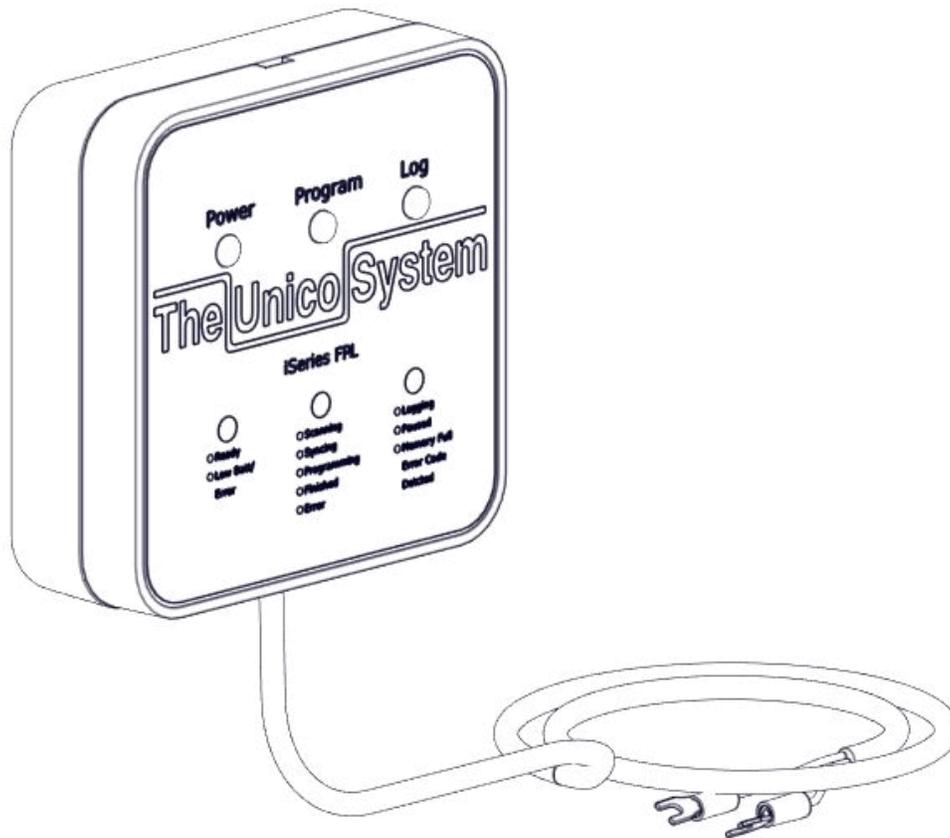

The Unico System[®]

iSERIES FPL FIELD PROGRAMMER/LOGGER OPERATIONS MANUAL





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INTRODUCTION

WHAT IS THE FPL?

The iSeries Field Programmer-Logger (FPL) is a tool that can be used to:

- Update the firmware on an iSeries system or individual unit.
- Record the operation of an iSeries system.

This tool eliminates the need for a laptop at the jobsite to reprogram the iSeries firmware in most instances. It also acts as a data logger to record the operational data for extended periods of time (up to 30 days). A Windows PC is only needed if the FPL is unable to reprogram the firmware or if you need to see the operational data in real time. For basic programming or logging, the FPL requires the press of just one button.

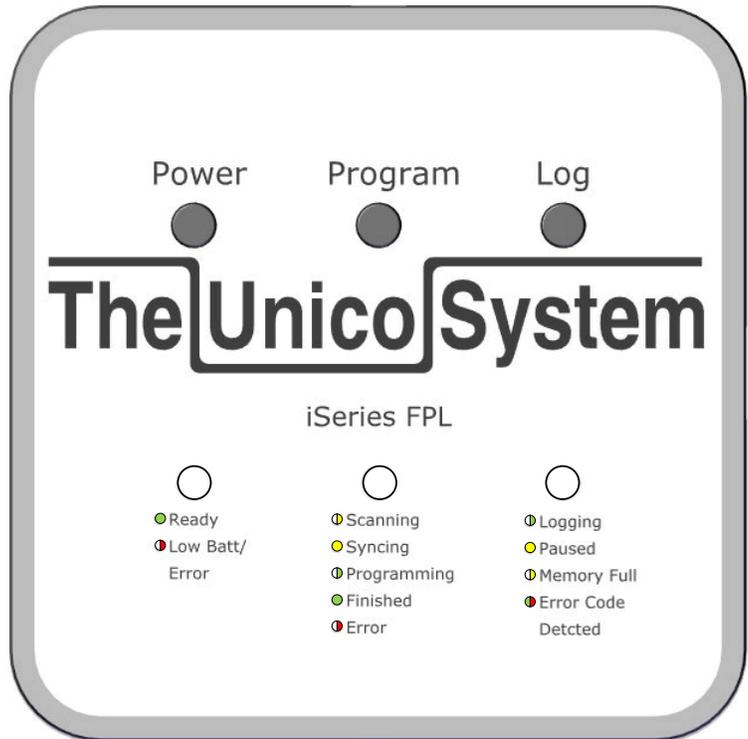
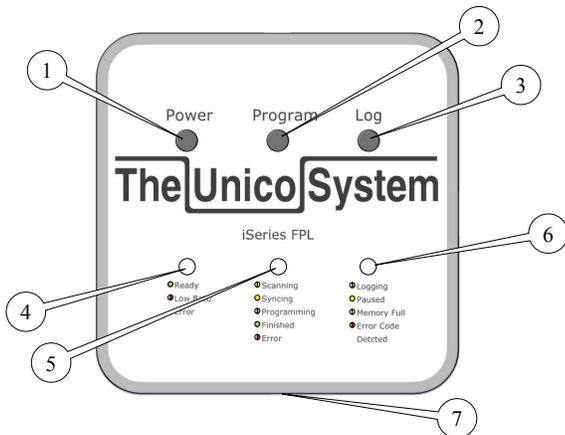


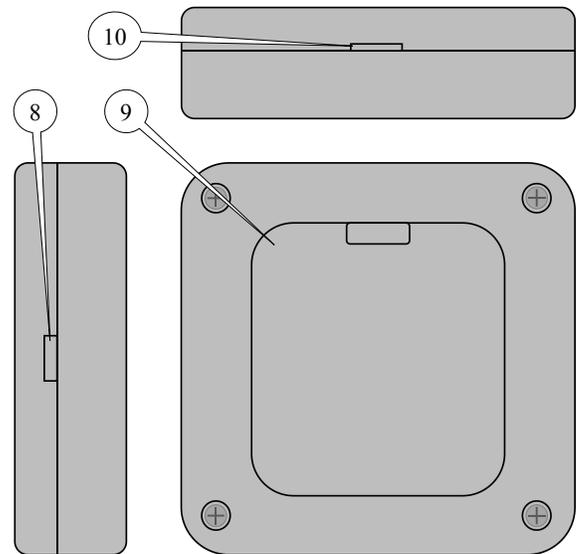
Figure 1. iSeries FPL. Shown actual size.

WHAT'S INCLUDED?

- (1) iSeries FPL pre-loaded with the latest firmware for all iSeries devices
- (1) 3 ft. USB to micro-USB cable
- (1) Bulletin 30-130. Instructions.
- (4) AA batteries are required for operation (included). The unit does not charge while plugged into USB.



1. Power Button
2. Program Button
3. Log Button
4. Power Status LED
5. Program Status LED
6. Logging Status LED



7. 3ft communication cable, with spade connectors
8. Micro-USB Connector
9. Battery Cover, 4xAA Required
10. MicroSD Card Slot, 4GB Max.

PROGRAMMING INSTRUCTIONS

Each iSeries FPL comes pre-loaded with firmware for the iSeries product line that is current at the time it is manufactured. Be sure to check tech.unicosystem.com for the latest firmware before visiting the jobsite as this may be required to service the system.

When downloading new firmware, connect the FPL to a computer using the included USB-to-micro-USB cable. The FPL will appear as a separate removable “thumb” drive.

Review the files in the root directory. These should be latest versions as shown online. If the online versions are newer, then download the latest files and save them in the FPL root directory. If you download the files to your computer first, you may drag and drop the files on to the FPL.

The FPL requires that all firmware files be placed in the root directory of the device (Fig. 2). They cannot be placed in a folder (Fig. 3) or a zipped archive (Fig. 4).

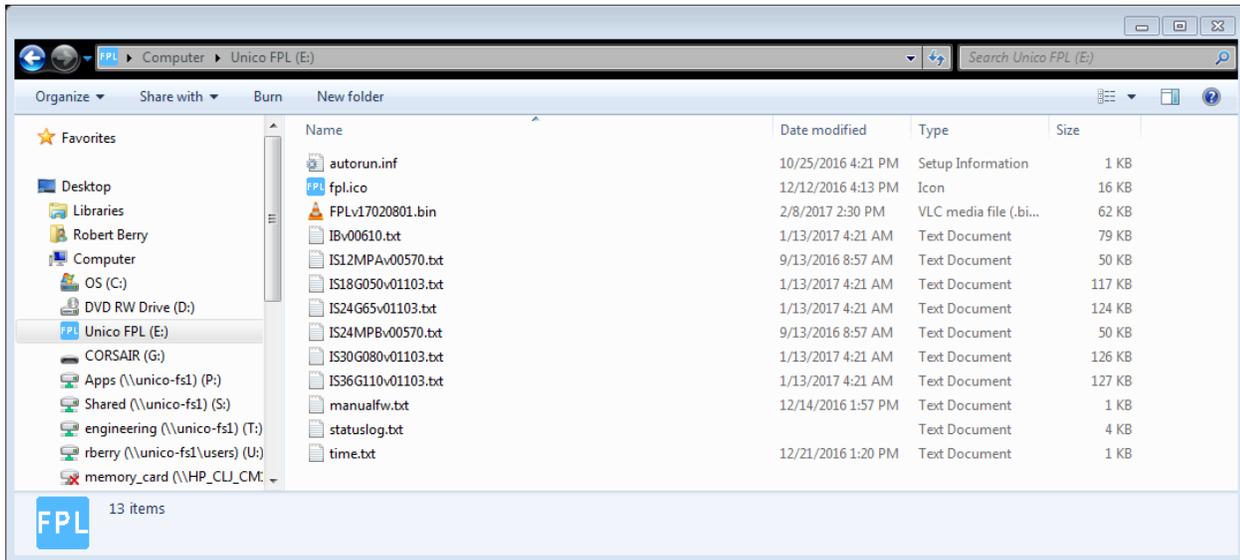


Figure 2. Files in Root Directory. This is correct.

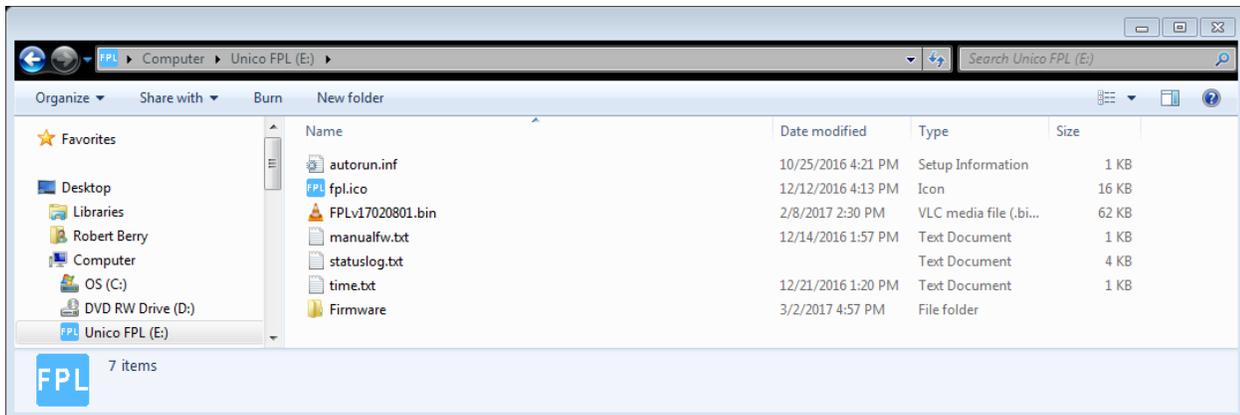


Figure 3. Files in folder. NOT ALLOWED!

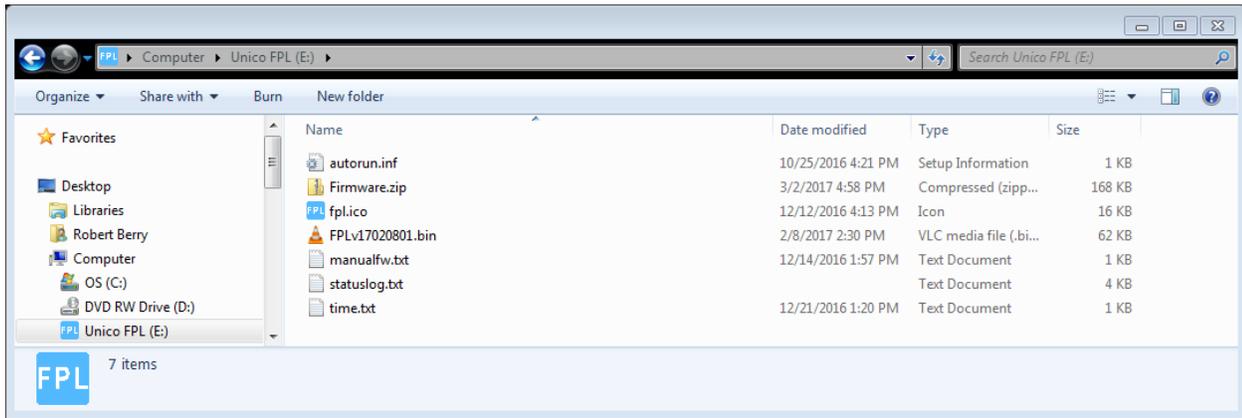
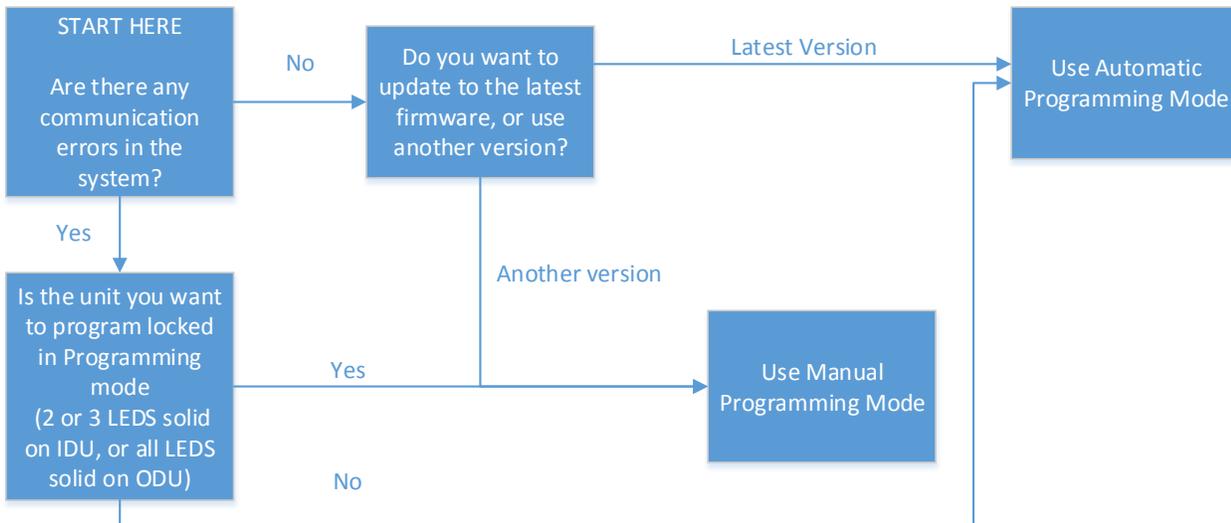


Figure 4. Files in zipped archive. NOT ALLOWED!

TYPES OF PROGRAMMING

There are both Automatic and Manual modes of programming. Automatic mode is the most commonly used. Both modes can program whole systems or individual units. Use Automatic programming if you wish to upgrade all units to the latest firmware, and no units are locked in programming mode. If one or more units are locked in programming mode (aka “bricked”), or if you want to load a specific version of firmware onto each unit, use Manual mode.

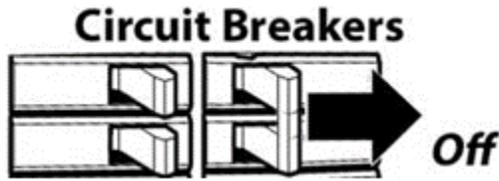
Use the decision tree below to decide which programming method to use.



Programming - Automatic Mode

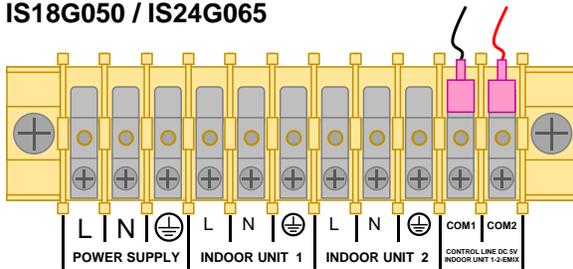
Use this method to update a complete system or individual unit to the latest firmware. Units cannot be locked in programming mode when using this method.

1. Power off the iSeries FPL. Power off the unit to which the FPL will be connected. This is to eliminate shock hazard.

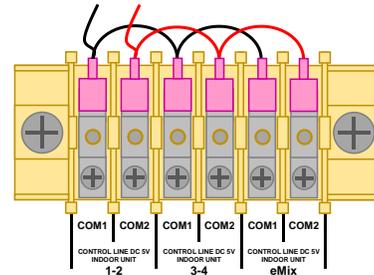


2. Connect the FPL to a communication terminal block in the system, either at an indoor or outdoor unit. Connect black to black(C1 or COM1) and red to red(C2 or COM2). See the terminal block examples below.

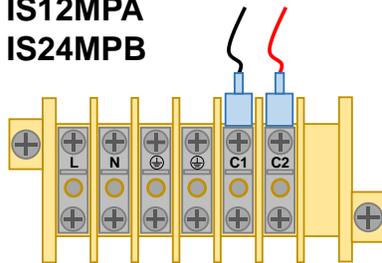
IS18G050 / IS24G065



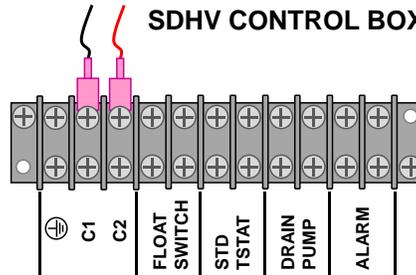
IS30G080 / IS36G110



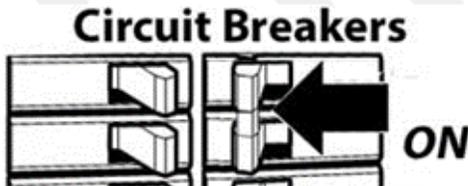
IS12MPA
IS24MPB



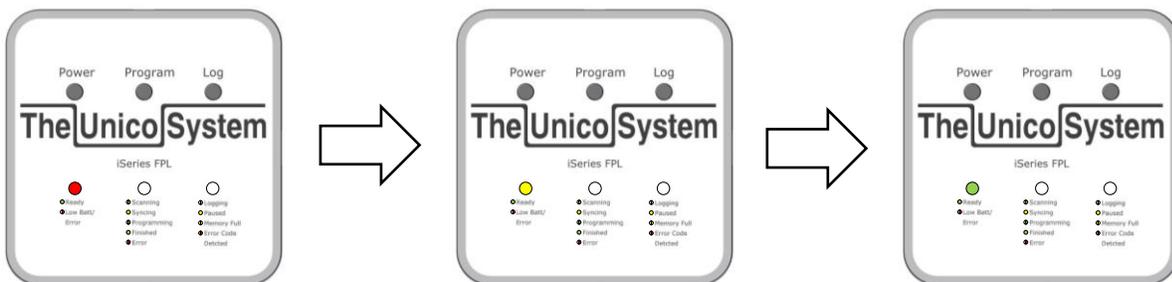
SDHV CONTROL BOX



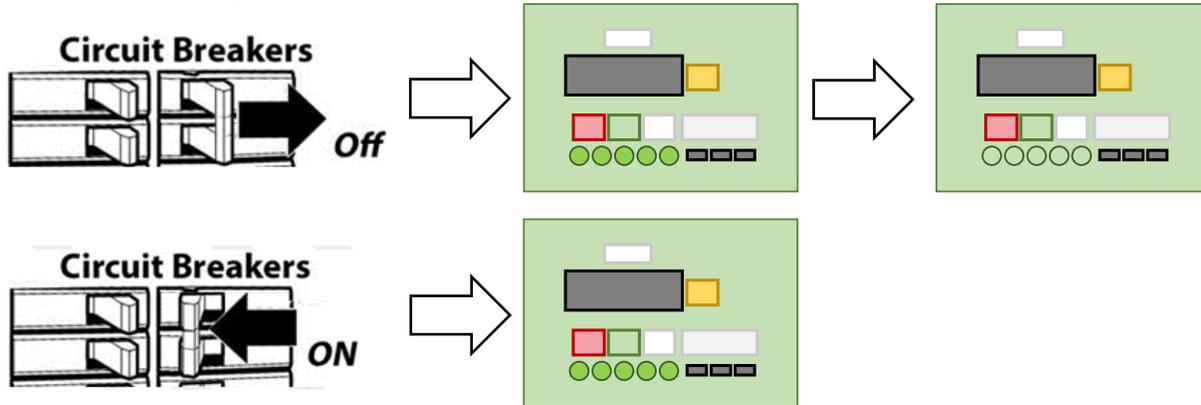
3. Power on the outdoor unit and all indoor units.



4. Press and hold the *Power* button on the FPL until the *Power* LED turns red. Release the button and wait for the *Power* LED to turn green. You may hear some clicking as the FPL communication (COM) relay detects communication from the system. This helps to protect against connection to high voltage terminals. Wait for it to stop clicking (usually less than 5 seconds).

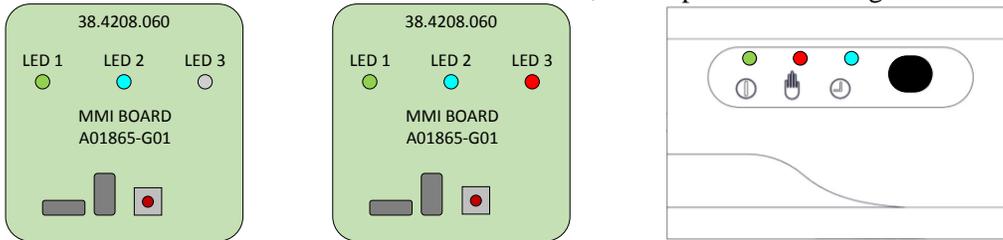


5. Press the **Program** button. The *Program* LED will flash yellow as it searches for connected units, and change to solid yellow when it has completed this process.
6. **Cycle power to the outdoor unit (ODU).** After the *Program* LED has changed from flashing yellow to solid yellow, cycle power to the outdoor unit. This must be done before cycling power to any indoor unit. Wait for the LEDs in the ODU to turn off before turning the power back on. Confirm that the ODU has entered the programming mode by looking for 5 solid green LEDs on the ODU Main PCB. If only one or two LEDs are solid green, cycle power again.

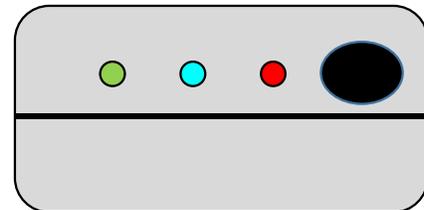


7. **Cycle power to each indoor unit (IDU).** Power may be cycled at the indoor units in any order. They may be cycled one at a time, or all at once, whichever is more convenient. Wait for the LEDs in each IDU to turn off before turning the power back on. When cycling power, confirm that each unit has entered the programming mode by looking for the following LED codes:

- 7.1. For fan-coil units, look on the MMI board or IR receiver for either a Green AND a Blue LED solid, or ALL THREE LEDs solid. Either code is correct, and depends on the original date of manufacture.

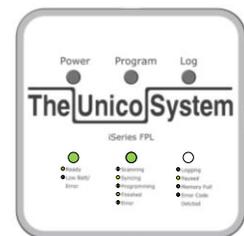


- 7.2. For IS12MPA and IS24MPB units, look on the IR Receiver panel display. All three LEDs must be solidly lit.



Once all units have entered the programming mode, **the FPL will automatically proceed** to program each unit. The *Program* LED will flash green during this process and will beep after each unit is programmed.

Programming Complete. When all units have been programmed, the *Program* LED will change from flashing green to solid green. It will also beep to indicate the number of units that were programmed. This is your signal that all units have been programmed successfully. The FPL may be disconnected from the system at this point.

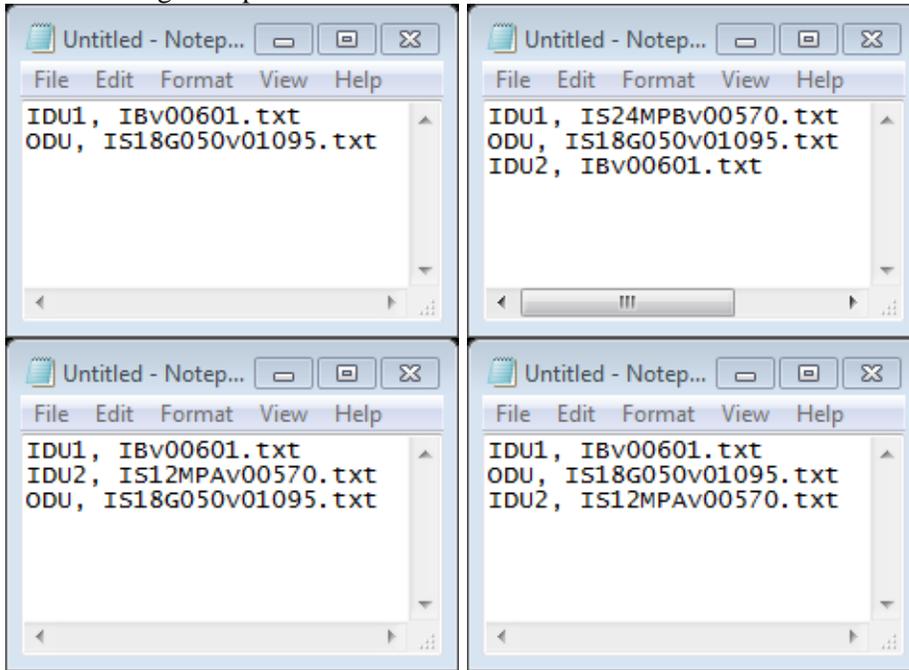


8. **Turn off power to all units** in the system and wait for all LEDs to turn off before reapplying power. The system will operate with the updated firmware the next time it is powered on.

Programming - Manual Mode

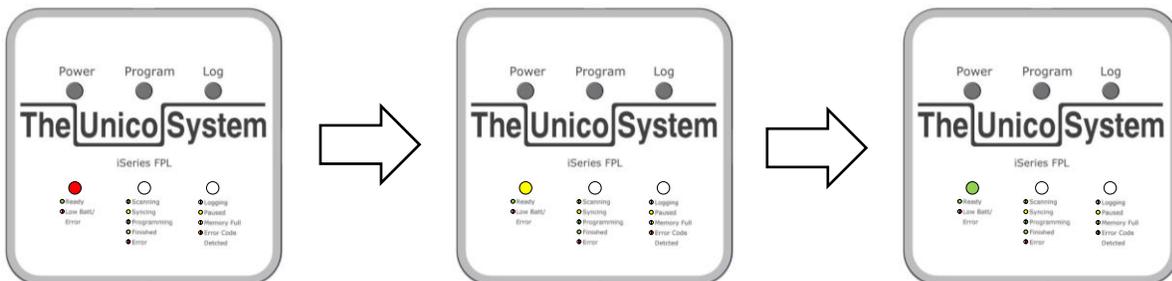
Use this method to program a unit that is locked in programming mode, or to downgrade firmware on a system or individual unit.

1. **Connect the FPL to a computer via the included USB cable.**
2. **Open the *manualfw.txt* file.** Create file if not found. For Windows PC use Notepad to create and edit the file.
3. **Edit *manualfw.txt*,** listing each individual unit to be programmed, and the firmware file to be used. The order of entries is not important, but the format must be exactly as follows:
 - 3.1. Format: [Unit][comma][single space][*Firmware.txt*]
 - 3.1.1. Allowed [Unit] names are: IDU1, IDU2, IDU3, IDU4, EMIX, ODU
 - 3.1.2. Allowed [*Firmware.txt*] filenames must be a .txt file of the format:
 - 3.1.2.1. IBv#####.txt, IS12MPAv#####.txt, IS24MPBv#####.txt, IS18G050v#####.txt, IS24G065v#####.txt, IS30G080v#####.txt, IS36G110v#####.txt
 - 3.1.3. The following examples are all correct:



3.1.4. Save and close *manualfw.txt*

4. Eject the FPL from the computer.
5. **Press and hold the *Power* button** on the FPL until the *Power* LED turns red. Release the button and wait for the *Power* LED to turn green. You may hear some clicking as the FPL communication (COM) relay detects communication from the system. This helps to protect against connection to high voltage terminals. Wait for it to stop clicking (usually less than 5 seconds).



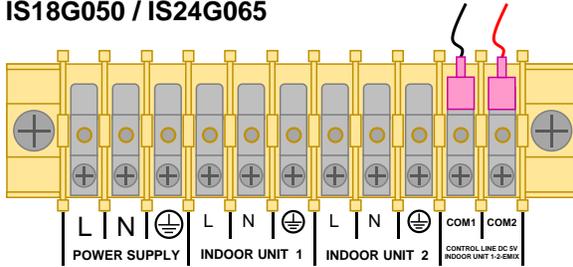
6. Power off all indoor and outdoor units.

Circuit Breakers

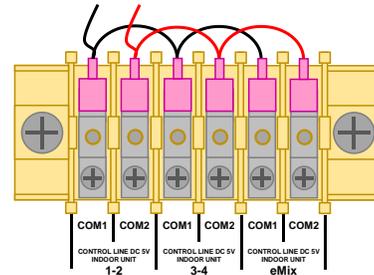


7. Connect the FPL to a communication terminal block in the system, either at an indoor or outdoor unit. Connect black to black(C1 or COM1) and red to red(C2 or COM2).

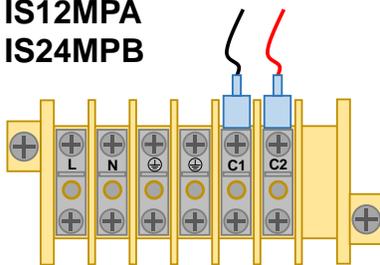
IS18G050 / IS24G065



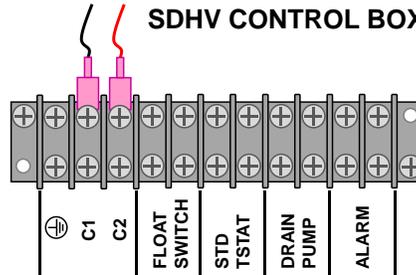
IS30G080 / IS36G110



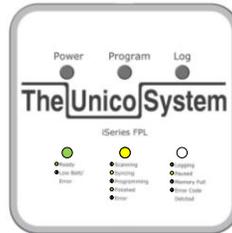
IS12MPA
IS24MPB



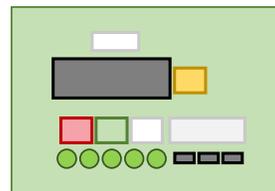
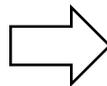
SDHV CONTROL BOX



8. Press and hold the *Program* button until it turns solid yellow. This activates Manual Programming Mode.

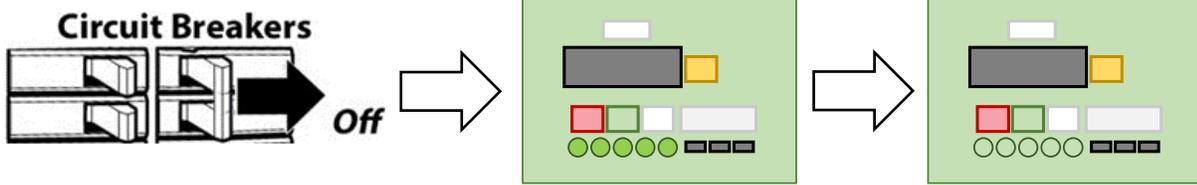


9. Power on the outdoor unit. After the *Program* LED has turned solid yellow, apply power to the outdoor unit. This must be done before turning on power to any indoor unit. Confirm that the ODU has entered the programming mode by looking for 5 solid green LEDs in the ODU. If only one or two LEDs are solid green, cycle power again.



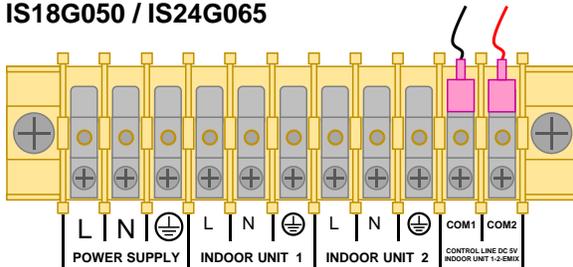
LOGGING INSTRUCTIONS

1. Power off the iSeries FPL.
2. Power off the unit to which the FPL will be connected. This is to eliminate shock hazard.

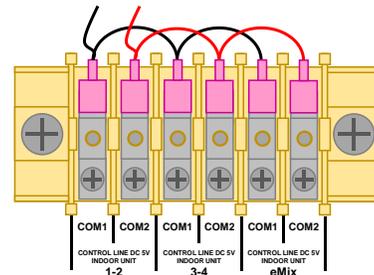


3. Connect the FPL to a communication terminal block in the system, either at an indoor or outdoor unit. Connect black to black(C1 or COM1) and red to red(C2 or COM2).

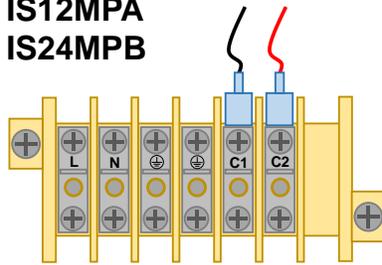
IS18G050 / IS24G065



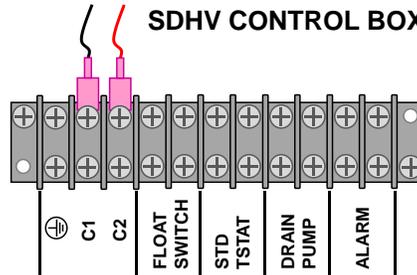
IS30G080 / IS36G110



IS12MPA
IS24MPB



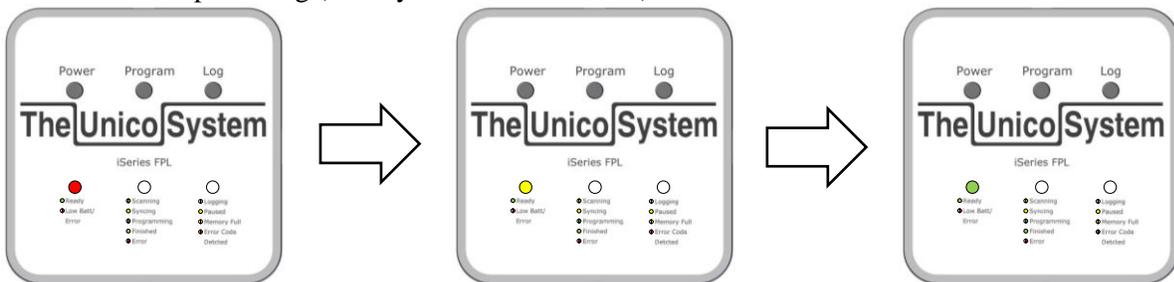
SDHV CONTROL BOX



4. Power on the outdoor and all indoor units.



5. Press and hold the Power button on the FPL until the Power LED turns red. Release the button and wait for the Power LED to turn green. You may hear some clicking as the FPL communication (COM) relay detects communication from the system. This helps to protect against connection to high voltage terminals. Wait for it to stop clicking (usually less than 5 seconds).



6. Press the Log Button once to start logging. The Log LED will turn green and blink continuously. For logs longer than 10 minutes, the FPL will enter a power-saving mode and the Log LED will blink slowly.

7. **Press and hold the *Log* button until the *Log* LED turns off** to save the current log file and stop logging.
8. **To Pause Logging:** While the system is logging, press the *Log* button briefly to pause or resume logging. Blinking yellow indicates that logging is paused.
9. **Note:**
 - 9.1. If the device memory fills while logging, the *Log* LED will change from blinking green to blinking Yellow. Logging stops at this point and no old data will be overwritten.
 - 9.2. If the device memory is full when the device is powered on for the first time, the *Log* LED will show a blinking yellow LED right away.
 - 9.2.1. To delete the oldest 15MB of log files so that a new log file can be created, press and hold the *Log* button for 3 seconds while the device is powered on, and both Programming and Logging are stopped. A confirmation beep will announce that the data has been deleted. This process frees approximately 12 hours of log time. This process can be repeated until all log files are deleted.
 - 9.2.2. To delete ALL log files, start with the device powered off. Press and hold the *Log* button while powering on the device. A confirmation beep will announce that all log file data has been deleted.
 - 9.3. Long Duration Logging. Fresh batteries in the FPL will last for up to 30 days when logging continuously. If you wish to log for longer than 30 days, connect the FPL to a USB charger by using the included USB cable. This will power the FPL indefinitely and allow for continuous logging until the memory of the device is full (about 3 months).

UPDATING THE FPL

HOW TO UPDATE THE ISERIES FPL FIRMWARE

The FPL may need to be updated periodically as new firmware is released for the tool itself. To do so,

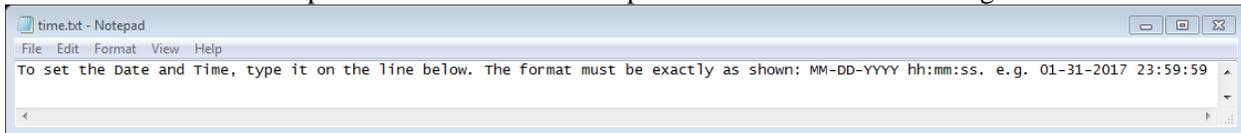
1. **Connect the iSeries FPL to your computer** via the included USB-A to micro USB cable.
2. **Go to tech.unicosystem.com** and download the latest firmware release for the iSeries. Among these files will be the new firmware for the FPL. The filename will look like: FPLvYYMMDD##.
3. **Extract all files** from the .zip folder and drag the individual files on to the FPL. Do not drag the zip folder onto the device.
4. **Cycle power to the FPL.** When the FPL is powered back on, it will automatically install any new firmware it finds.

To downgrade firmware, place the older FPL firmware on the FPL and delete any other FPL firmware present. Hold PROG and LOG simultaneously while powering on the device in order to force the FPL to load that specific firmware. If more than one version of firmware is present, the FPL will choose the more recent firmware.

SETTING THE TIME

The FPL will maintain the time as long as the batteries have power or as long as the FPL is plugged into power using the microUSB cable. The device is programmed at the factory for US Central Standard Time. If you wish to set the time to your local time zone, follow the steps below.

1. **Connect the iSeries FPL to your computer** via the included USB-A to micro USB cable.
2. Browse for the FPL and open the *time.txt* file in Notepad. You will see the following screen:



3. The format for the date is shown above. It is: MM-DD-YYYY hh:mm:ss. e.g. 01-31-2017 23:59:59

CHANGING BATTERIES

Battery Life: 1 year if turned off. Up to 30 days if logging or updating continuously.

Remove the cover and batteries. Replace with 4 AA alkaline batteries. Pay attention to the polarity as marked on the case.

Note: The batteries are not used if the unit is powered by the USB. If the batteries are depleted, you will have to reset the time clock (see section on setting time). Simply changing batteries does not require setting the clock so long as the batteries were still good. The unit will indicate when the batteries are low (see troubleshooting).

LED CODES

| iSeries FPL LED Codes | | | | |
|--|--|---------------|------|------|
| Code# | Meaning | Color/Pattern | | |
| | | GRN | YEL | RED |
| | Power/System LED | | | |
| - | (Normal Operation) Unit has power and no errors | ● | | |
| 1 | Boot up Self-Test Error | | | ⦿(1) |
| 2 | High Voltage Detected! (Audible Alarm) | | | ⦿(2) |
| 3 | SD Card Error | | | ⦿(3) |
| 4 | Communication Error | | | ⦿(4) |
| 5 | Low Battery | | | ⦿(5) |
| | Programing LED | | | |
| - | Scanning for Units | | ⦿(1) | |
| - | Syncing | | ● | |
| - | Programming in Progress | ⦿(1) | | |
| - | Programming Complete | ● | | |
| 11-19 | Unit Not Field-Upgradable | | ⦿(1) | U* |
| 21 | Missing or obsolete firmware on FPL. Update required. Go to tech.unicosystem.com | | ⦿(2) | ⦿(1) |
| 31-39 | Unit Not Found after Sync/Power-Cycle | | ⦿(3) | U* |
| 41-49 | Programming Failed | | ⦿(4) | U* |
| | Logging LED | | | |
| - | Logging | ⦿(1) | | |
| - | Paused | | ● | |
| - | Memory Full | | ⦿(1) | |
| 51-59 | Error Detected on Unit | ⦿(5) | | U* |
| U*: LED will blink "U" times to indicate which Unit is causing the error. 1-7 blinks indicate Indoor Unit Circuit Number. 8 = EMIX. 9 = ODU | | ● = Solid | | |
| ⦿(#): LED will blink "#" number of times. E.g. ⦿(2) = LED blinks twice. | | ⦿ = Blink | | |

TROUBLESHOOTING

| iSeries FPL Troubleshooting Guide | | |
|--|---|---|
| Condition | Possible Cause / Explanation | Solution |
| Power LED displays <i>Boot up Self-Test Error</i> | Battery level is critical. | Replace Batteries If error persists after batteries are replaced, try SD card steps below. |
| | SD Card is corrupted | Remove SD from FPL and try to read the data on a computer. If no data appears, reformat the SD card and try reinserting in to the FPL. If the error persists, replace the SD card with a 4GB SD card. Larger sizes are not accepted. If the SD card and Batteries are OK, replace the FPL. |
| Power LED displays <i>High Voltage Detected</i> | The FPL has been connected to high voltage. TURN OFF POWER TO THE SYSTEM IMMEDIATELY! | Turn off power to the equipment and disconnect the FPL from the high voltage terminals. Cycle power on the FPL. Reconnect the device to the correct communication terminals. If the FPL does not restart, it must be replaced. It is also possible that static electricity causes a false positive for this error. Cycle power to clear the error. |
| Power LED displays <i>SD Card Error</i> | The SD Card is ajar or not present. | Install an SD card. |
| | The SD card is corrupt. | Reformat the SD card and reload all files onto the card. Replace if necessary with a 4GB SD card. Larger sizes are not accepted. |
| Power LED displays <i>Communication Error</i> <i>OR</i> COMM Relay continues to click | The FPL is not connected to any unit. | Connect the FPL to terminals C1 and C2 on any communication terminal block. |

| iSeries FPL Troubleshooting Guide | | |
|---|--|--|
| Condition | Possible Cause / Explanation | Solution |
| Power LED displays <i>Communication Error</i> OR COMM Relay continues to click | The FPL is connected to a unit, but the unit is in programming mode. | This is normal behavior if the FPL is connected while the unit is in programming mode. Cycle power to the system to resume normal operation. OR If one or more units are locked in programming mode, use the Manual method of programming to program the units and return them to normal operating status. |
| | The FPL wiring harness is damaged. | Replace the wiring harness. |
| | One or more communication fuses or wires in the system are damaged. | Check all communication wiring and fuses in the system. Replace if necessary. |
| Power LED displays <i>Low Battery</i> then powers off | Battery level is critical. | Replace batteries (4xAA) |
| Program LED displays <i>Unit Not Field-Upgradable</i> | Firmware was detected on one or more units that is not field-upgradeable. | Contact Unico Technical Service for further instruction. |
| Program LED displays <i>Missing or obsolete firmware on FPL.</i> | The FPL does not have the firmware required to update one or more units in the system. | If firmware is missing or obsolete, follow the procedure under “ <i>Updating the FPL</i> ”, above to download all new firmware files onto the FPL. OR |
| | The firmware installed on the FPL is out of date. (Newer firmware detected on system) | If firmware is missing, you can update those units for which the FPL does have firmware by disconnecting the offending unit from the COM bus and restarting the Automatic Programming process. |

| iSeries FPL Troubleshooting Guide | | |
|---|--|--|
| Condition | Possible Cause / Explanation | Solution |
| <p>Program LED displays <i>Unit Not Found after Sync/Power-Cycle</i></p> <p>Note: The FPL will not start programming, and will display an error indicating which unit is not present.</p> | <p>One or more units did not enter the programming mode.</p> | <p>The <i>Program</i> LED will blink a code to indicate which unit is causing the problem. Go to that unit and cycle power again, making sure to wait until all LEDs are off before reapplying power.</p> |
| | <p>One or more units have lost the ability to communicate with the system.</p> | <p>Check that all units connected during the <i>Scanning</i> process are still connected to the COM bus.</p> |
| | <p><i>manualfw.txt</i> was configured incorrectly.</p> | <p>If using the Manual programming method, check that <i>manualfw.txt</i> lists only those units that are connected in the system.</p> |
| <p>Program LED displays <i>Programming Failed</i></p> | <p>Firmware was not successfully uploaded into one or more units.</p> | <p>Check that COM wiring throughout the system is secure and properly shielded. This error indicates heavy interference with system communication.</p> <p>If system repeatedly fails after multiple attempts, the circuit board in the affected unit may need to be replaced.</p> |
| <p>Log LED displays <i>Memory Full</i></p> <p>Note: No new log files will be created with this error present.</p> | <p>The SD card memory is full.</p> | <p>Connect the FPL to a computer and transfer or delete unnecessary files.</p> <p>OR</p> <p>Press and hold the <i>Log</i> button for 3 seconds while the FPL is powered ON to delete the oldest 15MB of log file data. This clears approximately 12 hours' worth of log time.</p> <p>OR</p> <p>Press and hold the <i>Log</i> button while powering on the FPL. This deletes ALL LOG FILES on the device.</p> |

| iSeries FPL Troubleshooting Guide | | |
|---|---|--|
| Condition | Possible Cause / Explanation | Solution |
| Log LED displays <i>Error Code Detected</i> | An error is present on one or more units in the system. This code is present for active errors on the system. i.e. Only active while the system is indicating an error. | Use the LED codes on the equipment along with Bulletin 30-121 to interpret the status codes. |
| All 5 LEDs solid green at outdoor unit. OR 2 or 3 LEDs solidly lit at indoor unit | The unit is in programming mode. | This behavior is normal unless the unit does not resume normal operation after a power cycle. If locked in programming mode (aka “bricked”), use the Manual method of Programming to load firmware into the unit. Cycle power to resume normal operation. |
| <i>Power</i> and <i>Program</i> LEDs both solid yellow | FPL is loading new firmware. | This is normal and should last only a few seconds. Wait for FPL to boot. |
| System completes programming successfully, but unit remains locked in programming mode. | Corrupt firmware file. | Replace all firmware files on the FPL and retry the programming step. |

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