

MMI6050 Quick Start Guide

Introduction

If at any time more information is required on HMI safety and protection ratings, HMI Power, and HMI communication, please refer to the MMI6050 Installation Guide provided at the following link: <http://www.tri-plc.com/documents/MMI6050-Install-Instructions.pdf>
The following is only the minimum basic information required to get the MMI6050 set up with TRI PLCs in most situations.

1. Connect HMI to PC and PLC

Your MMI6050 comes with a USB cable to connect the HMI to your PC and a custom serial cable with RS232 and RS485 connectors to connect to your TRI PLC.

Here is a table showing the RS232 and RS485 pin connections between the MMI6050 and all TRI PLCs (excluding the H-series and E-series PLCs) in case a custom cable is being built :

Pin #	Symbol	HMI COM 1 [RS485]	HMI COM 1 [RS232]	PLC COM 3 [RS485]	PLC COM 1 [RS232]
1	TxD-	Receive -		Receive -	
2	TxD+	Transmit +		Transmit +	RS232 Transmit
3	RxD				RS232 Receive
5	GND	Signal Ground	Signal Ground		Signal Ground
6	TxD		RS232 Transmit		
9	RxD		RS232 Receive		

Note: If you are using the Nano-10, there is no RS232 port and the RS485 port is actually considered COM1 in the PLC.

We recommend crimping plugs onto the red and black RS485 wires on the DB9 cable supplied with the MMI6050. This will ensure a proper connection when plugged into the PLC RS485 screw terminal.

Getting Connected :

1. Connect the mini-USB end of the USB cable to the MMI6050 and the standard USB end of the cable to one of your PCs USB ports.
2. Connect the female end of the RS232/RS485 serial cable to the male DB9 connector on the MMI6050.
3. If using RS485, connect the Tx+ (red wire) to the RS485+ terminal on the PLC and connect the Tx- (black wire) to the RS485- terminal on the PLC.
4. If using RS232, connect the male end of the DB9 cable to the female connector on the PLC.

2. Connect Power to HMI and PLC

The MMI6050 has 3 connections for power: +, -, and $\frac{1}{\text{GND}}$. A 24VDC power supply should be used, which can be the same supply used for the PLC.

Power should be connected to the MMI6050 as follows :

1. Connect the +24VDC terminal from the power supply to the + terminal on the HMI.
2. Connect the 0VDC (-) terminal from the power supply to the - terminal on the HMI.
3. The $\frac{1}{20}$ can generally be left unused, but the installation guide should be referenced if you are unsure.

Power should be connected to the PLC as follows :

1. Connect the +24VDC terminal from the power supply to the +24V terminal on the PLC.
2. Connect the 0VDC (-) terminal from the power supply to the 0V terminal on the PLC.
3. Reference the PLC documentation for more information on this.

3. Install and Run EB8000 HMI Software

You will have received a small CD labelled: Easy Builder 8000 Installation CD. You should install the EB8000 software from the CD on your PC, which will include the necessary drivers for compatible TRI PLCs. If the software does not install right away, you can execute the “EB8000_V3.45.msi” file that is located in the main folder of the CD. Then follow the steps to install the software.

Once the software has installed you can start EB8000 from the start menu or desktop icon on your PC. You should then see something similar to the following picture :

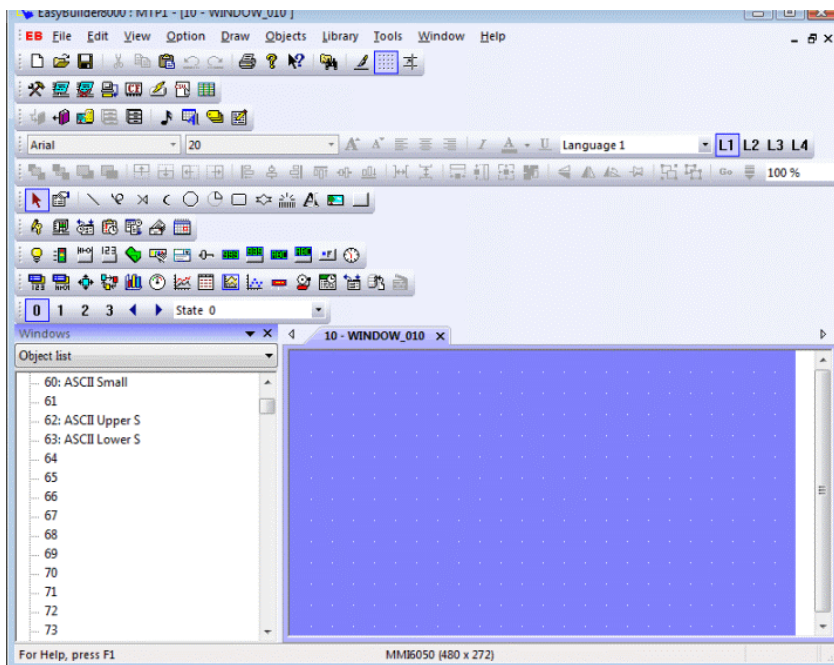


Figure 1: EB8000 Screen

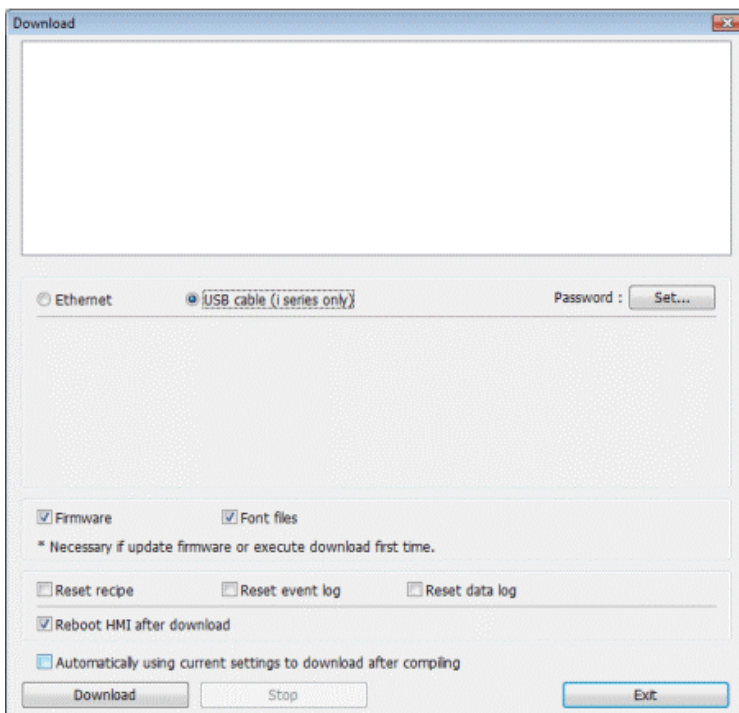
4. Load and Transfer HMI Sample Program

The sample program included with this quick start guide is called “triplcdemo.mtp”. You can open this file from Easy Builder 8000 using File – Open and selecting the location that triplcdemo.mtp is saved to.

This sample program is already pre-configured for communication with a TRI PLC via RS485, since all of the compatible TRI PLCs have one or more RS485 ports.

Once you have opened the sample program, you can transfer it to the HMI as follows :

1. Go to the “Tools” menu and select “Compile”.
2. A new window should appear, click on Compile.
3. You should see “Succeeded” highlighted if it worked. You can close the window.
4. Go to the “Tools” menu and select “Download”. A new window should appear.
5. Make sure that “USB Cable”, “Firmware”, and “Reboot HMI after Download” are all selected as shown in Figure 2.
6. Click download and wait for the message that the download has finished.



NOTE:

The “Firmware” box typically only needs to be checked the first time a program is being transferred to the HMI or if any COM settings have changed or if there is a firmware update being installed to the HMI.

Figure 2: Download Window

5. Load and Transfer PLC Sample Program

A Trilogi PLC sample program, called MMI6050.PC6, is also included in the “mmi6050doc.zip” file. This should be opened with Trilogi and transferred as normally done with Trilogi (and TLServer for serial connections). You can find more information on communicating with a PLC using Trilogi from the TL6 Programmers Reference Manual.

The MMI6050.PC6 sample program is only required for the LCD and PWM functions included in the “triplcdemo.mtp” sample program. It could be modified to do more such as update the LCD periodically instead of only once.

6. Using the MMI6050 Sample Program

Now that the triplcdemo.mtp sample program has been loaded in the HMI, you should see the Home screen for this program :

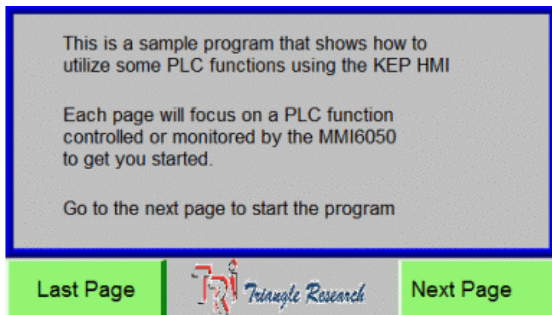


Figure 3: Home Screen

You can traverse through the different screens in the sample program by clicking on “Next Page” to go forward one page or “Last Page” to go backward one page. You can also access Help for each page by clicking on the “?” button, which will open up a new screen with some information and tips. There are 4 screens total as shown in Figures 4-7 below.

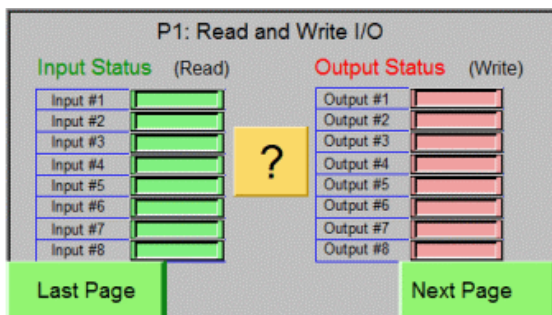


Figure 4: I/O Screen

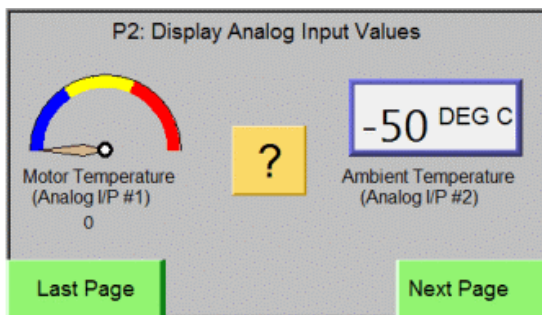


Figure 5: Analog Screen

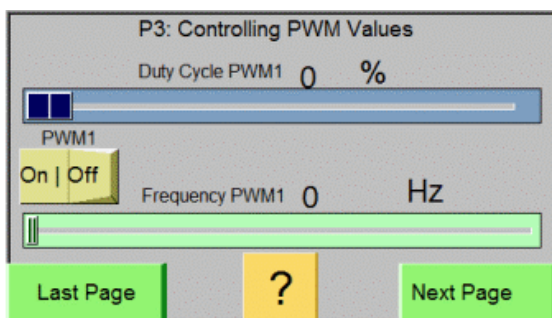


Figure 6: PWM Screen

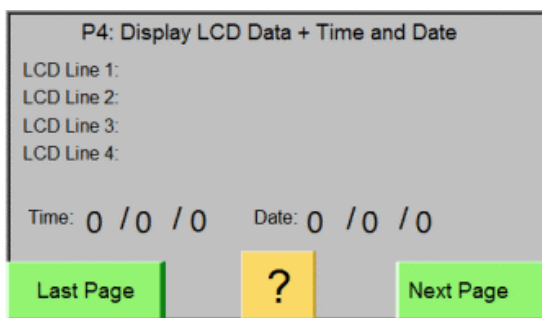


Figure 7: LCD Screen

7. Start a New Program and Configure for a TRI PLC

When you start a new program you will be asked to select your HMI model and screen orientation. You should select the MMI6050 (480 x 272) model and Landscape as per the following screenshot :

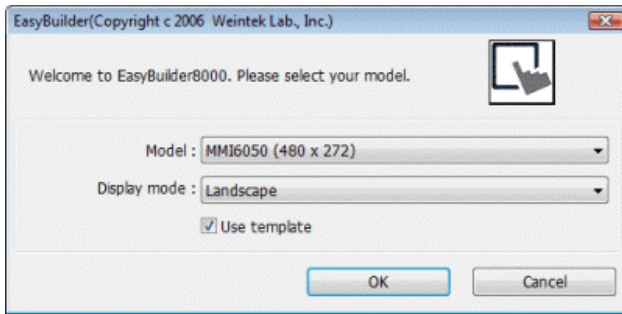


Figure 8: Select Model

Once you select OK, you will see a screen like Figure 9 below that allows you to configure the MMI settings for your current project. As shown below, the MMI6050 should be in the device list. Next you will need to add a PLC to the device list by selecting “New”, which will open up a new window called “Device Properties” as shown in Figure 10. The following settings should be selected, as shown in Figure 10 :

- Name: Anything (TRI_PLC was assigned automatically after selecting PLC type)
- PLC should be selected, not HMI
- Location: Local – because it is a serial connection
- PLC type: TRI_PLC – this is the communication driver for TRI PLCs.
- PLC I/F: RS-232 or RS-485 depending on how you want to connect to the PLC.
- PLC default station no.: 1 – this is the default PLC ID
- COM: COM1 (38400, N, 8, 1) – these are the default com settings in the PLC
- Everything else can be left as the default.

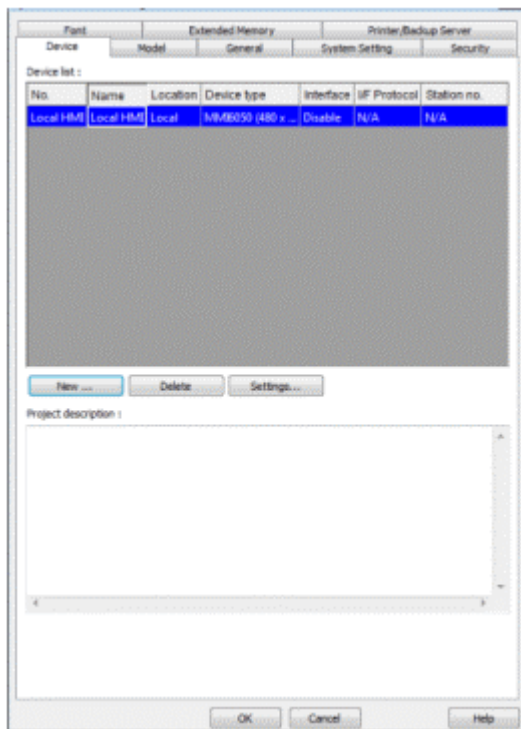


Figure 9: Configure HMI

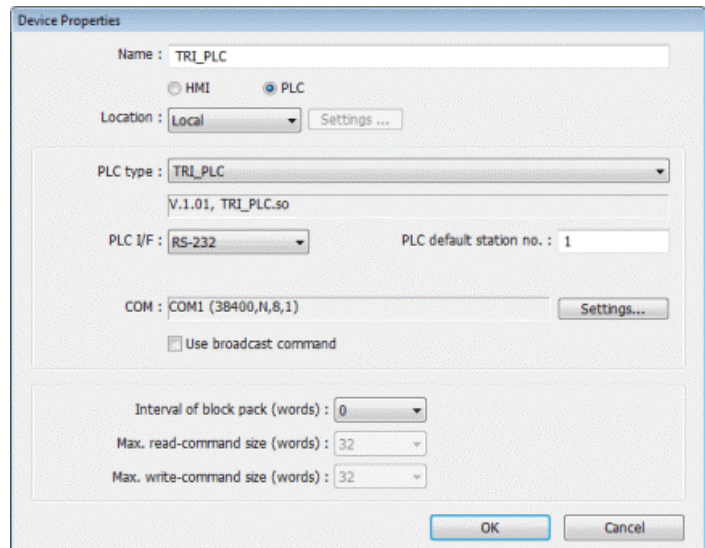


Figure 10: Add/Configure PLC

Once you click OK, you should see the PLC in the device list below the MMI6050. There are other tabs you can select to modify additional parameters in the HMI for this project,

but nothing that is required. The “General” and “System Setting” tabs contain settings that are most likely to be useful.

Then you can click OK on the Device Properties window and you should see a starting screen similar to Figure 11.

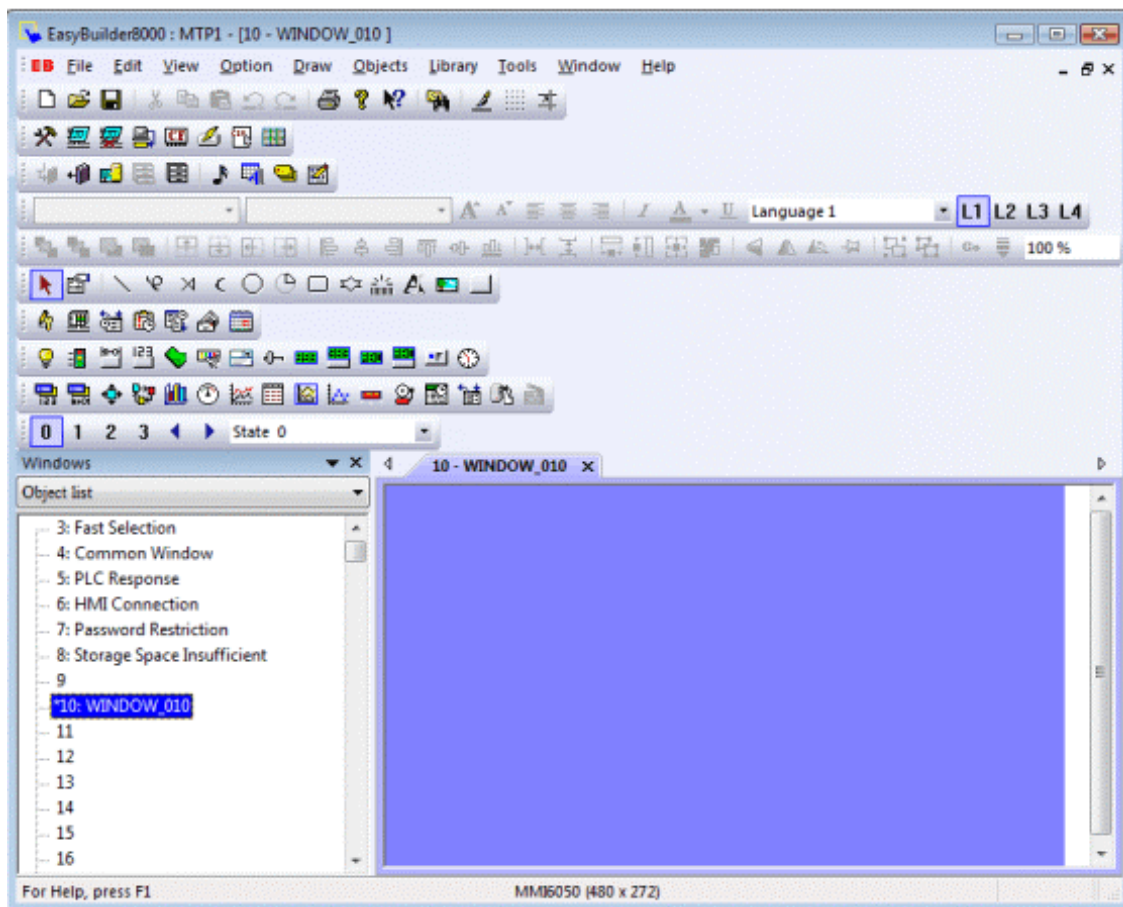


Figure 11: New Program Window

Now you can add windows and fill them with data input and display objects as well general text and pictures.

You can find more information on configuring the program for an MMI6050 with a TRI PLC as well as information on PLC data mapping between the PLC and HMI in the TRI_Setup pdf document included in the “mmi6050doc.zip” package. The Help menu in EB8000 also has a lot of information on the available components that will help to design your touch screen program.