

SKU: 146292

A320 Motorized PRO TQ Installation & Operation Manual

Version 1.2 – April 2018

by Luciano Napolitano

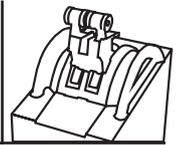


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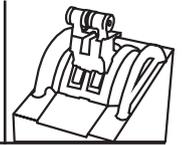
V.1.0 November 2017 : first release by Luciano Napolitano

V.1.1 November 2017 : added new pictures, graphics and impagination

V.1.2 April 2018: added New Prosim AR configuration section.

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1. BOX CONTENTS, FEATURES AND REQUIREMENTS

FSC A320 Motorized PRO TQ is a professional throttle quadrant unit, with motorized trim, for use in Airbus A3xx flight simulators.

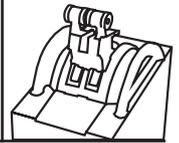


It provides the following features:

- Robust metal construction
- Replicates the A320 throttle quadrant, can be used for integration in any flight simulator based on A318, A319, A320, A321, A330 aircraft and provides a high degree of reality, with an excellent feeling
- Through a powerful and fully customizable driver, can be used virtually with any aircraft, including 3 and 4 engines aircraft
- Provides motorized trim, so the trim setting among software and hardware unit always match
- Provides panel backlight with user's selectable intensity
- Supports every simulator compatible with FSUIPC, including FSX, FSX-SE, Prepar3D v1.x/v2./v3.x/v4.x and X-Plane 9.70/10.x/11.x
- Supports Aerosoft Airbus X, extended, A320/321 software
- Supports connection via LAN and via USB. Using the USB connection, the unit is seen as a standard Windows joystick, increasing the compatibility with virtually every current or future software
- Easy to use driver, not requiring installation

The **FSC A320 MOTORIZED PRO TQ** kit is composed by the following items:

- A320 MOTORIZED PRO TQ
- 1x RJ-45 LAN cable
- 1x Power Cord
- 1x USB Pendrive with the drivers bundle for Flight Simulator 9, Flight Simulator X, Prepar3d and the driver for X-Plane
- Installation & Operation Manual



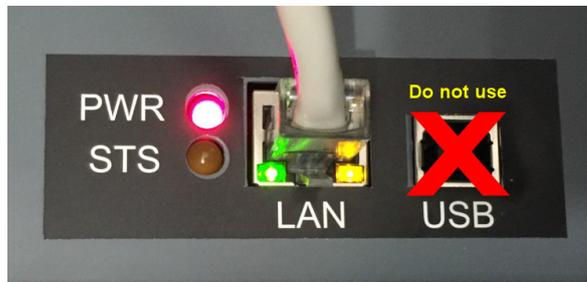
2. HARDWARE INSTALLATION AND SETUP

The TQ can be connected to a computer via LAN (driver required) and/or USB. The recommended connection is via LAN, so that all the features of the TQ can be used (including motorized trim, backlight and fire/fault lights) through the TQ driver. Of course, either a free LAN port on the computer or a port on a hub/switch, can be used to connect the TQ.

Using the USB connection, the TQ is seen by the operative system as a regular joystick, therefore ensuring compatibility with any present or future software, but no motorized trim, backlight and fire/fault lights cannot be commanded through such connection.

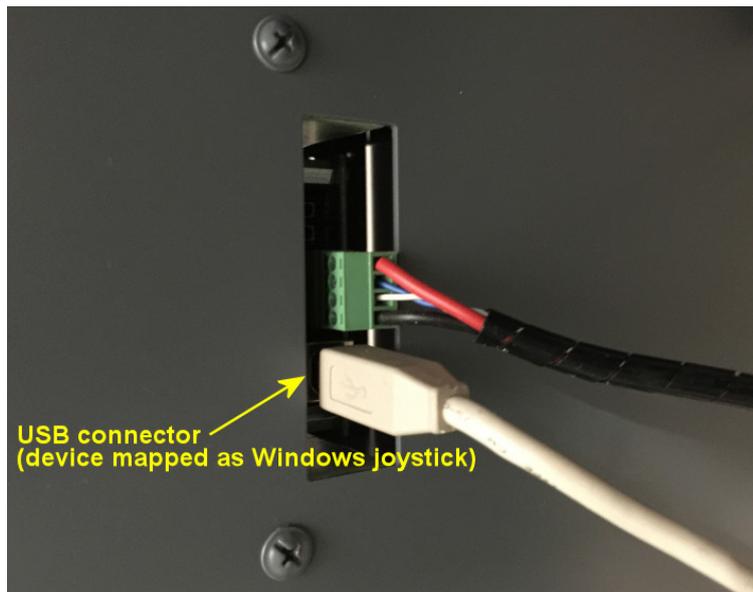
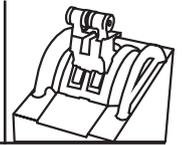
In some circumstance, for example when Aerosoft Airbus X , extended , A320/321 is used and you would like to take advantages from both default Windows joystick driver and the additional features provided only through LAN connection (trim, backlight, fault lights), the TQ must be connected using both LAN and USB cables.

Two USB ports are provided on the TQ unit, but only one is suitable to use the TQ as regular Windows joystick:



The correct USB port to be used is located behind the power supply & LAN interface box, which needs to be unscrewed in order to gain access to the port:





The connection via USB is necessary only when the simulator software needs default Windows joy-stick units and is not compatible with FSUIPC (for example Aerosoft Airbus). Under this circumstance, the simultaneous connection of the LAN cable, gives also the additional features offered by LAN interface (motorized trim, backlight, fire/fault lights).

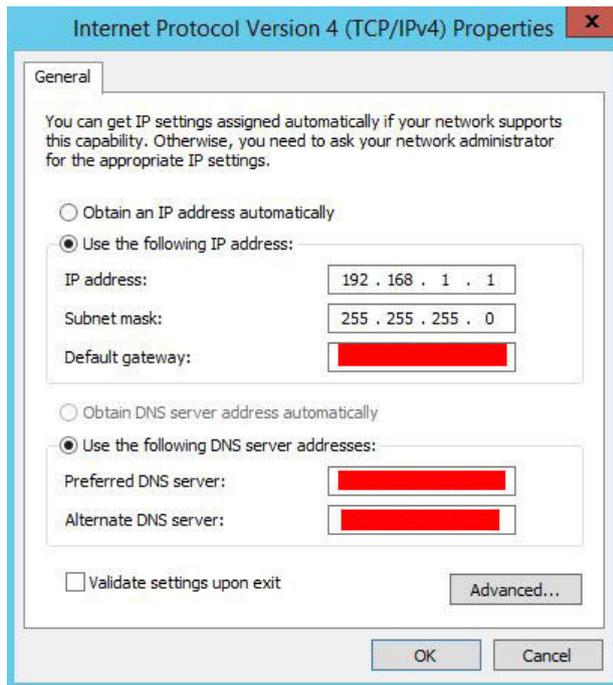
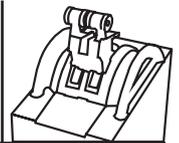
2.1 CONFIGURING LAN CONNECTION

The TQ is shipped pre-configured on the factory-default IP address of **192.168.1.222** on port **45400** (net submask **255.255.255.0**). To let the device be "seen" by your network, the followings conditions must be met:

- The IP address and port used by TQ must be **unique** and therefore not used by any other device on the same LAN
- The TQ must be on the **same address class and range** of the other devices

If your LAN is already based on **192.168.1.x range** and no other device is using **192.168.1.222** or port **45400**, then the TQ may be used with the factory-default LAN parameters and no further steps are required. Differently, before using the TQ, it will be necessary to enter the setup page and input the LAN parameters accordingly, as follows:

- Connect the TQ directly to a computer's LAN port, avoiding to operate through a switch or router (if simpler, you may configure the TQ using another computer, as the settings will be permanently stored inside the TQ itself, not inside the computer)
- Configure the computer's IP address on the same range used by the TQ, as displayed here:



Before changing any of the numbers, make sure to annotate them because, after the TQ configuration has been completed, you will need to restore the old values, or the computer will no longer operate correctly once reconnected to the LAN and Internet (parameters marked in red are not needed by the TQ)

- Open a web browser and on the address bar, enter the IP address of the TQ as follows:



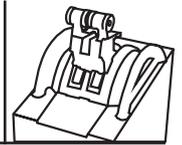
- If an authentication window is displayed, just login with the followings credentials:

- User name: **admin**
- Password: **admin**

- From the page that will be displayed in the browser, just click TCP/IP and enter the parameters accordingly to the LAN where the TQ **will be actually used**



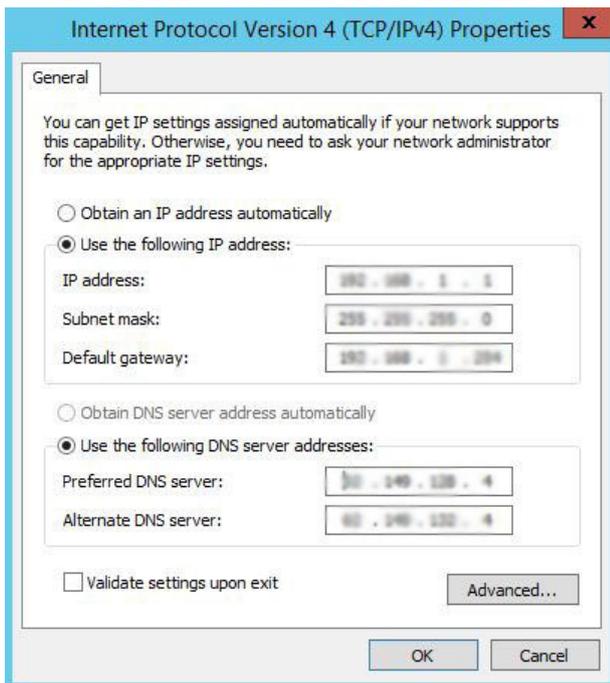
- enter the **"IP Address"** for the TQ device. For example, if the LAN where the Stick TQ will be actually used is based on range **"10.0.0.x"** and **.199** is free, enter **10.0.0.199** (otherwise



just enter the IP address suitable for your LAN)

- leave all the other parameters to the default setting
- Click **Apply Change**

- As soon as the LAN setup is saved, you will be no longer able to access the configuration again, not until the TQ will be connected to a LAN that doesn't use the same **IP address range**.
- Once the LAN setup of the TQ has been completed, the computer's IP address can be restored back to the previous values:



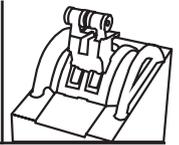
- Now just reconnect the computer to the LAN and connect the TQ to the network port where it will actually operate. If all the steps were made correctly, the TQ will be "seen" by your LAN as expected. If you would like to make a test, supposing that no firewall is blocking the ping command, you may **ping** the TQ from **command prompt** and get a response:
 - From Windows command line / search box / start button run either **cmd.exe** (Command Prompt) or **powershell.exe** (Power Shell)
 - Type **ping** followed by the IP address of the TQ, for example, **ping 89.46.72.1**

```
Windows PowerShell
Copyright (C) 2014 Microsoft Corporation. All rights reserved.

PS C:\Users\Administrator> ping 89.46.72.1

Pinging 89.46.72.1 with 32 bytes of data:
Reply from 89.46.72.1: bytes=32 time<1ms TTL=255
Reply from 89.46.72.1: bytes=32 time<1ms TTL=255
Reply from 89.46.72.1: bytes=32 time<1ms TTL=255
Reply from 89.46.72.1: bytes=32 time=10ms TTL=255

Ping statistics for 89.46.72.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 10ms, Average = 2ms
PS C:\Users\Administrator>
```



- **“Reply from”** indicates that the computer where you are operating, is able to communicate with the TQ. Differently a timeout error will be displayed, as shown below:

```
PS C:\Users\Administrator> ping 192.168.0.1

Pinging 192.168.0.1 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.0.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
PS C:\Users\Administrator> _
```

- **IMPORTANT!** Ping command may not work, even if the TQ configuration is OK, if firewall or other software is blocking such command (eventually, make sure to disable them before doing such test). **In case you will contact customer support department to submit issues, we will need to know if the computer can “ping” the TQ as first instance.**

2.2 CONFIGURING USB CONNECTION

When the TQ is connected to a computer via the USB cable, it is seen by the operative system as a regular Windows joystick (throttle levers are analogue axis, while buttons and switches are fire buttons). After the connection is made, follow the steps below to start using the TQ:

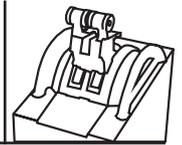
- open **Windows Game device setup** to make the calibration of analogue axis (throttle levers)
- configure your simulator software, assigning each function to analogue axis and fire buttons

When the TQ is connected using only the USB cable, the motorized trim, backlight and fire/fault lights may be inoperative. No external driver is required to operate the TQ when USB-only connection is chosen.

2.3 USING BOTH USB AND LAN CONNECTION

Under some circumstance, it may be necessary to connect the TQ to the computer using both LAN and USB connection. This is necessary when third party software, like Aerosoft Airbus X , extended , A320/321, works only with pure-Windows joystick devices, but you don't want to miss the additional features (motorized trim, backlight, fire/fault lights) provided only via LAN.

When such kind of connection is required, you must carry-out all the configuration steps above explained for both LAN and USB interface.



3. OPERATING THE TQ

If the TQ is connected to a computer with only USB cable, no driver or software is required: just configure your simulator software to use analogue axis and fire buttons accordingly (no motorized trim, backlight and fire/fault lights can be used with this kind of connection).

If the TQ is connected via LAN or via LAN + USB, additional functions are provided via the TQ driver, which is usually supplied in an USB key and doesn't need an installation: to use it, just copy the provided **executable** application anywhere on your hard drive or onto the desktop, and run it directly from there.

3.1 USING THE TQ IN X-PLANE VIA LAN

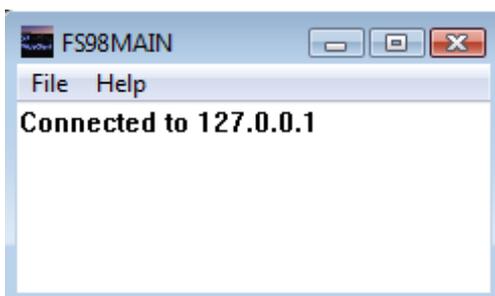
The followings steps are necessary only when the TQ is connected via LAN or via LAN+USB. In order to work as expected, the TQ driver requires X-Plane and XPUIPC started in the following sequence:

1. Start X-Plane, making sure that it loads also the XPUIPC plug-in as indicated below:



From the Plug-in Admin menu, XPUIPC/XPWideFS must be set as Enabled.

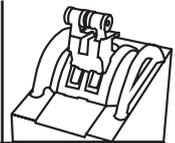
2. If the TQ is connected to a slave computer (say computer "B") not running X-Plane, you will have to run XPWideClient on computer B, configuring the IP address of the computer where X-Plane runs. The TQ driver will be executed on computer B too.



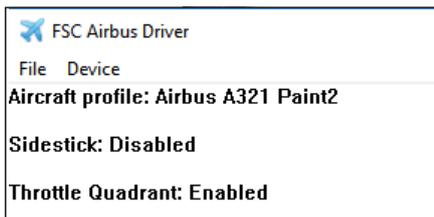
For first time use, XPWideClient needs to be configured in order to communicate with X-Plane. In the sample shown above, XPWideClient is configured to communicate with X-Plane running on the same computer where XPWideClient and the TQ driver are used (IP address of **127.0.0.1**, meaning "itself").

XPWideClient is configured by directly editing its INI file by a text editor (for example, Windows Notepad). Please consult the documentation shipped with XPWideClient to know how to edit its INI file and configure it as required.

If the TQ Throttle is connected to the same computer where X-Plane runs, step 2 can be skipped.



3. Start the TQ driver by running the provided executable



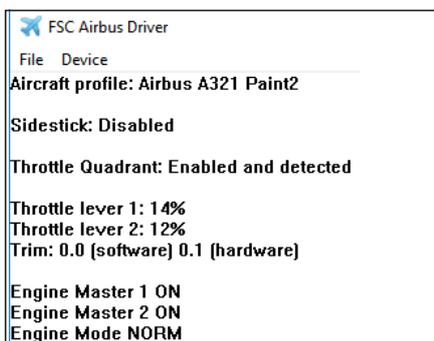
NOTE: to get XPUIPC, not supplied with this software, please visit <http://www.tosi-online.de/>

3.2 USING THE TQ IN FS9, FSX, ESP AND Prepar3D VIA LAN

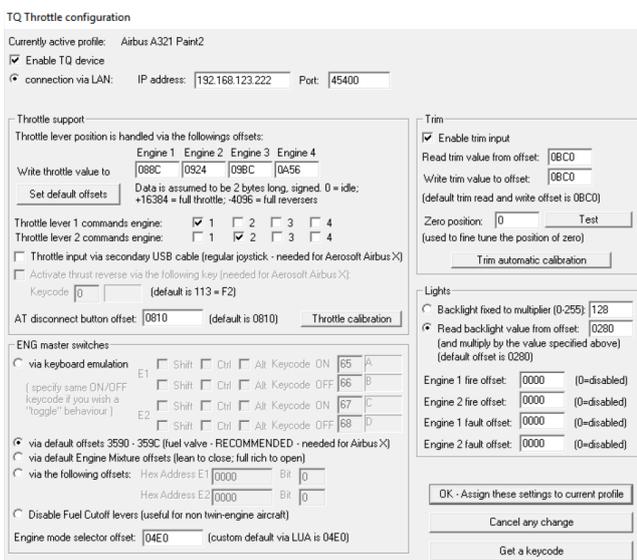
The followings steps are necessary only when the TQ is connected via LAN or via LAN+USB.

In order to work properly, the TQ requires FSUIPC installed and registered into the client simulator software that you would like to use. Most cockpit builders and general users already have FSUIPC installed and registered because it is required by most add-ons. In case you don't have it, you may buy a license from simmarket.com

- Run the client simulator normally
- Make sure that no other hardware is sending throttle levers and trim input (check the axis / buttons assignment of the client simulator and clear all the settings)
- Run the provided Airbus driver:



To access the configuration, use Device > **Throttle configuration...**





The TQ driver works by aircraft profile: it detects automatically the currently active aircraft in the client simulator, and activate the latest saved configuration for such aircraft:

Currently active profile: Airbus A321 Paint2

Enable TQ device

connection via LAN: IP address: 192.168.123.222 Port: 45400

In order to let the driver to communicate with TQ, you must set the same IP address and Port, as previously set via the web browser, for example:

Currently active profile: Airbus A321 Paint2

Enable TQ device

connection via LAN: IP address: 192.168.123.222 Port: 45400

The TQ is shipped already calibrated. Should you need to calibrate it again, this can be done by clicking these buttons:

Throttle support

Throttle lever position is handled via the followings offsets:

	Engine 1	Engine 2	Engine 3	Engine 4
Write throttle value to	088C	0924	09BC	0A56

Data is assumed to be 2 bytes long, signed. 0 = idle; +16384 = full throttle; -4096 = full reversers

Throttle lever 1 commands engine: 1 2 3 4

Throttle lever 2 commands engine: 1 2 3 4

Throttle input via secondary USB cable (regular joystick - needed for Aerosoft Airbus X)

Activate thrust reverse via the following key (needed for Aerosoft Airbus X):
Keycode: 0 (default is 113 = F2)

AT disconnect button offset: 0810 (default is 0810)

Trim

Enable trim input

Read trim value from offset: 0BC0

Write trim value to offset: 0BC0

(default trim read and write offset is 0BC0)

Zero position: 0

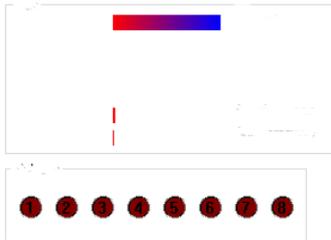
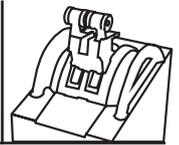
(used to fine tune the position of zero)

The TQ works via default FSUIPC offset and the configuration window is self-guided to make all the needed customizations. Some functions, like thrust reverse and Engine Master switches are available through default offset, custom offset, or even keystroke simulation, to be used if the client software doesn't support offset.

3.3 USING THE TQ WITH AEROSOFT AIRBUS VIA LAN AND USB

In order to work properly, Aerosoft Airbus requires pure joystick input devices, therefore, to have all the functionalities available, please follow the steps below:

- Connect the TQ using both LAN and USB cable, please refer to previous chapter in order to locate the correct USB port (which is NOT the USB port located near the LAN port)
- Open Windows Game device setup and select A320TQ-Pro device.
Make sure that no fire buttons are pressed, as in the shot below: (make sure that both Engine Master switches are OFF and Engine Mode switch is NORM)



- Now use the guided Windows procedure to calibrate both throttle levers and trim wheel. When it's required to press a fire button to continue, just push an autothrottle disconnect button (the red button on the side of each throttle lever). **For Aerosoft Airbus, DO NOT calibrate the throttle levers using also the reverse thrust mode range, but, when moving from MIN to MAX, just move the levers from ZERO to TOGA, never moving the levers to REV range.**
- In the TQ driver, make sure the options are set as displayed below:

Throttle support
 Throttle lever position is handled via the followings offsets:
 Write throttle value to: Engine 1: 088C, Engine 2: 0924, Engine 3: 09BC, Engine 4: 0A56
 Data is assumed to be 2 bytes long, signed. 0 = idle; +16384 = full throttle; -4096 = full reversers.
 Throttle lever 1 commands engine: 1 2 3 4
 Throttle lever 2 commands engine: 1 2 3 4
 Throttle input via secondary USB cable (regular joystick - needed for Aerosoft Airbus X)
 Activate thrust reverse via the following key (needed for Aerosoft Airbus X):
 Keycode: 113 F2 (default is 113 = F2)
 AT disconnect button offset: 0810 (default is 0810)

Trim
 Enable trim input
 Read trim value from offset: 0BC0
 Write trim value to offset: 0BC0
 (default trim read and write offset is 0BC0)
 Zero position: 0
 (used to fine tune the position of zero)

Lights
 Backlight fixed to multiplier (0-255): 255
 Read backlight value from offset: 0280
 (and multiply by the value specified above)
 (default offset is 0280)
 Engine 1 fire offset: 0000 (0=disabled)
 Engine 2 fire offset: 0000 (0=disabled)
 Engine 1 fault offset: 0000 (0=disabled)
 Engine 2 fault offset: 0000 (0=disabled)

ENG master switches
 via keyboard emulation
 E1: Shift Ctrl Alt Keycode ON: 65 OFF: 66 B
 E2: Shift Ctrl Alt Keycode ON: 67 OFF: 68 D
 via default offsets 3590 - 359C (fuel valve - RECOMMENDED - needed for Airbus X)
 via default Engine Mixture offsets (lean to close; full rich to open)
 via the following offsets: Hex Address E1: 04E0 Bit: 0
 Hex Address E2: 092A Bit: 0
 Disable Fuel Cutoff levers (useful for non twin-engine aircraft)
 Engine mode selector offset: 04E0 (custom default via LUA is 04E0)

- In order to add support for Engine MODE switch (Crank, Norm, Ign Start), copy the supplied "FSCAirbus-TQ.lua" in the same folder where FSUIPC is installed, for example C:\Program Files(x86)\Microsoft Games\Microsoft Flight Simulator X\Modules. Then, open FSUIPC4.INI (found in the same folder) and make sure the followings line exists:

[Auto]

1= FSC-Airbus-TQ

(if you already use other LUA files that are loaded automatically once the simulator starts, you will see them listed in the same section: in such case, just add **FSC-Airbus-TQ** as last entry, respecting the order number in your INI file)

- Now you can start Aerosoft Airbus and enjoy it



3.4 USING THE TQ in Prosim - AR VIA LAN

The followings steps are necessary only when the TQ is connected via LAN .

In order to work properly, the TQ requires FSUIPC installed and registered into the client simulator software that you would like to use. Most cockpit builders and general users already have FSUIPC installed and registered because it is required by most add-ons. In case you don't have it, you may buy a license from simmarket.com

In the Prosim A320 System , open configuration Page - tab "Drivers " insert the TQ IP in the "Poldragon Ethernet Hardware" section, the port is the same 45400.

	Generic COM port/TCP driver	<input type="checkbox"/> Enabled	Advanced
+	IOCP Server		
	Phidgets support	<input type="checkbox"/> Enabled	Advanced
	PoKeys USB and Ethernet support	<input type="checkbox"/> Enabled	Advanced
	Poldragonet ethernet hardware	192.168.1.222	45400
	Pololu support	<input type="checkbox"/> Enabled	
	SimASPAirSpace	<input type="checkbox"/> Enabled	
+	Skalarki hardware support		

Restart Prosim - AR, and check the "Poldragonet Driver" in the "Software" tree on the right window.

In the Configuration page, tab "Combined Config" write "Elevator trim" :

"the Flight Controls[6]" section will show You the configuration, goto "LEVER[1]" and set the analog input "Poldragonet axes" "elevator trim" and calibrate the trim wheels:

Position the wheel on -4 DWN an press SET -4 ,

Position the wheel on 0 an press SET 0 ,

Position the wheel on 4 UP an press SET 4 ,

Position the wheel on 8 UP an press SET 8 ,

Position the wheel on 13.5 UP an press SET 13.5.

Then check in the lower ECAM , in the FLT/CTRL section the trim position .

NUMERICAL[2]

Elevator trim output [Not connected]

Elevator trim stepper motor numerical [Not connected]

LEVER[1]

Elevator trim

Configuration

Analog input Poldragonet axes Elevator trim

Motor output [Not connected]

Calibration

Move hardware to set the various calibration positions.