



737NG FWD Overhead Ethernet

User Manual

S737-MAN-FOH-MD-E-19-0187



LOG

Rev.	Date	Description
01	September 2011	First Edition
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03	February 2014	Ethernet Version
04	August 2015	Small changes
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1 DEFINITIONS AND ACRONYMS

1.1 DEFINITIONS

Item	Definition
Backlight	Lighting which illuminates the letters, lines or other features of a panel from the inside or back of the module.
Switch and Hub Device	A device for connecting many Ethernet cables. For use when you want to connect many Ethernet devices to a single computer.
SC Pascal	A programming language and a high level editor/compiler. All script provided by Sismo are programmed in this language. There are manuals for learning this language on our website.
Crossed Ethernet Cable Standard Ethernet Cable	A type of Ethernet cable used to connect a module directly to a computer. If you are using a standard Ethernet cable, you should connect the module to a Hub/Switch or to your Router (and not directly to the computer).
Mother - Daughter	Master - Slave board. (Mother - daughter).
Ethernet	It's a local network data transfer protocol (an alternative to USB, with many benefits).
IOCP	Input/output completion port (IOCP) is an API to perform several simultaneous and asynchronous input and output operations in Windows NT.
FSUIPC	Flight Simulator Universal Inter-Process Communication can be used to carry out several simultaneous and asynchronous input and output operations in flight simulators.
UDP	A protocol within the TCP/IP protocol suite.
DHCP	Dynamic Host Configuration Protocol, is a protocol that offers the opportunity to dynamically define the IP addresses on computers in a local network. This must be disabled or the IP addresses will change.
Script	Software which controls the SC-MB and allows the user to assign the functions of one of the modules Plug & Fly (AFT, FWD, etc.) to an SC-MB (See below).
Add-on Software	ProSim, iFLy, PMDG. They are companies which interface the hardware with the flight simulation software.
Autosense	It is a feature of some network adapters which allows them to automatically recognize and adjust their own parameters according to the local network speed.
Plug&Fly Modules	They are full modules which are ready to plug in and fly. They have a high level of realism and do not require knowledge of electronics. Examples: AFT and FWD Overhead, MIP, Pedestal, MCP and EFIS.
Jumper	Electronic component used to enable or disable a particular circuit and functionality on a PCB.
Dimming	Adjusting the brightness of the Backlight

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1.2 ACRONYMS

Item	Definition
PCB	Printed Circuit Board.
SC	SimCard.
SC-MB	SimCard Motherboard Ethernet. A control card used by Sismo Soluciones in its Plug&Fly Modules.
SC-Daughter	SimCard Ethernet Daughter. A daughter or slave, complementary to the SC-MB. These are used to increase the functionality of the SC-MB, daughter cards for Inputs, Outputs, Servos, Analog Inputs and Displays are available.
GND	Ground - the point of return for electric current in a circuit
PRM	Plug Ready Modules only need to be connected to a control card before use.
ADC	Digital to analog converter.
GIC	General Interface Card, a kind of adapter for users using free wiring. See SC-MB Features Manual.
ICF	Internet Connection Firewall (Microsoft Windows XP)

2 PURPOSE OF THIS DOCUMENT

This manual has been designed for the user to acquire basic knowledge about the FWD Plug&Fly Module, and it also contains all the information required for first set-up.

The software configuration for the modules is contained in 'User Manual – SC-MB Configuration'. In there you will find out all about IP addresses, Ethernet, SC-Pascal and other configuration necessary to start flying. Each Add-on Software also has its own configuration manual.

This manual is exclusively for hardware issues.

3 INTRODUCTION

This product has been designed according to the latest FWD Overhead Module mounted on the most recent version of the Boeing 737NG. It is a full-scale replica 1:1 and it has been designed with the client's high standards in mind.



The metal casing makes the product more robust and adaptable to different environments and cockpits.

The FWD Overhead Plug&Fly is ready to be connected to your computer via an Ethernet cable (this is the type of cable used for standard internet connections RJ45).

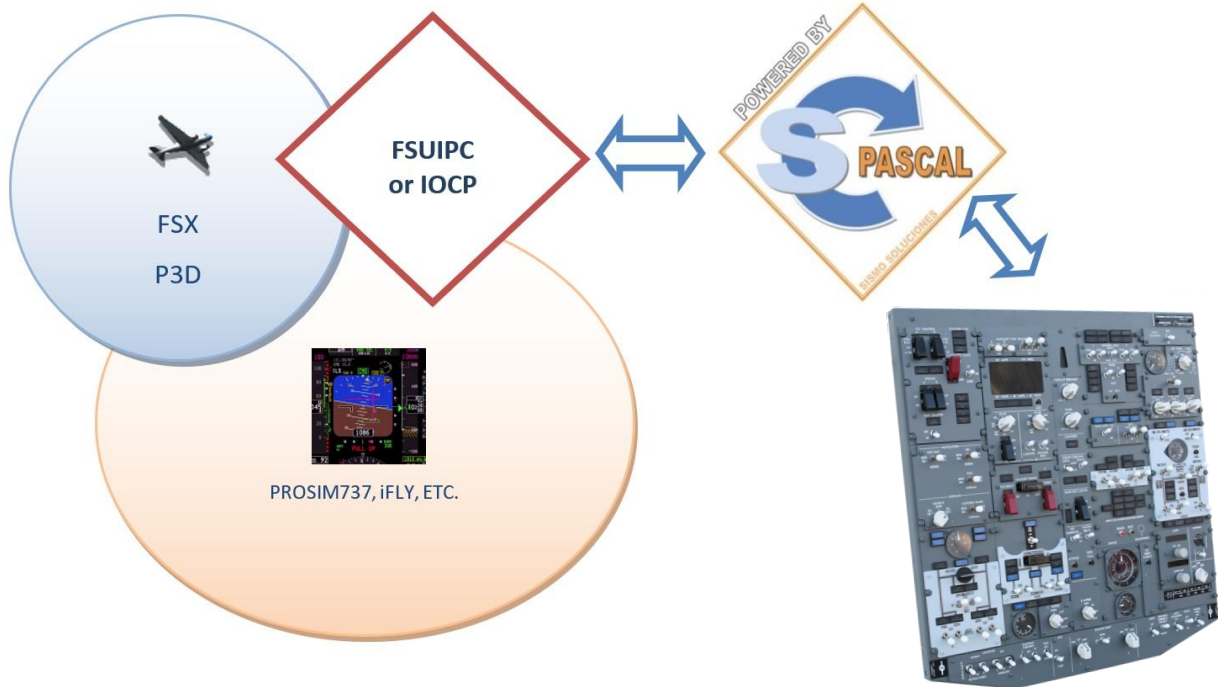
No programming is necessary with this module thanks to the scripts developed by Sismo, so long as you are using an Add-on software which we support. Check out our compatibility below.

The Overhead is controlled by the family of cards called SimCard Ethernet, which have been specially designed and produced by Sismo for Simulators.

The SC Pascal programming language also permits users to make modifications to adapt, modify or create new functions for increasing the power of your FWD Overhead. You can learn SC-Pascal on our website.

Note: With the latest version of SC Pascal 5.1 Build 765 or higher, the scripts are deployed as .exe files. This makes it easier for standard users, once the script has been configured, it will run automatically when starting or rebooting the computer.





The following image shows the general layout for a FWD Overhead software connection.



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4 COMPATIBILITY

	 IFLY Jets: The 737NG				
 Prepar3D					
 FSX					
 X-Plane					

	Add-On fully compatible with Sismo Products and recommended by Sismo.
	Add-On fully compatible with Sismo Products.
	Add-On compatible with Sismo Products. The available functionality depends on the public offsets delivered by the Add-On Company
	No information available about the compatibility of this Add-On with Sismo Products

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5 UNPACKING AND FIRST STEPS

1. Place the box in a table and open by the side with 'UP' sticker.
2. Remove the upper protective wood.
3. Extract the Overhead carefully and place it vertically.
4. Remove the plastic protection of the FWD.

If you have purchased the Alpha line, locate a little cardboard box with a sticker 'UP' or similar, which contains the 23 metal caps. They should be screwed in to the switches.

Otherwise, the FWD will be installed with white plastic caps, and you can proceed to the next step.



*These metal caps are not mounted on the FWD Plug&Fly module, but if you buy any separate module of the FWD, they will already be installed.

6 CONNECTING POWER SUPPLIES AND AN ETHERNET CABLE

6.1 ETHERNET CABLES



An Ethernet cable or RJ45 Cable is of standard use in the computing industry. You will recognize it as the type used to connect a router or modem.

In order to use the FWD, you must connect an Ethernet cable from your computer to the FWD. You can do this directly, or indirectly.

To connect the FWD directly to your computer, you must use a Crossed Ethernet Cable. The downside of this option, is that your computer will run out of available RJ45 Sockets very quickly, which is why we recommend the second approach.

You can connect the FWD indirectly through a Switch, Router or Hub device (with Autosense) by using a standard Ethernet cable (or a crossed Ethernet cable, here it doesn't matter). You can connect all your Ethernet devices and modules to the same Hub, simplifying the connections.

You will see one Ethernet socket on the back cover of the FWD Ethernet. This should be connected to the control computer directly or indirectly, as discussed above.

6.2 POWER SUPPLIES

There are two additional sockets for 12V DC power supplies, as is shown in the following image:



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When you place the 12V (Jack **12V**) power supply for the electronics and control board; the display digits for the *Electrical Display Control Panel Module* and the *Digital Pressurization Control Panel Module* will show the character 't'. This is not a mistake, it just means that the FWD has not been configured.

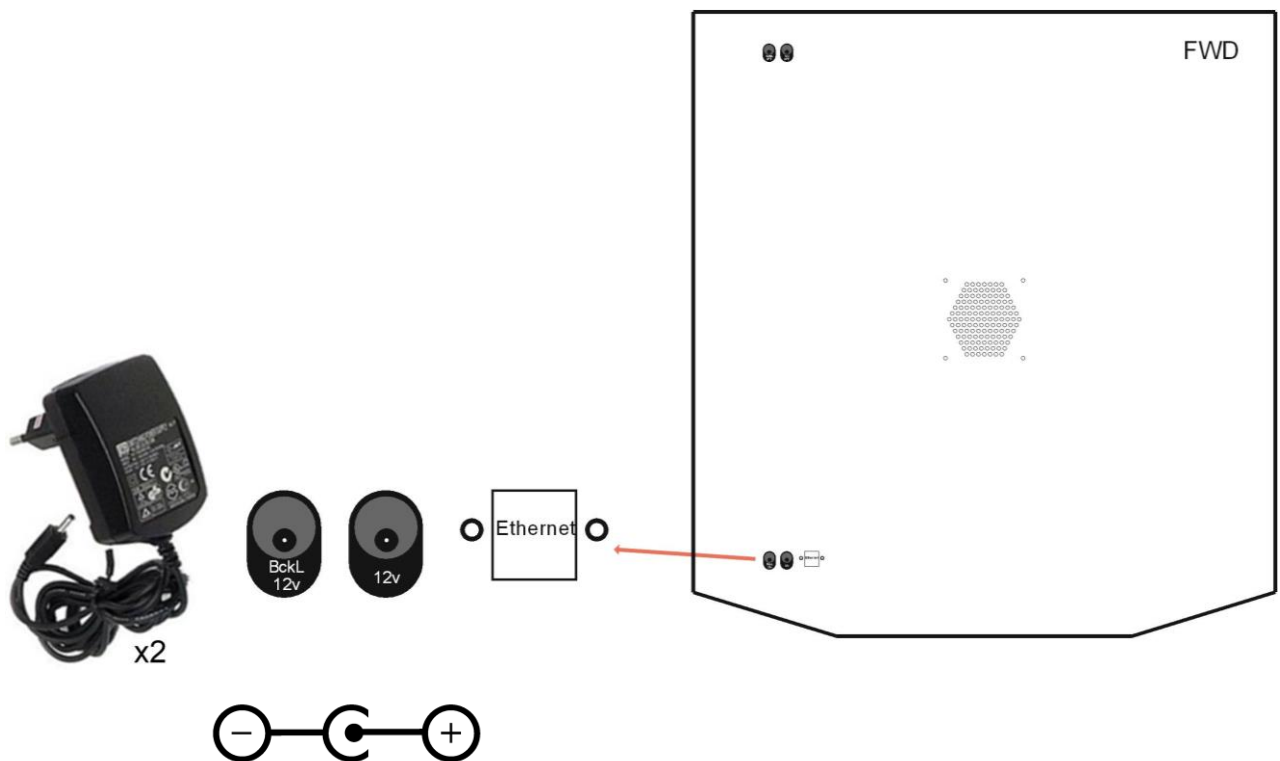
On the other hand, when you connect a 12V power supply to **12V_BL** (the power supply Jack for the backlight) there will be no effect. This is normal, as the backlight only turns on when it is activated in SC-Pascal or when the flight simulation software turns it on (just like the FWD in the 737).

IMPORTANT: The previous versions of FWD-Overhead had one 5VDC Connector for the electronics and SC-MB, while the Backlight was equipped with a 12V DC connector. In case of any doubt please contact Sismo Soluciones to prevent irreparable damage.

If this is the case for you, and you have one 5V DC Connector and one 12V DC Connector, then, obviously, you must be careful where you place each connector. This is why we recommend connect the 5V DC connector first, and check that the Display panels are activated.

This manual contains information on the procedure to connect the more recent versions of the FWD with two 12V connectors, please get in touch if you require the earlier manual.

www.sismo-soluciones.com



If you have only got the FWD from Sismo Soluciones, these are the only steps you need to do for cabling, and you can proceed to step 7 to mount the Overhead in the simulator.

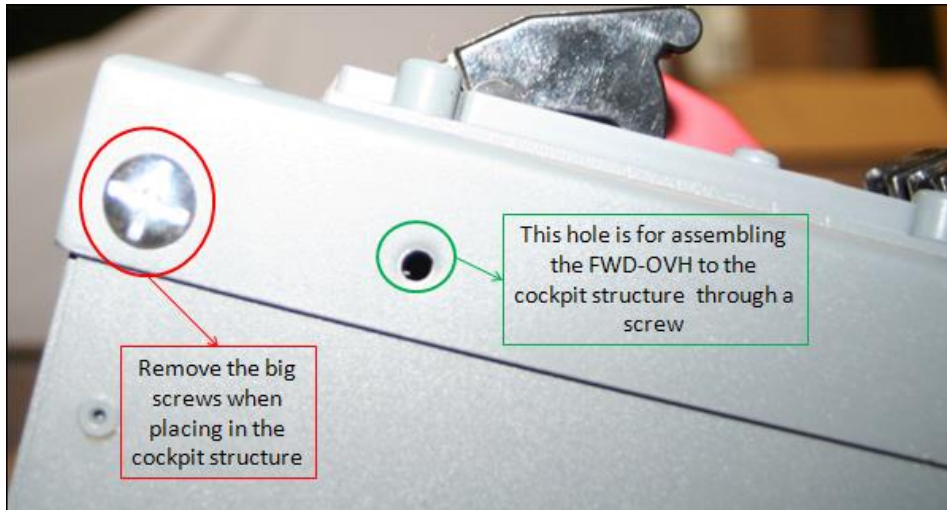
If you have also purchased the AFT from Sismo Soluciones, you have various options concerning the backlighting of this module. Please see 'User Manual – AFT Ethernet' for more information about the different options.

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7 PLACING THE FWD-OVH IN THE SHELL

When the FWD-Overhead is placed to the cockpit structure, the following instructions must be followed:

- Remove the screws (red circle) when placing in the cockpit structure.
- This hole (green circle) is for assembling the FWD-OVH to the cockpit structure with a screw.



8 CONFIGURATION

The configuration for all the SimCards, in this case for the FWD, can be consulted in the 'User Manual – SC-MB Configuration'.

Here is a friendly reminder of the details which are specific to the FWD:

The IP address of the FWD by default is 192.168.1.154.

The Host Port by default is 1154.

Daughter Board Config


In this field, if the user has acquired an FWD Overhead Alpha Line, the user must activate the following daughter boards:

SC-INPUTS1

SC-INPUTS2

SC-OUTS1

SC-SERVOS1

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9 FAQ

#I want to but the FWD module by module. Where should I start?

Regarding the electronics, the simplest way to proceed is by purchasing a FWD Overhead Baseplate.

Another solution would be purchasing a back panel, but also additional I/O Cards to control the simulator: 1 SimCard Ethernet SC-MB with displays; 2 SimCard 64 Digital Inputs; 1 SimCard 64 Digital Outputs; and 1 SimCard 64 Servos when you plan to integrate gauges as well as the needed wires and power supplies. The connection to the PC only requires an Ethernet cable.

We recommend you buy the FWD Overhead Frame, FWD Overhead Back Cover, FWD Overhead Baseplate first and also the Exterior Lights Control Panel Module (Bottom Panel) and the Central Control Panel Module. Although the Bottom Panel and Central Panel can be bought later we suggest you include them in the first order because that way you can receive them directly mounted in the FWD Frame, it's more cumbersome to install them later.

The rest of the modules are easy to install. They are attached with 4 or 6 screws to the Frame and they are connected with a flat cable to the Baseplate.

#Why isn't the backlight working?

The backlight on our FWD is activated in the same way as the real 737. It will not be activated until the pertinent procedures have been made during use of the simulator.

Have you tested the Backlight on SC-Pascal? This is the way to know whether you are experiencing a Hardware problem.

What is the next step?

Once you have connected the Ethernet cable and the power supplies, the next step is the configuration of the SC-MB. Please refer to "User Manual – SC-MB Configuration".

One of the electronic components is broken.

No matter which component has apparently broken, we will ask you to perform the same test.

Open SC-Pascal and perform a hardware test (instructions in the 'User Manual – SC-MB Configuration'). If the activation on SC-Pascal of this element of the module yields no results, we can confirm that there is a hardware problem. Otherwise, if there is a reaction, it signifies a configuration error.

The hardware is not recognised by ProSim/iFLy.

This is outside the scope of this manual. In any case, before concluding that there is a software problem with the FWD, you must perform a test in SC-Pascal. Once you have run a full test of the hardware, please get in touch and we will help you troubleshoot.

#I have an older version of the FWD. Do I need a different script?

In order for us to know whether the version of our scripts you are using is correct, we need to know the version of Sismo products you are using. The contact map has changed over time and if you can tell us the serial number of your SC-MB, we can send you the right script.

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10 RELATED DOCUMENTATION

ID	DOCUMENT	Revision
01	User Manual – SimCards Features	See the latest on our website
02	User Manual – SC-MB Configuration	See the latest on our website
03	FS Connectios Layout	See the latest on our website
04	Datasheet – SimCards Ethernet UDP Protocol	See the latest on our website
05	Technical Report – Using ProSim737 with Sismo Ethernet Modules	See the latest on our website
06	Starting with SC-Pascal Scripts	See the latest on our website
07	Programming SC-Pascal – Vol I and Vol II	See the latest on our website
08	Consult all datasheets of the FWD modules to see the contact maps	See the latest on our website

END OF DOCUMENT

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