



Application Notes

Rev 01

AN18 - Cheat Sheet for mixed site

Introduction

The latest firmware from Water-Insight for IPCs is V5. Some sites will have IPCs that are on older firmware (V3). There is a fundamental difference between these two versions that affects the communication protocol used to message each IPC.

In addition, V5 firmware requires that for each entry in the podlist a corresponding line is included which says for example FarmID=12:34.

V3 IPC units must not have this line in the podlist entry for an IPC.

If you don't know what version of firmware is running on an IPC and you set it up to include FarmID when it shouldn't (on a V3 unit) and without FarmID when it should (for a V5 unit) then you may have difficulties communicating with the IPC.

Things can get even messier if you are also changing the radio channel because if the IPC is operating on a different channel than you expect then it will not communicate.

Here we will assume that the radio channel is not changing.

Discovering the Firmware version

There are a couple of ways to find out what version firmware an IPC is running.

Method 1

In this method you will need to walk to the post with an EP3 and a magnet. You will also need a folder on your SD card that is named firmware and in that you will have both the V3 and V5 firmware.

1. On the EP3 tap upgrade, the firmware versions will list
2. Select either version and tap load
3. NOTE: we are not going to program new firmware we just want to start the process which will get the IPC to tell us what firmware it is on. **DON'T tap the flash button!**
4. Now place the magnet on the end of the IPC labelled magnet, the LED on the rear will start flashing
5. Tap the button that says poll (don't tap anything else)
6. The EP3 will talk to the IPC and do what we call a handshake. The IPC will return with a message displayed on the screen which is its bootloader version (ignore this) and its firmware version (note this down it will be either 3.14 (V3) or 5.01 (V5))
7. Tap the reset button and the LED will stop flashing.

Now that you know the firmware version we can decide how to adjust the podlist and talk to the unit (see below)

Method 2

In this method you don't have to walk to each post but you do need two copies of the podlist: one that has the FarmID added for each IPC (a V5 list) and one without any FarmID entries (a V3 list). These will need to be put on the card and have a recognisable name to enable you to discriminate between a V3 and V5 podlist

1. First try assuming that the unit is on V3. Load the V3 podlist (main>ipc files > load)
2. Tap settings > comms and tick the box marked scan channels
3. Now select your IPC (main > IPC list > (use up/down to select IPC name) > view)
4. Now tap comms and tick the status checkbox and tap send

5. The EP3 will try each radio channel in turn until it gets a response from the IPC. If it gets a response note the radio channel it responded on (if its not the one you expect then we will have to sort that out with a different process)
6. If it responds it will display its status and a line will indicate the firmware version number
7. If it does not respond then load the V5 podlist
8. Tap settings > comms and tick the "use broadcast header" checkbox (leave the scan channels one ticked)
9. Now select your IPC again (per step 3)
10. Again request the status and the channels will be scanned
11. If it responds note the firmware version, radio channel and the FarmID that the unit appears to have (we may need to set one or both)
12. If it does not respond this is a problem because the units firmware is not programmed correctly. Revert to using method 1 to see what is programmed.

Note. Check that the serial number in your podlist for the IPC matches the serial number printed on the label inside the IPC (viewed from the rear).

Communicating to the IPC

Podlists can have a mix of pod entries (with and without a FarmID line per pod) this enables one podlist to be used for mixed V3 and V5 sites.

If your IPC is on V3 then:

1. The pod entry in the podlist must not use a FarmID, nor will you try to programme one in
2. If the IPC responded on a different channel you must programme the correct channel (listed in your podlist). We have a separate app note for that

If your IPC is on V5

1. The pod entry must include a valid FarmID.
2. If the FarmID reported in the status is different then program the Farm ID (select the IPC > view > comms > send FarmID)
3. If the unit responded on a different radio channel than expected then set that first

When configuring an IPC on site we recommend that for each unit in the comms window for the IPC you:

1. Use "local" comms
2. Send radio channel (if this is needed but otherwise do not touch)
3. Send the FarmID (on V5 units)
4. Send the time
5. Send the schedule

(make sure you have the schedules loaded)

Troubleshooting

Scanning the radio channels (**settings > comms > scan channels**) helps identify if the IPC is operating on the incorrect channel. Fix this by setting the programming channel (settings > comms) to be the same value as the channel that the unit responds on then view the IPC and send the radio channel followed by request status to set the channel correctly

If you place the magnet on the unit and the LED does not flash (the older units with a red LED can be very difficult to see in sunlight so look closely) then you may have a battery that is completely flat.

If the LED flashes (very faintly) once every 10s then it is in hibernation due to low battery and it will not communicate.

If you place the magnet on and the LED flashes (twice a second) this will bring it out of hibernation. The device will be in bootloader mode (awaiting new firmware to be programmed). If you wait for a minute it will exit bootloader mode back to its normal application and you have about 15-30s in which to try to request its status before it goes back into hibernation. This will confirm its battery level and why it won't communicate until battery level rises above 40%. If you don't know the firmware version you may have to repeat the process with a V3 (broadcast header off) and a V5 podlist (broadcast header on).

For more information contact Water-Insight support@waterinsight.co.nz