



PENTAIR P-N 521363 Intellichem Controller Firmware Upgrade Kit Installation Guide

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PENTAIR P-N 521363 Intellichem Controller Firmware Upgrade Kit



Product Information

The product mentioned in the user manual is the IntelliChem Controller. It is a device used for controlling and monitoring water chemistry in pools and spas. The controller has a firmware that can be updated to ensure optimal performance and functionality.

Product Usage Instructions

1. Disconnect power to the IntelliChem Controller by opening the front cover and disconnecting the 18 VAC supply connector J10 on the right side of the circuit board.
2. If there is a mini-circuit board connected, disconnect the ribbon cable from the circuit board.
3. Locate the 6-pin header labeled ISP in the upper-left corner of the circuit board.
4. Connect the 6-pin ribbon cable connector to the ISP port with the red stripe toward the left side.
5. Do not connect the micro USB cable to the computer at this point.
6. **Download the Pentair software from the provided link: [Pentair IntelliChem Software](#).**
7. Navigate to HOMEOWNER AND PRO RESOURCES -> SOFTWARE and download the IntelliChem Firmware Upgrade file.
8. **If you already have a previous version of the software installed, delete the C:PentairIntelliChem directory.**
9. Unzip the downloaded firmware upgrade file.
10. Install the firmware upgrade setup wizard by double-clicking on the file you just unzipped.
11. Apply power to the IntelliChem Controller unit and connect the Pololu ribbon cable to the ISP programming port ISP J3.
12. Connect a micro USB cable from the Pololu programmer board to the computer USB port.
13. Verify if the Pololu device driver is installed correctly by checking Windows Device Manager.
14. If there are any issues during the setup or installation, check the USB connection for communication with the Pololu Programmer.

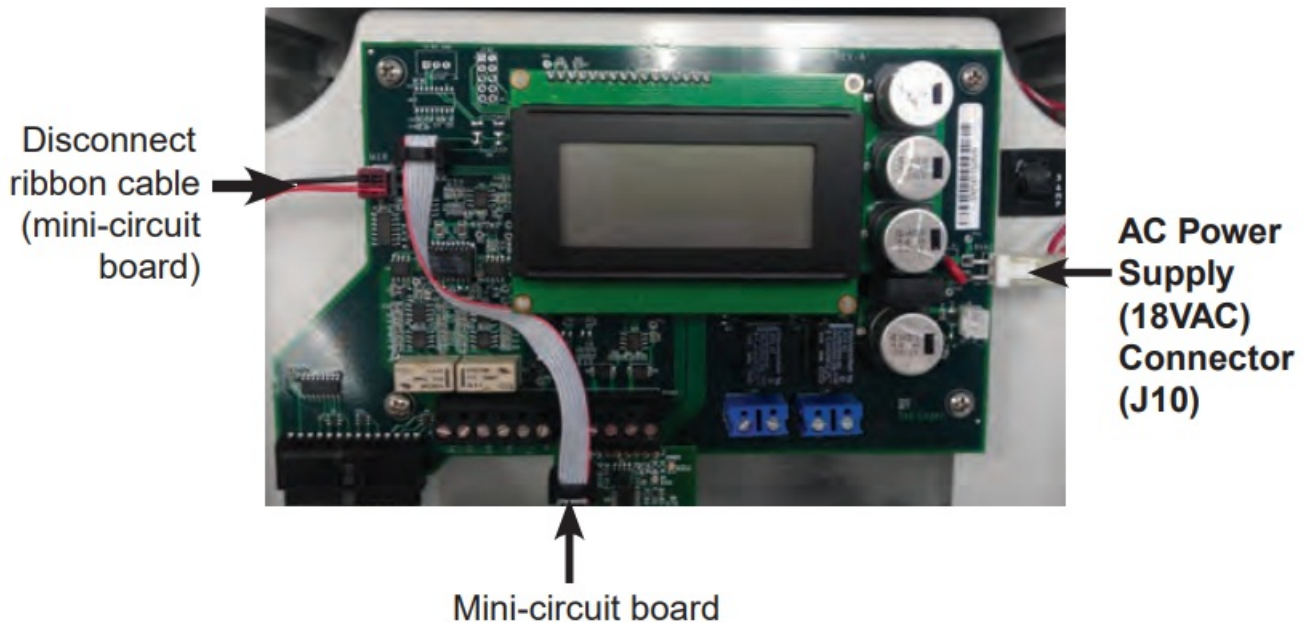
Please note that these instructions are based on the provided user manual and may vary depending on the specific model or version of the IntelliChem Controller.

IntelliChem® Controller Firmware Update Instructions

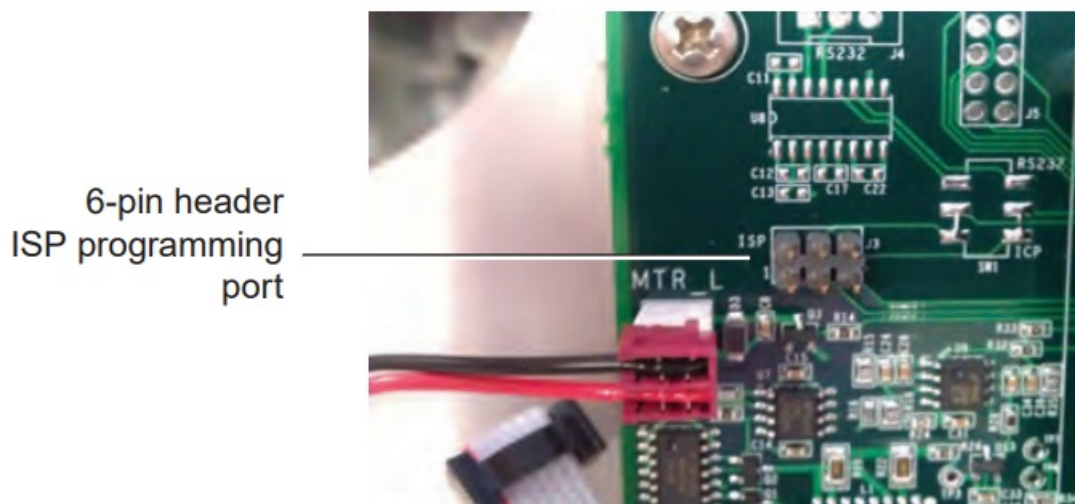
The IntelliChem Controller firmware updates are performed using the update programmer connected to a USB port on a computer running Microsoft® Windows version 10, 8, or 7.

Connect Programmer Cables

1. Disconnect power to the IntelliChem Controller. Open the front the cover and disconnect the 18 VAC supply connector J10 on the right side of the IntelliChem Controller circuit board (as shown below).
2. **Note:** If there is a mini-circuit board connected to the IntelliChem Controller circuit board, disconnect the ribbon cable from the IntelliChem Controller circuit board.



3. Locate the 6-pin header labeled ISP in the upper-left corner of the IntelliChem Controller circuit board (as shown below).



4. Connect the 6-pin ribbon cable connector to the ISP (on the System Programming) port with the RED stripe toward the left-side as shown below.

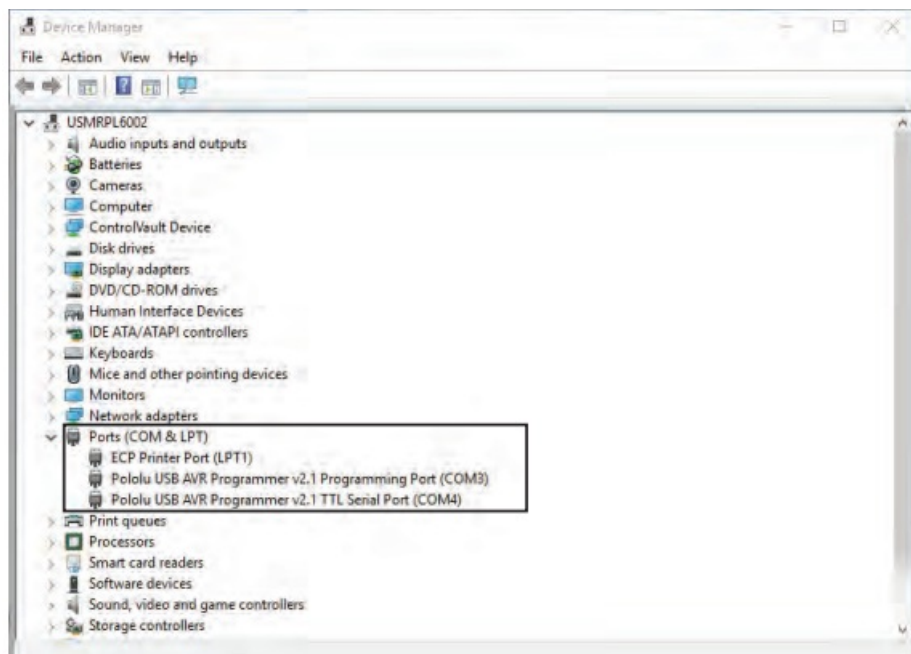
Connect the
programmer
ribbon cable
with
RED STRIPE
on **LEFT SIDE**



5. Reconnect the power connector (J10) to the IntelliChem® Controller circuit board (see page 1).
6. DO NOT connect the micro USB cable to the computer.

Installing IntelliChem Controller Firmware Upgrade Setup Wizard

1. **Download the Pentair software from:** https://www.pentair.com/en/products/pool-spa-equipment/pool-automation/intellichem_waterchemistrycontroller.html
2. Navigate to HOMEOWNER AND PRO RESOURCES -> SOFTWARE
3. **Download and unzip file:** IntelliChem Firmware Upgrade v1-080.zip
4. If it exists on your computer, **Delete directory C:\Pentair\IntelliChem\.**
5. **From folder ICHEM_1060, Unzip file:** IntelliChem_Firmware_Upgrade_v1- 060. zip
6. Install the firmware upgrade setup wizard by double-clicking on the file you just unzipped
IntelliChem_Firmware_Upgrade_v1-060.exe.
 - Follow screen message to complete the installation.
 - **Note:** For Windows 10, the INF configuration file is not compatible with this method of installation. Ignore all error messages. Select “OK” or “CLOSE” to continue and complete the installation. The Avrdude Programming utility and Pololu driver will be installed.
7. Follow screen message to complete installation.
8. **Upon completion of software installation, copy the following two files to folder C:\pentair\IntelliChem\ICHEM_Script_1080.bat and ICHEM_v1.080.a90**
9. Next, generate a NEW iChem icon pointing to IntelliChem version v1.080. Right click on file ICHEM_Script_1080.bat, select Send to, then select Desktop (create short cut).
Programming IntelliChem Controller Firmware
10. Apply power to the IntelliChem Controller unit and connect the Pololu ribbon cable to IntelliChem Controller ISP programming port ISP J3.
11. Connect a micro USB cable from the Pololu programmer board to the computer USB port.
12. To verify if the Pololu device driver is installed correctly, Windows Device Manager should display as shown below.



13. **For Windows 7, 8 users:** Double-click on the desktop icon “IChem_Script_1080” to begin programming IntelliChem® Controller firmware version 1.080. Wait for programming to complete.

```

C:\Windows\system32\cmd.exe
IMPORTANT NOTES!
1. Please install the USB programmer driver before updating
the IntelliChem chemical controller firmware
2. Support Windows 7, 8, 10
Press any key to continue . . .
Windows 7.
"OTHERWINDOWS"
\\.\USBSER000

avrdude: AVR device initialized and ready to accept instructions
Reading | ##### | 100% 0.03s
avrdude: Device signature = 0x1e9702
avrdude: current erase-rewrite cycle count is -50462977 (if being tracked)
avrdude: erasing chip
avrdude: reading input file "ICHEM_v1.080.a90"
avrdude: input file ICHEM_v1.080.a90 auto detected as Intel Hex
avrdude: writing flash (89500 bytes):

Writing | ##### | 100% 74.18s
avrdude: 89500 bytes of flash written
avrdude: verifying flash memory against ICHEM_v1.080.a90:
avrdude: load data flash data from input file ICHEM_v1.080.a90:
avrdude: input file ICHEM_v1.080.a90 auto detected as Intel Hex
avrdude: input file ICHEM_v1.080.a90 contains 89500 bytes
avrdude: reading on-chip flash data:

Reading | ##### | 51% 37.01s

```

14. For Windows 10 users
- Double-click on the desktop icon IChem_Script_1080
 - Enter the Pololu USB Programming COM port number ONLY from the Device Manager (i.e... 3)


```
C:\WINDOWS\system32\cmd.exe
*****
** PENTAIR **
** INTELLICHEM CHEMICAL CONTROLLER FIRMWARE UPDATE v1.080 **
*****
**IMPORTANT NOTES! **
** 1. Please install the USB programmer driver before updating **
** the IntelliChem chemical controller firmware **
** 2. Support Windows 7, 8, 10 **
*****
Press any key to continue . . .
→ "WINDOWS 10"
What com port is your USB programmer connected to?
→ Please enter a number 1-75
COM3

avrdude: AVR device initialized and ready to accept instructions

Reading | ##### | 100% 0.02s

avrdude: Device signature = 0x1e9702
avrdude: current erase-rewrite cycle count is -50462977 (if being tracked)
avrdude: erasing chip
avrdude: reading input file "ICHEM_v1.080.a90"
avrdude: input file ICHM_v1.080.a90 auto detected as Intel Hex
avrdude: writing flash (89500 bytes):

Writing | ##### | 29% 21.37s
```

Troubleshooting

If the programmer exits without showing a progress bar, there was an error in the setup or installation.

Check the following

- The programmer is installed correctly
- IntelliChem® Controller unit is powered on
- Driver is properly installed

```
*****
Press any key to continue . . .
avrdude: ser_open(): can't open device "\\.\USBSER000": The system cannot find t
he file specified.
Press any key to continue . . .
```

No communication with Pololu Programmer, check USB connection.

```
*****
Press any key to continue . . .

avrdude: stk500v2_command(): command failed
avrdude: stk500v2_command(): unknown status 0xc9
avrdude: stk500v2_program_enable(): cannot get connection status
avrdude: initialization failed, rc=-1
Double check connections and try again, or use -F to override
this check.
```

No communication with IntelliChem Controller, check connection to ISP on the IntelliChem Controller board.

Documents / Resources

 <p>◆ PENTAIR INTELICHEM® CONTROLLER FIRMWARE UPGRADE KIT INSTALLATION GUIDE</p> <p>IMPORTANT SAFETY INSTRUCTIONS READ AND FOLLOW ALL INSTRUCTIONS SAVE THESE INSTRUCTIONS</p>	<p>PENTAIR P-N 521363 Intellichem Controller Firmware Upgrade Kit [pdf] Installation Guide P-N 521363 Intellichem Controller Firmware Upgrade Kit, P-N 521363, Intellichem Controller Firmware Upgrade Kit, Controller Firmware Upgrade Kit, Firmware Upgrade Kit, Upgrade Kit</p>
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References

-  [Pentair](#)