

# A32X PANEL Version 1 for default Airbus FSX

by Stefan Liebe

CALLOUT\_SOUND.dll VERSION 3.8.2.0 by Doug Dawson

## 1 INSTALLATION

Installing & using this gauges is at your own risk.

Please follow the instructions step by step

### 1.1 **Backup**

Please make a copy of the following files. This allows you to restore the previous installation:

1. FSX\SimObjects\Airplanes\Airbus\_A321\aircraft.cfg
2. FSX\SimObjects\Airplanes\Airbus\_A321\panel\panel.cfg

### 1.2 **UNZIP**

Unzip the file A32X\_V1.zip to a temporary folder.

### 1.3 **Panel**

1. Cut and paste the folder A32X to the folder FSX\SimObjects\Airplanes\Airbus\_A321\panel\
2. Extract (unzip) the default Airbus\_A321.cab to the folder FSX\SimObjects\Airplanes\Airbus\_A321\panel\A32X  
(right mouse click the Airbus\_A321.cab file and select unfold and then the target.)  
The A32X folder contains 94 files.  
The Airbus\_A321.cab file is a kind of .zip file. For this installation it is necessary to unzip( unfold, or extract) the contents of the Airbus\_A321.cab file to the folder A32X.  
Or in other words the 909 files contained in the Airbus\_A321.cab file must be at the end in the folder A32X, but not the cab file itself. Together with the files supplied in the folder A32X you must have at the end 1003 files in the folder A32X

### 1.4 **Panel.cfg**

Go to FSX\SimObjects\Airplanes\Airbus\_A321\panel\

First of all and very important make a copy of the default panel.cfg file. This is for safety reason if you don't like the changes you can easily reuse the copy. Cut and paste the new panel.cfg to FSX\SimObjects\Airplanes\Airbus\_A321\panel\ ( you made a copy for safety reason)

### 1.5 **Aircraft.cfg**

Go to FSX\SimObjects\Airplanes\Airbus\_A321

First of all and very important make a copy of the aircraft.cfg file. This is for safety reason if you don't like the changes you can easily reuse the copy.

The reason why we have to modify the default cfg is because we need now 5 flaps positions for the SFCC Function.

Open the aircraft.cfg with an editor.

Go to the part defining the flaps and replace this part by the following lines (easiest way is to copy and paste):

```
[flaps.0]    //Trailing Edge Flaps - System
type        = 1                // 1 - tail, 2 - lead
span-outboard = 0.8            // 0.0 .. 1.0
extending-time = 14            // seconds
flaps-position.0 = 0 //F0      // degrees
flaps-position.1 = 1 //F1      // degrees
flaps-position.2 = 10 //F1+F   // degrees
flaps-position.3 = 15 //F2     // degrees
flaps-position.4 = 20 //F3     // degrees
flaps-position.5 = 35 //F4     // degrees
damaging-speed = 230          // KIAS
blowout-speed  = 300          // KIAS
lift_scalar = 0.0
drag_scalar = 0.0
pitch_scalar = 0.0
system_type = 1               //Hydraulic
```

```
[flaps.1]
type=1
span-outboard=0.8
extending-time=20
flaps-position.0=0
flaps-position.1=1
flaps-position.2=10
flaps-position.3=15
flaps-position.4=20
flaps-position.5=21
damaging-speed=250
blowout-speed=270
lift_scalar=0.84
drag_scalar=1.25
pitch_scalar=0.9
system_type=1
```

```
[flaps.2]
type=2
span-outboard=0.8
extending-time=10
flaps-position.0=0
flaps-position.1=18
flaps-position.2=18
flaps-position.3=22
flaps-position.4=22
flaps-position.5=25
damaging-speed=250
blowout-speed=270
lift_scalar=0.8
drag_scalar=0.7
pitch_scalar=0.9
system_type=1
```

The above changes are a must, because we need 5 flap positions for the correct function of the SFCC Slats and Flaps Control Computer.

[flaps.0] has no aerodynamic influence it is necessary to control the display of flap position in ECAM.

The parameter sets [flap.1] and [flap.2] are for the aerodynamics.

The next changes are my recommendation for better flight dynamics.

Please search the following lines and change accordingly:

```
[flight_tuning]
cruise_lift_scalar    = 0.83
```

```
[gear_warning_system]
flap_limit_idle=16.0
flap_limit_power=20.5
```

```
[Reference Speeds]
max_indicated_speed=350           //Red line (KIAS)
```

```
[autopilot]
gs_integrator_control=0.83
```

If you don't like my changes please try which values are better for you.

Save and close the aircraft.cfg

## **1.6 Sound**

- Cut and paste the folder CALLOUT\_1 to the folder FSX\Sound.
- Cut and paste the file CALLOUT\_Sound.dll to the folder FSX\GAUGES Gauge

(If you have already installed my older version A321V1 you can skip the last step. No changes are made to the CALLOUT\_Sound.dll.)

That is all.

If FSX was running during the installation please restart FSX.

Now you can fly

## 2 INTRODUCTION

These gauges are an add-on to the default AIRBUS Panel.

To realize the functions I had to set some variables. Somehow the SFCC and the other systems must "know" whether the aircraft is prepared for take-off or for landing.

If the speed is less than 40 knots and increases the computer is presuming a take-off situation.

If the speed is above 250 knots and decreases the computer is presuming a landing situation.

For this reason I use some variables. At the start of each session or situation all variables are set to 0. Due to that it is necessary to start each situation either standing on the ground or at a speed above 250 knots and in both cases in clean configuration (Flaps handle = 0).

## 3 Versions

I have made the panel to suit for A319, A320 and A321.

	A321-100 Mod 000		A320-200 Mod 000		A319-100 Mod 001	
	kg	lbs	kg	lbs	kg	lbs
Maximum Weight	83400	183814	73900	162876	70500	155382
Max T.O	83000	182932	73500	161994	70000	154280
Max Landing	73400	161774	64500	142158	61000	134444
Minimum weight	47500	104690	37230	82055	35400	78021

	A321	A320 / A319
	VFE	VFE
0	235	230
1	225	215
1+F	215	200
2	195	185
3	190	177

The panel reads the variable empty\_weight in the aircraft.cfg.

If empty\_weight is greater than 40.000kg it is A321

If empty\_weight is less than 36.000kg it is recognized as A319 and between as A320

According to the type the appropriate VFE speeds and MAX Take OFF and Landing Weights are set.

## 4 Function of the gauges

### 4.1 Altitude Callout Gauge

Is not visible, but you can hear it during approach. This gauge gives altitude callouts at 2500, 1000, 500, 200, 100, 50, 40, 30, 20 and 10 Ft.

At Decision Height + 100 feet and DH you will get a call. See at PFD how to adjust DH.

Callouts are active during descend. It is designed for ILS approach on a glideslope. When you descend very slow or the ground has valleys it can happen that you hear the same callout several

times.

Unfortunately I have no original sound files. So I created my own sound. If you have better sound files, rename your sound files according to the sound files in the sound folder. See also hints for better sound at the end.

## **4.2 SFCC Slats and Flaps Control Computer**

It is not visible but it works in the background to control flaps and slats.

Airbus has 4 Positions of the flap handle but 5 configurations for slats and flaps.

Handle	Slats	Flaps	ECAMS display	Remarks
0	0	0	-	
1	18	0	1	in approach configuration selected by SFCC
1	18	10	1+F	in take-off configuration selected by SFCC; Flaps is retracted automatically if speed is g.t. 210 knots
2	22	20	2	
3	22	30	3	take-off and landing
4	25	35	4	landing

The SFCC sets automatically the spoiler to “armed position” if flaps are set and speed is greater than 60 knots. The spoilers are automatically retracted when speed is below 55 knots.

## **4.3 Autoflare**

Is not visible.

With this feature the autopilot is able to touch down the aircraft. If the autopilot is switched on for landing the vertical speed is reduced if radio height is less than 105 feet.

At 20 feet the thrust is set to zero. If speed is less than 20knots autopilot is switched off.

If you have a USB throttle the lever should be on idle position during the approach. When auto-throttle is switched of, it could happen that the thrust is set according the position of the USB throttle and if the throttle is not in idle position the aircraft accelerates after landing.

For go around press only TOGA button.

Don't forget to set the auto-brake and as pilot in command you should start a go around maneuver if the autopilot fails.

It is important that the model you use is allowing a stable approach with the autopilot along the glide slope. The default A321 has no problem with this. Some models have flight dynamics who do not perfectly match to the default autopilot. In such cases an autopilot guided approach along the slope is not possible and of course the autoflare is not able to bring the aircraft safely down to ground.

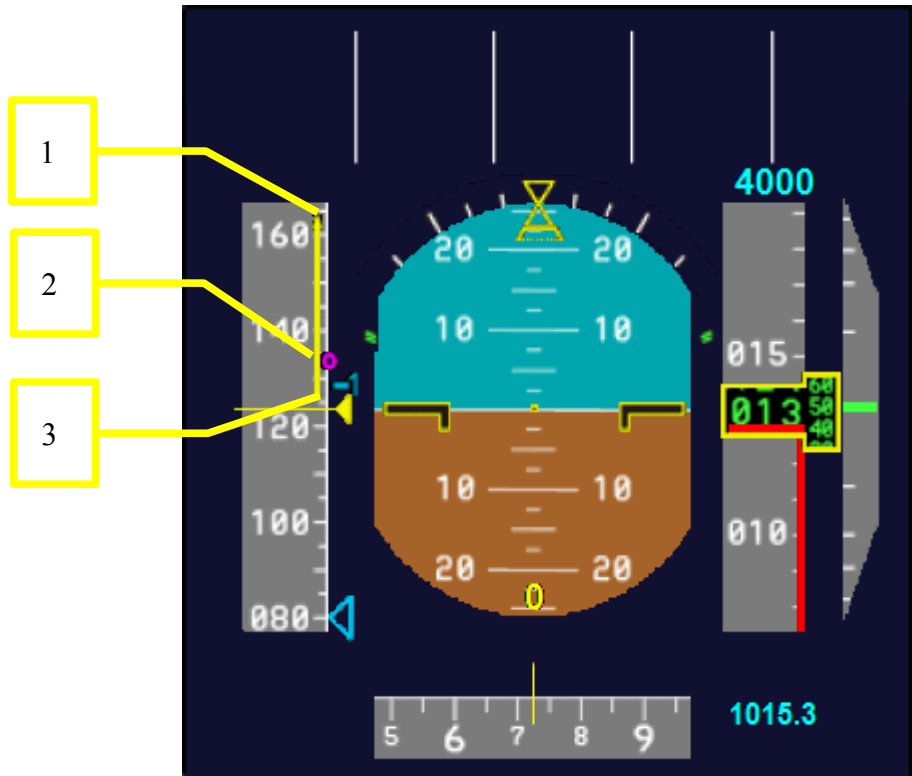
#### 4.4 PFD

The V Speeds are calculated based on formulas I have derived from Airbus A320 and A321 charts for VS1g ( Stalling Speed at 1g ) for each configuration. It is corrected by altitude.

If empty\_weight is greater than 40.000kg the chart for A321 is taken

If empty\_weight is less than 40.000kg the the chart for A320 is taken

##### PFD before lift-off



##### 1 Speed Trend

Pointer starts at the speed symbol. The length of the arrow indicates the speed which is achieved in 10 seconds when acceleration or deceleration remains constant. Appears and disappears when greater or less 2 knots.

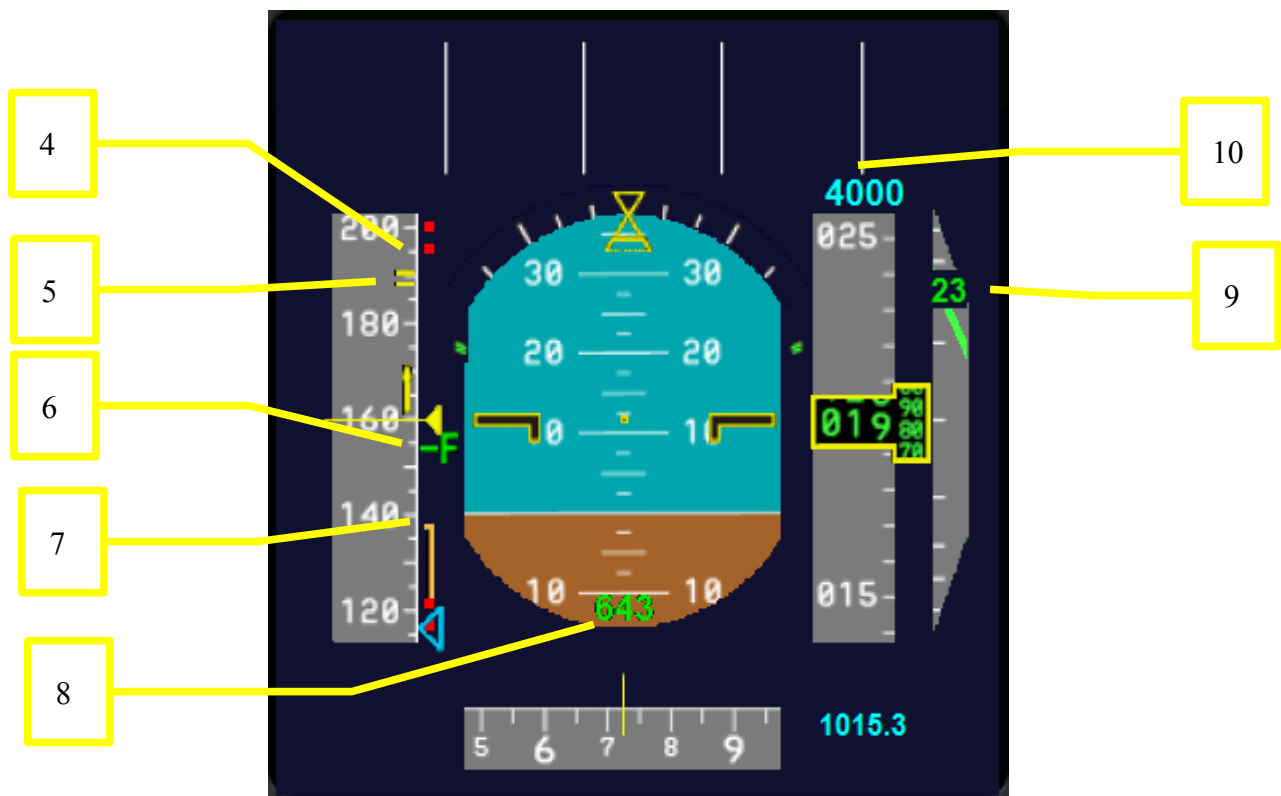
##### 2 VR

VR is normally set in the MCDU. I have set it to VR=VLS -1 knots

##### 3 V1

V1 is normally set in the MCDU. I have set it to V1=VR -5 knots

## PFD after lift off



4 Vmax

depending on configuration and type

5 VFE next

Showing VFE corresponding to the next lower configuration.

6 VF or VS

Minimum Flap =F or Slat =S retraction speed

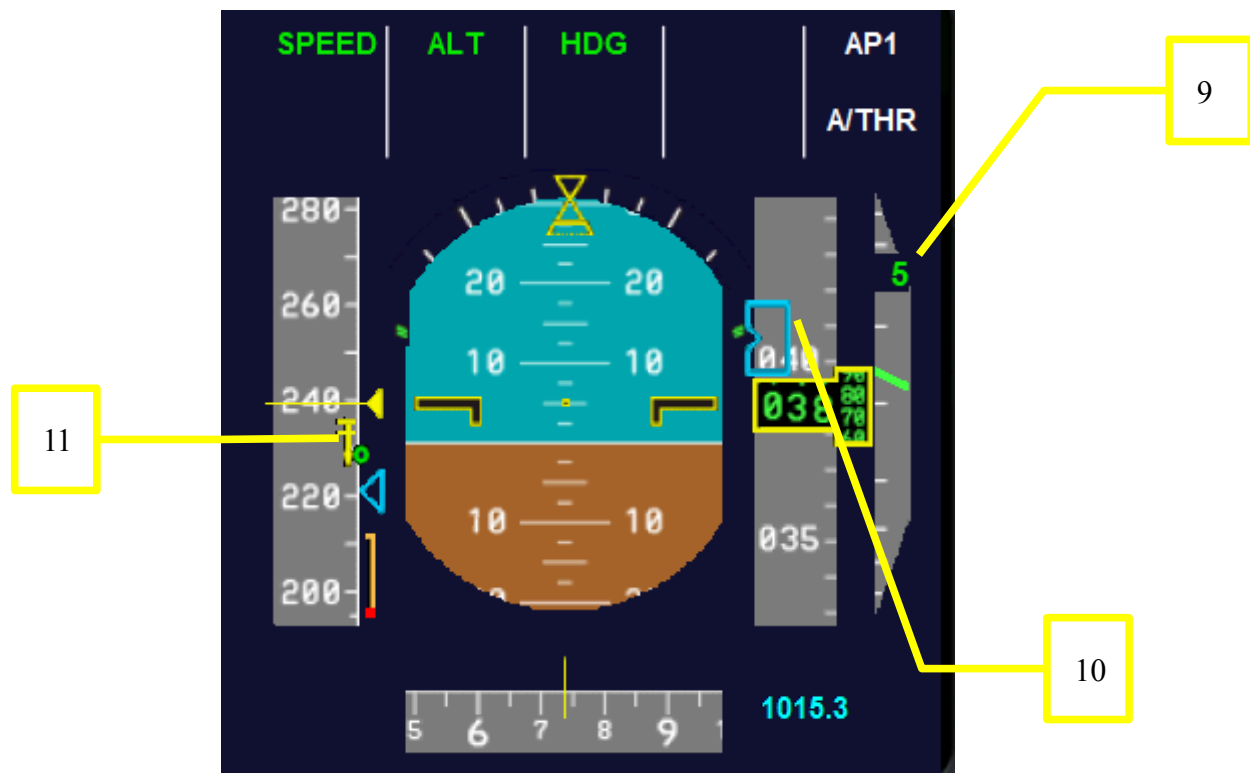
7 VLS

Minimum selectable speed. Appears after lift off. For the first flap config after lift-off  
 $VS1g$  (stalling speed) \*1,13 for other flaps and slat config  $VS1g$ \*1,23 and for clean configuration  
 $VS1g$ \*1,28

8 Radio Height

Below decision Height (DH) +100 feet yellow above DH green

## PFD Clean Configuration



### 9 VSI Vertical Speed Indicator

Analog Pointer and digital indication. Digital indication appears if vertical speed is greater than 200 feet/minute and shows hundreds of feet per minute.

Pointer and digital indication are green and become yellow if:

V/S is greater than 6000 feet/minute (climb and descent)

V/S is greater than 2000 feet/min. during descent when  $1000 \text{ feet} < RA < 2500 \text{ feet}$

**V/S is greater than 1200 feet/min. During descent and  $RA < 1000 \text{ feet}$**

### 10 Target Altitude or Selected Flight Level

Shown either as blue symbol or when out of scale shown underneath or above the scale as figures.

When STD baro reference is selected as flight level in other cases in altitude.

(see also PFD after lift-off)

### 11 Green Dot Speed (Engine out operating speed in clean configuration )

Appears in Clean Configuration. Shows the speed corresponding to the best lift-to-drag ratio.



The image shows a Primary Flight Display (PFD) with the following elements and callouts:

- 12**: Points to the left altitude scale (feet).
- 13**: Points to the left speed scale (knots).
- 14**: Points to the top right status area, which includes:
  - CAT 3 SINGLE DH 200**: Category 3 Single Precision Approach with Decision Height of 200 feet.
  - AP1 1FD2 A/THR**: Autopilot 1, Flight Director 2, and Auto Thrust.
- 15**: Points to the right altitude scale (feet).
- 16**: Points to the bottom speed scale (knots).

Other visible data on the PFD includes:

- Central Instrument Cluster**: A semi-circular airspeed indicator with a blue upper half and a brown lower half. The needle is positioned at approximately 160 knots. The scale ranges from 120 to 200 knots.
- Right Side**: A vertical speed scale (feet per minute) ranging from 0 to 2500. The needle is positioned at approximately 1500 fpm. Below the scale, the text **1013.7** is displayed.
- Bottom**: A horizontal scale for heading or track, ranging from 23 to 27 degrees. The needle is positioned at approximately 25 degrees.
- Bottom Left**: The text **ISTW 109.9 -- NM** is displayed.

Normally set in FMC. In this gauge  
VAPP=VS1g \*1,23 + 1/3 headwind (max15 knots) +5knots(if autothrust is on)  
For landing with auto flare function set autopilot speed ( bigger blue triangle) to VAPP

appears when ILS button is pushed. Shows:

## 14 Decision Height

15 Ground Reference / LDG Elevation

16 ILS Course Indicator

## **4.5      *MFD Select Panel***

### **4.5.1      Baro Knob**

At altitudes less than 18.000 feet you can toggle between QNH and Standar Pressure if you push the center of the bar knob

### **4.5.2      WPT, VORD, NDB,ARPT**

You can now display all at the same time, if you push the button for the function.

CSTR Button has no function.

## **4.6      *MFD***

### **4.6.1      Wind Indicator**

The wind indicator is now showing the correct angle.

### **4.6.2      Track Indicator**

The expanded mode, that is the mode where you can only see what is in 160 degrees in front of the aircraft, has now also a green track indicator.

## **4.7      *ECU /Throttle***

Please read about the SFCC to understand why the flaps handle has 4 position and 5 slats and flaps configurations are possible.

## **4.8      *Gear Panel / Autobrake***

The brake is activated by left mouse click on the button.

On the ground you can only select the MAX button and in this case the RTO (Refused Take-Off) brake program is selected.

In the air you can select LO / MED/ MAX

## 4.9 ECAMS

The ECAMS shows the 5 configurations for flaps and slats.



1

### Mouse-click Area toggle between kg and lbs

A right mouse click in the upper right corner of the ECAMS ( above the slats and flaps) toggles between kg and lbs.

The standard configuration is kg.

2

### Information Area

In the lower part you will see various messages about the configuration of the aircraft.

For example if set

on the left side:

Landing lights;  
seat belts;No smoking;  
Landing gear down an locked;  
Pitot Heat;  
Deice eng1 ; deice eng2;  
Deice wing

right side:

Auto-brake status ( see Auto-brake);  
Spoilers Armed;  
Parking Brake  
Hydraulics  
Generator  
warning if take-off or landing weight is exceeded.

## 4.10 ECAMS2



### 1 Checklist

On the upper side of the bezel is a button for the checklist. If you push the button you can see a checklist. The screen is a touch screen and the blue fields are mouse click sensitive. All parameters which I could get from the aircraft are displayed automatically. Those items in the checklist who have no variable in FSX must be selected by mouse click.

This is my personal checklist when I fly at VATSIM or IVAO. So it is not 100% realistic but for my own use it is quite ok.

The manually set values in the checklist are all reset for the next flight when you check on the side "TAXI TO THE GATE" "XPDR STBY". To switch the transponder to standby must be done after each flight and that is why I use this to reset all variables for the next flight.

If you don't like the checklist function you can easily remove it.

Open the panel.cfg search for B\_ECAMS2 in [windows 07] and [Vcockpit01] and replace by A\_ECAMS2.

Or remove the panel.cfg and rename the panel\_without\_checklist.cfg to panel.cfg

### 2 General Information

The functions screens for ENG, BLEED, PRESS, APU, HYD, FUEL and FCTL show in the last two lines of the screen information about temperature TAT and SAT, Time Zulu and Local and total weight.

## 5 Hints for better sound

The default sound of the A321 is terrible. I found a sound which I like very much. you can find it at FlightSim.com under the file name

### **a32cfm56.zip**

It is a sound for FS2004 but it works with FSX.

After installation open the sound.cfg and add the following lines at the end.

```
[NO_SMOKING_ALERT]
```

```
filename=CabinAlert
```

```
[SEATBELTS_ALERT]
```

```
filename=CabinAlert
```

Now you can hear the cabin alert when switching on seatbelts or no smoking sign.

## 6 Hints for better Callout sound

My sounds are not original Airbus sounds and you can replace them by original Airbus sounds.

In flightsim.com you can find under the file name fda3clot.zip a really good set of Airbus sounds.

Download and unzip the folder to a temporary file. You will find 12 wav. files.

The name of the files is for example FPDA\_A330\_10FT.wav rename this file to CA\_10FT.wav and all the 11 other files accordingly.

In other words, replace “FDPA\_A330” through “CA” in all the 12 file names.

Copy and paste the files to the folder FSX\Sound\CALLOUT\_1 overwriting the existing files.

## 7 Copyrights and Disclaimer

These gauges are freeware, NOT Public Domain and it is available for your personal use.

Without my explicit permission, it may NOT be sold, re-distributed and/or uploaded to another website or bulletin board (in ANY shape or form).

If you want to bundle (part of) this gauges with your (freeware !!) panel, you may ONLY do so AFTER my explicit permission and inclusion of this README file AS-IS.

If you want to use the CALLOUT\_SOUND.dll VERSION 3.8.2.0 you need the permission of Doug Dawson

And obviously, installing & using this gauges is at your own risk

## 8 Credits

Thanks to Doug Dawson, for the permission to use his perfect XML sound gauge (included in this package).

## 9 UPDATES

I hope the panel is free of bugs. In case that bugs are reported I will release asap an update on FlighSim.com. Please look for updates.

## 10 Trouble Shooting

Nearly all (99%) mails I received reporting problems where solved checking the installation.

All I did was asking the guys if they followed exactly the installation instructions.

So please read the above carefully and check if you followed exactly the installation instructions before you contact me reporting any bugs.

## 11 WIN7 users

I recently updated my system to Win7 64bit and I am experiencing always crash to desktop when in full screen mode. I could solve it with the hints given in the following link.

<http://forums1.avsim.net/topic/280688-graphics-corruption-in-fsx-update-possible-solution-found/>

If you go to this page you can find in the last line of **Issue #1: a link to download the** uiautomationcore.dll

Download this uiautomationcore.dll and copy it in your main FSX folder.

This solved all my crash to desktop problems.

## 12 Finally

I hope you enjoy the gauges. If you have questions or suggestions for improvement please let me know.

Have fun and happy landings

Stefan Liebe

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