



# ICP V1.7 OPERATION

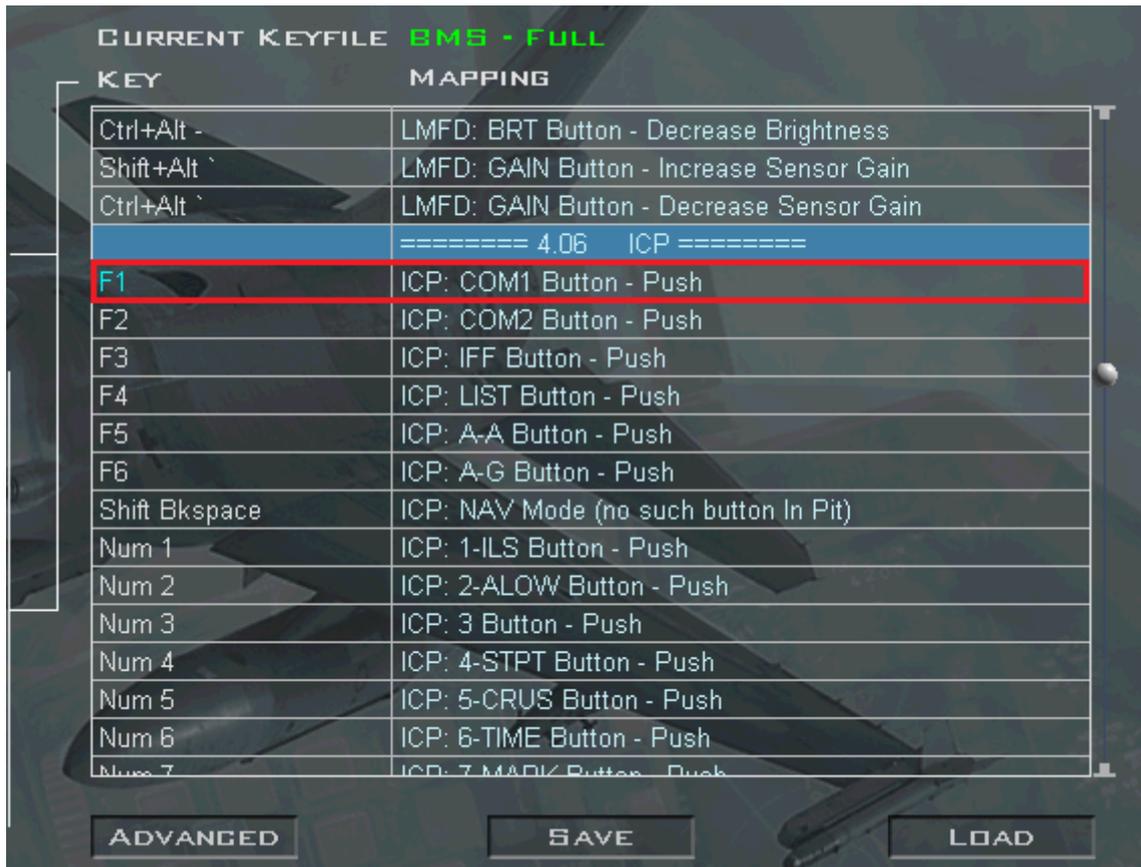
The ICP interface is based on the ATMEL 32U4 microcontroller which is can act HID device.

The controller is programmed as game device and will show up as game device in your windows device and printer list.

The controller has 32 DX buttons and 4 axis. The axis can only be assigned to the axis options in BMS.

# CONFIGURING THE ICP IN BMS

To assign the button go into BMS setup controllers and look for the ICP functions.



Select and highlight the F1 of the ICP COM1 button, press the COM1 button on you're ICP. Great job you just assigned the ICP button to its function. So now you know how to do this you can assign all other buttons as described.

# ASSIGNING THE TOGGLE SWITCHES

The toggle switches act a bit different they are DX but need some extra work to get them going. Because the middle position of the switch is an off position, it needs some tweaking in the key file. In the Docs folder in your BMS install there is manual that describes the key files and how it works I recommend to read chapter 6.1. It's located in Falcon BMS /Docs/Key Files & Input BMS Key File Manual.PDF.

In windows DX is zero based which means numeration starts at 0, DX in BMS numeration starts as 1. The range where the ICP starts depends how many DX devices you connected to your computer, so it may differ from the example I describe but the actions are the same regardless.

I have created some lines that have to be copied in your Call sign keyfile.cfg , these lines have to be adapted to your DX listing.

```
SimWarnReset 22 -2 -2 0 0x0 0  
SimDriftCOoff 22 -2 -2 0x42 0x0 0 "ICP: DRIFT C/O Switch -  
NORM"  
SimDriftCOon 24 -2 -2 0 0x0 0 "ICP: DRIFT C/O Switch - ON"  
SimDriftCOoff 24 -2 -2 0x42 0x0 0 "ICP: DRIFT C/O Switch -  
NORM"  
SimArmMasterArm 23 -2 -2 0 0x0 0 "MISC: MASTER ARM Switch -  
ON"  
SimSafeMasterArm 23 -2 -2 0x42 0x0 0 "MISC: MASTER ARM Switch  
- OFF"  
SimSafeMasterArm 25 -2 -2 0x42 0x0 0 "MISC: MASTER ARM Switch  
- OFF"  
SimSimMasterArm 25 -2 -2 0 0x0 0 "MISC: MASTER ARM Switch -  
SIM"
```

So if you have read the chapter 6.1 of the key file manual you understand the lines above.

Note(I made this example in the BMS FULL Key file but this has to be done in the key file you use. Before you continue it would be wise to make a backup of your key file)

Go to BMS setup page and select the controller tab screen. Scroll down to the ICP section and highlight the DRIFT/CO function. Once it's highlighted put the according toggle switch into the Drift/CO position. On the button a number will appear, note this number down on a piece of paper. In this example its 89 but yours can be different. Push the toggle back in its centre position.(see figure.1)



*Figure 1*

Now find the warn reset function and highlight it. Push the toggle down, this is a momentary switch so it will jump back to its centre position. If everything went well a different number should appear at the bottom of the screen. In this example its 87 but yours can be different. Note the number down on a piece of paper.(see figure 2)



*Figure 2*

Open you're notepad and copy and paste the following

```

SimWarnReset 22 -2 -2 0 0x0 0
SimDriftCOoff 22 -2 -2 0x42 0x0 0 "ICP: DRIFT C/O Switch -
NORM"
SimDriftCOon 24 -2 -2 0 0x0 0 "ICP: DRIFT C/O Switch - ON"
SimDriftCOoff 24 -2 -2 0x42 0x0 0 "ICP: DRIFT C/O Switch -
NORM"
SimArmMasterArm 23 -2 -2 0 0x0 0 "MISC: MASTER ARM Switch -
ON"
SimSafeMasterArm 23 -2 -2 0x42 0x0 0 "MISC: MASTER ARM Switch
- OFF"
SimSafeMasterArm 25 -2 -2 0x42 0x0 0 "MISC: MASTER ARM Switch
- OFF"
SimSimMasterArm 25 -2 -2 0 0x0 0 "MISC: MASTER ARM Switch -
SIM"

```

Now remember windows is zero based you have to subtract 1 from the numbers you wrote down. In this example 87 becomes 86 (duhhhh ;))

In this case

SimWarnReset **22** -2 -2 0 0x0 0 "ICP: WARN RESET"

Becomes

SimWarnReset **86** -2 -2 0 0x0 0 "ICP: WARN RESET"

And

SimDriftCOoff **22** -2 -2 0x42 0x0 0 "ICP: WARN RESET-NORM"

Becomes

SimDriftCOoff **86** -2 -2 0x42 0x0 0 "ICP: WARN RESET-NORM"

Congrats you just programmed the up and down function of the WARN RESET.

Now we program DRIFT/CO

simDriftCOon **24** -2 -2 0 0x0 0 "ICP: DRIFT C/O Switch - ON"

Becomes

simDriftCOon **88** -2 -2 0 0x0 0 "ICP: DRIFT C/O Switch - ON"

And

SimDriftCOoff **24** -2 -2 0x42 0x0 0 "ICP: DRIFT C/O Switch - NORM"

Becomes

SimDriftCOoff **88** -2 -2 0x42 0x0 0 "ICP: DRIFT C/O Switch - NORM"

The AUTO/GAIN toggle switch can be assigned to your needs since it's not modelled in BMS. Just add the appropriate call back in the front of the key line.

For example the master arm function on the AUTO/gain toggle would look like this

```
SimArmMasterArm 23 -2 -2 0 0x0 0 "MISC: MASTER ARM Switch -  
ON"  
SimSafeMasterArm 23 -2 -2 0x42 0x0 0 "MISC: MASTER ARM Switch  
- OFF"  
SimSafeMasterArm 25 -2 -2 0x42 0x0 0 "MISC: MASTER ARM Switch  
- OFF"  
SimSimMasterArm 25 -2 -2 0 0x0 0 "MISC: MASTER ARM Switch -  
SIM"
```

The 23 and 25 number have to be changed as described above.

## **ASSIGNING A FUNCTION TO THE THUMBWHEELS**

The thumbwheels are converted to joystick axis in the firmware, and will be shown as an axis in BMS setup controller advanced tab.(figure 3)

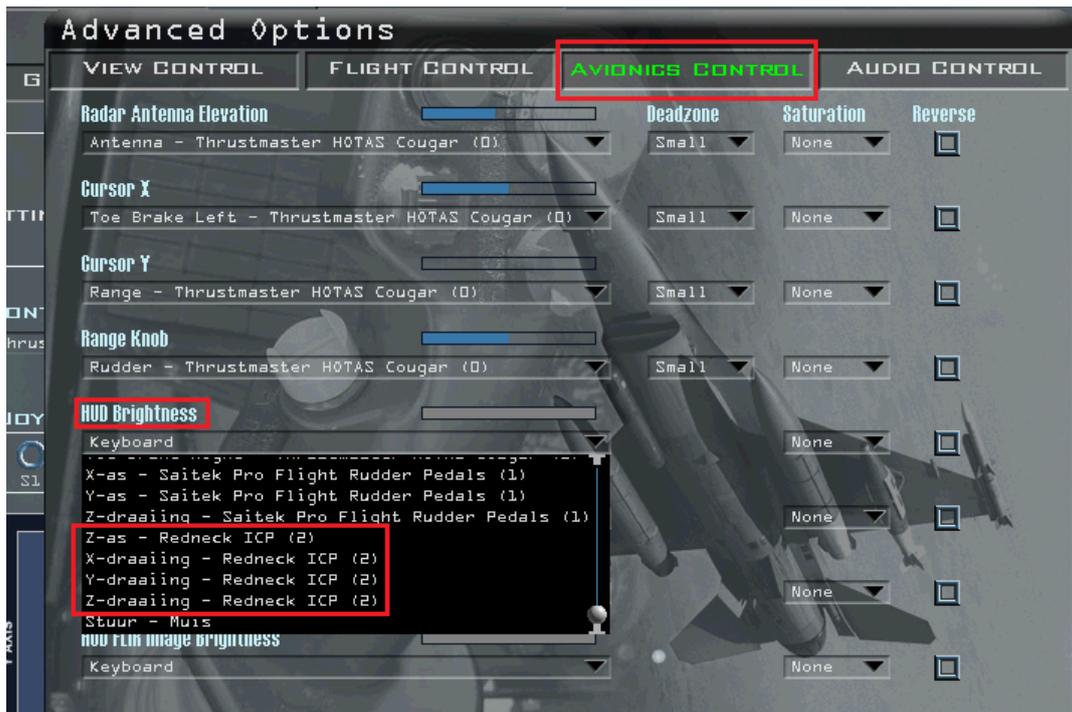


Figure 3

The Z-axis has to be assigned to the HUD brightness cause it has a build in switch to activate the HUD. All other can be assigned to your liking. It is not possible to assign key stroke to the thumbwheels.

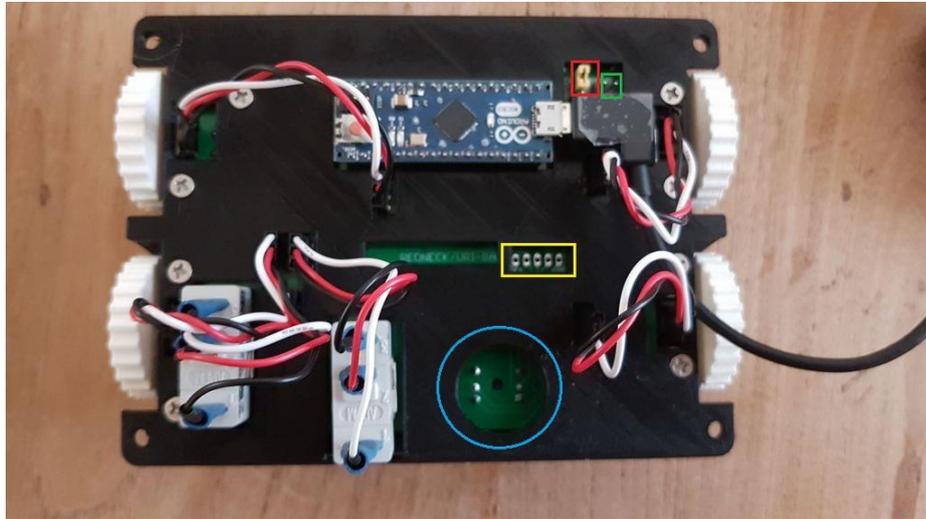
Z-axis = upper left thumbwheel

X-axis = bottom left thumbwheel

Y-axis = upper right thumbwheel

Z-twist = bottom right thumbwheel

# CONNECTIONS



*Figure 4*

Backlighting can be through USB or external 5V DC power supply. The jumper in the red box in figure 4 is by default on internal power over USB. For external power replace the jumper on the middle and bottom pin.

The pins in the green box is where you connect the external 5v DC power supply , left pin is the 5v + right pin is for GND.

By default the PCB is fitted with a small 4 way navigation switch to act as the DCS, but can be replaced by a real DCS switch. De Solder the small switch. Drill the centre hole bigger using a drill to the size

needed (~ 19 mm). The connection goes on the solder pads that are left open on the back of the PCB

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