

# Lekseecon

## Manual

**Version 8.3**

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# 1 Welcome to lekseecon!

Lekseecon connects the Level-D 767-300ER add on in Microsoft Flight Simulator (FS2004 and FSX) with either the SIOC software of Opencockpits or the offsets in the FSUIPC tool of Peter Dowson. It translates the C-language interface of the Level-D SDK into SIOC variables or FSUIPC offsets, interfaces that are quite common in home cockpit building.

Lekseecon provides 809 Variables representing the complete functionality of the Level-D 767 SDK. These variables give access to almost all states and controls of the 767. You can receive information about state changes in the Level-D 767 and you can set buttons/switches/dials in the 767, and all that digitally! Lekseecon provides Variables for NAV's, MCP, FMC, Gear Lever, and so on, almost everything you need to build a complete cockpit.

Lekseecon keeps panel values in MS Flight Simulator synchronized with your cockpit hardware, relieving you from the tedious job of manually setting the Switches in the panel according to your hardware Switches after each Flight loaded. This synchronization is guaranteed, not only at start-up but always!

Lekseecon has built in support for cold and dark cockpit state control and Lights tests see section 1.8, relieving you from the burden having to program that yourself.

Lekseecon is a 32 bit native Windows application running at Windows XP, Vista and Windows 7 (32 bit or 64 bit). Lekseecon works as well with FS2004 as FSX. Since version 8.2 there are two executable versions of lekseecon: '**lekseecon.exe**' for use with SIOC variables and '**lekseecon\_f.exe**' for use with FSUIPC offsets.

The CPU load of lekseecon can be neglected, it's less than 0.1% at the powerful CPU's we have these days. No visible negative effect on your frames per second.

## **Organisation of this manual:**

The other sections in Chapter 1 details installation of the software and the design aspects of the lekseecon Variables.

Chapters 2 to 6 specify the lekseecon Variables. These Chapters are dealt with from Overhead down to Pedestal.

Chapter 7 describes the use of **lekseecon** with **SIOC**.

Chapter 8 describes the use of **lekseecon\_f** with **FSUIPC**.

Chapter 9 gives an overview of the latest changes (Version History).

## **Reading Advice:**

First study Chapter 1 carefully and then Chapter 7 or 8 depending on your use. The chapters 2 to 6 are more of a reference nature and you will only need the sections for which you want to build cockpit hardware.

## **Support:**

For Questions & Answers and Discussions visit the lekseecon Forum at <http://www.mycockpit.org/forums/forumdisplay.php/306-lekseecon>

## 1.1 Installation

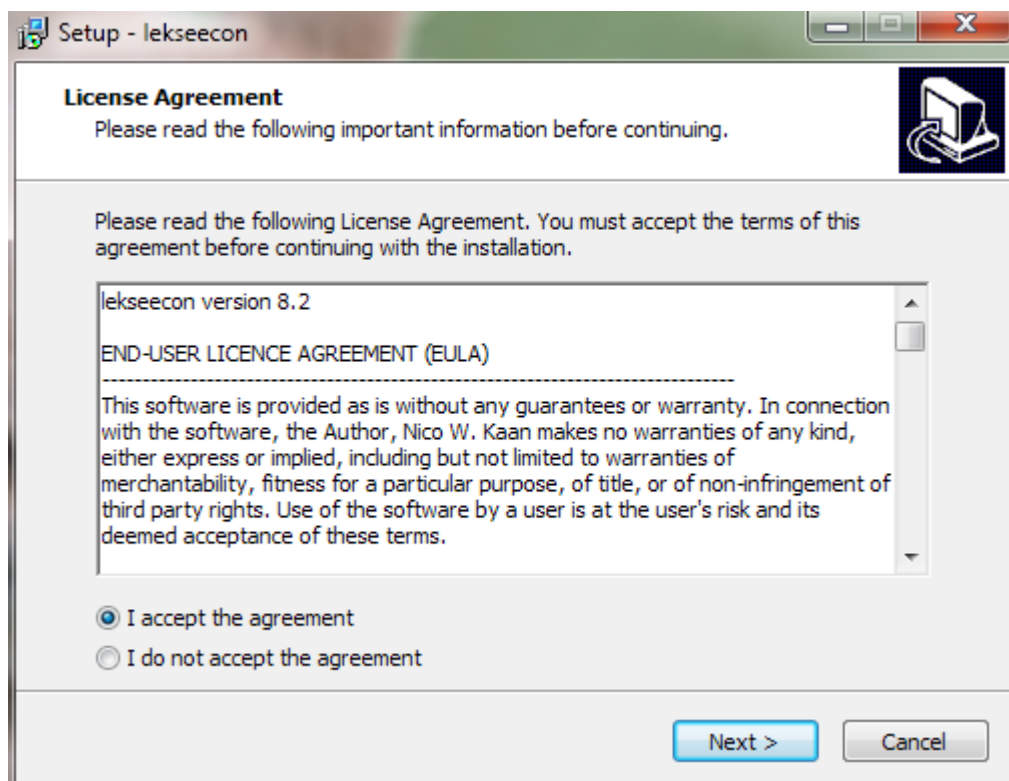
Lekseecon is a 32 bit native Windows application running at Windows XP, Vista and Windows 7 (32 bit or 64 bit); lekseecon works as well with FS2004 as FSX.

Download **'setup\_lekseecon\_vx.y.zip'** from MyCockpit to a temporary location at your Flight Sim PC and extract. In there are two files, the installer program and a setup\_readme.txt; study the latter first.

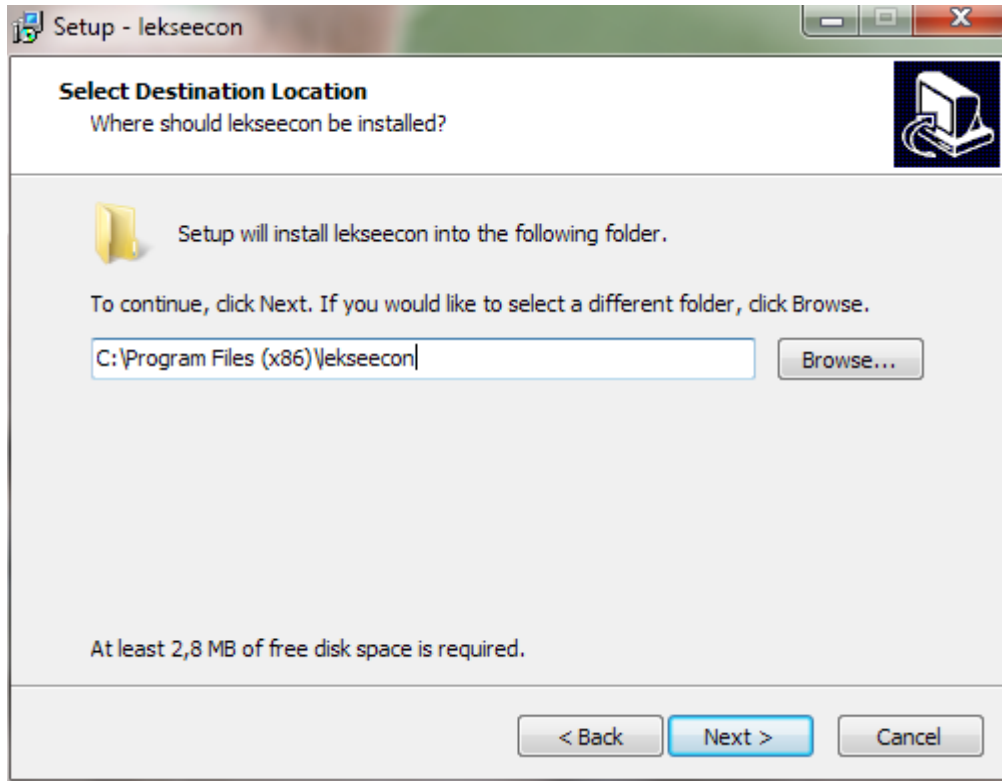
Run installer program **'setup\_lekseecon\_vx.y.exe'** at the PC running MS Flight Simulator.



Choose an installation Language (default English). Note this is just for the Setup program text, while lekseecon is in English only.

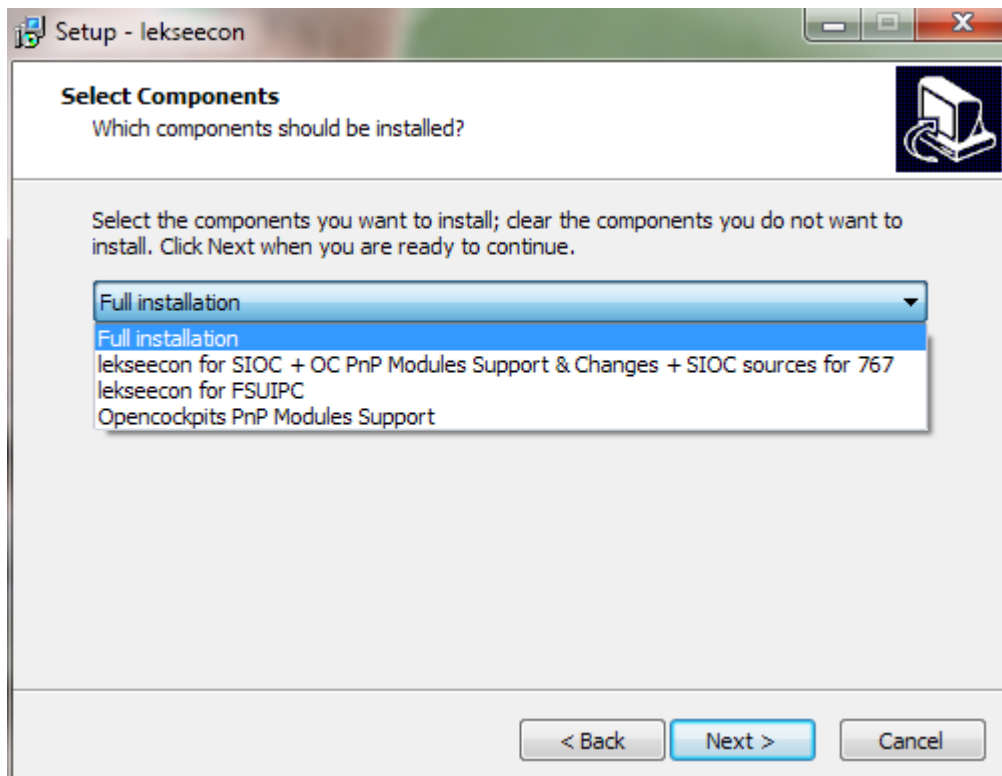


Accept the end-user licence agreement (EULA) and click Next>



Installation in default folder C:\Program Files (x86)\lekseecon is recommended. You may also choose C:\lekseecon or D:\lekseecon, as long as the folder is named lekseecon.

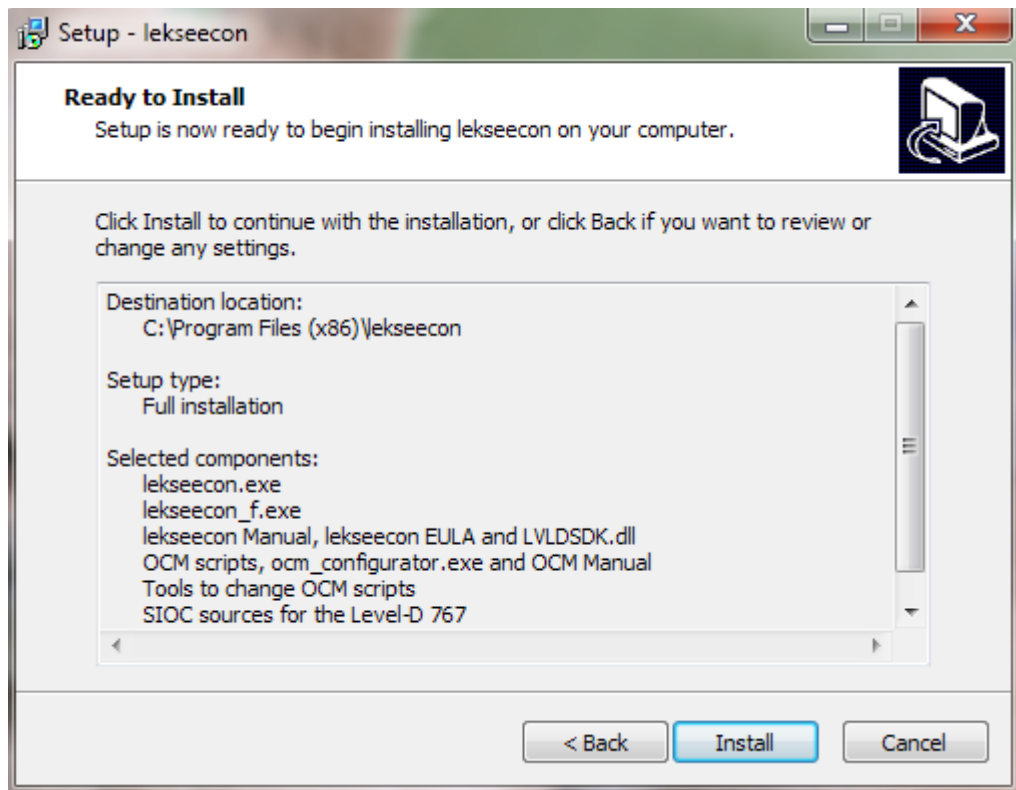
Click Next>



Select the components that you want to install:

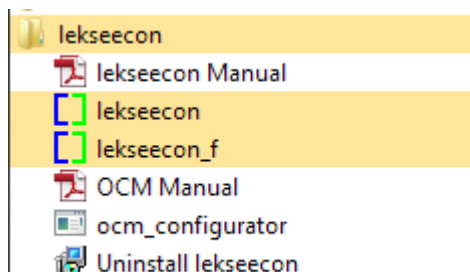
- a) Full installation (default), or
- b) lekseecon for SIOC use, with OC PnP modules support and SIOC Sources for 767, or
- c) lekseecon for FSUIPC use (*recommended if you have no Opencockpits SIOC*), or
- d) lekseecon for Opencockpits PnP Modules Support (*recommended for OC Module-only users*).

And click Next>



Click Install.

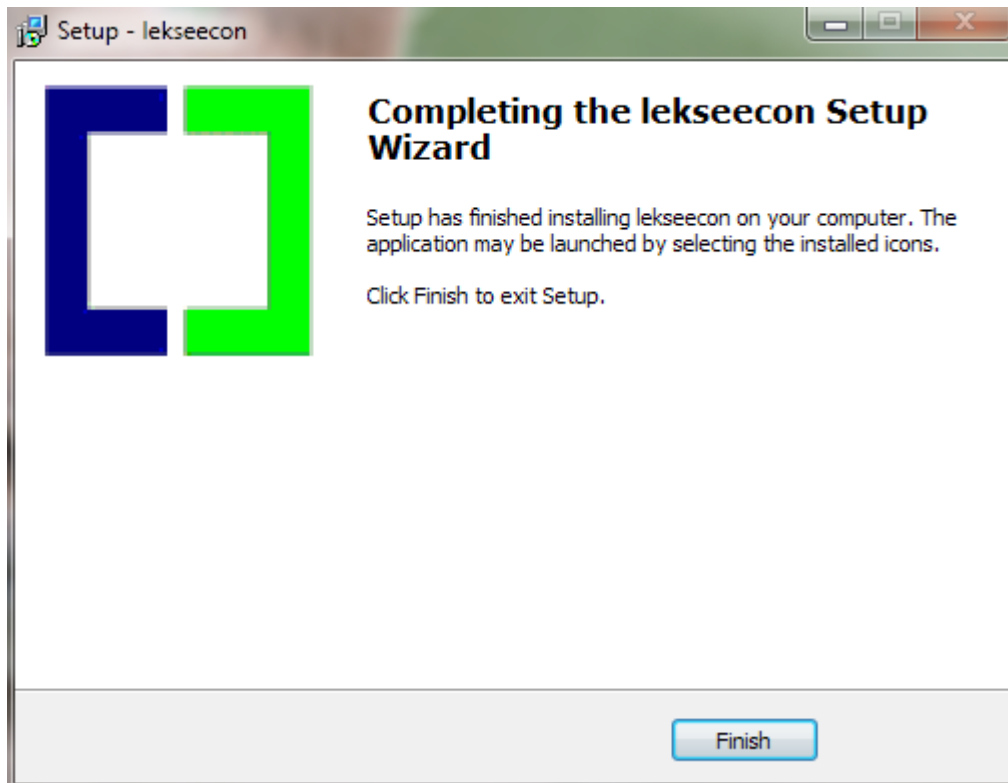
After installation you will find a lekseecon folder with the selected components and a lekseecon start entry in All Programs:



An important file that is always installed is 'LVLDSK.dll'. You do not have to do anything with it, just leave it there, lekseecon will link this dynamic link library at start-up.

In Select Components options a) and b) you will find subfolders with my SIOC sources for a Level-D 767 cockpit: mcp767 and cockpit767.

In Select Components options a) and d) you will find subfolder ocm with my SIOC scripts for Opencockpits PnP modules and the 'ocm\_configurator.exe' program (see <http://www.lekseecon.nl/modules.html>)



Click Finish to exit Setup, congratulations and have fun with lekseecon!

## 1.2 Upgrade to a new version

Just install the new version by running the installer program. The installer will always uninstall an existing version first and then suggest the Setup language of your choice and the installation folder of your choice of your previous installation.

If uninstallation might fail you will get a pop up message and the option to exit and manually uninstall your old version first by double clicking the file 'unins000.exe' in the lekseecon folder.

If successful, run the installer again. If not successful for instance because the file unins000.exe has disappeared you can run the installer again and choose to continue with installation of the new version.

In case of troubles you can check the Windows registry about lekseecon, run regedit and Find 'lekseecon\_is1'

*Note: Never move your lekseecon folder to another location manually. If you want that, always uninstall manually first, then re-install in the new location.*

The new version will continue to run with your settings in lekseecon(\_f).ini (if in use).

## 1.3 Uninstall

Removing lekseecon for your PC can be done in several ways, just like any other windows program.

On top of that you can also run the 'unins000.exe' in the lekseecon folder. Note that only files installed by the installer program will be removed.

## 1.4 Lekseecon Variables

Lekseecon variables represent the complete functionality of the Level-D 767 SDK. They can either be mapped upon SIOC variables or upon FSUIPC offsets.

Lekseecon Variables are numbered from 1 to 999. A clear distinction is made in Information Variables ('states') and Control Variables ('commands'):

- **Information Variables** (numbered  $\geq 700$ ) are read-only; they do not modify the 767;
- **Control Variables** (numbered  $< 700$ ) are write-able; they control/command the 767;
- There are a few variables that are as well information- as control variable; they are **Read/Write-able** (R/W), this behaviour is indicated by **Vrw** in the Type column.

## 1.5 Information Variables

Information Variables may contain integer values or may be organized as a collection of bits shown as a number of lines per Variable definition. They are always defined in a two column wide yellow shaded table, first the variable number and then the description.

An example of an integer value is Var 878; it provides a 0 or a 1 depending on the state of the Left EEC Switch:

878	Left EEC Switch: 0=Off, 1=On
-----	------------------------------

As an example of a collection of 5 bits in one integer is Var 705:

705 S1 T1	0	Main Battery discharge Light
	1	APU Battery discharge Light
	2	Battery Switch ON
	3	Battery OFF Light (built in BAT Switch)
	4	Standby Power OFF Light

Each line begins with the bit number (0 to n), whereby bit 0 is the least significant bit of the integer. If the value of bit is 1, the description of the semantics given in the Table is true, if the value of the bit is 0, it is not true.

The Letter-Digit codes S1 (Cold and Dark) and T1 (Lights test Overhead) are described in section 1.8

## 1.6 Control Variables

Control Variables can have ten different types of behaviour:

Type	Stands for	Behaviour
V	Value	The Variable holds an integer value that is used to set a value in the simulator
Vrw	Read/Write Value	The Variable holds an integer value that is as well used to set a value in the simulator as to retrieve a value from the simulator
T	Toggle	The Variable is 0 or 1, each change to or from 0 will trigger lekseecon to issue the corresponding command.
O	On/Off	The Variable 'represents' the positions of an On/Off type Switch: 0=Off, 1=On. These values are used to set a 0/1 variable in the simulator.
OI	On/Off Inverted	Same as On/Off but inverted: 0=On, 1=Off.
R	Rotary Switch Terminal	The Variable 'represents' a terminal of a rotary Switch. Put a 1 in this variable if the terminal is selected, and a

		0 if not selected. <i>Note: a Rotary Switch can have 2 or more terminals</i>
VL	Value Leading	Same as Value but <b>Leading *</b> )
OL	On/Off Leading	Same as On/Off but <b>Leading *</b> )
OIL	On/Off Inverted Leading	Same as On/Off Inverted but <b>Leading *</b> )
RL	Rotary Terminal Leading	Same as Rotary Terminal but <b>Leading *</b> )

\*) **Leading**: meaning your hardware value is dominant over the value in the panel. Lekseecon will keep the 767 panel synchronized with your hardware, not only at start-up but always! If you change a control in the panel with the mouse, lekseecon will roll-back that action.

Control Variables are always defined in a three column wide green shaded table, first the Var number, then the Type of behaviour and then the description.

An example of a **Value** is Variable 192, you can set the FWD Comp temp switch at any position between 0 and 100):

192	V	FWD Comp Temp Switch set (Value : 0-100 & Off Position=105)
-----	---	---

An example of a **Toggle** is Var 43, each time Var 43 changes value; lekseecon will toggle the Left EEC switch:

43	T	Toggle Left EEC Switch
----	---	------------------------

An example of **On/Off** is Var 41, value 0 means set Left EEC Switch to Off, 1 to ON:

41	OL	Left EEC Switch
----	----	-----------------

An example of the three **Rotary Terminals** of a three position Rotary Switch for Standby Power, are variables 71, 72 and 73. Rotary Switches are specified in one table with as many rows as there are terminals.

71	RL	Standby Power OFF
72	RL	Standby Power AUTO
73	RL	Standby Power BAT

Note that only one of the three variables can have a value 1, the others are 0 due to the mechanical construction of a rotary switch.

Lekseecon provides a choice between two implementations for a Switch, a Toggle version (T) and an On/Off (O) version. For momentary push buttons the T type is the right solution while for On/Off Switches with two positions (whether with a lever or with a push button does not matter) the O type will be the best fit.

### 1.7 Read/Write-able Variables

Read/Write Variables have been introduced to support rotary encoders, such as for SPD, CRS, HDG, ALT, Frequency, and so on. Lekseecon takes care of full synchronization between your hardware display and the Level-D 767 panel value (both ways), so you may either change a value with your hardware rotary encoder or by clicking with the mouse in the panel.

An example is Var 297, the MCP Heading:

297	Vrw	MCP Heading in degrees, range 0 to 359
-----	-----	--

Read-Write Variables are shaded brown.

## 1.8 Support for Cockpit States and Lights tests

Lekseecon has built in support for Information Variables that represent Lights or Display values. These Variables have a Letter-Digit code below the Variable number in the Var column.

### 1.8.1 Cockpit States

The values in the Level-D 767 SDK always represent the panel values, irrespective whether the cockpit is cold and dark or not. This can be annoying because if a cockpit is cold and dark you would like to see all your hardware also cold and dark. It's much more real to step into a cold and dark cockpit, to put the Battery Switch on, and to see systems come to live.

There are three possible states that make Variables that represent Lights or Display values go 'blank' if that state is true:

- **S1: Cold and Dark**
- **S2: Left Bus is Off**
- **S3: Battery Hot Bus is Off**

For instance, if the Panel is cold and Dark, Lights bits will be zeroed and Display Variables will be blanked. Even so, if the Left Bus is not charged, Lights and Display Variables that depend on the Left Bus will be blanked.

If you want to, or have to because not all info variables have built in support, implement Cold and Dark functionality in your program yourself, you can make use of the state bits of Var 782 (see section 6.1). These bits and Var 861 in section 2.8 are the same that trigger the built in support. The Refresh variables of section 6.4 can be used to act upon a state change.

### 1.8.2 Lights Tests

When your cockpit becomes bigger and bigger it becomes more prone to faults, just like the real thing. A Lights Test function is then very handy. There are three Lights Test functions available:

- **T1: Lights Test Overhead section**
- **T2: Lights Test MIP section**
- **T3: Lights Test Pedestal section**

If a Lights test is activated, Lights bits for that section will be all '1' and display Variables will have all segments on ('8'). Activating is done via a Control Var defined in section 6.2. The Refresh variables of section 6.4 can be used to act upon a lights test change.

## 2 Overhead Panel

### 2.1 IRS

700 S3 T1	0	Left IRU ALIGN
	1	Left IRU ON DC
	2	Left IRU DC FAILS
	3	Left IRU FAULT
	4	Centre IRU ALIGN
	5	Centre IRU ON DC
	6	Centre IRU DC FAILS
	7	Centre IRU FAULT
	8	Right IRU ALIGN
	9	Right IRU ON DC
	10	Right IRU DC FAILS
11	Right IRU FAULT	

730	IRS Left IRU Switch position: 0=Off, 1=ALIGN, 2=NAV, 3=ATT
731	IRS Centre IRU Switch position: 0=Off, 1=ALIGN, 2=NAV, 3=ATT
732	IRS Right IRU Switch position: 0=Off, 1=ALIGN, 2=NAV, 3=ATT
777	IRS Status: 0=Offline, 1=ATT, 2=NAV1, 3=NAV2, 4=NAV3

582	T	Key 0
583	T	Key 1
584	T	Key 2
585	T	Key 3
586	T	Key 4
587	T	Key 5

588	T	Key 6
589	T	Key 7
590	T	Key 8
591	T	Key 9
592	T	Key ENTER
593	T	Key CLR

13	R	Disp Sel Switch TK/GS
14	R	Disp Sel Switch PPOS
15	R	Disp Sel Switch WIND
16	R	Disp Sel Switch HDG

18	R	System Display Switch Left
19	R	System Display Switch Centre
20	R	System Display Switch Right

22	RL	Left IRU OFF
23	RL	Left IRU ALIGN
24	RL	Left IRU NAV
25	RL	Left IRU ATT

32	RL	Right IRU OFF
33	RL	Right IRU ALIGN
34	RL	Right IRU NAV
35	RL	Right IRU ATT

27	RL	Centre IRU OFF
28	RL	Centre IRU ALIGN
29	RL	Centre IRU NAV
30	RL	Centre IRU ATT

### 2.2 Yaw Damper

701 S1 T1	0	Left Yaw Damper ON
	1	Left Yaw Damper INOP

	2	Right Yaw Damper ON
	3	Right Yaw Damper INOP

876	Left yaw damper: 0=Off, 1=On	
877	Right yaw damper: 0=Off, 1=On	

37	OL	Left Yaw Damper	38	OL	Right Yaw Damper
39	T	Toggle Left Yaw Damper	40	T	Toggle Right Yaw Damper

### 2.3 EEC

702	0	Left EEC ON
S1	1	Right EEC ON
T1		

878	Left EEC Switch: 0=Off, 1=On	
879	Right EEC Switch: 0=Off, 1=On	

41	OL	Left EEC Switch	42	OL	Right EEC Switch
43	T	Toggle Left EEC Switch	44	T	Toggle Right EEC Switch

### 2.4 Hydraulics

703	0	Left Sys press
S1	1	Centre Sys press
T1	2	Right Sys press
	3	Left QTY
	4	Centre QTY
	5	Right QTY
	6	Left press
	7	Centre1 press
	8	Centre2 press
	9	Right press
	10	Left demand Pump press
	11	Centre demand Pump press
	12	Right demand Pump press
	13	Left hydraulic Pump commanded ON
	14	Centre hydraulic Pump 1 commanded ON
	15	Centre hydraulic Pump 2 commanded ON
	16	Right hydraulic Pump commanded ON

872	Left hydraulic Pump Switch: 0=Off, 1=On	
873	Centre1 hydraulic Pump Switch: 0=Off, 1=On	
874	Centre2 hydraulic Pump Switch: 0=Off, 1=On	
875	Right hydraulic Pump Switch: 0=Off, 1=On	
753	Left hydraulic aux Pump Switch: 0=Off, 1=AUTO, 2=ON	
754	Centre hydraulic aux Pump Switch: 0=Off, 1=AUTO, 2=ON	
755	Right hydraulic aux Pump Switch: 0=Off, 1=AUTO, 2=ON	
756	Left hydraulic pressure: (PSI)	
757	Centre hydraulic pressure: (PSI)	

758	Right hydraulic pressure: (PSI)	
977	Manual stab trim lever position: -16383 .. +16383	

45	OL	Left hyd Pump Switch	49	T	Toggle Left hyd Pump Switch
46	OL	ctr1 hyd Pump Switch	50	T	Toggle ctr1 hyd Pump Switch
47	OL	ctr2 hyd Pump Switch	51	T	Toggle ctr2 hyd Pump Switch
48	OL	Right hyd Pump Switch	52	T	Toggle Right hyd Pump Switch

53	RL	Left Dem Pump OFF	61	RL	Right Dem Pump OFF
54	RL	Left Dem Pump AUTO	62	RL	Right Dem Pump AUTO
55	RL	Left Dem Pump ON	63	RL	Right Dem Pump ON

57	RL	Centre Dem Pump OFF
58	RL	Centre Dem Pump AUTO
59	RL	Centre Dem Pump ON

## 2.5 Warning & Caution Annunciators

704 S1 T1	0	ENTRY DOORS
	1	EMER DOORS
	2	CARGO DOORS
	3	ACCESS DOORS
	4	CAPT PITOT
	5	F/O PITOT
	6	L AUX PITOT
	7	R AUX PITOT
	8	L AOA
	9	R AOA
	10	TAT
	11	SPOILERS
	12	AIL LOCK
	13	STAB TRIM
	14	UNSCHED STAB TRIM
	15	AUTO SPEEDBRK
	16	RUDDER RATIO
17	ANTI SKID	

## 2.6 HF Radio

65	Vrw	Left HF receiver frequency, value freq (x1000)
66	R	Left HF Radio OFF
67	R	Left HF Radio USB
68	R	Left HF Radio AM

## 2.7 Battery & Standby Power

705 S1 T1	0	Main Battery discharge Light
	1	APU Battery discharge Light
	2	Battery Switch ON

	3	Battery OFF Light (built in BAT Switch)
	4	Standby Power OFF Light

819	Battery Switch: 0=Off, 1=On	
820	Standby Power Switch: 0=Off,1=AUTO, 2=BAT	

69	OL	Battery Switch
70	T	Battery Switch Toggle

71	RL	Standby Power OFF
72	RL	Standby Power AUTO
73	RL	Standby Power BAT

## 2.8 Electrics

706 S1 T1	0	Ext power built-in Lights Available
	1	Ext power built-in Light On
	2	APU Gen Switch pushed
	3	OFF Light built in APU GEN Switch
	4	Left Tie Switch AUTO
	5	Left Tie Switch built-in ISLN Light
	6	Right Tie Switch AUTO
	7	Right Tie Switch built-in ISLN Light
	8	Left Bus OFF Light
	9	Left UTIL Switch Pushed
	10	Left UTIL Switch built-in OFF Light
	11	Right UTIL Switch Pushed
	12	Right UTIL Switch built-in OFF Light
	13	Right Bus OFF Light
	14	Left Gen Switch pushed
	15	OFF Light built in LEFT GEN Switch
	16	Left Drive connected
	17	DRIVE Light built in Left drive Switch
	18	Right Drive Connected
	19	DRIVE Light built in Right drive Switch
	20	Right Gen Switch pushed
21	OFF Light built in RIGHT GEN Switch	

858	bus standby ac: 0=Bus OFF, 1=Not used, 2=Bus in charge	
859	bus standby dc: 0=Bus OFF, 1=Not used, 2=Bus in charge	
860	bus battery: 0=Bus OFF, 1=Not used, 2=Bus in charge	
861	bus battery hot: 0=Bus OFF, 1=Not used, 2=Bus in charge	
862	bus Left: 0=Bus OFF, 1=Not used, 2=Bus in charge	
863	bus Right: 0=Bus OFF, 1=Not used, 2=Bus in charge	
776	APU gen Switch: 0=Off, 1=PUSHED	
880	Left tie Switch: 0=Isolation, 1=Auto	
881	Right tie Switch: 0=Isolation, 1=Auto	
882	Left UTIL Switch: 0=Off, 1=PUSHED	
883	Right UTIL Switch: 0=Off, 1=PUSHED	
884	Left Gen Switch: 0=Off, 1=PUSHED	
885	Right Gen Switch: 0=Off, 1=PUSHED	
886	Left drive: 0=DISCONNECTED,1=CONNECTED	

887	Right drive: 0=DISCONNECTED,1=CONNECTED	
-----	---	--

75	T	APU Gen Switch Toggle	594	OL	APU Gen Switch
76	T	Ext Power Switch push			reserved
77	T	Left Tie Switch Toggle	596	OL	Left Tie Switch
78	T	Right Tie Switch Toggle	597	OL	Right Tie Switch
79	T	Left UTIL Switch Toggle	598	OL	Left UTIL Switch
80	T	Right UTIL Switch Toggle	599	OL	Right UTIL Switch
81	T	Left Gen Switch Toggle	600	OL	Left Gen Switch
82	T	Left DRIVE disconnect			reserved
83	T	Right DRIVE disconnect			reserved
84	T	Right Gen Switch Toggle	603	OL	Right Gen Switch

## 2.9 APU Controls

707	0	APU Run Light
S1	1	APU fault Light
T1		

708	APU N1: percent	
709	APU Switch position: 0=LEFT, 1=CENTRE, 2=RIGHT	

85	RL*	APU OFF
86	RL*	APU ON
87	RL*	APU START

\* If the APU Switch in the panel moves back from START to ON and your hardware Switch is still in the START position then lekseecon will not roll back the panel Switch (the Leading mechanism is temporary suppressed). Hence you have more time to set your hardware Switch in the ON position too.

## 2.10 Cockpit Voice Recorder

888	CVR Test button: 0=RELEASED, 1=PUSHED	
889	CVR Erase button: 0=RELEASED, 1=PUSHED	

89	OL	0=RELEASE the CVR Test button, 1=PUSH
90	OL	0=RELEASE the CVR Erase button, 1=PUSH

## 2.11 Emergency Lights & Passenger Oxygen

710	0	Emergency Light unarmed
S1	1	Passenger Oxygen Light ON
T1		

851	Emergency Light Switch: 0=UNARMED, 1=ARMED	
-----	--	--

91	OL	0=Emergency Switch Unarmed, 1=Armed
92	T	Push on Passenger Oxygen masks Switch

## 2.12 RAM Air Turbine

711	0	Rat Unlocked
S1	1	Rat Press Light
T1		

93	T	RAT push
----	---	----------

### 2.13 Engine Start Controls

976	0	L starter "VALVE" Light
S1	1	R starter "VALVE" Light
T1		

759	Ignition Switch position: 0=1, 1=BOTH, 2=2	
712	Left starter Switch position: 0=GND, 1=AUTO, 2=OFF, 3=CONT, 4=FLT	
713	Right starter Switch position: 0=GND, 1=AUTO, 2=OFF, 3=CONT, 4=FLT	

94	RL*	GND	100	RL*	GND
95	RL*	AUTO	101	RL*	AUTO
96	RL*	OFF	102	RL*	OFF
97	RL*	CONT	103	RL*	CONT
98	RL*	FLT	104	RL*	FLT

\* If the starter Switch in the panel moves back from GND to AUTO and your hardware starter Switch is still in the GND position then lekseecon will not roll back the panel Switch.

106	RL	Igniter 1
107	RL	Both Igniters
108	RL	Igniter 2

### 2.14 Fuel Jettison

890	Jettison Switch: 0=Off, 1=On	
891	Left Nozzle Switch: 0=Off, 1=On	
892	Right Nozzle Switch: 0=Off, 1=On	

714	0	Jettison FAULT Light
S1	1	Jettison L VALVE Light
T1	2	Jettison R VALVE Light
	3	Jettison Switch ON
	4	Left Nozzle Switch ON
	5	Right Nozzle Switch ON

110	RL	Jettison Rotary OFF
111	RL	Jettison Rotary ON

113	OL	Left Nozzle Switch	114	OL	Right Nozzle Switch
115	T	Toggle Left Nozzle Switch	116	T	Toggle Right Nozzle Switch

### 2.15 Fuel Controls

715	0	Left Aft Pump Press Light
S1	1	Left Fwd Pump Press Light
T1	2	Right Aft Pump Press Light
	3	Right Fwd Pump Press Light
	4	Left Centre Pump Press Light
	5	Right Centre Pump Press Light

6	Left Aft Pump ON
7	Left Fwd Pump ON
8	Right Aft Pump ON
9	Right Fwd Pump ON
10	Left Centre Pump ON
11	Right Centre Pump ON
12	Cross Feed Upper ON
13	Cross Feed Lower ON
14	Fuel Config warning
15	Cross Feed Upper built-in VALVE Light ON
16	Cross Feed Lower built-in VALVE Light ON

893	Left aft Pump Switch: 0=Off, 1=On
894	Right aft Pump Switch: 0=Off, 1=On
895	Left fwd Pump Switch: 0=Off, 1=On
896	Right fwd Pump Switch: 0=Off, 1=On
897	Left Centre Pump Switch: 0=Off, 1=On
898	Right Centre Pump Switch: 0=Off, 1=On
899	Upper Cross Feed Switch: 0=Off,1=Moving to OFF, 2=Moving to ON, 3=ON
900	Lower Cross Feed Switch: 0=Off, 1=Moving to OFF, 2=Moving to ON, 3=ON

117	OL	Left aft Pump Switch
118	OL	Upper xfeed Switch
119	OL	Right aft Pump Switch
120	OL	Left fwd Pump Switch
121	OL	Lower xfeed Switch
122	OL	Right fwd Pump Switch
123	OL	Left ctr Pump Switch
124	OL	Right ctr Pump Switch

125	T	Toggle Left aft Pump Switch
126	T	Toggle upper xfeed Switch
127	T	Toggle Right aft Pump Switch
128	T	Toggle Left fwd Pump Switch
129	T	Toggle lower xfeed Switch
130	T	Toggle Right fwd Pump Switch
131	T	Toggle Left ctr Pump Switch
132	T	Toggle Right ctr Pump Switch

## 2.16 Anti-Ice

716 S1 T1	0	Wing Anti Ice Switch ON
	1	Left wing (Valve) Light on
	2	Right wing (Valve) Light on
	3	Left Anti Ice Switch ON
	4	Left eng (Valve) Light on
	5	Right Anti Ice Switch ON
6	Right eng (Valve) Light on	

901	Wing Anti Ice Switch: 0=Off, 1=On
902	Left Anti Ice Switch: 0=Off, 1=On
903	Right Anti Ice Switch: 0=Off, 1=On

133	OL	Wing Anti Ice Switch
134	OL	Left Eng Anti Ice Switch
135	OL	Right Eng Anti Ice Switch

136	T	Toggle Wing Anti Ice Switch
137	T	Toggle Left Eng Anti Ice Switch
138	T	Toggle Right Eng Anti Ice Switch

### 2.17 Wipers Commands

922	Wipers: 0=Off, 1=SLOW, 2=FAST	
-----	-------------------------------	--

139	RL	OFF
140	RL	SLOW
141	RL	FAST

### 2.18 Cargo Heat

717 S1 T1	0	Fwd Cargo Heat Light
	1	Aft Cargo Heat Light
	2	Fwd Cargo Heat Switch ON
	3	Aft Cargo Heat Switch ON

904	Fwd Cargo Heat Switch: 0=Off, 1=On	
905	Aft Cargo Heat Switch: 0=Off, 1=On	

143	OL	Fwd Cargo Heat Switch	145	T	Toggle Fwd Cargo Heat
144	OL	Aft Cargo Heat Switch	146	T	Toggle Aft Cargo Heat Switch

### 2.19 Window Heat

718 S1 T1	0	L side window heat INOP Light
	1	L fwd window heat INOP Light
	2	R fwd window heat INOP Light
	3	R side window heat INOP Light
	4	L side window heat Switch ON
	5	L fwd window heat Switch ON
	6	R side window heat Switch ON
7	R fwd window heat Switch ON	

906	left side window heat Switch: 0=Off, 1=On	
907	left fwd window heat Switch: 0=Off, 1=On	
908	right side window heat Switch: 0=Off, 1=On	
909	right fwd window heat Switch: 0=Off, 1=On	

147	OL	Left side wnd heat Switch	151	T	Toggle Left side wnd heat
148	OL	Left fwd wnd heat Switch	152	T	Toggle Left fwd wnd heat
149	OL	Right fwd wnd heat Switch	153	T	Toggle Right fwd wnd heat
150	OL	Right side wnd heat Switch	154	T	Toggle Right side wnd heat

### 2.20 HF Radio

155	Vrw	Right HF receiver frequency, value freq (x1000)
-----	-----	---

156	R	Right HF Radio OFF
157	R	Right HF Radio USB
158	R	Right HF Radio AM

### 2.21 Cabin Communications

719	0	FWD Cabin call Switch pushed *)
S1	1	MID Cabin call Switch pushed *)
T1	2	AFT Cabin call Switch pushed *)

\*) this is information about the Switch, not about the lights that lit if a stewardess is drawing attention.

160	T	Push Fwd Cabin Call
161	T	Push Mid Cabin Call
162	T	Push Aft Cabin Call
163	T	Push Cabin Call Alert
164	T	Push Ground Call
165	T	Push Flight Interphone

### 2.22 Passenger Signs

797	Seatbelts Switch position: 0=Off, 1=AUTO, 2=ON	
798	No Smoking Switch position: 0=Off, 1=AUTO, 2=ON	

166	RL	Seatbelts Switch OFF
167	RL	Seatbelts Switch AUTO
168	RL	Seatbelts Switch ON

170	RL	No Smoking Switch OFF
171	RL	No Smoking Switch AUTO
172	RL	No Smoking Switch ON

### 2.23 Cabin Altitude Control

724	0	Auto INOP Light
S1		
T1		

721	Auto Rate setting: 50 to 2000 fpm	
722	Outflow Valve opened: %	
723	Outflow Valve Switch position: -100 to 100	
760	Auto Mode Switch position: 0=AUTO1, 1=AUTO2, 2=MANUAL	

174	RL	Press Mode AUTO1
175	RL	Press Mode AUTO2
176	RL	Press Mode MANUAL

179	V	Auto Rate, value: 50 to 2000 fpm
180	T	Pressurization Manual Cabin Climb
181	T	Pressurization Manual Cabin Descend

178	Vrw	Landing altitude, value : -990 to 14000
-----	-----	---

### 2.24 Pressurisation Indicator

725	Cabin differential pressure: PSIx100	
726	Cabin rate: fpm	
727	Cabin altitude: feet	

### 2.25 Equipment Cooling

728	0	NO COOLING Light
S1	1	VALVE Light
T1	2	SMOKE Light
	3	ALTITUDE Light

869	Equipment Cooling Switch position: 0=AUTO, 1=STBY, 2=OVRD	
-----	---	--

182	RL	Cooling AUTO
183	RL	Cooling STBY
184	RL	Cooling OVRD

### 2.26 Compartment Temperatures Indicator

729	0	FWD comp temp INOP Light
S1	1	MID comp temp INOP Light
T1	2	AFT comp temp INOP Light

840	Temperature in FWD Compartment in (Celsius); 2 digits Hexadecimal format, e.g.: S2 23 = 0x23 T1	
-----	---	--

841	Temperature in MID Compartment, see 840 S2 T1	
-----	---	--

842	Temperature in AFT Compartment, see 840 S2 T1	
-----	---	--

986	Temperature in FWD Compartment (°F)	
987	Temperature in MID Compartment (°F)	
988	Temperature in AFT Compartment (°F)	

### 2.27 Air Conditioning

733	0	Left Pack OFF Light
S1	1	Right Pack OFF Light
T1	2	Trim Air off Light
	3	Left Recirculation fan INOP Light
	4	Right Recirculation fan INOP Light
	5	Trim Air Switch ON
	6	Left Recirculation fan ON
	7	Right Recirculation fan ON

910	Trim Air Switch position: 0=Off, 1=On	
911	Left Recirculation Fan Switch position: 0=Off, 1=On	
912	Right Recirculation Fan Switch position: 0=Off, 1=On	
913	Aft cab temp knob position: 0 .. 100 and 105 for OFF	
914	Mid cab temp knob position: 0 .. 100 and 105 for OFF	
915	Fwd cab temp knob position: 0 .. 100 and 105 for OFF	

799	Left Pack Switch position: 0=Off, 1=AUTO, 2=N, 3=C, 4=W	
800	Right Pack Switch position: 0=Off, 1=AUTO, 2=N, 3=C, 4=W	

186	OL	Trim air Switch	189	T	Toggle trim air Switch
187	OL	Left recirc Fan Switch	190	T	Toggle Left recirc fan Switch
188	OL	Right recirc fan Switch	191	T	Toggle Right recirc fan Switch

192	V	FWD Comp Temp Switch set (Value : 0-100 & OFF Position=105)
193	V	MID Comp Temp Switch set (Value : 0-100 & OFF Position=105)
194	V	AFT Comp Temp Switch set (Value : 0-100 & OFF Position=105)

A drawback of a rotary encoder solution for the Compartment Temperature Set Switches is that it's very hard (or even impossible) to tell the value from the position of the rotary encoder (you need a potentiometer for that). The following alternative (recommended!) Vars 195 – 220 are meant for use of a rotary Switch with 8 positions and 45 degrees per step. This will fit perfectly with the real Switch position in the panel:

195	RL	0	204	RL	0	213	RL	0
196	RL	18	205	RL	18	214	RL	18
197	RL	34	206	RL	34	215	RL	34
198	RL	50 (auto)	207	RL	50 (auto)	216	RL	50 (auto)
199	RL	66	208	RL	66	217	RL	66
200	RL	82	209	RL	82	218	RL	82
201	RL	100	210	RL	100	219	RL	100
202	RL	105 (off)	211	RL	105 (off)	220	RL	105 (off)

222	RL	Left Pack OFF	228	RL	Right Pack OFF
223	RL	Left Pack AUTO	229	RL	Right Pack AUTO
224	RL	Left Pack N	230	RL	Right Pack N
225	RL	Left Pack C	231	RL	Right Pack C
226	RL	Left Pack W	232	RL	Right Pack W

## 2.28 Pneumatic Control

736 S1 T1	0	Left ISLN Valve Light
	1	Centre ISLN Valve Light
	2	Right ISLN Valve Light
	3	Left Bleed Valve Light
	4	APU Bleed Valve Light
	5	Right Bleed Valve Light
	6	Left Bleed circuit OPEN
	7	APU Bleed circuit OPEN
	8	Right Bleed circuit OPEN
	9	Left Bleed ON
	10	APU Bleed ON
11	Right Bleed ON	

843 S1 T1	Left pneumatic pressure (PSI) as 2 digits Hexadecimal, e.g.: 0x37 means 37, 0xAA means blank
-----------------	--

844	Right pneumatic pressure (PSI) as 2 digits Hexadecimal
-----	--

S1 T1	
----------	--

734	Left Bleed pressure: PSI
735	Right Bleed pressure: PSI
916	Left Isolation Switch position: 0=Off, 1=On
917	APU Isolation Switch position: 0=Off, 1=On
918	Right Isolation Switch position: 0=Off, 1=On
919	Left Bleed Switch position: 0=Off, 1=On
920	APU Bleed Switch position: 0=Off, 1=On
921	Right Bleed Switch position: 0=Off, 1=On

234	OL	Left isln Switch	240	T	Toggle Left isln Switch
235	OL	Centre isln Switch	241	T	Toggle Centre isln Switch
236	OL	Right isln Switch	242	T	Toggle Right isln Switch
237	OL	Left eng Bleed Switch	243	T	Toggle Left Eng Bleed Switch
238	OL	APU Bleed Switch	244	T	Toggle APU Bleed Switch
239	OL	Right Eng Bleed Switch	245	T	Toggle Right Eng Bleed Switch

**2.29 AirCRAFT and Panel Lighting**

737 S1 T1	0	Overhead Dome Lights OVRD
	1	External NAV (POS) Lights
	2	External Red Strobes
	3	External White Strobes
	4	External Wing inspection Lights
	5	External Tail Recognition Lights

738	0	Panel & MCP Floods
	1	Pedestal Floods
	2	TAXI Lights
	3	Left Runway turnoff Lights
	4	Right Runway turnoff Lights
	5	Left Wing Landing Lights
	6	Right Wing Landing Lights
	7	Nose Landing Light

923	OVRD Light Switch: 0=Off, 1=On
924	POS Light Switch: 0=Off, 1=On
925	Red Light Switch: 0=Off, 1=On
926	White Light Switch: 0=Off, 1=On
927	Wing Light Switch: 0=Off, 1=On
928	Tail Light Switch: 0=Off, 1=On
929	Panel Light Switch: 0=Off, 1=On
930	Pedestal Light Switch: 0=Off, 1=On
931	TAXI Light Switch: 0=Off, 1=On
932	Left Runway Light Switch: 0=Off, 1=On
933	Right Runway Light Switch: 0=Off, 1=On
934	Left Wing Light Switch: 0=Off, 1=On

935		Right Wing Light Switch: 0=Off, 1=On
936		Nose Landing Light Switch: 0=Off, 1=On
246	OL	Panel & MCP Floods
247	OL	Overhead Dome Lights OVRD
248	T	Toggle Panel & MCP Floods
249	T	Toggle Overhead Dome Lights OVRD
250	OL	POS Lights
251	OL	Anti-Collision RED Lights
252	OL	Anti-Collision WHITE Lights
253	OL	Wing Lights
254	OL	Logo Lights
255	T	Toggle POS Lights
256	T	Toggle Anti-Collision RED Lights
257	T	Toggle Anti-Collision WHITE Lights
258	T	Toggle Wing Lights
259	T	Toggle Logo Lights
260	OL	Taxi
261	OL	Left Runway Turnoff
262	OL	Right Runway Turnoff
263	OL	Left Wing Landing
264	OL	Right Wing Landing
265	OL	Nose Landing

## 3 MCP

### 3.1 Master Caution

739	0	Master Warning Light
S1	1	Master Caution Light
T2		

266	T	Push Master Switch
-----	---	--------------------

### 3.2 VOR1

740	0	MANUAL
S1	1	AUTO
T2	2	Dec. Point for VOR1 Frequency

937	VOR1 Mode: 0=Off, 1=AUTO, 2=MANUAL, 3=FAIL	
-----	--	--

267	Vrw	VOR1 Frequency, formatted by 4 digits in BCD format. A frequency of 113.45 is represented by 0x1345; the leading 1 is assumed
268	Vrw	VOR1 Course, in degrees, range 0 to 359

269	O	VOR1 Man/Auto Switch: 0=MANUAL, 1=AUTO
270	T	Toggle VOR1 Man/Auto Switch

### 3.3 MCP Buttons

742	0	Left Autopilot engaged
S1	1	Centre Autopilot engaged
T2	2	Right Autopilot engaged
	3	Speed Mode: 0=IAS, 1=MACH
	4	Speed intervention: 0=IAS window blanked, 1=window displayed
	5	-- free -
	6	LNAV
	7	VNAV
	8	FLCH
	9	HDG HOLD
	10	V/S
	11	ALT HOLD
	12	LOC
	13	APP
	14	BCRS
	15	N1
	16	SPD

The states reflected by bits 6 to 16 are derived by lekseecon as an extra service.

275	T	Left Autopilot CMD
276	T	Centre Autopilot CMD
277	T	Right Autopilot CMD
278	T	IAS/MACH

284	T	HDG SEL
285	T	LNAV
286	T	VNAV
287	T	FLCH

279	T	Speed Intervention
280	T	N1
281	T	SPD
282	T	ALT HOLD
283	T	HDG HOLD

288	T	BCRS
289	T	LOC
290	T	APP
291	T	VS

### 3.4 MCP Switches

743	0	Captain Flight Director ON
	1	FO Flight Director ON

939	Captains Flight Director: 0=Off, 1=On	
940	FO Flight Director: 0=Off, 1=On	
744	Autopilot: 0=Off, 1=DISCO, 2=not used, 3=CMD	
745	Auto Throttle: 0=Off, 1=ARMED, 2=HOLD, 3=N1, 4=SPD, 5=FLCH, 6=VNAV, 7=IDLE, 8=TOGA, 9=FAIL *)	

\*) the SDK value auto throttle contains a bug, it does not show for instance the FLCH Mode

292	O	Auto Throttle: 0=OFF, 1=in ARM position
293	OL	AP bar: 0=engaged position, 1=Disengage and lock the bar
294	OL	Captains Flight Director: 0=Off, 1=On
295	OL	FO Flight Director: 0=Off, 1=On

### 3.5 MCP Rotaries and Displays

296	Vrw	MCP IAS/Mach, range 100 to 950 Note: Mach values are given x 1000, so .802=802
297	Vrw	MCP Heading in degrees, range 0 to 359
298	Vrw	MCP VS, range -9900 to 9900
299	Vrw	MCP Altitude in feet x100, range 0 to 640

### 3.6 MCP Pitch & Bank Info

746	pitch armed state: 0=Off,1=ALT HOLD,2=VERT SPD,3=FLCH, 4=VNAV, 5=GS, 6=TO, 7=GA, 8=FLARE	
747	pitch engaged state: 0=Off,1=ALT HOLD,2=VERT SPD,3=FLCH, 4=VNAV, 5=GS, 6=TO, 7=GA, 8=FLARE	
748	bank armed state: 0=Off,1=HDG HOLD,2=HDG SEL,3=LNAV, 4=LOC, 5=BC, 6=TO, 7=GA, 8=ROLL	
749	bank engaged state: 0=Off,1=HDG HOLD,2=HDG SEL, 3=LNAV, 4=LOC, 5=BC, 6=TO, 7=GA, 8=ROLL	
850	alt capture: 0=Off, 1=Engaged	

### 3.7 MCP Bank Angle Selector

750	Bank Angle Selector position: 0=AUTO,1=5°, 2=10°,3=15°,4=20°,5=25°	
-----	--	--

300	RL	Bank Angle AUTO
301	RL	Bank Angle 5°
302	RL	Bank Angle 10°
303	RL	Bank Angle 15°
304	RL	Bank Angle 20°

305	RL	Bank Angle 25°
-----	----	----------------

### 3.8 VOR2

741	0	MANUAL
S1	1	AUTO
T2	2	Dec. Point for VOR2 Frequency

938	VOR2 Mode: 0=Off, 1=AUTO, 2=MANUAL, 3=FAIL	
-----	--	--

271	Vrw	VOR2 Frequency, formatted by 4 digits in BCD format. A frequency of 113.45 is represented by 0x1345; the leading 1 is assumed
-----	-----	---

272	Vrw	VOR2 Course, in degrees, range 0 to 359
-----	-----	---

273	O	VOR2 Man/Auto Switch: 0=MANUAL, 1=AUTO
-----	---	--

274	T	Toggle VOR2 Man/Auto Switch
-----	---	-----------------------------

## 4 Main Instruments Panel

### 4.1 ISS

751	0	Capt FMC ALTERNATE selected
	1	Capt EFI ALTERNATE selected
	2	Capt IRS ALTERNATE selected
	3	Capt Air ALTERNATE selected
	4	FO FMC ALTERNATE selected
	5	FO EFI ALTERNATE selected
	6	FO IRS ALTERNATE selected
7	FO Air ALTERNATE selected	

870	Captain instrument source selector position: 0=L, 1=C, 2=R	
871	FO instrument source selector position: 0=L, 1=C, 2=R	

941	Capt FMC: 0=NORM 1=ALTERNATE	
942	Capt EFI: 0=NORM 1=ALTERNATE	
943	Capt IRS: 0=NORM 1=ALTERNATE	
944	Capt AIR: 0=NORM 1=ALTERNATE	
945	FO FMC: 0=NORM 1=ALTERNATE	
946	FO EFI: 0=NORM 1=ALTERNATE	
947	FO IRS: 0=NORM 1=ALTERNATE	
948	FO AIR: 0=NORM 1=ALTERNATE	

307	RL	Cap Instr Source LEFT	315	RL	FO Instr Source LEFT
308	RL	Cap Instr Source CENTRE	316	RL	FO Instr Source CENTRE
309	RL	Cap Instr Source RIGHT	317	RL	FO Instr Source RIGHT

311	OL	Cap FMC	319	OL	FO FMC
312	OL	Cap EFI	320	OL	FO EFI
313	OL	Cap IRS	321	OL	FO IRS
314	OL	Cap AIR	322	OL	FO AIR

### 4.2 RDMI

865	Capt RMI Left Switch: 0=ADF, 1=VOR	
866	Capt RMI Right Switch: 0=ADF, 1=VOR	
867	FO RMI Left Switch: 0=ADF, 1=VOR	
868	FO RMI Right Switch: 0=ADF, 1=VOR	

323	OL	Cap Left: 0=ADF, 1=VOR	325	OL	FO Left: 0=ADF, 1=VOR
324	OL	Cap Right: 0=ADF, 1=VOR	326	OL	FO Right: 0=ADF, 1=VOR

### 4.3 Airspeed Indicator

793	V1 speed: (knots)	
794	VR speed: (knots)	
795	V2 speed: (knots)	

796	Vref30 speed: (knots)
816	orange bug on the ASI

327	T	Set speed bugs on ASI
-----	---	-----------------------

#### 4.4 Auto land Status

856	0	NO AUTOLAND
S1	1	NO LAND3
T2	2	LAND2
	3	LAND3

752	Auto land status: 0=Off, 1=NO AUTOLAND, 2=NO LAND3, 3=LAND2, 4=LAND3
-----	--

328	O	0=ASA Test1 Switch not pressed, 1=pressed
329	O	0=ASA Test2 Switch not pressed, 1=pressed

#### 4.5 Altimeter

817	Position of Orange bug on the Captain Altimeter
818	Position of Orange bug on the FO Altimeter

330	T	Captain Altimeter orange bug +
331	T	Captain Altimeter orange bug -
332	T	FO Altimeter orange bug +
333	T	FO Altimeter orange bug -

#### 4.6 Clocks (chrono + timer)

846	S1 T2	Display value of the 3 digit Captains clock (chronometer + elapsed timer) in Hexadecimal format. Automatic Switching between chronometer and elapsed timer. Chronometer ticks in seconds, elapsed timer in minutes. Chronometer suppresses leading zeroes, timer does not. Chronometer display has priority over Timer display. E.g. 0x230 elapsed time 2 hrs 30 minutes, or chronometer time 2 minutes 30 seconds.
-----	----------	---

847	S1 T2	See also Var 846, but now for FO.
-----	----------	-----------------------------------

978	Captain clock chronometer time: accumulated seconds
979	Captain clock elapsed time: accumulated seconds
980	Captain clock chronometer state: 0=Off 1=stopped 2=running
981	Captain clock elapsed state: 0=Off 1=stopped 2=running
982	FO clock chronometer time: accumulated seconds
983	FO clock elapsed time: accumulated seconds
984	FO clock chronometer state: 0=Off 1=stopped 2=running
985	FO clock elapsed state: 0=Off 1=stopped 2=running

334	T	Toggles Captains Chronometer cyclic between START-STOP-RESET
339	T	Toggles FO Chronometer cyclic between START-STOP-RESET

335	R	Captain Elapsed Timer OFF	340	R	FO Elapsed Timer OFF
-----	---	---------------------------	-----	---	----------------------

336	R	Captain Elapsed Timer RUN	341	R	FO Elapsed Timer RUN
337	R	Captain Elapsed Timer RESET	342	R	FO Elapsed Timer RESET

#### 4.7 EICAS Control

720	Lower EICAS Mode: 0=Off, 1=Engine Page, 2=STATUS Page				
-----	---	--	--	--	--

344	T	Push Cancel Switch
345	T	Push Recall Switch

346	RL	Lower EICAS OFF
347	RL	Lower EICAS ENGINES
348	RL	Lower EICAS STATUS

#### 4.8 Reserve Brakes

949	Reserve Brakes: 0=Off, 1=Reserve Brakes selected				
-----	--	--	--	--	--

Note: the Valve Light built in Res Brake Switch is in section 4.12

350	OL	Reserve brakes Switch
-----	----	-----------------------

#### 4.9 Auto Brakes

761	Brake System Pressure: (PSI)				
762	Auto Brakes Selector position: 0=RTO, 1=OFF, 2=DISARM, 3=L1, 4=L2, 5=L3, 6=L4, 7=AUTOMAX				
763	Reserve Brakes: 0=Reserve Brakes OFF, 1=Selected				

351	RL*	RTO
352	RL*	OFF
353	RL*	DISARM
354	RL*	L1
355	RL*	L2
356	RL*	L3
357	RL*	L4
358	RL*	AUTOMAX

\* If the Auto Brakes Selector in the panel moves back from RTO to OFF and the physical Switch is still in the RTO position then lekseecon will not roll back the panel Switch. Same when panel Switch moves to DISARM after landing, then lekseecon will let that happen and it will not rollback the panel Switch to the physical Switch position.

#### 4.10 TRP

810	Thrust Mode: 0=Off, 1=TO, 2=GA, 3=CLM, 4=CON, 5=CRZ				
811	Climb Mode: 0=CLM, 1=CLM1, 2=CLM2				

360	T	Push TRP TOGA Mode
361	T	Push TRP CLB Mode
362	T	Push TRP CLB1 Mode
363	T	Push TRP CLB2 Mode
364	T	Push TRP CON Mode
365	T	Push TRP CRZ Mode

366	T	TRP Temp Select Increase
367	T	TRP Temp Select Decrease

#### 4.11 Gear Panel

764 S1 T2	0	NOSE Light
	1	LEFT Light
	2	RIGHT Light
	3	GEAR Light
	4	DOORS Light

765	Gear Lever position: 0=UP, 49-51=OFF, 100=DOWN	
-----	--	--

368	RL	Gear Lever DOWN
369	RL	Gear Lever OFF
370	RL	Gear Lever UP

#### 4.12 Alternate Gear

766 S1 T2	0	Valve Light built in Res Brake Switch
	1	Gear alternate ON

Note: the Valve Light built in Res Brake Switch belongs to section 4.8

950	Alternate Gear: 0=Off, 1=On	
-----	-----------------------------	--

372	OL	0=Alt Gear Switch set OFF, 1=DOWN
-----	----	-----------------------------------

#### 4.13 Flaps Indicator & Alternate Flaps Panel

769 S1 T2	0	Alt TE select ON
	1	Alt LE select ON

767	Flaps Handle position: 0=UP, 1=1°, 2=5°, 3=15°, 4=20°, 5=25°, 6=DOWN	
-----	--	--

768	Alternate Flaps: 0=NORM, 1=UP, 2=1°, 3=5°, 4=15°, 5=20°, 6=25°, 7=DOWN	
-----	--	--

951	Alternate TE selected: 0=Off, 1=On	
-----	------------------------------------	--

952	Alternate LE selected: 0=Off, 1=On	
-----	------------------------------------	--

373	RL	Alternate Flaps NORM
374	RL	Alternate Flaps UP
375	RL	Alternate Flaps 1
376	RL	Alternate Flaps 5
377	RL	Alternate Flaps 15
378	RL	Alternate Flaps 20
379	RL	Alternate Flaps 25
380	RL	Alternate Flaps DOWN

382	OL	Alternate LE flaps Switch
383	OL	Alternate TE flaps Switch

17	T	Toggle Alternate LE flaps Switch
21	T	Toggle Alternate TE flaps Switch

**4.14 Override Switches**

770	0	Override Flap selected
S1	1	Override Gear selected
T2		

953	Override Flap inhibit: 0=Off, 1=SELECTED	
954	Override Gear inhibit: 0=Off, 1=SELECTED	

384	OL	Override Flap inhibit	31	T	Toggle Override Flap inhibit
385	OL	Override Gear inhibit	60	T	Toggle Override Gear inhibit

**4.15 Mag/True Switch**

792	Mag/True Switch: 0=MAG, 1=TRUE	
-----	--------------------------------	--

386	OL	0=MAG, 1=TRUE
-----	----	---------------

## 5 Pedestal

### 5.1 Flight Management System (FMC)

771	0	FMC MSG Light ON
S2	1	FMC EXEC Light ON
T3		

387	T	LSK L1
388	T	LSK L2
389	T	LSK L3
390	T	LSK L4
391	T	LSK L5
392	T	LSK L6
393	T	LSK R1
394	T	LSK R2
395	T	LSK R3
396	T	LSK R4
397	T	LSK R5
398	T	LSK R6

399	T	INIT REF
400	T	RTE
401	T	DEP ARR
402	T	ATC
403	T	VNAV
404	T	FIX
405	T	LEGS
406	T	HOLD
407	T	FMC COMM
408	T	PROG
409	T	EXEC
410	T	MENU
411	T	NAV RAD
412	T	PREV PAGE
413	T	NEXT PAGE

414	T	A
415	T	B
416	T	C
417	T	D
418	T	E
419	T	F
420	T	G
421	T	H
422	T	I
423	T	J
424	T	K
425	T	L
426	T	M
427	T	N
428	T	O
429	T	P
430	T	Q
431	T	R
432	T	S
433	T	T
434	T	U
435	T	V
436	T	W
437	T	X
438	T	Y
439	T	Z

440	T	BLANK
441	T	DEL
442	T	/
443	T	CLR

444	T	1
445	T	2
446	T	3
447	T	4
448	T	5
449	T	6
450	T	7
451	T	8
452	T	9
453	T	.
454	T	0
455	T	-

### 5.2 Decision Height

456	VL	Set Captains DH value in feet (range -20 to 990)
-----	----	--

845		DH value of input from 456: 3 digits in Hex, with minus sign support
S2		Eg: 100 = 0x100, -12 = 0xB12, -5 = 0xAB5, blank = 0xAAA
T3		

### 5.3 EHSI Control Panel

772	0	Capt Button WPT ON
S2	1	Capt Button RTE DATA ON
T3	2	Capt button ARPT ON

	3	Capt Button NAVAID ON
--	---	-----------------------

965	Capt Button WPT: 0 = OFF, 1=On	
966	Capt Button RTE DATA: 0 = OFF, 1=On	
967	Capt button ARPT: 0 = OFF, 1=On	
968	Capt Button NAVAID: 0 = OFF, 1=On	
801	Capt Range: 0=10, 1=20, 3=40, 3=80, 4=160, 5=320	
802	Capt Mode: 1=FILS, 2=FVOR, 3=EXP VOR, 4=EXP ILS, 5=MAP, 6=PLAN	

773 S2 T3	0	FO Button WPT ON
	1	FO Button RTE DATA ON
	2	FO Button ARPT ON
	3	FO Button NAVAID ON

969	FO Button WPT: 0 = OFF, 1=On	
970	FO Button RTE DATA: 0 = OFF, 1=On	
971	FO button ARPT: 0 = OFF, 1=On	
972	FO Button NAVAID : 0 = OFF, 1=On	
803	FO Range: 0=10, 1=20, 2=40, 3=80, 4=160, 5=320	
804	FO Mode: 1=FILS, 2=FVOR, 3=EXP VOR, 4=EXP ILS, 5=MAP, 6=PLAN	

464	T	Push Cap Range Knob (TCAS)
-----	---	----------------------------

487	T	Push FO Range Knob (TCAS)
-----	---	---------------------------

457	RL	Cap Range 10 nm
458	RL	Cap Range 20 nm
459	RL	Cap Range 40 nm
460	RL	Cap Range 80 nm
461	RL	Cap Range 160 nm
462	RL	Cap Range 320 nm

480	RL	FO Range 10 nm
481	RL	FO Range 20 nm
482	RL	FO Range 40 nm
483	RL	FO Range 80 nm
484	RL	FO Range 160 nm
485	RL	FO Range 320 nm

465	RL	Cap Mode FULL ILS
466	RL	Cap Mode FULL VOR
467	RL	Cap Mode EXP VOR
468	RL	Cap Mode EXP ILS
469	RL	Cap Mode MAP
470	RL	Cap Mode PLAN

488	RL	FO Mode FULL ILS
489	RL	FO Mode FULL VOR
490	RL	FO Mode EXP VOR
491	RL	FO Mode EXP ILS
492	RL	FO Mode MAP
493	RL	FO Mode PLAN

472	OL	Cap WPT
473	OL	Cap RTE DATA
474	OL	Cap ARPT
475	OL	Cap NAVAID

495	OL	FO WPT
496	OL	FO RTE DATA
497	OL	FO ARPT
498	OL	FO NAVAID

476	T	Toggle Cap WPT button
477	T	Toggle Cap RTE DATA button
478	T	Toggle Cap ARPT button
479	T	Toggle Cap NAVAID button

499	T	Toggle FO WPT button
500	T	Toggle FO RTE DATA button
501	T	Toggle FO ARPT button
502	T	Toggle FO NAVAID button

#### 5.4 Stab Trim Cut-off

774	0	Left Stab trim ON
	1	Right Stab trim ON

955	Left Stab trim position: 0=CUT OUT, 1=NORM	
956	Right Stab trim position: 0=CUT OUT, 1=NORM	

503	OL	0=Left CUT OUT, 1=NORM
504	OL	0=Right CUT OUT, 1=NORM
11	OIL	1=Left CUT OUT, 0=NORM
12	OIL	1=Right CUT OUT, 0=NORM

#### 5.5 Engine Fuel Control

775	0	Left Engine Valve Light
S2	1	Right Engine Valve Light
T3	2	Left SPAR Valve Light
	3	Right SPAR Valve Light

857	0	Left fuel Switch RUN
	1	Right fuel Switch RUN

957	Left Fuel Switch position: 0=CUT OFF, 1=RUN	
958	Right Fuel Switch position: 0=CUT OFF, 1=RUN	

505	OL	0=Left Fuel Switch CUT OFF, 1=RUN
506	OL	0=Right Fuel Switch CUT OFF, 1=RUN

#### 5.6 GA Switch

507	T	Push GA Switch
-----	---	----------------

## 5.7 Parking Brake

508	O	Parking Brake position in panel (to be set by your SIOC application from FSUIPC 0x0BC8): 0=Released, 1=Set
509	OL	0=RELEASED, 1=SET

You have to read the Parking brake position in the panel from FSUIPC offset 0x0BC8 (two bytes) and write that to Var 508.

## 5.8 VHF Radio's COMM 1 and COMM2

Each radio has two frequency display windows, a frequency select transfer Switch (TFR) and one or two dual rotary encoders. Depending on the position of the TFR Switch the Left or the Right display contains the active frequency and the other the standby frequency. Led's indicate whether the Left or the Right display window is active.

A rotary encoder controls the two digits before or after the decimal point. The rotary does not have to generate real and valid VFR frequencies, just a value in the range from 0 .. 127 will do. Lekseecon will automatically update a frequency to a valid VHF frequency. COMM1 starts with 122.80 and COMM2 with 136.97.

The position of the TFR indicates the active frequency window. You should use a Toggle Switch with three terminals: one ground and one for each position, in order to let the synchronization work Right from the start.

If and when the user Switches display windows, lekseecon writes the new active frequency to a SIOC Variable. In dual rotary encoder versions lekseecon will also write the active frequency to this variable if the user changes the active frequency with the corresponding rotary encoder. It is the responsibility of the controlling SIOC program (your cockpit file), to pass the active frequency to FSUIPC, upon receipt of a new frequency via the Var.

The VFR radio provided by this software does not synchronize with changes you make with the mouse in the radio of 767 Pedestal panel. You will also notice that only the active frequency in the panel follows the active frequency of this radio. The standby frequency in the panel does not reflect the standby frequency of this radio (there's no need to). You better forget about the radio in the panel of the 767, your hardware VHF radio is in control, giving you full functionality!

### 5.8.1 Var definitions for COMM1

Displays:

852 S2 T3	COMM1 Left display frequency; 5 digit Hexadecimal format, 123.45 is represented as 0x12345, blank is 0xAAAAA, Lights test is 0x88888
-----------------	--

853 S2 T3	COMM1 Right display frequency; 5 digit Hex, see 852
-----------------	---

779 S2 T3	0 Left Display active 1 Right Display active 2 Decimal Point control for COMM1 displays
-----------------	---

Link with FSUIPC:

778	COMM1 active frequency as integer value, 123.45 is represented as 12345 (transformed to BCD and copied into FSUIPC \$034E by the SIOC app)
-----	--

TFR switch:

510	R	COMM1 TFR Left position
511	R	COMM1 TFR Right position

## Rotary encoders:

515	V	rotary encoder for high part of the left display frequency (range 0 to 127)
516	V	rotary encoder for low part of the left display frequency (range 0 to 127)
517	V	rotary encoder for high part of the right display frequency (range 0 to 127)
518	V	rotary encoder for low part of the right display frequency (range 0 to 127)

Encoders Option: If you only use one high part encoder variable and one low part encoder var then lekseecon will interpret that dual rotary encoder as controlling the dynamic standby frequency (dynamic in the sense that it is either the Left or the Right display, depending on the position of the TFR Switch). Possible choices (with same result) are 515+516, 517+518, 515+518 and 517+516. This also works fine and is a cheaper solution.

## 5.8.2 Var definitions for COMM2

## Displays:

854 S2 T3	COMM2 Left display frequency; 5 digit Hex, see 852 of COMM1
-----------------	---

855 S2 T3	COMM2 Right display frequency; 5 digit Hex, see 852 of COMM1
-----------------	--

822 S2 T3	0	Left Display active
	1	Right Display active
	2	Decimal Point control for COMM2 displays

## Link with FSUIPC:

821	COMM2 active frequency as integer value, 123.45 is represented as 12345 (transformed to BCD and copied into FSUIPC \$3118 by the SIOC app)
-----	--

## TFR switch:

564	R	COMM2 TFR Left position
565	R	COMM2 TFR Right position

## Rotary encoders:

569	V	rotary encoder for high part of the left display frequency (range 0 to 127)
570	V	rotary encoder for low part of the left display frequency (range 0 to 127)
571	V	rotary encoder for high part of the right display frequency (range 0 to 127)
572	V	rotary encoder for low part of the right display frequency (range 0 to 127)

Encoders Option: If you only use one high part encoder variable and one low part encoder var then lekseecon will interpret that dual rotary encoder as controlling the dynamic standby frequency (dynamic in the sense that it is either the Left or the Right display, depending on the position of the TFR Switch). Possible choices (with same result) are 569+570, 571+572, 569+572 and 571+570. This also works fine and is a cheaper solution.

## 5.9 Audio Control Panel

780	0	L-VHF
	1	R-VHF
	2	L-HF
	3	R-HF
	4	PA
	5	CAB

	6	INT
--	---	-----

823	Volume of the Left HF receiver (value: 0-100)	
824	Volume of the Right HF receiver (value: 0-100)	
825	Volume of the Passenger Address (value: 0-100)	
826	Volume of Cabin communications (value: 0-100)	
827	Volume of Interphone (value: 0-100)	
973	Microphone Selector: 0=L-VHF OFF, 1=On	
974	Microphone Selector: 0=PA OFF, 1=On	
975	Microphone Selector: 0=INT OFF, 1=On	

519	T	L-VHF
520		- reserved -
521		- reserved -
522		- reserved -

523	T	PA
524		- reserved -
525	T	INT

### 5.10 Transponder & TCAS

805	Transponder Mode: 0=STBY, 1=AUTO, 2=ON	
806	TCAS Mode: 0=Off, 1=TA, 2=TA/RA	

527	T	Key 1
528	T	Key 2
529	T	Key 3
530	T	Key 4
531	T	Key 5

532	T	Key 6
533	T	Key 7
534	T	Key 0
535	T	Key CLR

536	RL	XPDR Mode STBY
537	RL	XPDR Mode AUTO
538	RL	XPDR Mode ON

540	RL	TCAS Mode OFF
541	RL	TCAS Mode TA
542	RL	TCAS Mode TA/RA

### 5.11 Engine Fire

849 S2 T3	0	Engine Bottle 1 Disc Light
	1	Engine Bottle 2 Disc Light
	2	APU Bottle Disc Light
	3	Cargo Bottle Light
	4	Fwd Cargo ARMED
	5	Aft Cargo ARMED
	6	L ENG OVHT Light
	7	R ENG OVHT Light

781 S2 T3	0	Left engine fire detected
	1	Right engine fire detected
	2	APU fire detected
	3	Whell Weel fire detected
	4	FWD Cargo fire detected
	5	AFT Cargo fire detected

807	Fire Lever Left: 0=PUSHED, 1=PULLED, 2=POS1, 3=POS2
808	Fire Lever Right: 0=PUSHED, 1=PULLED, 2=POS1, 3=POS2
809	Fire Lever APU: 0=PUSHED, 1=PULLED, 2=POS1, 3=POS2
959	Fire Test Switch: 0=Off, 1=PUSHED
960	Fire WW Test Switch: 0=Off, 1=PUSHED

543	OL	0=Left Eng Fire Lever Pushed, 1=Left Eng Fire Lever Pulled
544	OL	0=no turn, 1 (and v543=1)=Left Eng Fire Lever Pulled & turned (POS1)
545	OL	0=no turn, 1 (and v543=1)=Left Eng Fire Lever Pulled & turned (POS2)

546	OL	0=Right Eng Fire Lever Pushed, 1=Right Eng Fire Lever Pulled
547	OL	0=no turn, 1 (and v546=1)=Right Eng Fire Lever Pulled & turned (POS1)
548	OL	0=no turn, 1 (and v546=1)=Right Eng Fire Lever Pulled & turned (POS2)

549	OL	0=APU Fire Lever Pushed, 1=APU Fire Lever Pulled
550	OL	0=no turn, 1 (and v549=1)=APU Fire Lever Pulled & turned (POS1)
551	OL	0=no turn, 1 (and v549=1)=APU Fire Lever Pulled & turned (POS2)

559	OL	0=Engine Fire Test Released, 1=Pushed and maintained
560	OL	0=Wheel Well Fire Test Released, 1=Pushed and maintained

## 6 Miscellaneous

### 6.1 Panel

782	0	Cockpit Cold and Dark (Bus Left is not charged, Bus Right is not charged and Battery is Off)
	1	Left BUS is not charged

864	Virtual FO: 0 = not active, 1 = active	
-----	--	--

561	O	Set Virtual FO
562	T	Swap FO & Captain Panel

### 6.2 Lights Test Commands

See also sections 1.8.2 and 6.4

558	O	Overhead Lights Test: 0 = not activated, 1 = activated
566	O	„
579	O	„
580	O	MIP Lights Test: 0 = not activated, 1 = activated
567	O	„
568	O	„
581	O	Pedestal Lights Test: 0 = not activated, 1 = activated
601	O	„
602	O	„

### 6.3 Failures

563	T	Clear all existing (current) failures without dialog
-----	---	--

### 6.4 Refresh

The Refresh Variables 989 to 999 all have the same semantics. They change value **each time** there is a Cockpit State change (section 1.8.1) and/or a Lights Test change (sections 1.8.2 and 6.2). They can be used in SIOC modules to let you write the CALL's to the subroutines that refresh the outputs and digits, like this:

```
Var 989
{
  CALL &OutIAS
}
```

989	Refresh Variable
990	„
991	„
992	„
993	„
994	„
995	„
996	„
997	„
998	„
998	„

## 7 Lekseecon and SIOC

This Chapter describes how to use the lekseecon variables in Opencockpits SIOC. The **lekseecon.exe** program will make these SIOC variables available for you.

It does not matter at which PC you have installed SIOC as long as it is a PC in your local area network. However, installing SIOC at your Flight Simulator PC (in C:\IOCards\SIOC or C:\SIOC) will make your life easier. There is no need to install a separate IOCP server; lekseecon communicates with the IOCP server that is already contained in SIOC.exe.

### 7.1 Configuring lekseecon automatically

If you have installed the Opencockpits SIOC software package at your Flightsim PC, then lekseecon will copy the configuration information it needs from your sioc.ini file.

If so, skip the next section and continue reading with section 7.3!

### 7.2 Configuring lekseecon manually

In case your **sioc.ini** is not found, you have to provide lekseecon with configuration information. This is for instance if you are running SIOC at a different computer than the Flight Simulator PC or if you have used a different installation folder (-name) for SIOC (not recommended). These additional parameters have to be specified in a **lekseecon.ini** file in your **My Documents** folder. You can create this text file with a simple text editor such as Notepad. The structure of this file is simple. It contains of at most three parameters, with each parameter at a separate line ('white space' allowed), for example:

```
HOSTADDRESS=192.168.1.70
PORT=8092
CONFIG_FILE=D:\SIOC\cockpit767.ssi
```

The HOSTADDRESS parameter is the local IP address of your SIOC IOCP Server, i.e. the IP-address of the computer running SIOC. The PORT is the Port used by the SIOC IOCP Server. You can find that information in the <IOCP> SERVER section of the main window of the SIOC.exe program.

The CONFIG\_FILE parameter specifies the compiled SIOC script file(-s) of your cockpit, i.e. a .ssi file, the very same file as specified in sioc.ini to be used by SIOC.exe. Note that in lekseecon.ini you must specify a full path name.

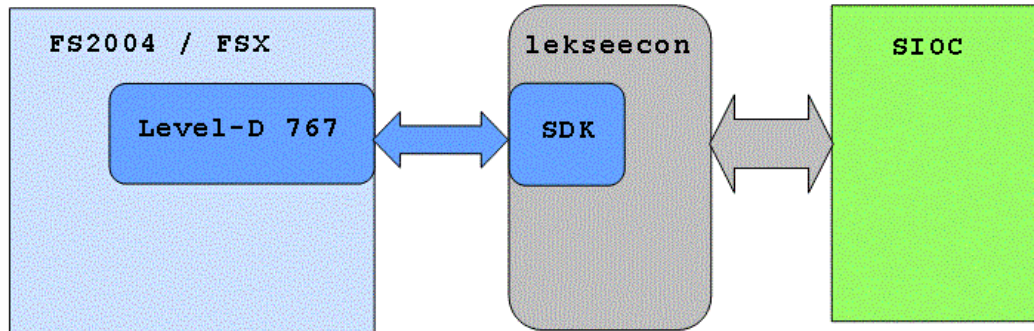
The SIOC.exe program may very well run at another PC as the one running FS and lekseecon.exe. But don't forget to give lekseecon.exe access to the .ssi file, either over your local area network via a shared folder (recommended) or by supplying it a local copy. A CONFIG\_FILE parameter for a shared folder over your local network may look like this:

```
CONFIG_FILE=\\EVE\SIOCFOLDER\cockpit767.ssi
```

Whereby EVE is the logical name of the PC in your network running SIOC, and SIOCFOLDER is the logical name of the shared SIOC folder. Note that you can only connect lekseecon.exe to one SIOC program, although more than sufficient for most cockpit builders.

### 7.3 Allocation of lekseecon Variables to SIOC Variables

Lekseecon.exe is positioned between SIOC and the 767 System Development Kit (SDK).



On the one hand, lekseecon.exe communicates with the SDK by calling SDK functions and by regularly polling the SDK, and on the other hand it 'talks' the IOCP protocol to SIOC while

- it receives messages about value changes of variables (representing cockpit hardware) from SIOC and will convert these into calls to SDK functions;
- it sends messages to SIOC about value changes of variables (representing simulator state values) based on information collected from the SDK.

Lekseecon variables in SIOC are pre-defined and have **exactly the same number** and have keyword **Static** attached, like:

```
Var 58 Static // lekseecon Variable 58
```

Note that lekseecon SIOC variables are always **32** bit.

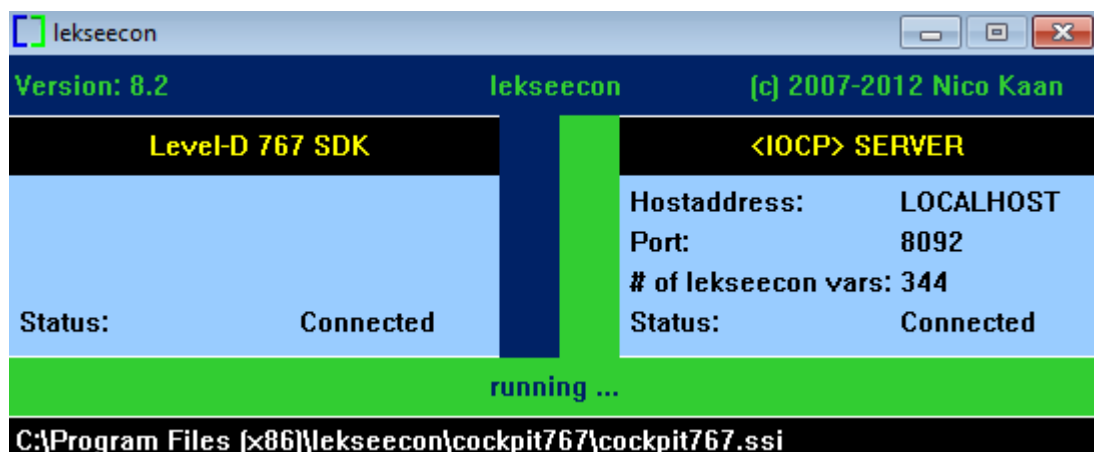
The lekseecon variables used in your SIOC .ssi file will be automatically detected by lekseecon.exe.

Examples of how to use lekseecon variables in SIOC programs can be found at my website <http://www.lekseecon.nl/howto767.html>.

### 7.4 Running lekseecon.exe

First start MS Flight Simulator and load a 767 flight, second start SIOC and then start '**lekseecon.exe**'. Lekseecon.exe will first connect to the Level-D 767 SDK in MS Flight Simulator and then to the IOCP Server in SIOC.

If both are connected, the lekseecon.exe program window will look like this:



The dark blue header part gives version, title and author information and in the status bar at the bottom the path to the CONFIG\_FILE that is actually being processed is shown.

The left half part gives information about the Level-D 767 SDK and the right half part of the window gives information about the IOCP Server in SIOC. Both parts show the status, **Connected** or **Not Connected**.

The IOCP part also shows Hostaddress and Port of the IOCP Server found. Note that LOCALHOST (actually IP address 127.0.0.1) means that this server is found at the same pc as the one running lekseecon.exe. The number of lekseecon variables found in the CONFIG\_FILE is also shown.

The message "running ..." indicates all is well, lekseecon is doing his job.

Lekseecon.exe will automatically stop without further notice and exit if the link to SIOC breaks down, for instance because SIOC has exit, or if the link to Level-D 767 breaks down, for instance because Flight Simulator has exit. You can manually stop lekseecon.exe via the red Windows X button in the lekseecon window.

### 7.5 Rotary switch start-up problems

Unfortunately there is a problem with some inputs of the Opencockpits Master Card; they sometimes fail to detect a closed input at start up. Due to this, lekseecon not always receives information from SIOC about the initial position of a rotary switch in your cockpit.

The problem is detected by lekseecon.exe and in the log file you may see warning messages like this:

```
'No initial value received for Rotary Switch 32:35'
```

32, 33, 34 and 35 are the lekseecon variables for the four terminals of the Right IRU switch (section 2.1). In this example the start-up position of the hardware Right IRU Switch happens to be exactly at a 'faulty' input of the Master Card.

As a solution to this lack of information, lekseecon.exe will set the rotary switch in the panel to a 'most likely' position. A best guess, so to speak. This is logged:

```
'No initial value received for Rotary Switch 32:35, forced to 32 (most likely?)'
```

However, if this is not the position of your hardware Right IRU Switch, you can fix it by providing information about the 'missed' input to the file 'lekseecon.ini' in your My Documents folder. It goes like this:

Find the lekseecon pre-defined SIOC variable number of terminal *t* (whereby in this example  $32 \leq t \leq 35$ ) that corresponds to the 'missed' position of your hardware Rotary Switch at start up and put it in the lekseecon.ini file. Use one line per missed position, in the notation **v# = 1**

Lines starting with // or ; are treated as comments, see for example:

```
// Right Iru Switch ATT
v35=1
```

Thanks to this information, lekseecon.exe will put the Right IRU Switch in the panel into position 35 (ATT), which is logged like this:

```
'No initial value received for Rotary Switch 32:35, forced to 35 (lekseecon.ini)'
```

This fix is only needed if an input about the rotary switch is missing, which only may happen at start-up of lekseecon.exe. As soon as you move your hardware switch the Master Card Input problem has gone.

## 7.6 Error messages

Error messages are always severe. They are shown in yellow with a red background.

After reading the message, you have to manually stop lekseecon.exe using the standard Window's X button (top-right).

The error messages that may appear are described in the following Table.

21	<b>No lekseecon variables found</b> lekseecon variables are numbered from of 1 to 999 and must have attribute static.
22	<b>Level-D SDK not detected</b> Check that MS Flight Simulator is running with a Level-D 767 flight.
23	<b>Your Level-D 767 version is not compatible with lekseecon</b> Check that you are using Level-D version 1.3 for FS9 or Level-D version 1.4 for FSX. (in the About menu of the Level-D767). Check that you have an LVL.DLL file in the Modules folder of your FS. Another possibility: If you get this error AND you are running Windows 7 64 bit, DO NOT run FS in Win XP compatibility mode.
31	<b>sioc.ini and lekseecon.ini not found</b> If SIOC was not installed at your FS computer, add a lekseecon.ini file (see 7.2). If SIOC was installed at your pc, reinstall it in a folder C:\SIOC or preferably D:\SIOC
32	<b>CONFIG_FILE parameter in sioc.ini is missing</b> Your sioc.ini file is not ok, repair that first.
33	<b>IOCP_port parameter in sioc.ini is missing</b> Your sioc.ini file is not ok, repair that first.
34	<b>HOSTADDRESS information is missing in lekseecon.ini</b> Add that information to your lekseecon.ini file (see 7.2 )
35	<b>PORT information is missing is missing in lekseecon.ini</b> Add that information to your lekseecon.ini file (see 7.2 )
36	<b>CONFIG FILE information is missing in lekseecon.ini</b> Add that information to your lekseecon.ini file (see 7.2).
37	<b>CONFIG FILE has no .ssi extension</b> Is the CONFIG FILE parameter in your sioc.ini or lekseecon.ini correct?
38	<b>CONFIG FILE not found</b> Is the CONFIG FILE parameter in your sioc.ini or lekseecon.ini correct?
39	<b>Connect to SIOC failure</b> A Fire Wall might block the connection to SIOC request. Allow lekseecon access.
40	<b>Connection attempt to SIOC timed out</b> Is the HOSTADDRESS the same as the HOSTADDRESS in the SIOC main window?
41	<b>SIOC not detected ...</b> Start SIOC first, then lekseecon.exe. Or: Is Port the same as the Port in the SIOC main window? If not change the PORT parameter in lekseecon.ini.
100	<b>System Error</b> Please report this with your lekseecon.ini and lekseecon.log files to the lekseecon Support Forum at <a href="http://www.mycockpit.org">www.mycockpit.org</a>

## 7.7 Lekseecon.log

During each lekseecon.exe run a log file **lekseecon.log** will be written in your **My Documents** folder.

Logged are version, configuration parameters, the lekseecon Variables in use, elapsed time and error and warning messages. It's certainly worthwhile to have a look at it every now and then.

## 8 Lekseecon and FSUIPC

This Chapter describes how to use the lekseecon variables in FSUIPC offsets. The **lekseecon\_f.exe** program will make these FSUIPC offsets available for you.

### 8.1 Configuring lekseecon\_f

Create with a simple text editor such as Notepad, a **lekseecon\_f.ini** file in your **My Documents** folder with the lekseecon variable numbers that you want to use.

More than one variable number at a line is allowed, separated by whitespace. Comments can be added at separate lines (*but do not use numbers in comments because they will be read as lekseecon variable numbers*).

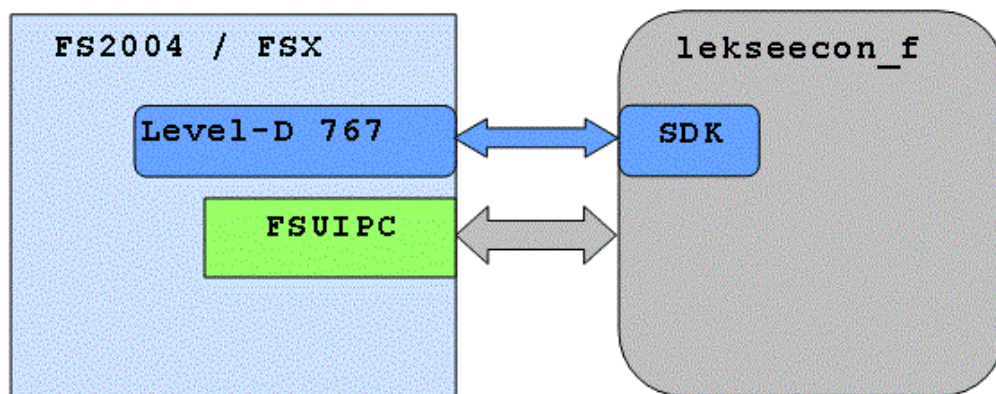
For example, this is the information defining the lekseecon variables for the MCP:

```
MCP
742
296 297 298 299
275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291
292 293 294 295 999
```

At which FSUIPC offsets your cockpit building software can find these lekseecon variables is described in the next section.

### 8.2 Allocation of lekseecon Variables to FSUIPC Offsets

Lekseecon\_f.exe is positioned between FSUIPC and the Level-D SDK.



On the one hand, lekseecon\_f.exe communicates with the SDK by calling SDK functions and by regularly polling the SDK, and on the other hand it regularly polls FSUIPC offsets and writes (if needed) to FSUIPC offsets.

Each lekseecon Variable defined in Chapters 2 to 6 is available as FSUIPC offset. These offsets are kindly provided by Peter Dowson, exclusively for lekseecon. Thank you Pete!

Lekseecon\_f uses the offsets ranges **0x9000 – 0x93ff** and **0x8b00 – 08bbff**

The range 0x8b000 – 0x8bff is also used by FSCONV, so do not use lekseecon\_f and FSCONV at the same time.

Lekseecon\_f.exe interchanges information with FSUIPC 5 times per second. This is something to consider when you fine tune the FSUIPC interchange rate (refresh rate) at your cockpit building software.

How to address a FSUIPC offset in your cockpit building software (FSBUS, EPIC, Phidgets, Leo Bodnar's BU0836 card, ...) is out of scope here. Please consult your Systems Manual.

The following table gives the mapping from a lekseecon Var number to an offset in FSUIPC.

In the Var column the number of the lekseecon Variable is given (1 - 999). Each variable number is shaded as defined, **yellow** for **information** variables, **green** for **controls**, and **brown** for **read/write** variables.

In the Offset column to the right of the variable number the corresponding offset in **hexadecimal** notation is given, whereby one should pay attention to the fact that:

- ➔ each offset in the **0x9.... range is 1 byte** (8 bit) (no shading)
- ➔ each offset in the **0x8.... range is 4 bytes** (32 bit) (shaded blue)

Var	Offset	Var	Offset	Var	Offset	Var	Offset	Var	Offset
11	0x900b	12	0x900c	13	0x900d	14	0x900e	15	0x900f
16	0x9010	17	0x9011	18	0x9012	19	0x9013	20	0x9014
21	0x9015	22	0x9016	23	0x9017	24	0x9018	25	0x9019
26	0x901a	27	0x901b	28	0x901c	29	0x901d	30	0x901e
32	0x9020	33	0x9021	34	0x9022	35	0x9023	37	0x9025
38	0x9026	39	0x9027	40	0x9028	41	0x9029	42	0x902a
43	0x902b	44	0x902c	45	0x902d	46	0x902e	47	0x902f
48	0x9030	49	0x9031	50	0x9032	51	0x9033	52	0x9034
53	0x9035	54	0x9036	55	0x9037	57	0x9039	58	0x903a
59	0x903b	61	0x903d	62	0x903e	63	0x903f	65	0x8b00
66	0x9042	67	0x9043	68	0x9044	69	0x9045	70	0x9046
71	0x9047	72	0x9048	73	0x9049	75	0x904b	76	0x904c
77	0x904d	78	0x904e	79	0x904f	80	0x9050	81	0x9051
82	0x9052	83	0x9053	84	0x9054	85	0x9055	86	0x9056
87	0x9057	89	0x9059	90	0x905a	91	0x905b	92	0x905c
93	0x905d	94	0x905e	95	0x905f	96	0x9060	97	0x9061
98	0x9062	100	0x9064	101	0x9065	102	0x9066	103	0x9067
104	0x9068	106	0x906a	107	0x906b	108	0x906c	110	0x906e
111	0x906f	113	0x9071	114	0x9072	115	0x9073	116	0x9074
117	0x9075	118	0x9076	119	0x9077	120	0x9078	121	0x9079
122	0x907a	123	0x907b	124	0x907c	125	0x907d	126	0x907e
127	0x907f	128	0x9080	129	0x9081	130	0x9082	131	0x9083
132	0x9084	133	0x9085	134	0x9086	135	0x9087	136	0x9088
137	0x9089	138	0x908a	139	0x908b	140	0x908c	141	0x908d
143	0x908f	144	0x9090	145	0x9091	146	0x9092	147	0x9093
148	0x9094	149	0x9095	150	0x9096	151	0x9097	152	0x9098
153	0x9099	154	0x909a	155	0x8b04	156	0x909c	157	0x909d
158	0x909e	160	0x90a0	161	0x90a1	162	0x90a2	163	0x90a3
164	0x90a4	165	0x90a5	166	0x90a6	167	0x90a7	168	0x90a8
170	0x90aa	171	0x90ab	172	0x90ac	174	0x90ae	175	0x90af
176	0x90b0	178	0x8b08	179	0x8b0c	180	0x90b4	181	0x90b5
182	0x90b6	183	0x90b7	184	0x90b8	186	0x90ba	187	0x90bb
188	0x90bc	189	0x90bd	190	0x90be	191	0x90bf	192	0x90c0
193	0x90c1	194	0x90c2	195	0x90c3	196	0x90c4	197	0x90c5
198	0x90c6	199	0x90c7	200	0x90c8	201	0x90c9	202	0x90ca
204	0x90cc	205	0x90cd	206	0x90ce	207	0x90cf	208	0x90d0
209	0x90d1	210	0x90d2	211	0x90d3	213	0x90d5	214	0x90d6
215	0x90d7	216	0x90d8	217	0x90d9	218	0x90da	219	0x90db
220	0x90dc	222	0x90de	223	0x90df	224	0x90e0	225	0x90e1
226	0x90e2	228	0x90e4	229	0x90e5	230	0x90e6	231	0x90e7
232	0x90e8	234	0x90ea	235	0x90eb	236	0x90ec	237	0x90ed
238	0x90ee	239	0x90ef	240	0x90f0	241	0x90f1	242	0x90f2
243	0x90f3	244	0x90f4	245	0x90f5	246	0x90f6	247	0x90f7
248	0x90f8	249	0x90f9	250	0x90fa	251	0x90fb	252	0x90fc

253	0x90fd	254	0x90fe	255	0x90ff	256	0x9100	257	0x9101
258	0x9102	259	0x9103	260	0x9104	261	0x9105	262	0x9106
263	0x9107	264	0x9108	265	0x9109	266	0x910a	267	0x8b10
268	0x8b14	269	0x910d	270	0x910e	271	0x8b28	272	0x8b2c
273	0x9111	274	0x9112	275	0x9113	276	0x9114	277	0x9115
278	0x9116	279	0x9117	280	0x9118	281	0x9119	282	0x911a
283	0x911b	284	0x911c	285	0x911d	286	0x911e	287	0x911f
288	0x9120	289	0x9121	290	0x9122	291	0x9123	292	0x9124
293	0x9125	294	0x9126	295	0x9127	296	0x8b18	297	0x8b1c
298	0x8b20	299	0x8b24	300	0x912c	301	0x912d	302	0x912e
303	0x912f	304	0x9130	305	0x9131	307	0x9133	308	0x9134
309	0x9135	311	0x9137	312	0x9138	313	0x9139	314	0x913a
315	0x913b	316	0x913c	317	0x913d	319	0x913f	320	0x9140
321	0x9141	322	0x9142	323	0x9143	324	0x9144	325	0x9145
326	0x9146	327	0x9147	328	0x9148	329	0x9149	330	0x914a
331	0x914b	332	0x914c	333	0x914d	334	0x914e	335	0x914f
336	0x9150	337	0x9151	339	0x9153	340	0x9154	341	0x9155
342	0x9156	344	0x9158	345	0x9159	346	0x915a	347	0x915b
348	0x915c	350	0x915e	351	0x915f	352	0x9160	353	0x9161
354	0x9162	355	0x9163	356	0x9164	357	0x9165	358	0x9166
360	0x9168	361	0x9169	362	0x916a	363	0x916b	364	0x916c
365	0x916d	366	0x916e	367	0x916f	368	0x9170	369	0x9171
370	0x9172	372	0x9174	373	0x9175	374	0x9176	375	0x9177
376	0x9178	377	0x9179	378	0x917a	379	0x917b	380	0x917c
382	0x917e	383	0x917f	384	0x9180	385	0x9181	386	0x9182
387	0x9183	388	0x9184	389	0x9185	390	0x9186	391	0x9187
392	0x9188	393	0x9189	394	0x918a	395	0x918b	396	0x918c
397	0x918d	398	0x918e	399	0x918f	400	0x9190	401	0x9191
402	0x9192	403	0x9193	404	0x9194	405	0x9195	406	0x9196
407	0x9197	408	0x9198	409	0x9199	410	0x919a	411	0x919b
412	0x919c	413	0x919d	414	0x919e	415	0x919f	416	0x91a0
417	0x91a1	418	0x91a2	419	0x91a3	420	0x91a4	421	0x91a5
422	0x91a6	423	0x91a7	424	0x91a8	425	0x91a9	426	0x91aa
427	0x91ab	428	0x91ac	429	0x91ad	430	0x91ae	431	0x91af
432	0x91b0	433	0x91b1	434	0x91b2	435	0x91b3	436	0x91b4
437	0x91b5	438	0x91b6	439	0x91b7	440	0x91b8	441	0x91b9
442	0x91ba	443	0x91bb	444	0x91bc	445	0x91bd	446	0x91be
447	0x91bf	448	0x91c0	449	0x91c1	450	0x91c2	451	0x91c3
452	0x91c4	453	0x91c5	454	0x91c6	455	0x91c7	456	0x8b30
457	0x91c9	458	0x91ca	459	0x91cb	460	0x91cc	461	0x91cd
462	0x91ce	464	0x91d0	465	0x91d1	466	0x91d2	467	0x91d3
468	0x91d4	469	0x91d5	470	0x91d6	472	0x91d8	473	0x91d9
474	0x91da	475	0x91db	476	0x91dc	477	0x91dd	478	0x91de
479	0x91df	480	0x91e0	481	0x91e1	482	0x91e2	483	0x91e3
484	0x91e4	485	0x91e5	487	0x91e7	488	0x91e8	489	0x91e9
490	0x91ea	491	0x91eb	492	0x91ec	493	0x91ed	495	0x91ef
496	0x91f0	497	0x91f1	498	0x91f2	499	0x91f3	500	0x91f4
501	0x91f5	502	0x91f6	503	0x91f7	504	0x91f8	505	0x91f9
506	0x91fa	507	0x91fb	508	0x91fc	509	0x91fd	510	0x91fe
511	0x91ff	515	0x9203	516	0x9204	517	0x9205	518	0x9206
519	0x9207	523	0x920b	525	0x920d	527	0x920f	528	0x9210
529	0x9211	530	0x9212	531	0x9213	532	0x9214	533	0x9215
534	0x9216	535	0x9217	536	0x9218	537	0x9219	538	0x921a
540	0x921c	541	0x921d	542	0x921e	543	0x921f	544	0x9220
545	0x9221	546	0x9222	547	0x9223	548	0x9224	549	0x9225
550	0x9226	551	0x9227	558	0x922e	559	0x922f	560	0x9230
561	0x9231	562	0x9232	563	0x9233	564	0x9234	565	0x9235
566	0x9236	567	0x9237	568	0x9238	569	0x9239	570	0x923a
571	0x923b	572	0x923c	579	0x9243	580	0x9244	581	0x9245
582	0x9246	583	0x9247	584	0x9248	585	0x9249	586	0x924a
587	0x924b	588	0x924c	589	0x924d	590	0x924e	591	0x924f

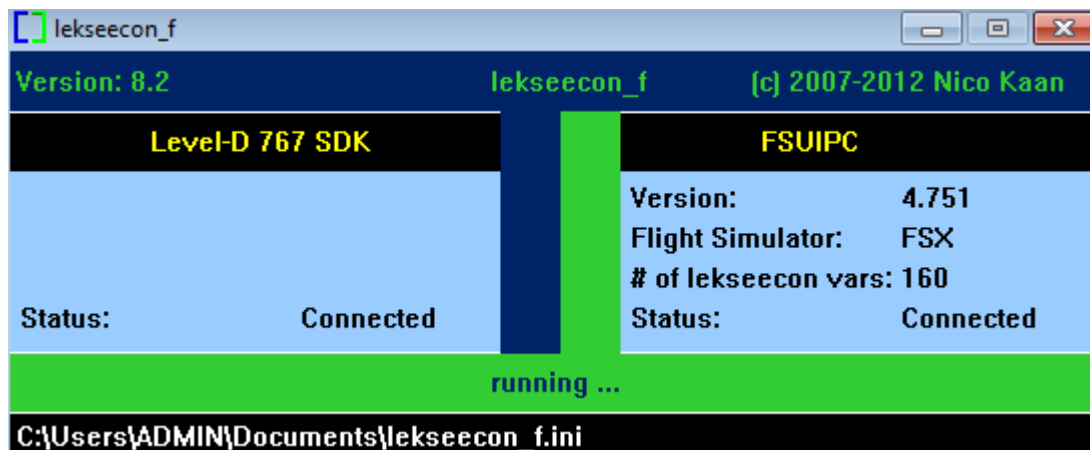
592	0x9250	593	0x9251	594	0x9252	596	0x9254	597	0x9255
598	0x9256	599	0x9257	600	0x9258	601	0x9259	602	0x925a
603	0x925b	700	0x8bfc	701	0x92bd	702	0x92be	703	0x8bf8
704	0x8be4	705	0x92c1	706	0x8be0	707	0x92c3	708	0x92c4
709	0x92c5	710	0x92c6	711	0x92c7	712	0x92c8	713	0x92c9
714	0x92ca	715	0x8bdc	716	0x92cc	717	0x92cd	718	0x92ce
719	0x92cf	720	0x92d0	721	0x8bd8	722	0x92d2	723	0x8bd4
724	0x92d4	725	0x8bd0	726	0x8bcc	727	0x8bc8	728	0x92d8
729	0x92d9	730	0x92da	731	0x92db	732	0x92dc	733	0x92dd
734	0x8bc4	735	0x8bc0	736	0x8bbc	737	0x92e1	738	0x92e2
739	0x92e3	740	0x92e4	741	0x92e5	742	0x8bb8	743	0x92e7
744	0x92e8	745	0x92e9	746	0x92ea	747	0x92eb	748	0x92ec
749	0x92ed	750	0x92ee	751	0x92ef	752	0x92f0	753	0x92f1
754	0x92f2	755	0x92f3	756	0x8bf4	757	0x8bf0	758	0x8bec
759	0x92f7	760	0x92f8	761	0x8b90	762	0x92fa	764	0x92fc
765	0x92fd	766	0x92fe	767	0x92ff	768	0x9300	769	0x9301
770	0x9302	771	0x9303	772	0x9304	773	0x9305	774	0x9306
775	0x9307	776	0x9308	777	0x9309	778	0x8b80	779	0x930b
780	0x930c	781	0x930d	782	0x930e	792	0x9318	793	0x9319
794	0x931a	795	0x931b	796	0x931c	797	0x931d	798	0x931e
799	0x931f	800	0x9320	801	0x9321	802	0x9322	803	0x9323
804	0x9324	805	0x9325	806	0x9326	807	0x9327	808	0x9328
809	0x9329	810	0x932a	811	0x932b	816	0x8ba4	817	0x8ba0
818	0x8b9c	819	0x9333	820	0x9334	821	0x8b74	822	0x9336
823	0x9337	824	0x9338	825	0x9339	826	0x933a	827	0x933b
840	0x9348	841	0x9349	842	0x934a	843	0x934b	844	0x934c
845	0x8b8c	846	0x8b98	847	0x8b94	849	0x9351	850	0x9352
851	0x9353	852	0x8b88	853	0x8b84	854	0x8b7c	855	0x8b78
856	0x9358	857	0x9359	858	0x935a	859	0x935b	860	0x935c
861	0x935d	862	0x935e	863	0x935f	864	0x9360	865	0x9361
866	0x9362	867	0x9363	868	0x9364	869	0x9365	870	0x9366
871	0x9367	872	0x9368	873	0x9369	874	0x936a	875	0x936b
876	0x936c	877	0x936d	878	0x936e	879	0x936f	880	0x9370
881	0x9371	882	0x9372	883	0x9373	884	0x9374	885	0x9375
886	0x9376	887	0x9377	888	0x9378	889	0x9379	890	0x937a
891	0x937b	892	0x937c	893	0x937d	894	0x937e	895	0x937f
896	0x9380	897	0x9381	898	0x9382	899	0x9383	900	0x9384
901	0x9385	902	0x9386	903	0x9387	904	0x9388	905	0x9389
906	0x938a	907	0x938b	908	0x938c	909	0x938d	910	0x938e
911	0x938f	912	0x9390	913	0x9391	914	0x9392	915	0x9393
916	0x9394	917	0x9395	918	0x9396	919	0x9397	920	0x9398
921	0x9399	922	0x939a	923	0x939b	924	0x939c	925	0x939d
926	0x939e	927	0x939f	928	0x93a0	929	0x93a1	930	0x93a2
931	0x93a3	932	0x93a4	933	0x93a5	934	0x93a6	935	0x93a7
936	0x93a8	937	0x93a9	938	0x93aa	939	0x93ab	940	0x93ac
941	0x93ad	942	0x93ae	943	0x93af	944	0x93b0	945	0x93b1
946	0x93b2	947	0x93b3	948	0x93b4	949	0x93b5	950	0x93b6
951	0x93b7	952	0x93b8	953	0x93b9	954	0x93ba	955	0x93bb
956	0x93bc	957	0x93bd	958	0x93be	959	0x93bf	960	0x93c0
965	0x93c5	966	0x93c6	967	0x93c7	968	0x93c8	969	0x93c9
970	0x93ca	971	0x93cb	972	0x93cc	973	0x93cd	974	0x93ce
975	0x93cf	976	0x93d0	977	0x8be8	978	0x8bb4	979	0x8bb0
980	0x93d4	981	0x93d5	982	0x8bac	983	0x8ba8	984	0x93d8
985	0x93d9	986	0x93da	987	0x93db	988	0x93dc	989	0x93dd
990	0x93de	991	0x93df	992	0x93e0	993	0x93e1	994	0x93e2
995	0x93e3	996	0x93e4	997	0x93e5	998	0x93e6	999	0x93e7

### 8.3 Running lekseecon\_f.exe

First Start MS Flight Simulator and load a 767 flight. Second, if applicable, start your cockpit software using FSUIPC (FSBUS, Leo Bodnar's BU0836 card, Phidgets, EPIC, what have you...) and then start 'lekseecon\_f.exe'

Lekseecon\_f.exe will first connect to the Level-D 767 SDK in MS Flight Simulator and then to FSUIPC.

If both are connected the lekseecon\_f.exe program window will look like this:



The dark blue header part gives version, title and author information and in the status bar at the bottom the path to the CONFIG\_FILE that is actually being processed is shown.

The left half part gives information about the Level-D 767 SDK and the right half part of the window gives information about FSUIPC. Both parts show the status, **Connected** or **Not Connected**.

The FSUIPC part also shows version number of FSUIPC and whether you it is an FSUIPC version for FSX or FS9. The number of lekseecon variables found in the CONFIG\_FILE is also shown.

The message "running ..." indicates all is well, lekseecon\_f.exe is doing his job.

Lekseecon\_f.exe will automatically stop without further notice and exit if the link to FSUIPC or the link to 767 breaks down, for instance because MS Flight Simulator has exit. You can manually stop lekseecon\_f.exe via the standard Windows X button in the lekseecon\_f window (top-right).

### 8.4 Error messages

Error messages are always severe. They are shown in yellow with a red background:

After reading the message, you have to manually stop lekseecon\_f.exe using the standard Window's X button (top-right).

The error messages that may appear are described in the following Table.

21	<b>No lekseecon variables found</b> lekseecon variables are numbered from of 1 to 999.
22	<b>Level-D SDK not detected</b> Check that MS Flight Simulator is running with a Level-D 767 flight.
23	<b>Your Level-D 767 version is not compatible with lekseecon</b> Check that you are using Level-D version 1.3 for FS9 or Level-D version 1.4 for FSX. (in the About menu of the Level-D767). Check that you have an LVL.DLL file in the Modules folder of your FS. Another possibility: If you get this error AND you are running Windows 7 64 bit, DO NOT run FS in Win XP compatibility mode.
51	<b>lekseecon_f.ini not found</b> Create such a file in your My Documents folder with the Notepad editor and add the lekseecon variables that you want to use (section 0)
52	<b>Connect to FSUIPC failure</b> Check that MS Flight Simulator is running
100	<b>System Error</b> Please report this with your lekseecon_f.ini and lekseecon_f.log files to the lekseecon Support Forum at <a href="http://www.mycockpit.org">www.mycockpit.org</a>

### 8.5 Lekseecon\_f.log

During each lekseecon\_f.exe run a log file **lekseecon\_f.log** will be written in your **My Documents** folder.

Logged are version, configuration parameters, the lekseecon Variables in use, elapsed time and error and warning messages. It's certainly worthwhile to have a look at it every now and then.

## 9 Version History

### Version **8.3** released **3 March 2012**

- Bugs fixed: Var **235** Centre ISLN Switch, Var **145** Fwd Cargo Heat Toggle and Var **146** Aft Cargo heat Toggle were missing ... Now added.
- Bug fixed in the 'most-likely' solution implementation of a start-up rotary switch (section 7.5)
- Lekseecon now also accepts capital V's when adding switch positions at start-up to the lekseecon.ini file (section 7.5)
- Four new lekseecon variables: Toggle type alternatives added for the Alternate Flaps (section 4.13) and Override Switches (section 4.14)
- Config\_sioc\_updater.exe improved (version 3.0). It will show in an MS Dos window what it is doing and it will not make the same changes more than once, so running config\_sioc\_updater for the second time in a row, will not 'ruin' your config\_sioc.ini files.

### Version **8.2** released **14 January 2012**

- There are now **two (!)** executable files, '**lekseecon.exe**' for use with SIOC variables and '**lekseecon\_f.exe**' for use with FSUIPC offsets. The FSUIPC\_MODE parameter in lekseecon.ini is no longer needed and has been removed.
- The **lekseecon.ini** and **lekseecon\_f.ini** files have to be placed in your **My Documents** folder instead of the lekseecon folder. The advantage is that we no longer have to write in the lekseecon folder, so lekseecon can be installed in C:\Program Files (x86)\lekseecon without any problems. This is more in line with the Microsoft Policy of users not writing in C:\Program Files area.
- It is **no longer** possible to use a **logical computer name** instead of an **IP-address** as value for the HOSTADDRESS parameter (section 7.2). There were errors in the implementation. This only affects users running SIOC at another PC than lekseecon.
- The file '**rotswitches.ini**' is no longer used; rotary switch position at start-up information can be put in the file lekseecon.ini.
- The name of the log file has changed from lekseecon\_log.txt to '**lekseecon.log**'; the log file for lekseecon\_f.exe is '**lekseecon\_f.log**'.
- **Logging messages** between SDK and cockpit (LOG\_TO\_LEVELD, LOG\_TO\_COCKPIT and LOG\_FROM\_COCKPIT) has been **removed**. I try to keep the executable as small as possible.
- The **Decision Height algorithm** has been **improved**, the value set will be reached much faster!
- The **lekseecon variables** that you want to use in lekseecon\_f.exe (when using **FSUIPC**), can be put **directly in lekseecon\_f.ini**. There is no longer need for a CONFIG\_FILE parameter and a separate configuration file for that purpose (section 8.1).
- Two new error messages (32 and 33) report **corrupt sioc.ini files** and a new SIOC error message (37) reports that your CONFIG\_FILE file parameter has **no .ssi extension**; other SIOC error messages renumbered (section 7.6).
- A **new FSUIPC error message 51** about not finding lekseecon\_f.ini was added; FSUIPC error message 41 renumbered to 52 (section 8.4).

- The file '**setup\_readme.txt**' with installation instructions was added to the setup\_lekseecon installer archive, in case people have not read the installation instructions in the Manual.
- The **installer** program has been improved: it will now take the **installation folder** of your **previous** installation (if any) as suggested installation folder; it will detect if **uninstallation** of a previous version **failed** and show a pop up message with instructions what to do; and it will give you **four installation options**, see section 1.1
- Manual re-organised in order to make a more clear distinction between SIOC and FSUIPC usage; added more installation instructions.
- ... and, again, a lot of implementation improvements under the Hood.

### Version **8.1** released **25 July 2011**

- Bug in closing of the lekseecon window if Flight Simulator is not running fixed.
- Error messages renumbered more logically.
- Lekseecon will first connect to the Level-D SDK and then to SIOC (reverse from what it did sofar). If connecting to the SDK is not successful an error message (#25) will occur. You have to run MS Flight Simulator with a Level-D 767 flight first, followed by SIOC, before you can start lekseecon.
- More information added to the main window of lekseecon.
- Removed the Error Pop Up windows; error messages will now show in the footer part of the main window.

### Major Version **8.0** released **1 May 2011**

#### Major change:

- Lekseecon can run in two modes. By default it exchanges information with Opencockpits SIOC but it can now also exchange information with Peter Dowson's FSUIPC! Every lekseecon variable is also available as a FSUIPC offset. Lekseecon is still compatible with previous versions, except for a few minor details described below. If you do nothing it will most likely still run like before.

#### Changes with small impact:

- COMM radio rotary variables 515 – 518 in section 5.8.1 and 569 – 572 in section 5.8.2, have now a reduced range of **0..127** instead of 0..359. **Important:** you have to change in your SIOC script(-s) the value 359 (a parameter of the ROTATE function) into 127. All combinations of Opencockpits modules with a COMM737 radio have been recompiled.
- The lekseecon variables giving information about failures (783 – 791, section 6.3) have been removed. They are not really necessary to build a cockpit. Variable space is needed for more important future additions. For the same reason the FMC related information variables that are also low priority: 812 – 815 and 961 – 964, from section 5.1, have been removed.

#### Improvements:

- Bug in Upper and Lower Xfeed Switches 118 and 121 fixed (section 2.15).
- The lekseecon window is no longer hidden, it gives direct feedback about the mode it is in (see window title bar).
- Added the names of the rotary switch positions, in the warning messages about missing information of the initial position of a rotary switch (section 0).
- Added (again) colour to the lekseecon Manual: tables with Information variables are shaded yellow, tables with Control variables are shaded green and tables with read/write variables are shaded brown.
- Bug in the SIOC script for the Opencockpits ATC737 modules fixed. All combinations of Opencockpits modules with an ATC737 have been recompiled.

--- Further records have been deleted ---

### First Version **1.0**, released in August 2007