MIP737ICS2

Main Instrument Panel Integrate Circuit System

FOREWORD

The MIP737ICS2 (Integrate Circuit System) is a series of modules that integrates the electronic and hardware to support the functions of the Main Instrument Panel of B737NG simulator. MIP737ICS2 is plug&play and fully working with Flight Simulator X, Flight Simulator Steam Edition, Prepar 3D, Project Magenta, Prosim737, PMDG737NGX, LVLD767, Xplane737, iFly737 and the most common FS add-on software; due to the continuous evolving in the compatibility and in the third parts software and drivers it is not possible to give timely information in this manual, for up to date information about the compatibility see "Technical and documents" on CPflight product page.

The MIP737ICS2 is compatible with the more used MIP frames; of course this does not prevent to be used with different or self-made MIP structures. Dimensional compatibility with third parts MIP structures cannot be guaranteed.

Note: This manual contains the latest information at the time of drafting. Due to the continuous evolving of the product some features could be been modified. Eventual later information can be found at our website www.cpflight.com

NOTE!

The MIP737ICS2 is an extension of the CPflight MCP hardware, so it requires the CPflight MCP737 (EL, PRO or PRO2 versions) to operate. For more information about CPflight MCP737 see website products page. With FS default 737 the MIP737ICS2 works partially (see the list of supported functions at: http://www.cpflight.com/sito/support/swcomptab.asp).
The working functions are depending by the installed software Add-on; the hardware supports all the MIP737 functionality. If you note some mismatch about the functionality when used with a software add-on, please check the hardware with the test utility "testcpflighthardware.exe" (included in the Cpflight driver available at website "Technical and documents" page). If the hardware works with the test utility means that the hardware is ok and an upgrade to the software add-on is eventually necessary to fix the correct functionality.

WARNINGS!

IMPORTANT NOTES FOR THE ASSEMBLING:

- The MIP737ICS2 have a closed structure. The MIP737ICS2 has been developed in this way to prevent that any electrical part (i.e. welding point of component pin) comes into contact with metal parts of the MIP frame or any other metal structure.

- The MIP737ICS2 hardware is organized in some separate electronic boards, the boards are interconnected through flat cables (included). Each cable must be connected to the related socket as indicated in this manual, do not try to connect anything in a different way, warranty does not cover damages due to incorrect connection or misuse. The MIP frame structure must arrange proper slot for passing flat cables.

- Switches, rotary, annunciators, leds and knobs are already installed and working. The "AUTOBRAKE" rotary switch has a guarded position, the knob must be pulled to select "MAX". N1 SET and SPD REF use dual concentric rotaries with external knob selector and internal knob regulation. Working Flaps gauge (two independent needles to show L+R), working YAW

DAMPER and BRAKE PRESS gauges are integrated in the modules. The MIP737ICS2 does not include Chrono's and standby gauges. Frontplates are with warm white backlight.

- All the potentiometer in the lower panel section have their own functionality. Beside Captain and FO backlight regulation, the lower panels also includes the potentiometers to regulate the Background and AFDS lights and PFD/ND display regulation.

- The MIP737ICS2 is a plug&play system, it does not need any configuration file or script. Only connect to the MCP that will automatically detect the modules and will start to communicate with the entire system.

- The MIP737ICS2 boards contains sensitive Integrated Circuit (IC) chips. To protect them against damage from static electricity, you should follow some precautions whenever you interconnect the boards:

- Always disconnect power supply before to work on the connections.
- Before connecting cables, touch both of your hands to a safely grounded object or to a metal object, such as the power supply case of your PC to discharge possible electrostatic charges.

MIP737ICS2 SETUP

The MIP737ICS2 is supplied into four typical configuration (FULL, MAIN CP, MAIN CP & FO, CP SINGLE SEAT) . All the setups includes the 5 pole cable, a power supply and screws to fix the modules to the structure. FO and lower panels can be added to a "partial" configuration at any time to get more complete configurations.

FULL

MAIN CP

MAIN CP & FO

SINGLE SEAT CP
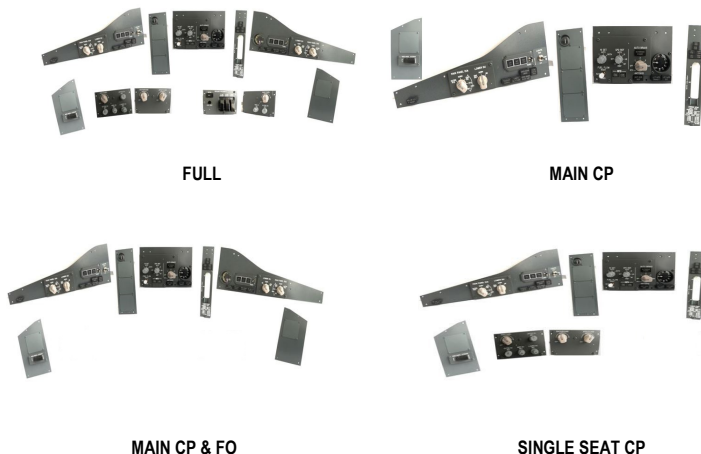
SETTING UP

To allow the MIP737ICS2 function, the MCP737 firmware revision has to be updated to the last version. If you have a previous version installed, upgrade the firmware, you may find it at website page: http://www.cpflight.com/sito/downloads/downloads.asp
More information about the firmware update are reported on the MCP operation manuals (download the later revision at "Technical and documents" product page).
The MIP737ICS2 is connected to the MCP through the 5 pole expansion socket. Connect a plug of the enclosed 5 pole cable to one of the MIP737ICS2 sockets and the other side to the AUX socket on the back of the MCP737. If you have other modules (for example an EFIS selector, NAV radio etc) you can connect them to the second socket of the MIP737ICS2 and so on (daisy-chain).
Each module has two 5 pole plugs, one cable is connected to the previous module and the second plug allows connecting the subsequent one.
The MCP have a single 5 pole connector as it function as a Master and manage signals for all other modules. The Daisy-chain concept allows a flexible and over time upgradable system using a single USB port on your computer. Only the MCP is connected to the PC, all further modules are managed by the MCP itself thank to its 16 bit flash microcontroller. This involves a negligible load on your computer, benefit the performances and does not affect the frame-rate.
Some modules are directly powered by the 5 pole daisy-chain connector (i.e. EFIS), some other modules require a dedicate power supply. The MIP737ICS2 requires a dedicate power supply (supply adapter is provided).

Due to the power draw and distribution on the daisy-chain, when you connect pedestal modules to the MIP737ICS2, it is recommended to power the pedestal by the BRT737 module that function as power distributor for the entire pedestal.
Before to connect the ICS to the daisy-chain, disconnect power supply from the MCP. The correct connection sequence is:

- disconnect power supply from MCP and any other eventual module
- interconnect all MIP737ICS2 boards and auxiliary connections (see next section "MIP737ICS2 INTERCONNECT")
- connect daisy-chain (DIN 5pole) to the ICS and eventual other modules
- connect power supply to the MIP737ICS2
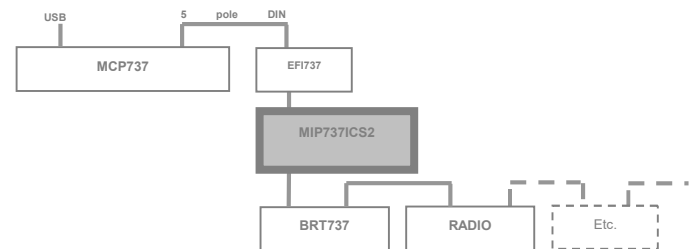
MIP737ICS2 INTERCONNECT

The MIP737ICS2 follows the plug&play concept to provide easy to install system. Of course it is not possible to have a single electronic board as the hardware is disposed on different positions on the MIP, so the MIP737ICS2 is organized on different electronic boards. The center panel module holds the main system board and it is the one to be connected to the daisy-chain through the provided 5 pole cable. The power supply is connected to the center panel module. All other modules are connected to the center panel through flat cables (integrated).

Panel backlight regulation

The panel backlight brightness can be regulated through the "MAIN PANEL BRIGHT" knob. The Captain side knob regulate the Captain + center panels backlight. When connected to the MIP737ICS2, the CPflight MCP/EFIS backlight brightness are controlled by the Captain side knob. The F/O side "MAIN PANEL BRIGHT" knob regulate the First Officer section.
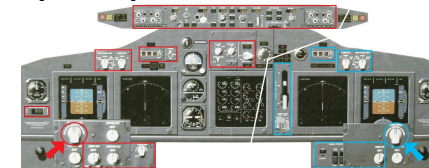
FLOOD LIGHTS

Two more regulations are available on the MIP737ICS2 lower sub-panels: one to regulate the background lights brightness and one to regulate the AFDS lights brightness. Terminal blocks for the background and AFDS lights are on the Main Center panel module. Outputs can drive 12V LED strip (max 5W on each output).