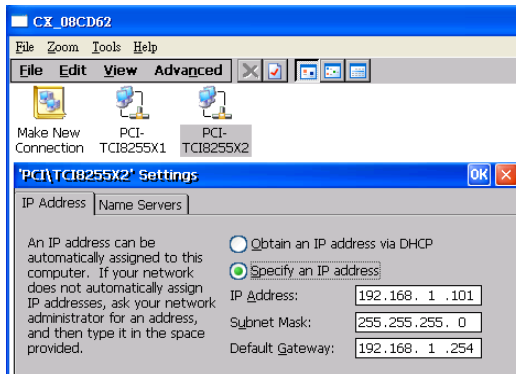   Click OK.

3. To confirm connection with PLC, click the Start menu and select "Control Panel."
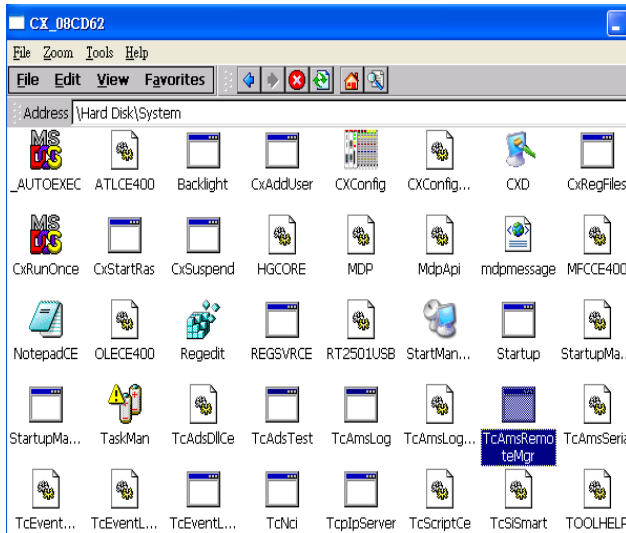
4. Select "Network and Dial-up Connections" to display the PLC device information.


5. Select the PLC to check its IP address.

6. Access the PLC system settings (default directory: \Hard Disk\System).
Execute "TcAmsRemoteMgr."

7. The AMS Net Id consists of six numbers separated by periods. The first four numbers represent the IP address followed by "1.1." The figure below shows the AMS Net Id of the Local Computer. The "Remote Computers" shows the information for the HMI that the PLC will connect with. Click "Add" to add the HMI to the list.
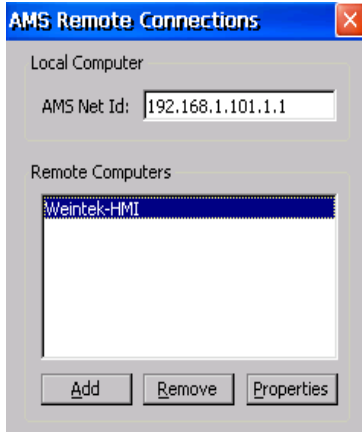
8. Add the Device Name, AMS Net Id, IP address of the HMI, Transport, and select the "Slow Connection" checkbox.
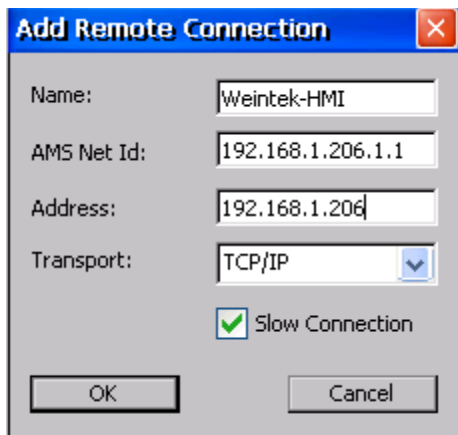
9. Return to the Control Panel and execute "CX Configuration Tool" to confirm the PLC AMS Net Id.
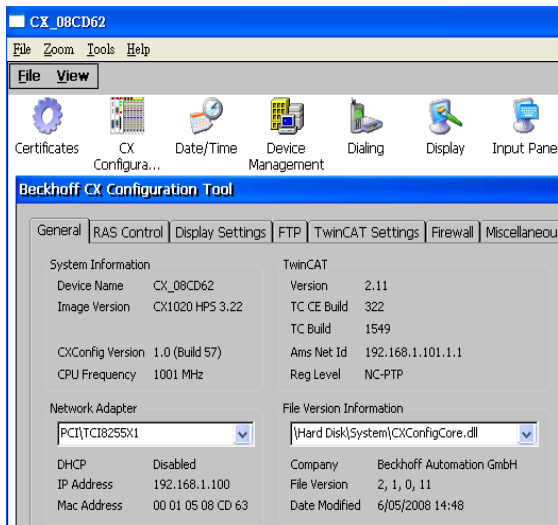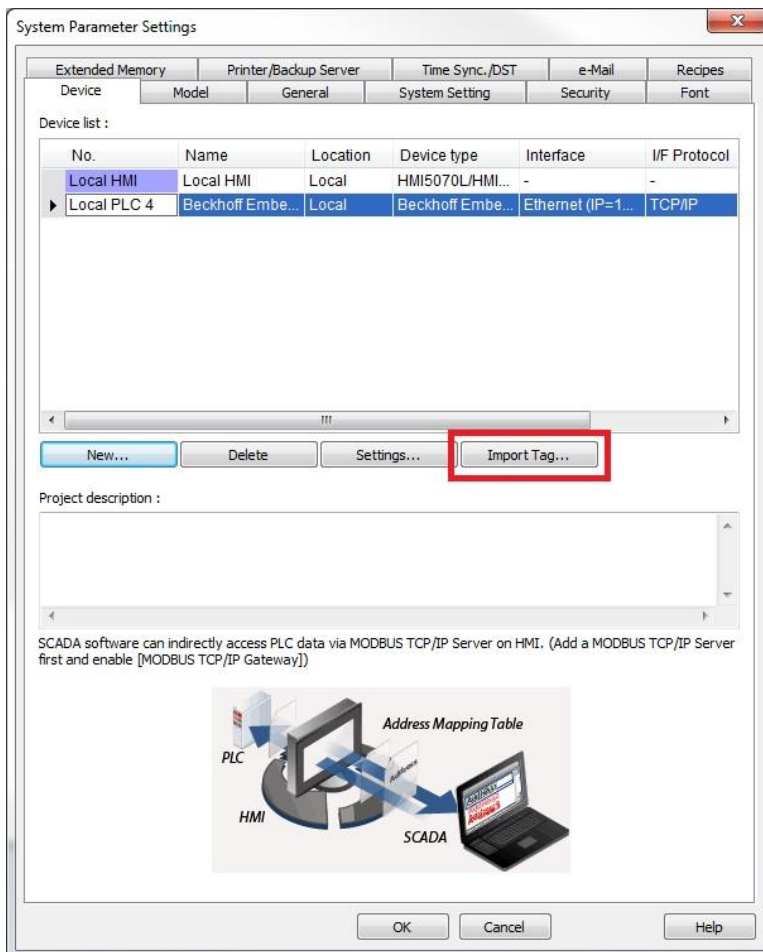
10. Confirm settings and click Start > Reset PLC.
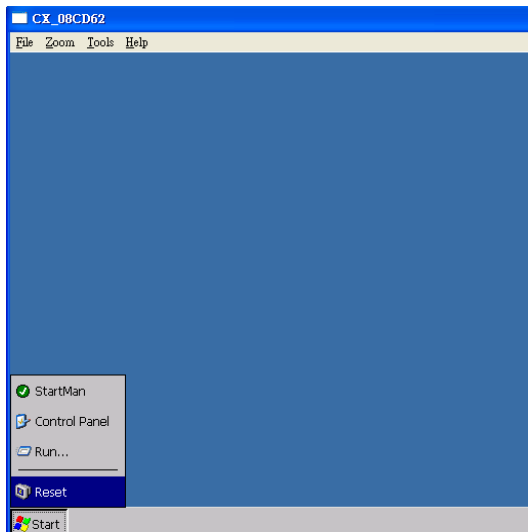
Import Tags

This driver can import TPY tags generated by the TwinCAT PLC Control software application.
1. Click the "Import Tag" button in the EZwarePlus System Parameters > Device List.

2. Select the TPY file and click "Open."
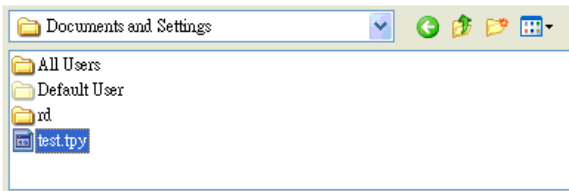
3. The file is imported into the Address Tag Library in EZwarePlus.

4. When importing the TPY tag file, a dialog box appears that allows you to select all or part of the data being imported.
Note: The comment field is not imported into EZwarePlus.

5. When assigning a tag in the address field of an object, click the "Setting" button in the Read address and select the "User-defined tag" checkbox.
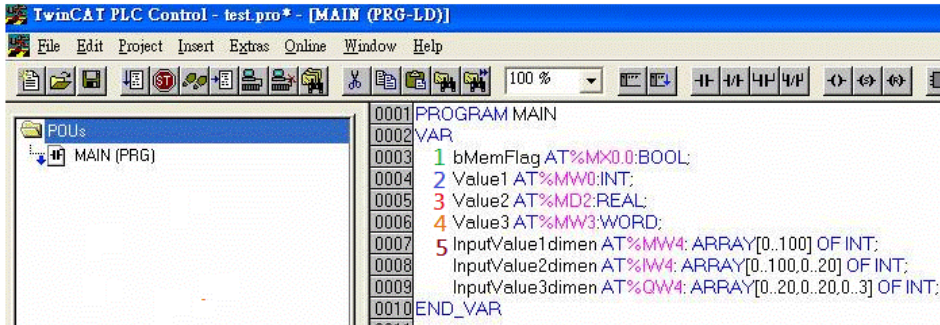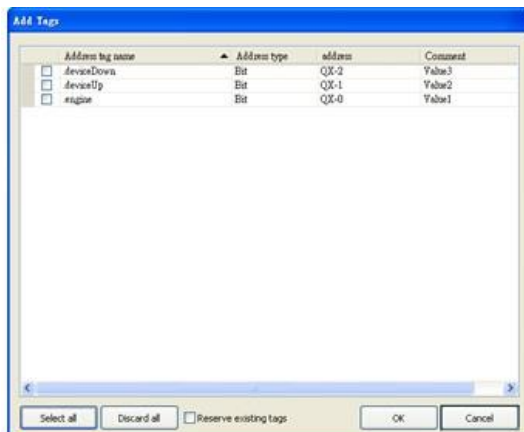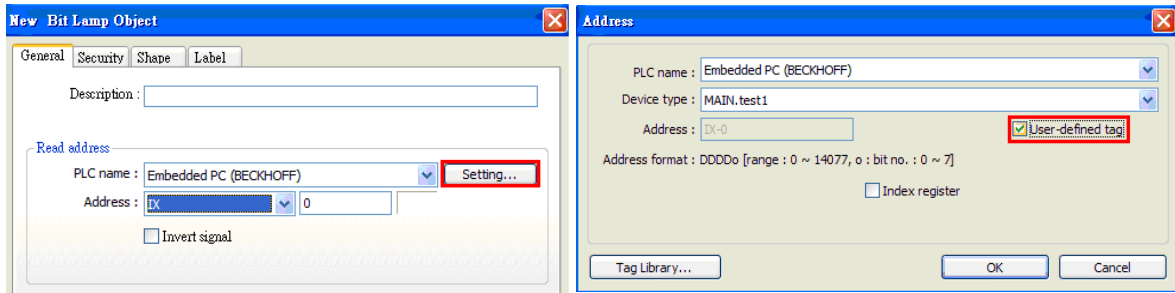
Accessible PLC Memory

Register Memory

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

(Note: d = decimal)

Controller Register Type	Address Range	Format	Controller Register Description
IW	0 – 65535	ddddd	Input Registers
QW	0 – 65535	ddddd	Output Registers
MW	0 – 65535	ddddd	Data Registers
ID	0 – 65535	ddddd	Input Registers (DW)
QD	0 – 65535	ddddd	Output Registers (DW)
MD	0 – 65535	ddddd	Data Registers (DW)

Discrete Memory

The following table lists the controller's discrete memory ranges that the Graphic HMIs are able to access. Please note that your controller'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 Graphic HMI.

(Note: d = decimal; b = bits (00-15))

Controller Bit Type	Address Range	Format	Controller Bit Description
IX	000 – 6553515	dddddbb	Bits within Input Registers
QX	000 – 6553515	dddddbb	Bits within Output Registers
MX	000 – 6553515	dddddbb	Bits within Data Registers

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 *PLC Settings > Device Properties*. Please note:

- The **Recommended Settings** column provides the recommended setting based upon default settings most commonly use in Devices which use Modbus TCP/IP
- The **Options** column lists EZware's options; your controller may not support every option

Name	Recommended Settings	Options	Important Notes
Name:	Beckhoff Embedded PC		Description label
HMI or PLC	PLC		
Location	Local	Local; Remote	Select *Local* if PLC directly connected to HMI; *Remote* if PLC connected thru another HMI.
PLC type:	Beckhoff Embedded PC		
PLC I/F:	Ethernet	Ethernet	
Settings: IP Address:	xxx.xxx.xxx.xxx	0.0.0.0 – 255.255.255.255	Use the IP Address assigned to the controller.
Settings: Port	48898	0-65535	Use 48898.
Settings: ADS port	801	300, 800, 801, 811, 821, 831, 851, 852, 853, 854	
Settings: AMS NetId	xxx.xxx.xxx.xxx.1.1		IP address + 1.1
Settings: Timeout (sec)	1	0.1-25.5	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: Use UDP	Unchecked	Checked or Unchecked	Must be Unchecked
PLC default station no.:	1	0-255	Must match the node address assigned to the PLC.

Name	Recommended Settings	Options	Important Notes
Default station no. use station no. variable	Unchecked		Optional
Use broadcast command	Unchecked		Not Applicable
Interval of block pack (words):	5	0-512	See Help – Optimizing the Update Rate with PLC Block Pack
Max. read-command size (words):	256	1 - 512	Max number of words for a read command
Max. write command size (words):	2	1 – 512	Max number of words for a write command