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PC Pilot

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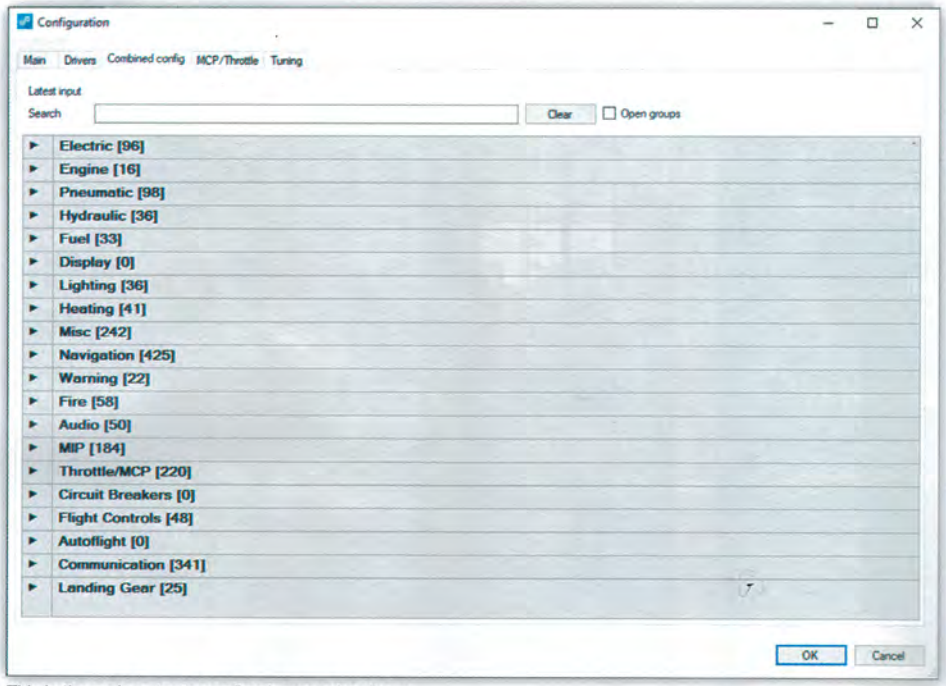
KEY Publishing

UK £6.49

January/February 2022

9 771468 513036 01



This is the main entry to configuring your hardware.

Once you have a fully assembled cockpit, it's time to add the component that brings it all to life... which is naturally the software; in this case we're looking at ProSim737 from ProSim Aviation Research in The Netherlands. The 737 suite of software featured here is just one of the products it produces with others including those suitable for home-built and commercial flight simulators, to solutions for airlines that includes pilot training.

An alternative interface

The ProSim737 package consists of a number of elements that firstly populates the displays with realistically rendered instruments and secondly takes control of every switch, lever, gauge and button in the cockpit. When I say 'takes control' I don't mean that literally, the software effectively interfaces with all these different elements, then passes their current state to whatever simulation software you're using. I'm talking about Microsoft Flight Simulator (MFS), Prepar3D or FSX and the hardware can be any switch, button or lever that you click, press, or move. It will also handle any indicators or LEDs used to identify any change of state in the hardware.

Fully integrated

What was particularly attractive to me with this software was the full integration of third-party drivers from different manufacturer's equipment. This effectively makes the job of setting up the software and integrating the hardware much easier, not forgetting of course that you don't need to install any other (potentially conflicting) drivers for the different hardware components.

For example, I have a large FDS SYS interface card to connect most of the switches and LEDs in my overhead panel. I also have a couple of Phidgets cards for controlling the gauges and a Leo Bodnar card that handles some of the rotary switches. The MCP and EFIS units are from CP Flight and my radios in the pedestal are customised Go-Flight modules. All of these different elements (and more) are natively recognised by ProSim by simply ticking the relevant boxes in the main systems configuration menu.

Installing and initial setup

The ProSim737 Software suite consists of five main elements: the ProSimB738 System I mentioned earlier, ProSimB738 HardwareConnector, ProSimCDU, ProSimDisplay and ProSimIOS.

The software is quite flexible so it's not important how many computers you use to run your cockpit - as long as they're on the same network it will work. In fact, a network is essential, because the main computer that runs the simulator also runs the ProSim system software and needs to communicate with any computers operating the other modules.

Before installing the software, I setup a private network of three PCs to handle the different modules needed to run the cockpit. They consist of a main (fairly powerful) PC that runs both the flight simulator and the main system software and it also displays the external view on three 43-inch 4K TVs via a GTX 1080Ti video card. The second less powerful machine is fitted with a GTX 970, which outputs to four monitors displaying the pilot's and first officer's MFDs. Finally, the third PC runs the CDU software to handle the two FDS CDUs.

Acronyms used in this review

CDU	Control Display Unit
EFIS	Electronic Flight Information System
EICAS	Engine Indicating and Crew Alerting Systems
FDS	Flight Deck Solutions
LED	Light Emitting Diode
MCP	Mode Control Panel
MFD	Multi-Function Display
MIP	Main Instrument Panel
ND	Navigation Display
PFD	Primary Flight Display

Pro

While it's better to have hardware components to interface with, the software also includes very realistic panels that can be used instead. These are ideal if you want to build a MIP using monitors behind a metal or wooden frame with holes cut in the approximate locations of the real instruments. In fact, I've seen touchscreen monitors used to good effect in such a role as well.

Assigning the hardware

Integrating the physical hardware is quite time-consuming but ProSim makes the job easier with the development of a more user-friendly and semi-intelligent interface. For

Sim737

Interfacing a 737 home cockpit

example, when you're assigning plain on/off switches, you simply throw the switch and ProSim will display the interface card and physical pin number it's attached to. The interface then presents a drop-down list of all the possible combinations subdivided into their appropriate groups, so for example switches located in the fuel panel are situated in the fuel list. Once you've found the correct switch, a single click will copy the location data into the selected box and it's done.

Incidentally, you only need to assign one position per switch, as ProSim defaults to the unassigned position (normally off), a feature that saves quite a bit of time when you're assigning upwards of 100 switches.

When it comes to the assignment of annunciators it's very cleverly done: you simply select the one you want to assign from the drop-down list. Next click on the large 'F' alongside the description of the switch which illuminates all the annunciators. Also, a window pops up asking if the LED is lit, offering two buttons marked 'YES/NO'. You simply keep pressing the appropriate button as the system automatically switches off different banks of LEDs until you're left with just the correct one which will be flashing. At this point you get a prompt to click on the 'USE' button and that's it, it's assigned.

Displays

The instrument displays (MFDs) are one of the main focus points for the pilots because they provide all the information needed to navigate and monitor the many different systems on board the aircraft. The ProSim simulation of these is handled unsurprisingly by the Display Module, which is both comprehensive and flexible meaning you can run multiple iterations of the module to populate the size and type of monitors you're using.

In my case, I have two 20-inch TFT monitors for the pilot's and first officer's inboard and outboard MFDs. The default display is the PFD and ND but the module is also capable

If you don't have all the hardware, you can use the on-screen panels.

of displaying any of the other available instruments or variations of them. They are normally selectable from rotary switches on the MIP and EFIS units at each end of the MCP. The other two monitors I have are bare 10-inch screens mounted vertically in the centre of the MIP and used for monitoring the various EICAS systems. Once again, the crew has the facility to change the specific information these MFDs are showing.

You can tune the size and shape of the display elements to suit your monitors and naturally the quality of the output can be affected to some degree by the resolution of the monitors in use. Mine are something of a mixture but overall the displays are crisp and sharp with no discernible lag in operation.

Flight model and in-flight

The ProSim737 package also includes a custom flight model designed specifically for ProSim users, and available for MFS, P3D or FSX. However, it's not just a flight model, it incorporates a very detailed 3D 737 aircraft for those who like to occasionally look at the aircraft while they're flying. However, this is just the external shell; it doesn't include a virtual cockpit or instrument panel, because naturally you will use the instruments and hardware controls inside your physical cockpit.

Although much of this review is concerned with the installation of the software and integration of the hardware, the main purpose, once this is completed, is to realistically manage the simulation of the aircraft in question, and this is something that ProSim does extremely well.

Obviously the 737 is a large heavy aircraft, yet you can fly it exactly the same as you would a Cessna 152. I remember many years ago listening to the now defunct Air Wales on a relocation trip from Cardiff to Bristol: no setup, no flight plan, just a radio call for clearance and another for the landing at Bristol. However, for most pilots it's more the authentic operation and setup that they look for and possibly why they built their simulator in the first place.

The CDU is your method of communicating with the FMC, which ultimately controls the MCP - sometimes referred to as the autopilot. The ProSim simulation of this quite complex instrument is about as comprehensive as you can get within the confines of a simulator. While other simulations of the CDU may only include what's needed to effectively get from A to B, ProSim models pages I'd not seen before, to the point where it's feasible to use an original FMC manual.

I have to admit I'm not yet fully acquainted with all the nuances of this instrument, however, it's something that I intend to work towards. Having said that, absorbing over 350 pages of information takes quite a commitment in both time and concentration.

Instructor Operating Station (IOS)

Once the software is installed and integrated with the hardware, the IOS program allows you to setup and operate the aircraft without recourse to the flight simulation menus. So, for example, you can reposition to any airport, gate or approach in the world. You can also create or import a flight plan, setup the fuel and payload or make things more interesting by defining the failure of just about any component or system on the aircraft.

The IOS also provides a full data overview for the aircraft's systems and access to a variety of cockpit setup options.

The ProSim Display is used to align the MFDs to your monitors.

Conclusion

In my opinion, ProSim737 is an easier to use and a more comprehensive solution than its rivals in the sphere of cockpit simulation. It also natively supports more hardware products, which is quite important because most builders will use a variety of hardware components in their build.

If you're a regular reader you'll know that I recently completed a major upgrade to my cockpit, so naturally it seemed a good opportunity to upgrade the software as well. Yet, what began as a fairly daunting task was completed much more easily and quicker than I had anticipated. The cockpit is now fully operational, including some elements that were not so before.

Currently, I'm running the cockpit with P3D V4.5 but I plan to move over to MFS when the simulator has multi-monitor support. ProSim737 is already fully compatible.

If you wish to check out the software before making a purchase, you can download a trial version from the company's website. You can also have a look at the manual, which is WIKI-based.

By Joe Lavery

PCP

My first approach into Cardiff on Runway 30 (Prepar3D).

Useful websites

Interfacing Software
https://prosim-ar.com/prosim737/
http://www.schiratti.com/dowson.html

Interface cards mentioned
http://www.leobodnar.com
https://flightdecksolutions.com

PC Pilot Verdict

At a glance:
ProSim is the ultimate software solution for cockpit builders who model the Boeing 737 or Airbus A320 and is relatively easier to use than its competitors' solutions.

Developer and Distributor: ProSim-AR
Price: On application
Website: https://prosim-ar.com/prosim737/
***PC Pilot* Score:** 90