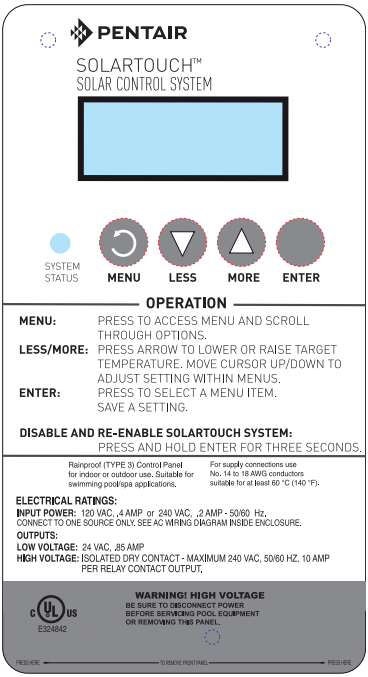
SOLARTOUCH® CONTROLLER
FIRMWARE UPGRADE KIT (P/N 521606)



INSTALLATION GUIDE

IMPORTANT SAFETY INSTRUCTIONS
READ AND FOLLOW ALL INSTRUCTIONS
SAVE THESE INSTRUCTIONS

Technical Support

Phone: **(800) 831-7133**

Web site: www.pentair.com

Kit contents

The following items are included in Kit P/N 521606

- PICKit™ 4 programmer
- Installation Guide (this manual)

System requirements

- Windows® 10 and Windows 7

Related manual

SolarTouch® Controller Manual (P/N 521591)

Contents

SolarTouch Controller Firmware Update Instructions.....3
Install MPLABX (version 5.25) online using a PC or Laptop 3
Connecting the Programmer 5
Connect Programmer to SolarTouch Control Panel.....5-6
Launching The IPE Programming Application.....7-11

SolarTouch® Controller Firmware Update Instructions

The SolarTouch Controller firmware can be updated using the PICkit™ 4 in-circuit programmer which is connected to a USB port on a computer running Microsoft® Windows® operating system.

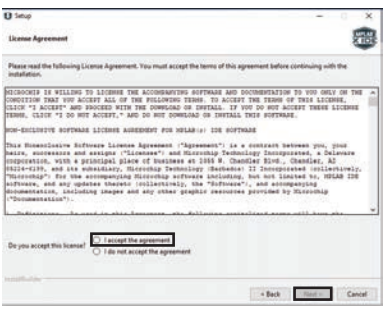
IMPORTANT: Do not plug in PROGRAMMER until after software is installed.
Note: Be sure that you have administration rights on your PC before starting the installation.

Note: Before starting, please read through the instructions (see pages 3-11).

Install MPLABX (version 5.25 or later) online using a PC or Laptop

Install the MPLABX® V5.25 Integrated Programming Environment IPE software onto your PC as follows:

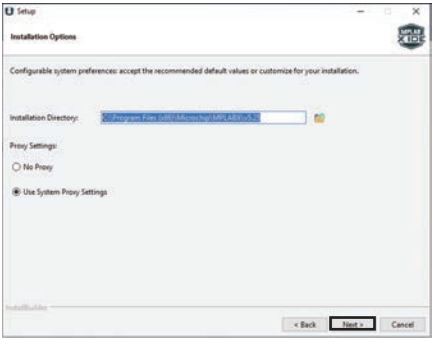
1. Connect to the Internet using a PC or Laptop.
2. Navigate to Microchip MPLab web site to download IPE programming software: **http://www.microchip.com/mplab/mplab-x-ide**
3. The IPE application must be installed on the PC which must be available during the MPLAB X IDE installation process, if a checked box is selected. You do not need to install the MPLAB X IDE in order to use the IPE application.
4. From your PC Downloads folder, double-click file **MPLABX-IDE-windows-installer.exe** to start the installation process.
5. Select **Yes** to downloaded the program from the Internet to make changes to your computer.
6. Click “Next” from Setup window. Select “I accept the agreement” then click Next.

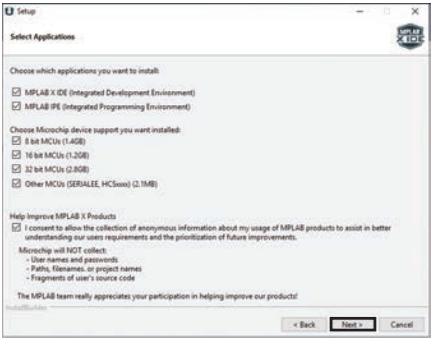


Install MPLABX® (version 5.25) online using a PC or Laptop (Continued)

7. Select **Use System Proxy Settings** and click Next.

8. Select **MPLAB IPE (Integrated Programming Environment)** and all of the application selections. Click Next.

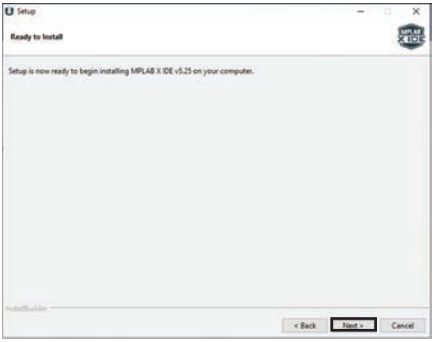


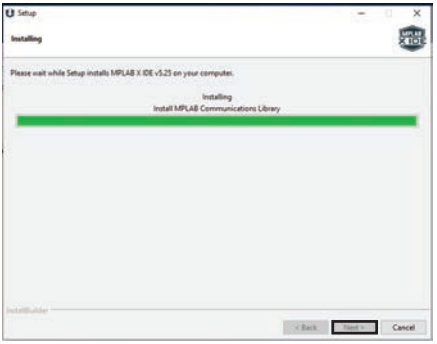


9. **Installation Options:** Use the default Installation directory (or select another directory. Select “Use System Proxy Settings” Click Next to install the software.

   Follow the screen prompts.

10. Click **Finish** to complete the installation process. Continue the installation with Connecting the Programmer on next page.





Connecting the Programmer

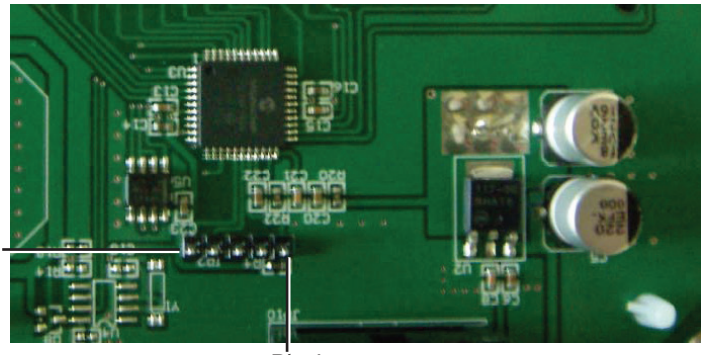
Connect the USB cable (provided) to the programmer and to a USB port on the PC. *Note: If a USB hub is being used, the hub must be powered with its own power supply.*

PICKit® 4 programmer

Connect Programmer to SolarTouch® Control Panel

1. Open the front cover of the controller. Remove the three (3) screws securing the control panel. Flip the control panel up to access the control panel circuit board. **Note: Be careful not to stretch the ribbon cable connecting the control panel to the main circuit board.**

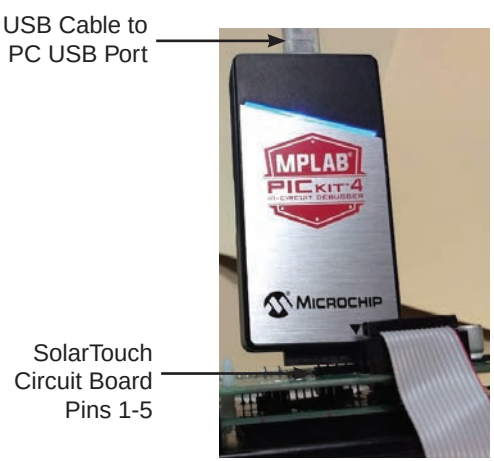
2. Locate the 5-pin header programming connector JP2 on the control panel circuit board. **Note where pin 1 is located.**

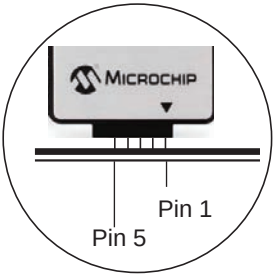


SolarTouch Control Panel Circuit Board

Connect Programmer to SolarTouch® Control Panel (Continued)

3. With the front (LEDs) of the PICKit® 4 programmer facing you, connect the programmer (pin 1 on right side) onto the 5-pin connector (pin 1 on right side) on the control panel circuit board (PCB) as shown below.





Note: Be sure to align Pin 1 on the programmer and Pin 1 on the SolarTouch circuit board

PICKit 4 programmer plugged into SolarTouch Controller circuit board.

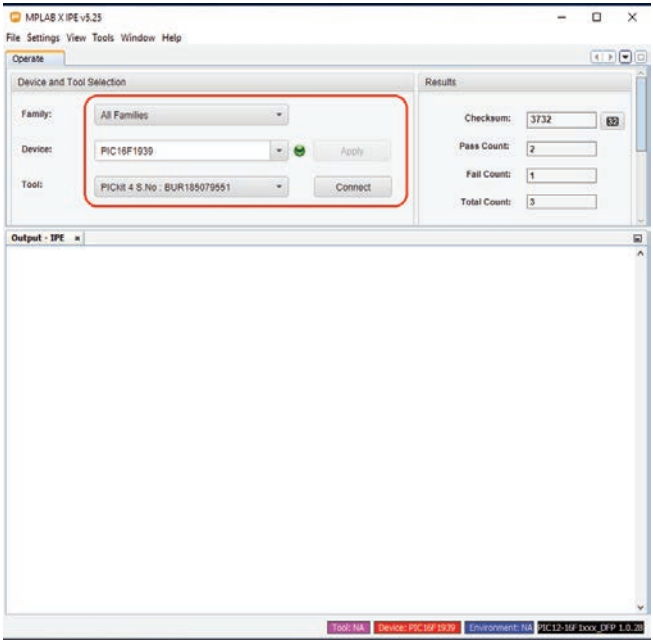
4. **Switch ON power to the SolarTouch Controller**.

5. Next, load the MPLAB IDE software.

Continue with Launching the IPE Programming Application on the next page.

Launching The IPE Programming Application

1. After installing the software, double-click the MPLAB® IPE v5.25 application icon located on the desktop. The IPE main window opens.



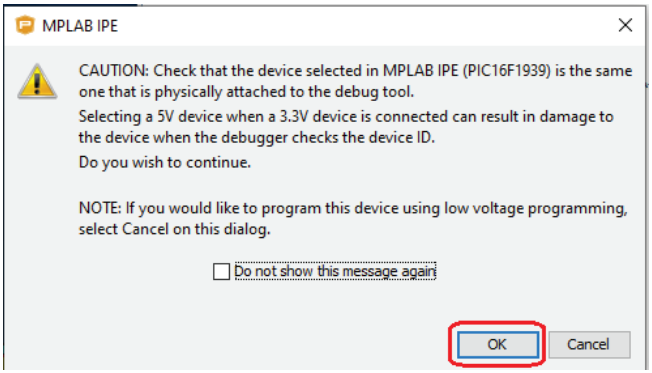
2. From drop-down menu, select as follows:

   Family: All Families

   Device: PIC16F1939

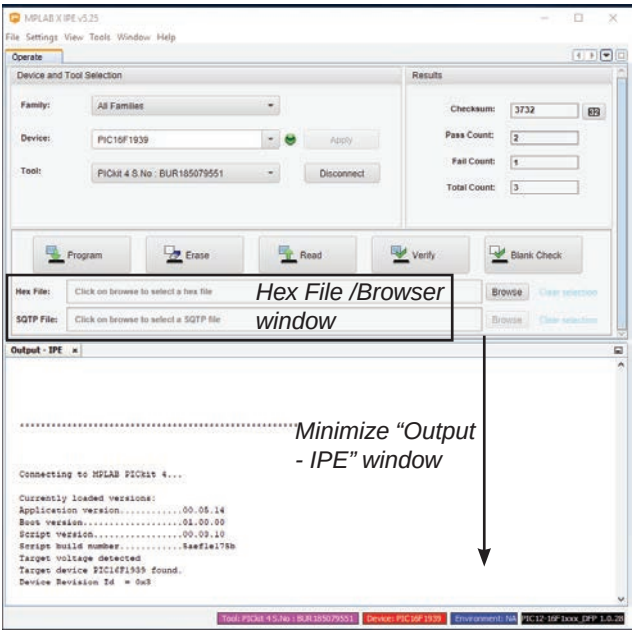
   Tool: PICkit4S. No: “Programmer Serial #”

3. Click **Connect to connect to Device and Tool** and make sure there is no Connection error in the Output window.
4. If a Caution screen displays, click **OK** to continue.

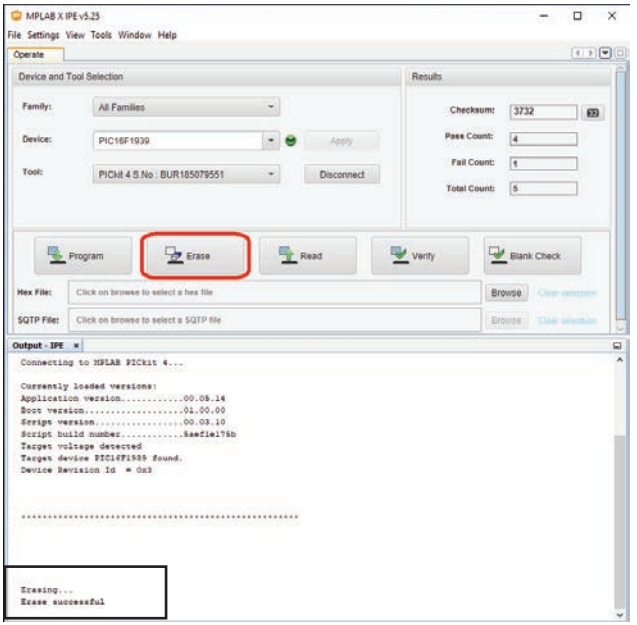


Launching The IPE Programming Application (Continued)

5. Upon connecting the following screen displays, indicating the PICKit™ 4 Programmer is connecting to the target device.
   Note: If the "Hex File" and "Browse" window does not show, you may need to minimize the "Output - IPE" window.

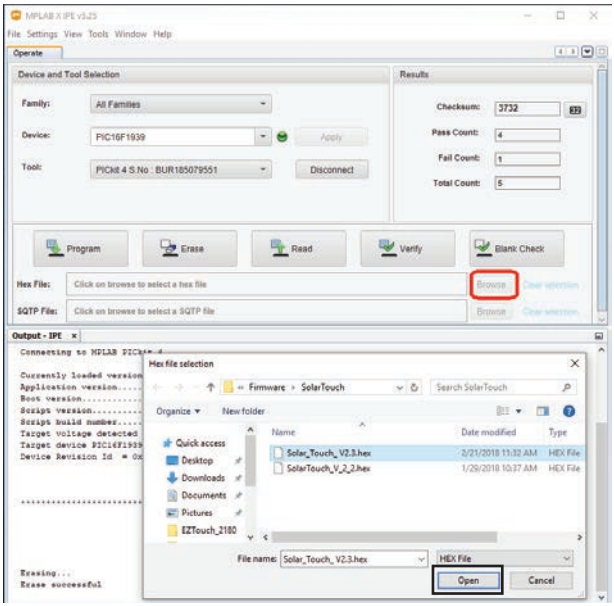


6. Select **Erase.** Be sure that erase device memory is complete.

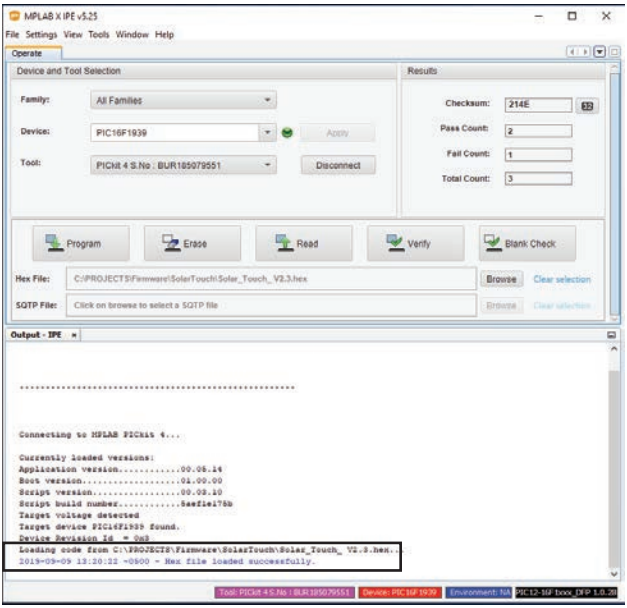


Launching The IPE Programming Application (Continued)

7. Select **Browse** to load firmware .hex file from the PC directory to be programmed into the device. Then click **Open**.

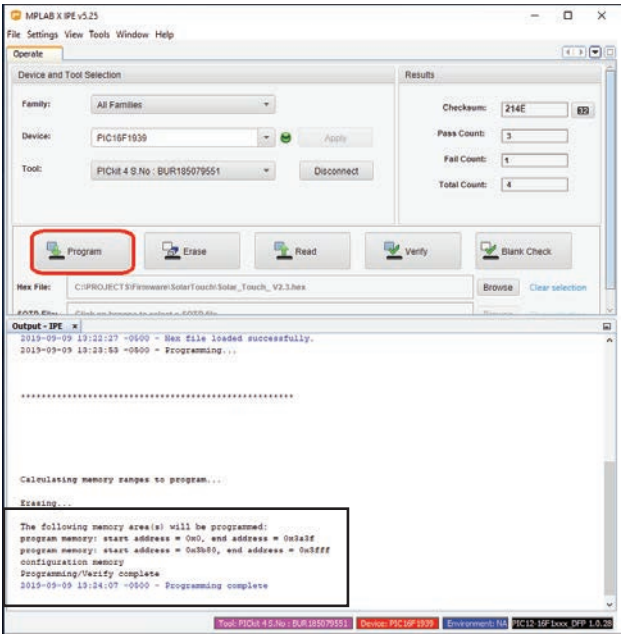


8. Be sure the hex file to be programmed is loaded successfully.

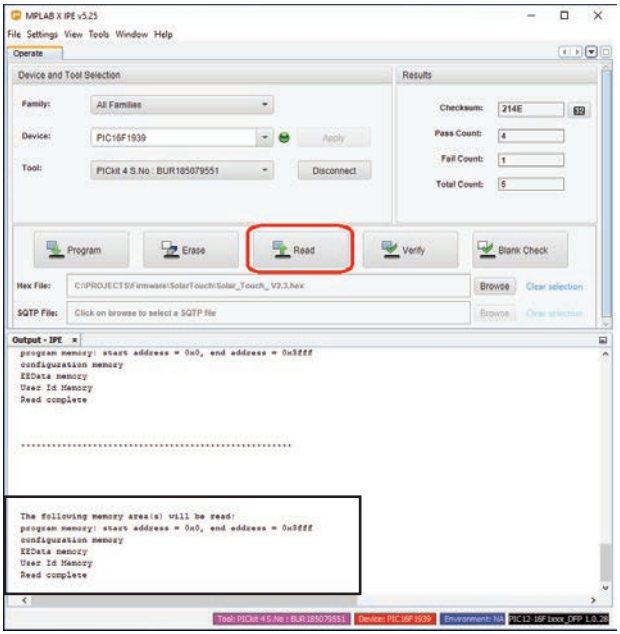


Launching The IPE Programming Application (Continued)

9. Select **Program** to program the device. Be sure that programming is complete.

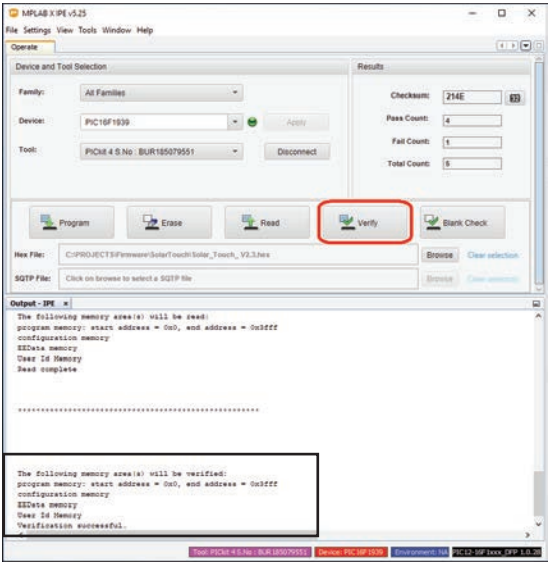


10. Select **Read** to read the all memory.

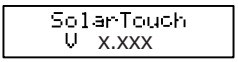


Launching The IPE Programming Application (Continued)

11. Select **Verify** to verify the all memory. Once verified, “Verifcation Successful” is displayed.



12. Exit the IPE V5.25 application.
13. Disconnect the PICKit™ 4 programmer from the SolarTouch® Controller board.
14. The updated firmware should already be running. Reinstall the SolarTouch controller board in the enclosure and secure the control panel with the three (3) screws.
15. To verify the new firmware version, reset or re-cycle power on the SolarTouch Controller. The firmware version is only displayed immediately after reset for a few seconds



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