DCS UFC For the A-10C and F/A-18

# Contents:

* (36) 6x6mm tactile switches
* (1) 3mm LED (RED)
* (2) 15 pin header sockets (For the Arduino Nano)
* (1) 220 Ohm 1/4W Resistor
* (1) 4 pin header pin (split into 2 pin for Mode and Reset connections)

# Assembly:

For the most part, you should be able to use the silkscreens on the PCB to determine component locations and side of board.

Back side

* Headers
* Resistor

The 15 pin sockets are easiest to install using the Nano to hold them in place.

The (2) 2 pin headers are optional. One being for an external reset button, the other being for either a jumper or a single pole switch to change between A-10 or F-18 modes.

Front side

* LED – Short leg into square hole
* Buttons

# Software:

* Arduino Studio
* Keypad Library for Arduino from Mark Stanly, Alexander Brevig (install from Arduino Studio’s Library Manager)
* DCS-BIOS from <http://dcs-bios.a10c.de/>
  + If you want to use the F-18 mode, you must also upgrade to the version 1.0 branch from <https://forums.eagle.ru/showthread.php?t=210960>
* A-10C-UFC Sketch from <https://github.com/IzeHouze/A-10C-UFC>
  + Using Git, Clone from <https://github.com/IzeHouze/A-10C-UFC.git>

# Usage:

The PCB is designed to be run via an Arduino, Nano or Uno.  The code will try to utilize the LEDs on board and the Master Caution of the PCB to also indicate if it is functioning and what mode it may be operating in.

Modes:

A-10C - The default mode if no jumpers are in place. J8 Open or not connected.

F/A-18 - Will change to this mode if you closed the Mode jumper, J8

To change modes, open or close the jumper with a hard jumper or using an external switch, then pressing the on-board or external reset button.  Once reset, there will be two indicators to display which mode the board is now in.

Pin 13 LED On, Master Caution will blink twice = A-10

Pin 13 LED Off, Master Caution will blink four times = F-18

In A-10 mode, all buttons will match the position and function of the UFC in the simulator and “Real Life” with the only exception being the 6 buttons directly under the Master Caution Light and Reset.  I have chosen to assign those 6 buttons to the power panel.

Battery On/Off

Inverter On/Off

APU Gen On/Off

Those buttons can be changed to any function supported by the DCS-BIOS API, by simply changing the code in the Arduino Sketch.  Something to keep in mind would be the type of input you are assigning it to. Normally the buttons are assigned as On/Off, 1/0 as the button is pressed and released.  As an example, when I changed it to work the power panel, it needs to emulate a two position switch where the top button is On, so the values need to be adjusted accordingly.  The bottom buttons become the Off mode of a two position switch, so it needs to send a 0 when pressed, instead of a 1. Bearing in mind that if you emulate one of the rocker switches, it will act like a 3 position switch.  0 = Down, 1 = Neutral, 2 = Up.

In F/A-18 mode, I have only altered the bottom row of buttons to emulate the A/P IFF etc, starting at the button to the right on the “9” button (SW14). The number pad remains the same. If you wish you can assign other buttons to further act as F-18 UFC controls simply by adding the appropriate mode change code and AC Mode checks.

The panel connects to your PC via a USB port, which will be communicating to the game as a Serial Port device.  The only thing you would need to do is to set up the connect-serial-port.cmd provided with DCS-BIOS to use the same port as configured as your Arduino Studio does when uploading sketches.  The connect command can be started and stopped at any time when the DCS Game is running or not, but the board will not be able to talk to DCS unless the command is running.