

# Float Kit X-Series Program Guide

FK-X

IACS® Float Kit X-Series Boards

Last Updated: March 2020

## Please Read First

Your FK-X board has different capabilities depending on how it is connected up and which program is bundled with it. This guide should show you how to get going with the program you have. When you purchased the kit you should have been given the option for which program you want installed on it. The program is pre-loaded onto the board's chipset and determines what the board can be used for.

If you require information about the HARDWARE such as dimensions, voltage tolerances etc... you will find them on the product datasheet (PDF) available at [iacselectronics.com](http://iacselectronics.com)

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**TIP:** Most of the time, the RED light will show if there is power coming into the board, the BLUE light will show the state of the relay / channel. The YELLOW light gives an insight into what the board is doing or detecting on the switches. The YELLOW light's function is determined mainly by the program installed.

## Program 1: 'High – Low Tank Refill / Monitoring'

This program requires two float switches to be connected. When the board powers up, the yellow LED should flash once to indicate 'Program 1'. This program is designed for operating a tank refill solution.

1. Assuming you are using the board to monitor one tank with one float switch near the top (full level) and the other near the base (to detect when the tank is needing to be refilled), you should connect the lower switch to 'Switch 1' terminal and the upper switch to 'Switch 2'.
2. The board will watch switch 1 only and will ignore switch 2 until switch 1 detects the tank is needing to be refilled, when switch 1 indicates the tank is low... the relay channel will activate (for example a pump or solenoid to refill the tank).
3. While the relay is active, the BLUE LED will illuminate. If the board detects the water level is above the lower switch but not reached the upper switch it will continue to flash the YELLOW LED to indicate that it will continue to fill until Switch 2 is 'closed'. In theory a push button could be fitted either instead of a float switch or in parallel to enable the user to shut off the pump manually if so desired.
4. Once the tank is full e.g. both switches are now raised (closed), the relay will deactivate (BLUE LED will go out) and the board will resume watching switch 1.

## Program 2: IACS® Ripple Correction Code™ Standard Version

Also known as 'Wave Correction Code™' This program requires a single float switch to be connected to the 'Switch 1' terminal. When the board powers up, the yellow LED should flash twice to indicate 'Program 2'. This program is designed to act as a solution especially to tanks mounted on moving vehicles or appliances where the water tank may be subject to waves or ripples and will such considerably reduce the chances of hardware failure, surges or pump burnouts.

1. The board will intelligently monitor the float switch connected to 'Switch 1' and decide accordingly whether the relay should be active or not by detecting when the switch is on and off and evaluating the timing of repetitive movements to decide whether to ignore the signals or act upon them.
2. The RED LED as usual determines power coming into the board, the YELLOW LED will illuminate when the board 'considers' the signal coming in from the float switch as active, but won't act upon it unless it decides it is most likely not a wave or ripple in the liquid's current.
3. IF the board decides the relay should be ON, the BLUE LED will activate along with the relay.
4. IF the board decides the relay should be OFF (determined in the same way), it will deactivate the relay.
5. The board will continue to 'evaluate' the channel all the time for any single switch installation and therefore it is NORMAL for the yellow LED to flash on and off any time there are waves, ripples or changes in the state of the switch.



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Web: [www.iacselectronics.com](http://www.iacselectronics.com)

Tel: 07807 566 640

Mail: [enquiries@iacselectronics.com](mailto:enquiries@iacselectronics.com)

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## Program 3: 'High On – Low Off' Sump / Fountain / Hydroponics / Drainage Controller

This program requires two float switches to be connected. When the board powers up, the yellow LED should flash three times to indicate 'Program 3'. This program can be used for various scenarios including operating an automatic flush / drainage solution or hydroponics setup.

1. Assuming you are using the board to monitor one tank with one float switch near the top (full level) and the other near the base (to detect when the tank is needing to be refilled), you should connect the lower switch to 'Switch 1' terminal and the upper switch to 'Switch 2'.
2. The board will watch both switches and determine how to switch the relay. Switch 1 (low) detects when the tank is empty or low, switch 2 detects when the level is high. When switch 2 indicates the tank is high... the relay channel will activate (for example a pump or solenoid).
3. While the relay is active, the BLUE LED will illuminate. If the board detects the water level is above the lower switch (1) but not at the upper switch (2) it will continue to flash the YELLOW LED to let you know the level is between the two switches. In theory a push button could be fitted either instead of a float switch or in parallel to enable the user to shut off the pump, or activate it manually if so desired.
4. Once the tank is low or empty e.g. both switches are now dropped, the relay will deactivate (BLUE LED will go out) and the board will resume watching switches 1 and 2. When the tank is high again, the relay will be reactivated.

### Basic Theory:

If both switches 1 and 2 are high, the relay will be active until both switches are low.

If switch 1 is high but switch 2 is low, the yellow LED will indicate the level is between the two by flashing, the relay will remain in the state it is in, if previously triggered, it will stay triggered until the tank is empty.

If both switches are low, or the tank is empty, the board will do nothing and the relay will be turned off.

If switch 2 is high, but switch 1 is low – the board will ignore this because it is a false reading. This could indicate a wiring fault or the switches are wired in reverse.



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## Program 4: 'Cycling Timer Mode' (No Switches)

This program does not use any float switches and so terminals for switch 1 and 2 are not used. As soon as power is supplied to the board it will begin cycling through its program.

1. Red LED will be lit when the power is supplied to the board.
2. As soon as the RED LED is lit, the YELLOW LED will flash, it should flash 4 times evenly to indicate it is running 'program 4'.
3. The yellow LED will blink once every 10 seconds to indicate the board is counting (and that the program is still running).
4. **The board will count to 30 seconds, before it first runs the flush cycle.** (30 seconds after the board receives power the relay will activate. The GREEN or BLUE LED will stay lit for **90 SECONDS**).
5. When the cycle ends, the GREEN or BLUE LED will go out and the channel will deactivate.
6. The device will wait **4 hours** before running another flush cycle. The YELLOW LED will continue to flash, once every 10 seconds during this 4 hours to show the program is still running and that the board is still counting.



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