

Review of  
New FMC B-737 V3 (2M27)  
Manufactured by OpenCockpits

The FMC is the Flight Management Computer also known as the FMS (Flight Management System) which is a fundamental component of the modern age avionics in commercial airliners, corporate aircrafts and military aircrafts etc. The main purpose of the computer is to automate a wide variety of tasks during the flight to reduce the workload on the flight crew.

To control the FMC a CDU is normally used (CDU = Control Display Unit) which features the keyboard or touchscreen together with the display screen. The FMC from OpenCockpits is actually the CDU which the pilot or first officer uses to implement the data to the FMC.

This was my first time testing an FMC module and it was indeed very interesting – this is not a small and simple module but really a quite advanced module consisting of a full keyboard + the additional FMC specific buttons, a color VGA screen, PCB solution to support the keys and a dimmable backlight function.



I purchased this unit directly from Opencockpits website and the ordering and purchase etc. went with ease. My Spanish is limited but fortunately the website was created in both Spanish and English so no problem.

The transport was done with an international forwarder and only took about 3 days which is okay – normally when I purchase new products I am always very excited to receive it so 3 days was fair and doable. The FMC was carefully packed in a hard cardboard box and surrounded with polystyrene foam pieces so the unit was kept perfectly safe during transport.

When I opened the box I could see that it contained both the FMC unit together with all the necessary cables to connect to the computer etc. The FMC needs to be connected via USB to the computer to get the PCB that supports the keys to function, then also a VGA cable to connect the color VGA screen and last also a power supply which is a direct plug to the wall socket 220V that converts the power supply to app. 5 or 6V. (on the picture here below is not shown the USB, but this was of course also included)



My first impression of the FMC was excellent – it is a nice unit that defiantly is created with an extreme precision and is perfectly aligned with the various images that I could find on the internet of a B737 FMC.

The front is not a metal front plate but instead methacrylate that is painted in Boeing style grey and laser engraved. That said; it still feels superb and gives a very realistic look. The buttons have a really nice firm tack sound and an immediate response when clicked.

The screen and PCB are placed on the back of the FMC and Opencockpits has made sure that the electronics are kept safe by building a semi open/closed box around the electronics. The electronics are perfectly aligned with the front panels dimensions (actually same width but a shorter length) so that it can easily be mounted into a bay or similar. If you do not have your own bay or setup for mounting the FMC, Opencockpits can also supply an optional stand ( part no. MEC-SOPFMC73), but this is not a part of this review. The front panel dimensions are 150 x 225 x 65mm.

The connections of the cables are also located on the back of the FMC where the sockets are all placed together. The bottom third of the back of the panel is free space where the plug-ins can be connected to the sockets and this gives the person who connects the unit, sufficient of working space to do so without danger of actually damaging any electronics etc.



Mounting the FMC is quite easy where you can either mount it using the small mounting holes on the front panel – this however specifies that the panel where the FMC is to be mounted in must only be a few millimeters thick otherwise this cannot be done properly. Another way to mount the FMC is to use the edge holes on the back casing where you then have the ability to fasten the FMC to any type of bracket or stand or similar.

After I had connected the various cables for the FMC and mounted it in my setup I started up my computer to get the software part in order. Here there are two steps that need to be done before the FMC is operational:

- 1) Get the screen to work
- 2) Get the keyboard buttons to work

I started with the obvious one – the screen. The screen is a nice small color VGA screen which can be connected directly into a VGA socket on the computer or if you don't have any of these sockets available, it can also be plugged into the computer using adapters to either USB or HDMI etc. which also works perfectly. (these adapters are not included in the FMC package).

The screen appears as a secondary screen where you need to go into your screen settings on your computer and select the resolution and identify the screen etc. This is quite simple and even though the manual states that the screen has a resolution on 800x600 I could see that I could select a better resolution than stated in the manual, so actually I here got a better screen than I was informed – super!

The installation of the screen took me about a minute or so and I just selected the view to be “Extend” instead of “Duplicate” – this way I could still use my primary screen as cockpit and the FMC screen as a secondary screen containing additional images (in this case the FMC).

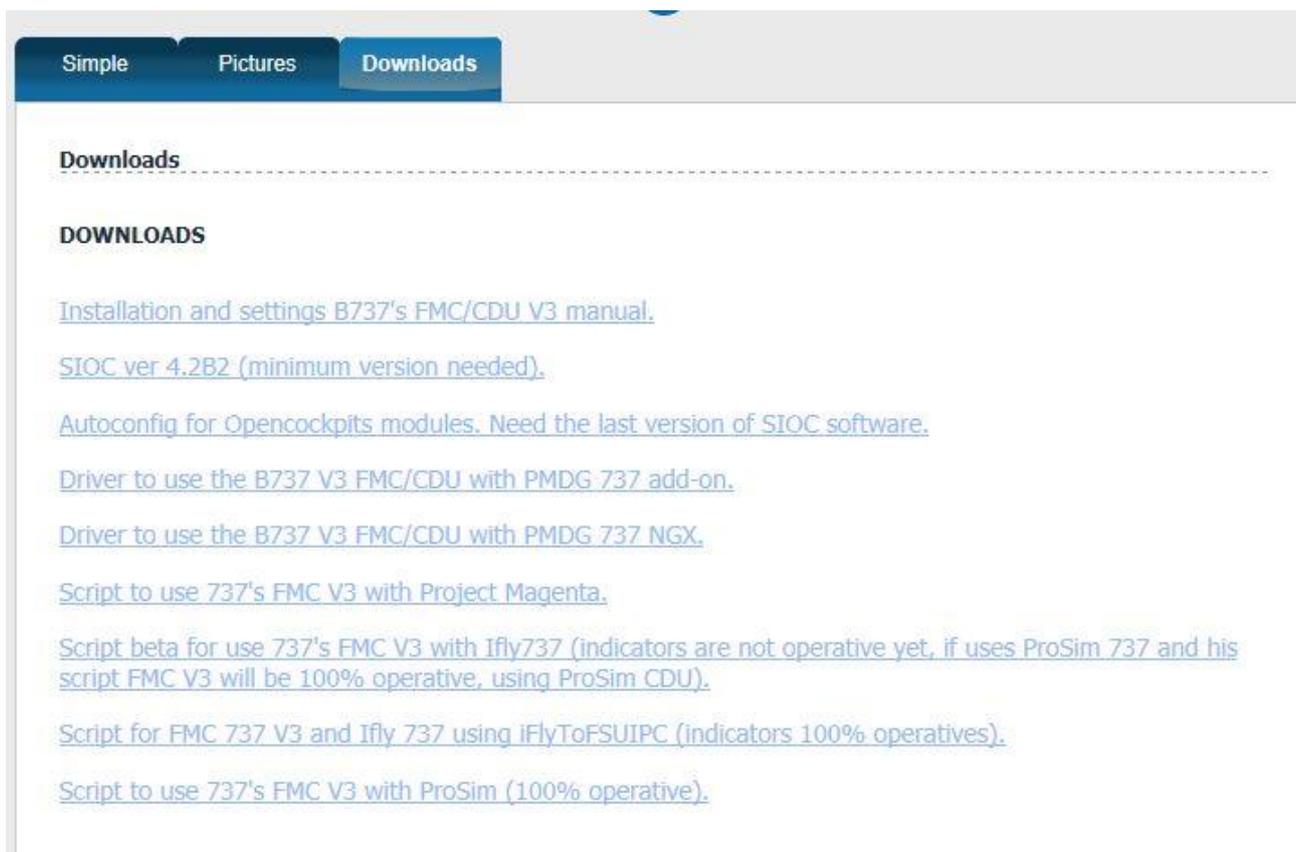
By doing this I also found out that if I actually were to fly a different aircraft that did not feature the FMC function, I could drop e.g. the GPS into the FMC display and hereby gain additional functions from the FMC.

Next step was getting the buttons to work through the PCB and to make this possible I needed to use some programming software. There are probably several kinds of software that could do the trick as e.g. FSUPIC but I chose to use the recommended solution from Opencockpits – the SIOC software.

I have absolutely no experience in using this software so I was quite excited to see if I could manage it. The only programming experience that I have got is VBA coding and that is not very similar to the SIOC.

I read quite a few threads about the SIOC just to get some back ground information about the essentials of the programing software. I of course also read the included manual about how to etc. but I was a bit confused in the beginning – that is probably very normal when trying to figure out a new way of programing.

The SIOC can be downloaded directly from Opencockpits website together with drivers and scripts that fits the most common Boeing B737 versions available today. I use the PMDG737NGX and therefore I downloaded the corresponding driver at the download section on Opencockpits website.



Simple Pictures Downloads

**Downloads**

---

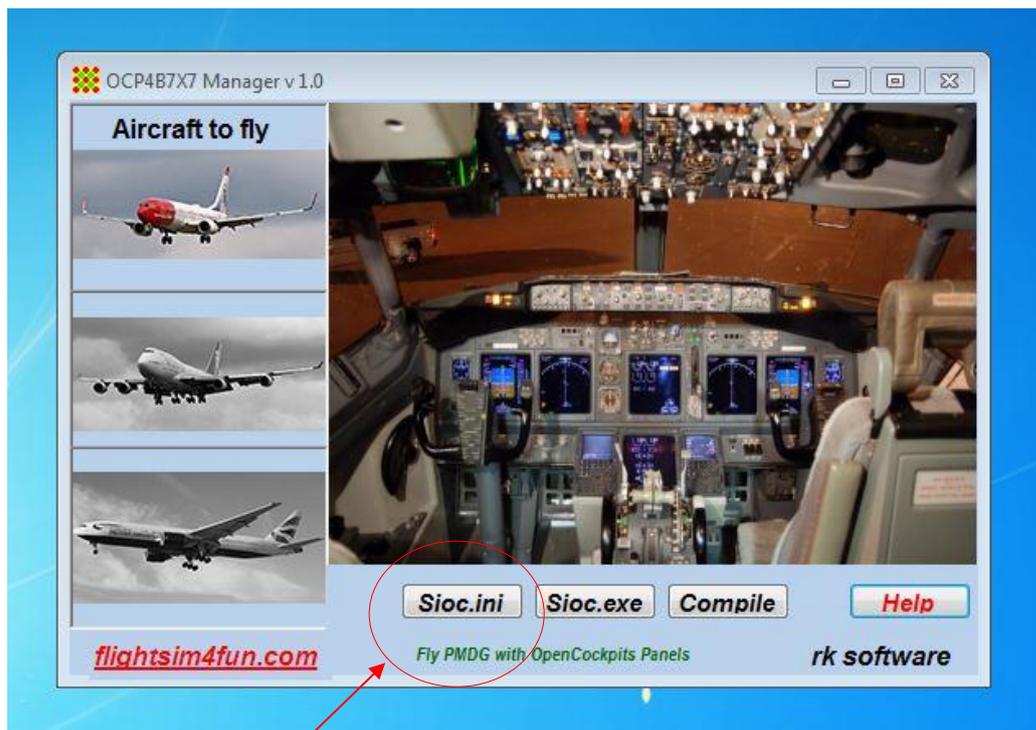
**DOWNLOADS**

- [Installation and settings B737's FMC/CDU V3 manual.](#)
- [SIOC ver 4.2B2 \(minimum version needed\).](#)
- [Autoconfig for Opencockpits modules. Need the last version of SIOC software.](#)
- [Driver to use the B737 V3 FMC/CDU with PMDG 737 add-on.](#)
- [Driver to use the B737 V3 FMC/CDU with PMDG 737 NGX.](#)
- [Script to use 737's FMC V3 with Project Magenta.](#)
- [Script beta for use 737's FMC V3 with Ifly737 \(indicators are not operative yet, if uses ProSim 737 and his script FMC V3 will be 100% operative, using ProSim CDU\).](#)
- [Script for FMC 737 V3 and Ifly 737 using IFlyToFSUIPC \(indicators 100% operatives\).](#)
- [Script to use 737's FMC V3 with ProSim \(100% operative\).](#)

My first attempt to install the SIOC and getting the FMC to function however did not work so I uninstalled everything again and wrote to Opencockpits for help – the information that I wrote was a step by step of what I had done and therefore Opencockpits support team could very quickly identify what I had missed. Installing and configuring the FMC for the PMDG737NGX is done another way then e.g. the ProSim or similar and that was what I had missed.

Below here is the specific way to install the FMC to be used with the PMDG737NGX:

- 1) Install the SIOC software
- 2) Install the PMDG drivers etc. (also downloadable from OC's website)
  - a. OCP4B7x7 Manager & OCP4NGX
- 3) Run the SIOC.ini from the OCP4B7x7 Manager



- 4) Modify the Masters section to your specifics (first image is default and second is the modified version).

```
sioc - Notesblok
Filer Rediger Formater Vis Hjælp

[SIOC]
IOCP_port=8092
IOCP_timeout=4000
Minimized=Yes
toggle_delay=20

CONFIG_FILE=.\OCP4NGX_MCP-EFIS-CDU v1.05.ssi

[IOCARDS MODULE]
IOCard_disable=No
IOCard_LPT=No

[MASTERS]
MASTER=0,5,1,xx
MASTER=1,7,1,yy
MASTER=13,13,1,zz
[MASTER=0,4,4,10 << This is the rk's master definition o
```

```
sioc - Notesblok
Filer Rediger Formater Vis Hjælp

[SIOC]
IOCP_port=8092
IOCP_timeout=4000
Minimized=Yes
toggle_delay=20

CONFIG_FILE=. \OCP4NGX_MCP-EFIS-CDU v1.05.ssi

[IOCARDS MODULE]
IOCard_disable=No
IOCard_LPT=No

[MASTERS]
MASTER=0,5,1,00
MASTER=1,7,1,00
MASTER=13,13,1,111
[MASTER=0,4,4,10 << This is the rk's master definition of own built MCP and EFIS, not

[*****
[Note: change the last numbers(xx, yy and zz) in the MASTER statments above to the Dev
[Note: your P&P MCP must be Device 0 and your P&P EFIS must be Device 1 to work with t
[*****

[FSUIPC MODULE]
FSUipcdisable=No
FSUipcRefresh=60

[IOCP CLIENTS MODULES]
IOCPini_delay= 3000
IOCPclient0_disable=no
IOCPclient0_host=localhost
IOCPclient0_port=8099
IOCPclient1_disable=yes
IOCPclient1_host=localhost
IOCPclient1_port=8092

[SOUND MODULE]
Sound_disable=Yes
Volume=100

[*****
[REMEMBER TO FILE MODIFIED SIOC.INI FILE TO YOUR SIOC FOLDER]
[*****
```

To explain the modification then what I have done is to change the Master 0 and 1 to have “00” instead of the “xx”/”yy” – if this actually is necessary I am a little unsure of, but the important thing is the next Master where I have changed the “zz” to be 111.

The 111 refers to the number of the USB port that the FMC is connected to – this number is stated on the SIOC’s front page when the FMC is connected, and then just apply it into the Masters.

The first number (13) is the devise index number. The second number (13) is the type number that identifies that the hardware connected is the FMC because the FMC has hardware ID 13 (see matrix table in the manual). The third number (1) is named a “Number of Cards” number and informs the SIOC that the FMC is a module. The fourth number is the USB connection number.

- 5) Save the .ini file in the SIOC folder (very important that it is inside the SIOC folder!)
- 6) Locate the PMDG 737 NGX .ini file which is found in the PMDG directory and named 737NGX\_Options.

Aircraft	08-09-2013 14:08	Filmappe	
Flight Manuals	08-09-2013 14:08	Filmappe	
PanelState	08-09-2013 14:08	Filmappe	
PerfMan	08-09-2013 14:08	Filmappe	
SDK	08-09-2013 14:08	Filmappe	
737NGX SP1c Changelist	23-02-2012 18:40	Tekstdokument	4 KB
737NGX_Options	31-01-2014 12:23	Konfigurationsind...	2 KB
README_PMDG_737-800-900_NGX	02-03-2012 15:20	Tekstdokument	16 KB

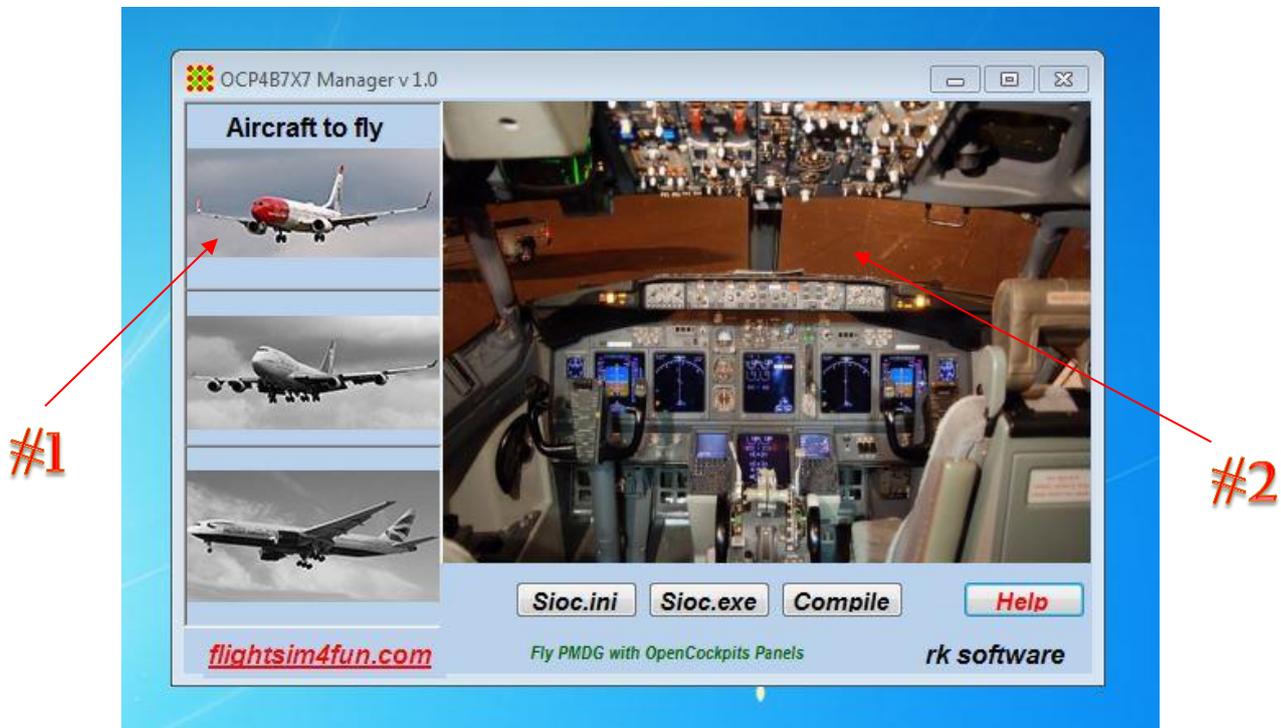
- 7) Add the following two lines at the bottom of the file:

*[SDK]*  
*EnableDataBroadcast=1*

```
[Panel State]
StartupPanelState=NGX CLDDRK
[SDK]
EnableDataBroadcast=1
[Sound]
PlaySoundsInExtView=1
SoundDevice=Højttalere (Logitech G930 Headset)
SoundMasterVolume=0.50
SoundGroupValue.0=1.00
SoundGroupValue.1=1.00
SoundGroupValue.2=1.00
SoundGroupValue.3=1.00
SoundGroupValue.4=1.00
SoundGroupValue.5=1.00
[FMC]
LastPosLatLon=N5338.0E01000.2
[SDK]
EnableDataBroadcast=1
```

- 8) Save the 737NGX\_Option.ini file
- 9) Start-up FSX and load the PMDG 737 NGX aircraft

- 10) Start-up the OCP4B7x7 Manager (if not already running) and select which aircraft you want it to sync with (737, 747, 777) by clicking once on the aircraft image and then once on the cockpit image to the right.



Now the FMC is perfectly in sync with the PMDG aircraft and all you now have to do is move the animated FMC window to the hardware FMCs screen (the secondary screen) – this is simply just a drag and drop function with your mouse and then resize the image to fit the secondary screen.

When you have done this once, then all you need to do the next time you take the PMDG for a flight, is to go through step 9 and 10 again – of course if you plug in the FMC to a different USB connection you will have to change the SIOC.ini file in the Masters to refer to the new USB connection number, but if you use the same plug in, then just run through 9 and 10, where 9 is the start-up and selection of the aircraft within FSX which you should do anyway.

This was really not that difficult even though that I am not used to the SIOC but with the excellent support from Opencockpits I was up flying the 737 within 5 minutes after receiving the support.

I have not tested the FMC on other aircrafts but since the RK software (OCP4B7x7 Manager) also has the PMDG 747 and 777, I am quite convinced that the FMC can easily be used for these aircrafts also. As I see it all you need to do differently is to add the SDK lines to the other PMDG aircrafts and of course select the corresponding aircraft on the OCP4B7x7 Managers picture (here above).

Since the SIOC is a versatile and quite powerful programming tool I am certain that the FMC can actually be configured to almost any aircraft and this probably also by using other types of programming software as FSUPIC since the FMC interfaces through a programmable PCB, you just need to know how to make either a driver or a matching script.

I tested the FMC on a direct USB connection but also wanted to check if it could be connected through a USB hub – this was however not an issue and all I needed to do was to change the number in the Masters in the SIOC.ini file to the correct USB connection number. This enabled me to mount the FMC into my test rig which consists of a variety of USB modules and PCBs etc. which all are connected into a large own powered USB-hub.



The FMC also features a dimmable backlight function which works perfectly. To control the backlight you simply just use the small rotator/encoder located just above the Execution button and the backlight goes from completely dark (off) to bright. Easy and very realistic which gives the simmer a superb experience when using the FMC for night VFR/IFR – this of course also means that the light in the room where the flight simmer is flightsimming has to be off.



Adding this module to my flightsim cockpit really gave me a lot of additional experience when flying commercial airliners. Doing the prep at the gate and programming the entire flight directly on a physical FMC is awesome.

I have several times in the past looked at units like this and though – why do I need that.... This I fully understand now and I would defiantly not do without it! This module is an excellent addition to a home cockpit and for me this is way more intense to use than just the animated one – I would certainly recommend fellow simmers to try it out.

In regards to the price level for this module, then the FMC from Opencockpits is most certainly in an affordable price range in my opinion. There are several other manufactures of FMCs all over the flightsim world, but only a few with such a competitive price as Opencockpits – only EUR 437,- ex VAT and transport and for that you get a PCB, a color TFT, cables, an authentic FMC front with a great many details including all buttons, laser engraved legends, the software, the drivers/scripts and everything is tested and assembled for you.

Overall I am very impressed by this module and how real it looks and feels – the quality is high, the details are many and very real and the finish is superb. After using the FMC for now about a month or so, it is very clear to me that Opencockpits has really put in a lot of effort to create the FMC to the high level of perfection that they have – Only one downside which is a minor downside is, that I was hoping that the front would be made out of metal / aluminum, but I fully understand that creating the FMC by using materials as methacrylate helps to keep the costs down, which in the end gives a better and more competitive price and ultimately enables the flight simmer to add even more modules to their own home cockpit for the same price - that is very healthy for the flightsim community.

To wrap it up I would say, high quality, a huge number of realistic details, superb finish, great look and feel and a fair price – I would certainly recommend the FMC to my fellow flight simmers around the flightsim community – especially if you enjoy flying commercial airliners as the Boeing B737.

I rate this FMC from Opencockpits with a full 5/5-Star rating – the FMC is really awesome and a superb addition to any home cockpit. Also I would like to thank Opencockpits for contributing with this fine piece of hardware to the flightsim community.

Rays Aviation

