



## H7 Series - Compact Signal Booster User & Installation Manual



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## Document History

| Description                                | Revision | Date Issued                    |
|--------------------------------------------|----------|--------------------------------|
| Preliminary release for early field trials | 1.0      | August 3 <sup>rd</sup> , 2009  |
| Indicator panel, and cabinet modifications | 2.0      | April 13 <sup>th</sup> , 2010  |
| Software screenshots updated               | 3.0      | August 20 <sup>th</sup> , 2010 |
| Update for generic version and pFOMs v3.0  | 4.0      | June 5 <sup>th</sup> , 2012    |
| pFOMS installer updated                    | 5.0      | August 12 <sup>th</sup> , 2012 |
| General review                             | 6.0      | July 2 <sup>nd</sup> , 2014    |

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## About this manual

This manual describes installation, commissioning, operation and maintenance of Fiplex **H7 Series Compact Signal Booster, and Fiplex portable Operational and Maintenance Software** (pFOMS). The first part of the manual describes the Signal Booster hardware and the second part describes the software.

Hardware and software mentioned in this manual are subjected to continuous development and improvement. Consequently, there may be minor discrepancies between the information in the manual and the performance and design of the hardware and software. Specifications, dimensions and other statements mentioned in this manual are subject to change without notice.

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## Contents

|                                                     |    |
|-----------------------------------------------------|----|
| Part 1 HARDWARE .....                               | 6  |
| 1. Safety.....                                      | 6  |
| 2. Product Description. ....                        | 9  |
| Dimensions .....                                    | 10 |
| 3. Signal Booster Block Diagram.....                | 11 |
| 4. Installation.....                                | 11 |
| Mounting .....                                      | 12 |
| Starting operation.....                             | 18 |
| Auto-oscillation Condition .....                    | 19 |
| Status Indicators .....                             | 19 |
| Automatic Gain Control (AGC) .....                  | 20 |
| Overload Protection .....                           | 21 |
| Laboratory Measurements .....                       | 21 |
| Part 2 SOFTWARE .....                               | 22 |
| 5. Installation.....                                | 22 |
| 6. Software Installation Troubleshooting Guide..... | 25 |
| 6.1. Driver installation failure .....              | 25 |
| 6.2. Device Unknown legend in driver. ....          | 28 |
| 6.3. Failed to connect to device .....              | 30 |
| 7. Using Portable OMS Software.....                 | 31 |
| 8. Overview.....                                    | 34 |
| General Tabsheet .....                              | 34 |
| Status tab sheet .....                              | 35 |
| Configuration.....                                  | 36 |
| Update Features .....                               | 37 |
| ANNEX 1 - 24 Volts DC Operation .....               | 38 |
| ANNEX 2 – Replacing +5VDC DC-DC Converter .....     | 40 |

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## Abbreviations

|        |                                                                                    |
|--------|------------------------------------------------------------------------------------|
| AGC    | Automatic Gain Control                                                             |
| AMPS   | Advanced Mobile Phone Service                                                      |
| ARFCN  | Absolute Radio Frequency Channel Number                                            |
| BCCH   | Broadcast Control Channel (GSM broadcast channel time slot)                        |
| BS     | Base Station, BS antenna = towards the base station                                |
| CDMA   | Code Division Multiple Access                                                      |
| DC     | Direct Current                                                                     |
| DCS    | Digital Communication System (same as PCN)                                         |
| DL     | Downlink signal direction (from base station via Signal Booster to mobile station) |
| DPLX   | Duplex filter                                                                      |
| EEPROM | Electrical Erasable Programmable Read Only Memory                                  |
| EGSM   | Extended Global System for Mobile communication                                    |
| ETACS  | Extended Total Access Communication System                                         |
| ETSI   | European Telecommunications Standard Institute                                     |
| GSM    | Global System for Mobile communication                                             |
| HW     | Hardware                                                                           |
| LED    | Light Emitting Diode                                                               |
| LNA    | Low Noise Amplifier, uplink and downlink                                           |
| MS     | Mobile Station, MS antenna = towards the mobile station                            |
| OMS    | Operation and Maintenance System                                                   |
| OL     | Overload                                                                           |
| PA     | Power Amplifier                                                                    |
| PCN    | Personal Communication Network (same as DCS)                                       |
| PCS    | Personal Communication System                                                      |
| pFOMS  | Portable Fiplex Operation and Maintenance Software                                 |
| PS     | Power Supply                                                                       |
| RF     | Radio Frequency                                                                    |
| RSSI   | Received Signal Strength Indication                                                |
| SW     | Software                                                                           |
| TDMA   | Time Division Multiple Access                                                      |
| UL     | Uplink signal direction (from mobile station via Signal Booster to base station)   |
| WEEE   | Waste of Electric and Electronic Equipment                                         |

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## Part 1 HARDWARE

### 1. Safety

#### Caution!

This manual lists a set of rules and warnings to be accomplished when installing, commissioning and operating a Fiber DAS Master Optical Unit from FIPLEX. Any omission may result in damage and/or injuries to the System and/or the System Operators or Users.

If an instruction is not clear or you consider is missing, please contact immediately to Fiplex. See [www.fiplex.com](http://www.fiplex.com) for contact information.



#### Dangerous Voltage Warning

Any personnel involved in installation, operation or service of this equipment must understand and obey the following:

***The power supply unit supplied from the main power contains dangerous voltage level, which can cause electric shock. Switch the main power off prior to any work in such equipment. Any local regulations are to be followed when servicing MOUs. Authorized service personnel only are allowed to service repeaters while the main is switched on.***



#### R&TTE Compliance Statement

This equipment complies with the appropriate essential requirements of Article 3 of the R&TTE Directive 1999/5/EC.



#### Station Ground

BTS chassis, Signal Booster, feeders, donor antenna, service antenna/s and auxiliary equipment (splitters, tabs, .etc) are required to be bonded to protective grounding using the bonding stud or screw provided with each unit.



#### Electrostatic Discharge

Static electricity means no risk of personal injury but it can severely damage essential parts of the Signal Booster, if not handled carefully.

Parts on the printed circuit boards as well as other parts in the Signal Booster are sensitive to electrostatic discharge.

**Never touch printed circuit boards or uninsulated conductor surfaces unless absolutely necessary.**

If you must handle printed circuit boards or uninsulated conductor surfaces, use ESD protective equipment, or first touch the Signal Booster chassis with your hand and then do not move your feet on the floor.

Never let your clothes touch printed circuit boards or uninsulated conductor surfaces.



#### Disposal of Electric and Electronic Waste

Pursuant to the WEEE EU Directive electronic and electrical waste must not be disposed of with unsorted waste. Please contact your local recycling authority for disposal of this product.

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## **FCC Compliance**

This is a 90.219 Class B device.

**WARNING:** This is a 90.219 Class B device. This is **NOT** a **CONSUMER** device. It is designed for installation by **FCC LICENSEES** and **QUALIFIED INSTALLERS**. You **MUST** have an **FCC LICENSE** or express consent of an FCC Licensee to operate this device. You **MUST** register Class B signal boosters (as defined in 47 CFR 90.219) online at [www.fcc.gov/signal-boosters/registration](http://www.fcc.gov/signal-boosters/registration). Unauthorized use may result in significant forfeiture penalties, including penalties in excess of \$100,000 for each continuing violation. The installation procedure must result in the signal booster complying with FCC requirements 90.219(d). In order to meet FCC requirements 90.219(d), it may be necessary for the installer to reduce the UL and/or DL output power for certain installations.



ATTENTION: This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.



ATTENTION: FCC regulation mandate that the ERP of type B signal boosters should not exceed 5W. This Signal Booster has a composite output power of 1W, therefore the gain of the DL antenna should be of 6dBi or less and maintain a minimum separation of 25 cm from all persons, and the gain of the UL antenna should be 13dBi or less and maintain a minimum separation of 28cm from all persons.

## **IC Compliance**

As per RSS 131 Issue 2:

- Nominal passband gain: 80dB max
- Nominal bandwidth: 8MHz maximum for Canada market
- Rated mean output power: Up to +30dBm
- Input and Output impedances: 50 ohms

The Manufacturer's rated output power of this equipment is for single carrier operation. For situations when multiple carrier signals are present, the rating would have to be reduced by 3.5 dB, especially where the output signal is re-radiated and can cause interference to adjacent band users. This power reduction is to be by means of input power or gain reduction and not by an attenuator at the output of the device.

RF Exposure Statement for ISED: "This device complies with Health Canada's Safety Code. The installer of this device should ensure that RF radiation is not emitted in excess of the Health Canada's requirement. Information can be obtained at [http://www.hc-sc.gc.ca/ewh-smmt/pubs/radiation/radio\\_guide-lignes\\_direct/index-eng.php](http://www.hc-sc.gc.ca/ewh-smmt/pubs/radiation/radio_guide-lignes_direct/index-eng.php)"

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The antenna/s used for this transmitter must be installed to provide a separation of at least 40 cm in DL and 45 cm in UL from all persons and must not be collocated or operating in conjunction with any other antenna or transmitter. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

*Selon RSS 131 Issue 2:*

- *Gain de bande passante nominal: 80dB max*
- *Bande passante nominale: 8MHz maximum pour le marché canadien*
- *Puissance nominale de sortie moyenne: Jusqu'à + 30dBm*
- *Imedances d'entrée et de sortie: 50 ohms*

*La puissance de sortie nominale du fabricant de cet équipement est pour le fonctionnement d'une seule porteuse. Pour les situations où plusieurs signaux de porteuse sont présents, la cote devrait être réduite de 3,5 dB, en particulier lorsque le signal de sortie est ré-irradié et peut causer des interférences aux utilisateurs de bande adjacents. Cette réduction de puissance doit se faire au moyen d'une puissance d'entrée ou d'une réduction de gain et non pas par un atténuateur à la sortie du dispositif.*

*Déclaration d'exposition RF pour ISED: «Cet appareil est conforme au Code de sécurité de Santé Canada. L'installateur de cet appareil doit s'assurer que les rayonnements RF ne sont pas émis au-delà de l'exigence de Santé Canada. Vous pouvez obtenir de l'information à l'adresse [http://www.hc-sc.gc.ca/ewh-semt/pubs/radiation/radio\\_guide-lignes\\_direct/index-fra.php](http://www.hc-sc.gc.ca/ewh-semt/pubs/radiation/radio_guide-lignes_direct/index-fra.php).*

*L'antenne utilisée pour cet émetteur doit être installée de manière à assurer une séparation d'au moins 40 cm dans DL et 45 cm dans UL de toutes les personnes et ne doit pas être collocée ni fonctionner avec une autre antenne ou émetteur. Les changements ou modifications non expressément approuvés par la partie responsable de la conformité pourraient annuler l'autorisation de l'utilisateur d'utiliser l'équipement.*



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## 2. Product Description.

The H7 Series Compact Signal Booster are IF SAW based Adjustable Bandwidth signal boosters that operates in the downlink frequency of 763-775MHz and in the uplink frequency of 793-805MHz for United States. For Canada it operates in the downlink frequency of 768-776MHz and in the uplink frequency of 798-806MHz.

This Signal boosters extends the radio coverage into areas inside the Base Station range where propagation losses prevent reliable communication.

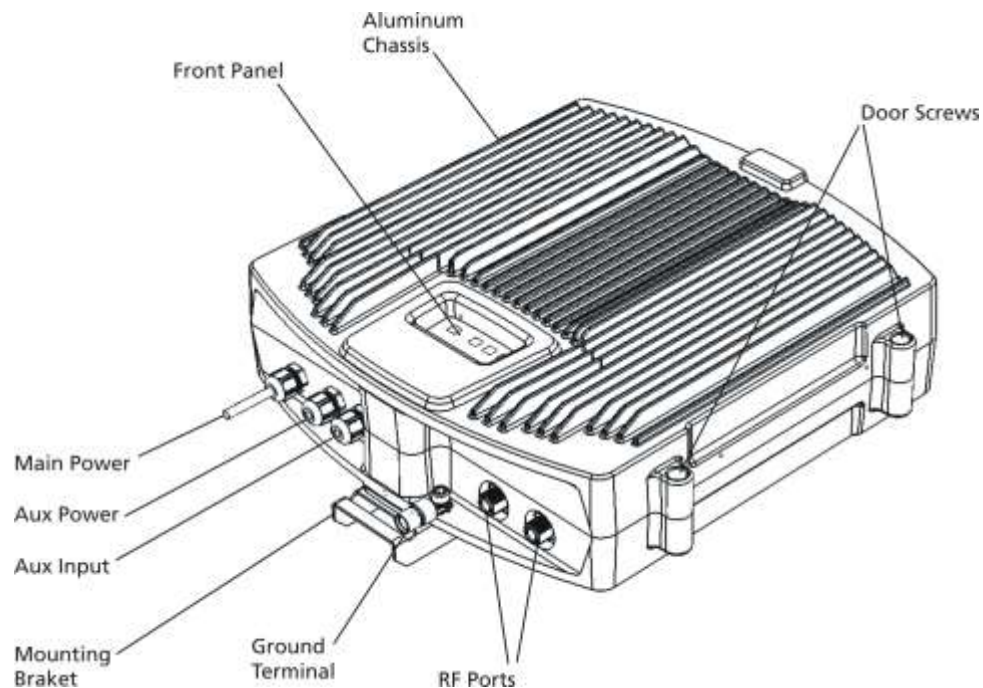
The system receives the UL signal though a Donor antenna to be amplified, filtered and re-radiated through the Service antennas. The DL signal is received by the Service antennas to be amplified, filtered and re-radiated through the Donor antenna back to the Base Station. This way, the system works as a Bidirectional Amplifier.

This signal booster is capable of handling one Adjustable Bandwidth band from 700KHz to 12Mhz in uplink and downlink. The start and stop frequency can be tuned via a software interface.

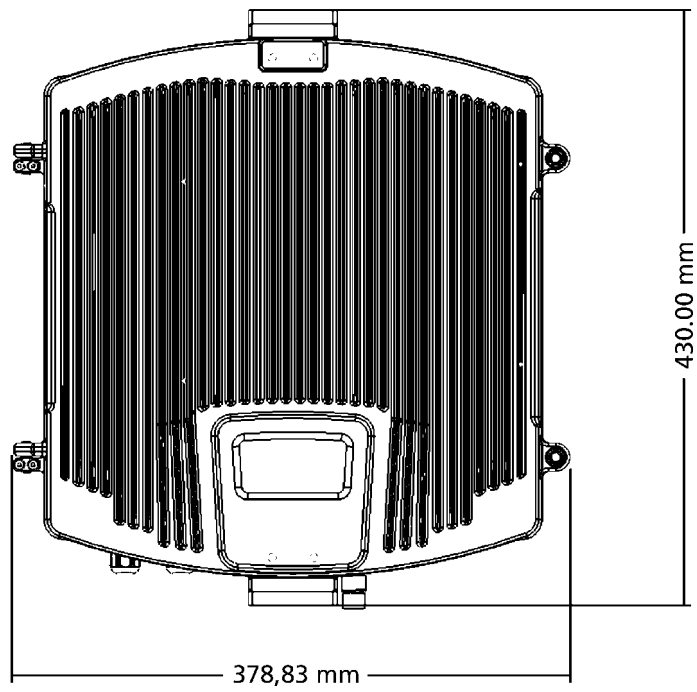
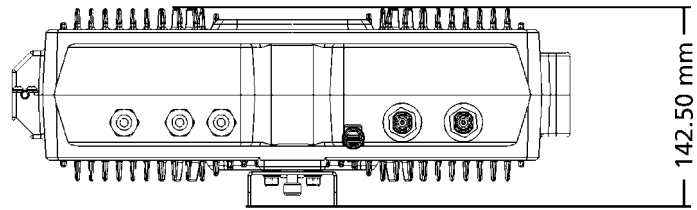
The intermediate filtering of this equipment is performed using IF SAW filtering technology and, among many, it has the following features:

- High Selectivity.
- Adjustable BW filter.
- Uplink Squelch with configurable threshold and configurable time hysteresis.

This Digital Signal Booster has a compact heavy duty IP67/NEMA4X cabinet for outdoor usage, it is designed to be wall or pole mounted.



## Dimensions



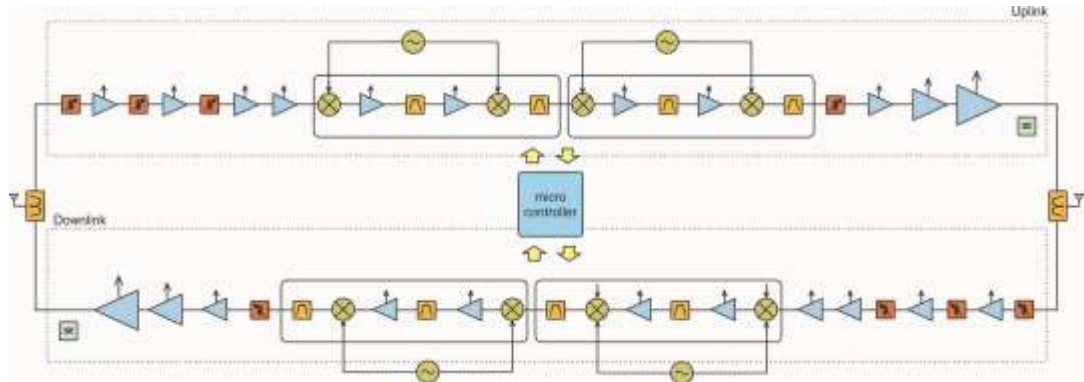
### 3. Signal Booster Block Diagram

This Signal Booster is basically a bi-directional amplifier, the **downlink** signals are received by the Signal Booster from cell site by the donor antenna, filtered by its internal duplexers and IF filters units, amplified by low noise amplifier(LNA) and downlink PA unit, and then sent via the server antenna to the area to improve mobile signals for mobile phones.

The **uplink** signal of mobile devices from the coverage area is input via the server antenna, then filtered by duplexers and IF filters units, amplified by the uplink low noise amplifier (LNA) and the uplink PA unit and finally sent via the donor antenna to the cell site tower.

A detector in the PA stage measures continuously the output level. The signals from this detector is used by the automatic gain control(AGC), to supervise and, if necessary, reduce the chain gain, in order to keep the output power level, under the maximum.

All the parameters are supervised by a microcontroller.



### 4. Installation

#### Mounting the Signal Booster

The Fiplex Compact Signal Booster is designed for outdoor usage with a weather proof outdoor cabinet that can be mounted without any kind of shelter from rain, snow or hail.

However, to improve reliability, it is recommended to mount the Signal Booster on a site with some kind of shelter from direct exposure to sun, rain, snow and hailing.

We extremely recommend not operating the Signal Booster under very bad weather conditions, such as:

- Intense rainfall, snowfall or hail
- Storm or high wind
- Extremely low or high temperature
- High humidity of the air

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## Mounting

### 1. Mount the bracket

The Signal Booster can be mounted on a wall or pole. These mounting cases are shown below in Figure 1 and Figure 2. The bracket is provided with the Signal Booster.

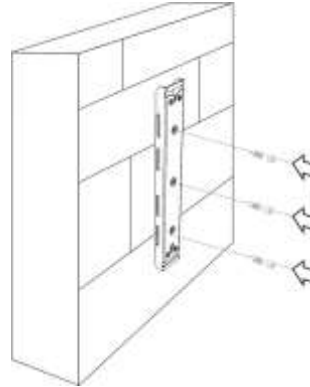


Figure 1

Figure 1 shows a bracket attachment to a wall using three fixing screws.

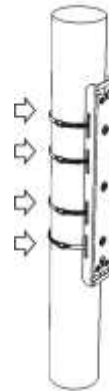


Figure 2

Figure 2 shows a bracket attachment to a pipe using two inox hose clamps (provided with bracket).

1. After attaching the bracket hang the Signal Booster.

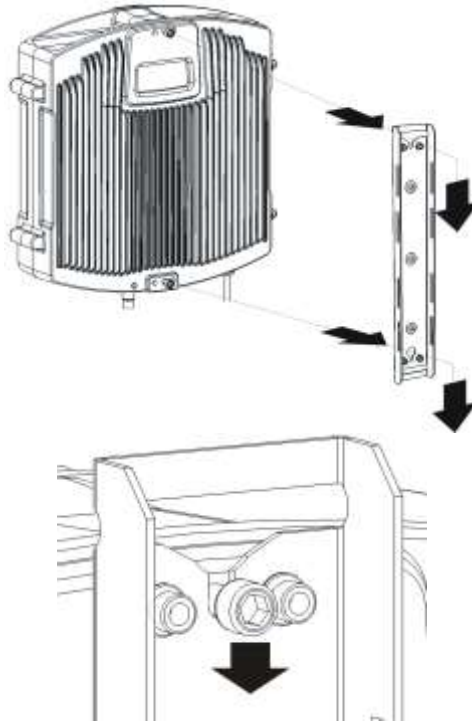


Figure 3

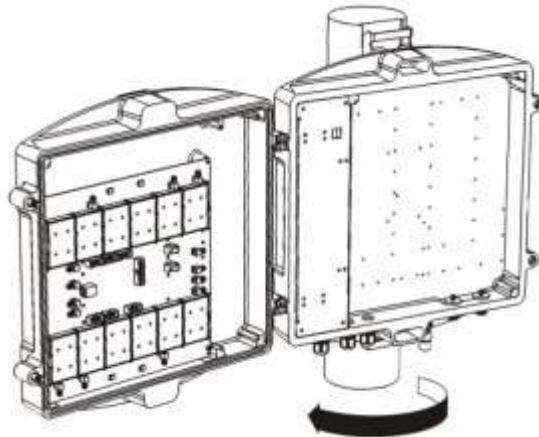
2. Screw the cabinet to the bracket  
To attach the Signal Booster's cabinet to the bracket use the provided four M6 x 2" allen screws and follow the indicated steps:



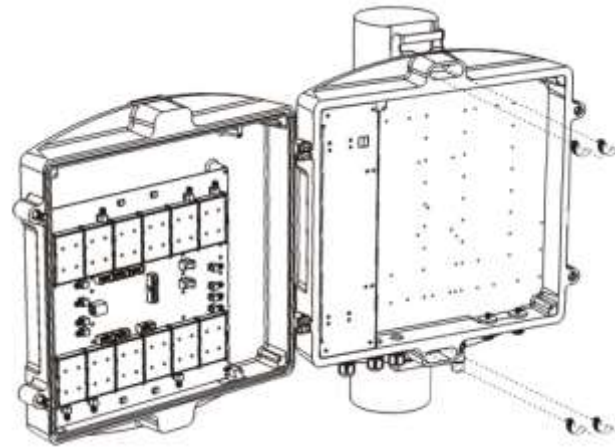
A - Release Signal Booster cover.



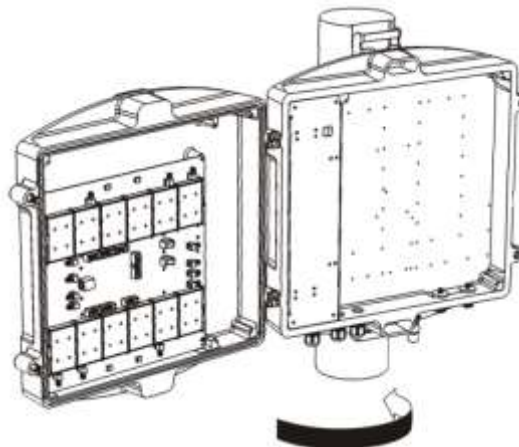
Use allen key N°6



B - Open Signal Booster cover.



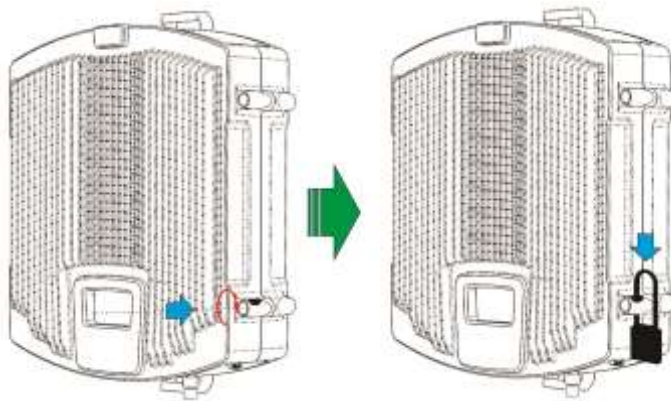
C - Place and screw the four M6 x 2" allen screws.



D - Close the cover.



E - Secure Signal Booster



If additional security is required, you can lock the cabinet with a padlock. For this, secure the locking pin and turn the lock as shown in the figure.

## Commissioning

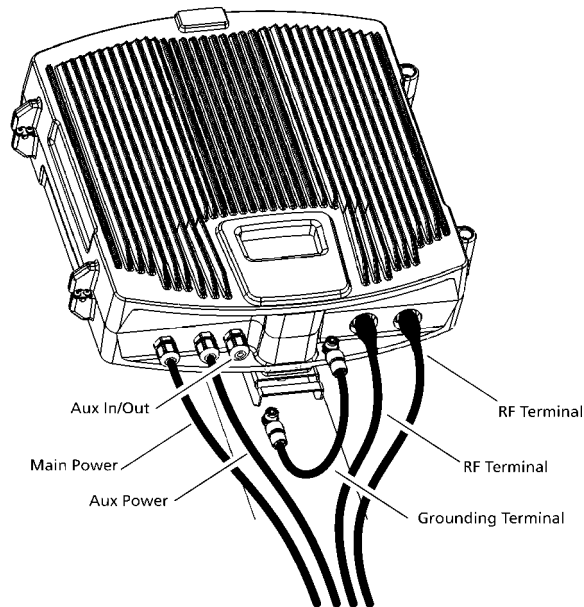
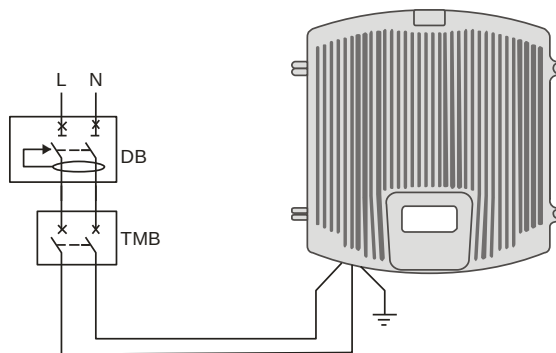


Figure 4

Figure 5 shows RF ports and AC and DC cable glands location.

1. Connect service antenna ("TO MOBILE" port) and donor antenna ("TO BASE" port) coaxial cables. N type female connectors are used in the Signal Booster.
2. Once RF ports of the Signal Booster are properly loaded connect mains to the AC source. Electrical installation must provide differential and termo-magnetic breaker elements according to electric safety international regulations.
- 3 Make sure that not used cable glands are properly sealed. For this, use the seal plug and self-amalgamating tape.





3. Auxiliary DC connection can be provided to the Signal Booster from an external DC source. There is a dedicated cable gland for this purpose (EXT DC INPUT in figure 4), and a dedicated DC connector labelled P60002 located at the main board. A 5.5mm x 2.1mm center positive plug must be used. Please check appropriate DC voltage at Signal Booster specification sheet.

4. If the Signal Booster has the NFPA Option, there is a dedicated cable gland for this purpose ("AUX IN/OUT" in figure 4). A multi-conductor cable can be used to connect the NFPA dry contacts to the Fire Department Control Box.

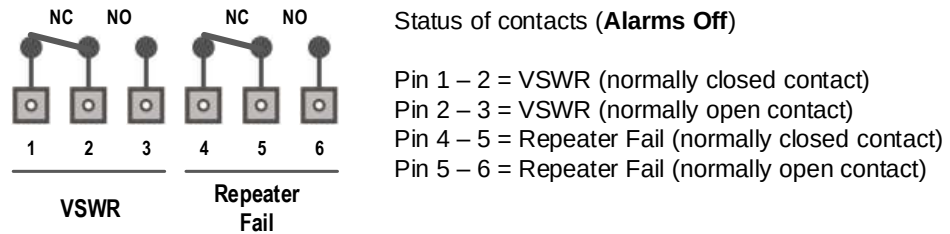


Figure 5; NFPA Dry Contact connection configuration

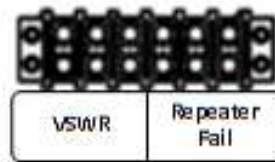
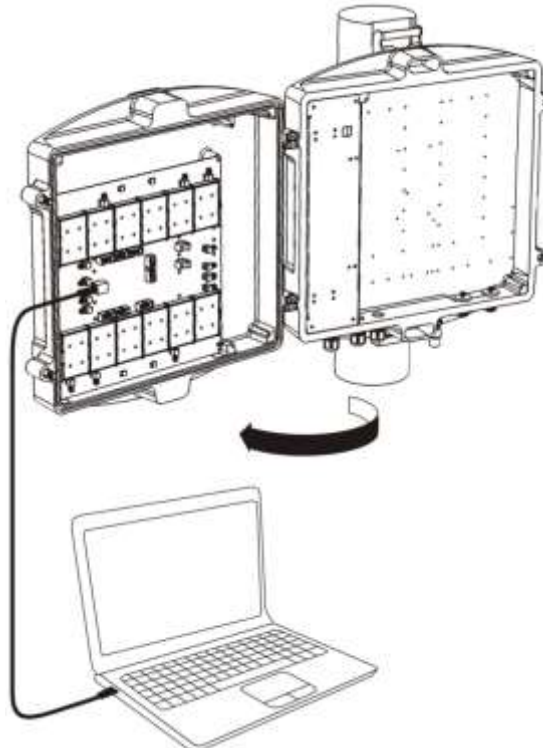


Figure 6; NFPA Dry Contact connection location inside the cabinet

5. Once the Signal Booster has been connected to power source (either AC mains or external DC), it takes about 20 seconds to run a booting routine. After that time Signal Booster is ready to be connected via USB cable to a computer running pFOMS in order to be properly configured. See Part 2 Software of this manual to install pFOMS.



## Starting operation

1. Setup desired filter configuration using pFOMS (only for programmable band selective and programmable channel selective models).  
For fixed bandwidth Signal Boosters this feature will not allow user to make changes, so, skip this step for fixed bandwidth models.
2. Setup desired operating gain using pFOMS. UL and DL chain are independent, so both values must be set.  
For nominal gain of the Signal Booster these values must be set to zero.

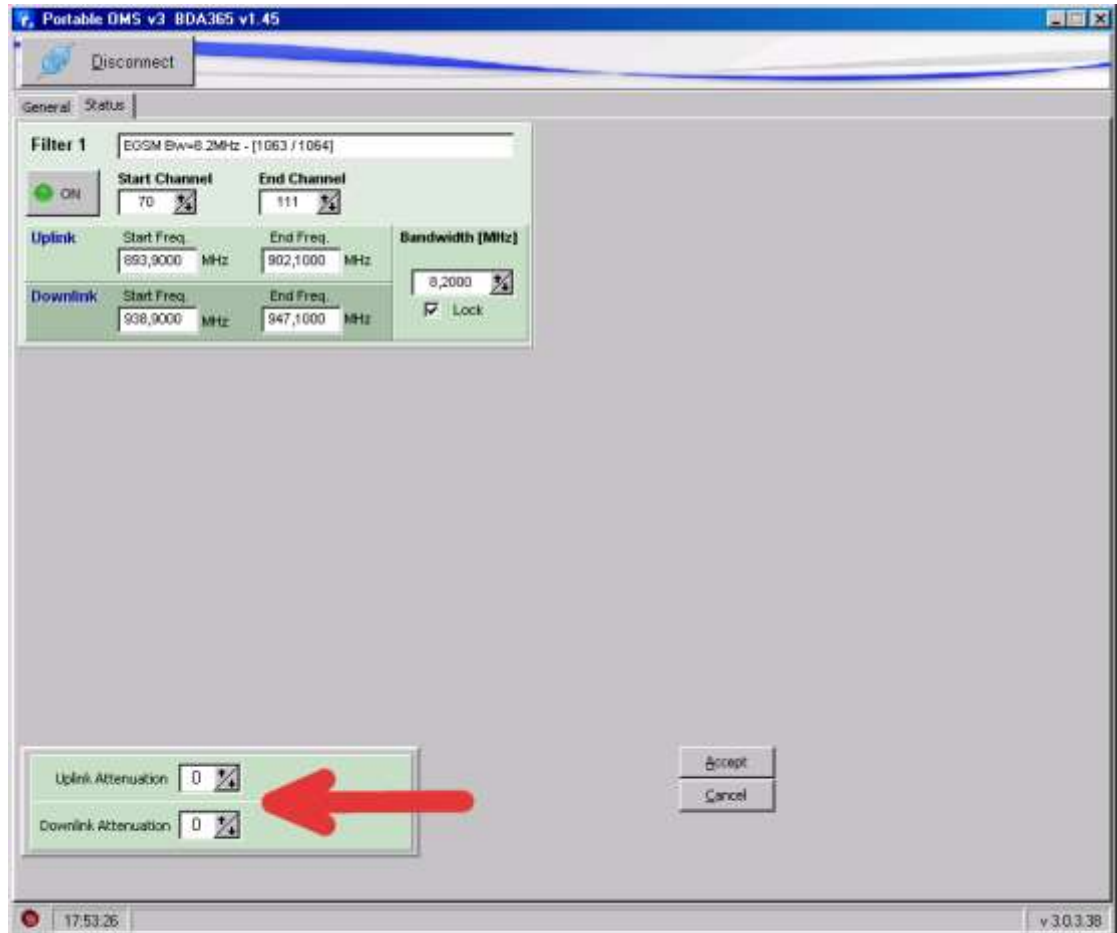


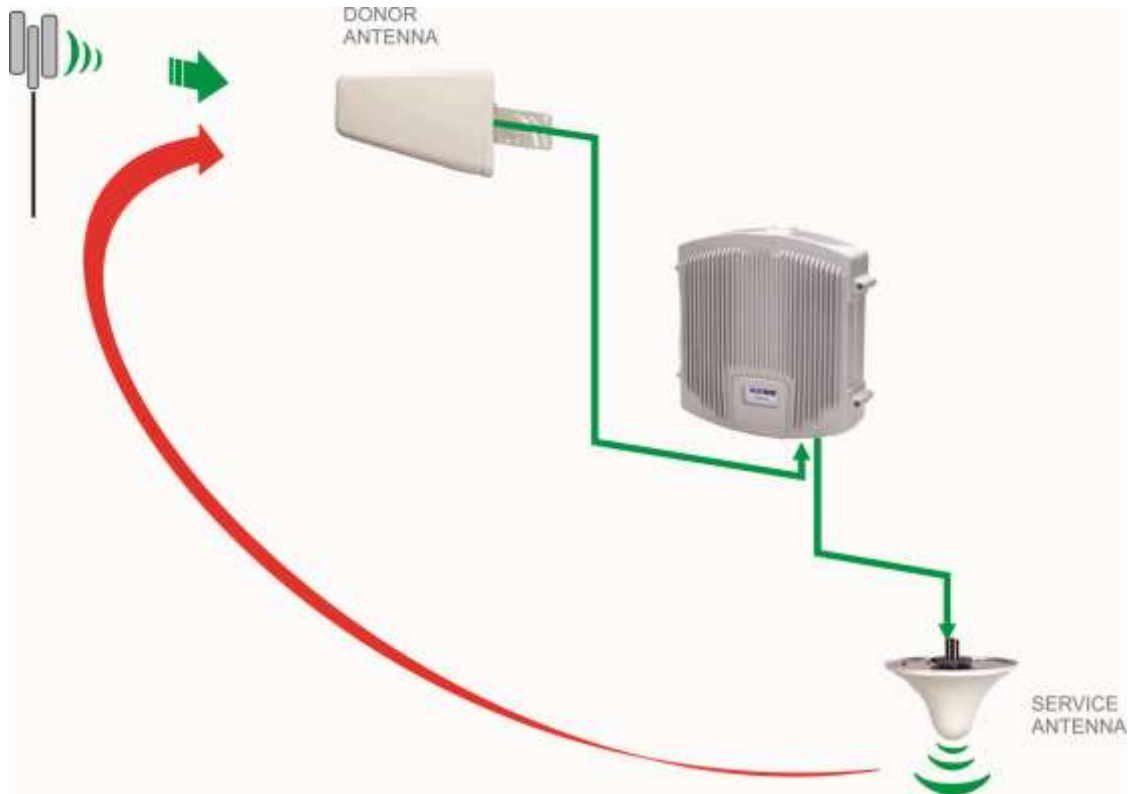
Figure 7

Figure 7 shows how to set up manual attenuation values.

### Auto-oscillation Condition

If the isolation between donor and service antennas system is lower than required, the amplified signal will go back from service antenna to donor antenna. It will lead to self-oscillation, reducing the coverage area and amplified signal quality.

The isolation between donor and service antennas systems must be, the nominal Signal Booster gain plus 15dB, in order to assure the properly operation of the Signal Booster.



### Status Indicators

There is an indicator panel located at the front panel of the Signal Booster. This led panel works as a status monitor, in order to advice different operational conditions of the Signal Booster.

There are four leds, first one the power ON indication led, labelled "PWR".

A Second led, labelled "STS" resumes warnings regarding critical operational conditions of the Signal Booster.

Third and fourth led resumes operational conditions for uplink "UL" and downlink "DL" chains.

Signalling will be explained in table 1.

|   | Operative Condition | Indicator Panel                                                                      |
|---|---------------------|--------------------------------------------------------------------------------------|
| 1 | Start UP            |  |

|   |                  |                                                                                    |
|---|------------------|------------------------------------------------------------------------------------|
| 2 | Stationary state |  |
| 3 | AGC DL           |  |
| 4 | AGC UL           |  |
| 5 | Overload DL      |  |
| 6 | Overload UL      |  |

Table 1

#### 1. Start UP

Every time the Signal Booster is plugged to AC mains (or auxiliary DC power), will start a self diagnosis and booting sequence that lasts around 20 seconds, during this time Signal Booster is not available for traffic, and the reason is because an automatic antenna isolation control procedure runs in order to detect poor isolation conditions. During this time all leds in the front panel will blink.

In case of bad isolation condition led "UL" or "DL" (depends on the path where auto-oscillation condition was detected) will stay ON during five seconds.

#### 2. Stationary state

Once the booting sequence is finished and under no AGC or Overload conditions only the PWR led must keep ON.

#### 3. AGC DL

Blinking condition indicates that AGC circuitry is active for downlink path. For further information please read Automatic Gain Control (AGC) latter in this chapter.

#### 4. AGC UL

Blinking condition indicates that AGC circuitry is active for uplink path. For further information please read Automatic Gain Control (AGC) latter in this chapter.

#### 5. Overload DL

Led permanently ON indicates that Overload protection circuitry for downlink path is active. For further information please read Overload Protection latter in this chapter.

#### 6. Overload UL

Led permanently ON indicates that Overload protection circuitry for uplink path is active. For further information please read Overload Protection latter in this chapter.

### Automatic Gain Control (AGC)

Automatic Gain Control circuitry is intended to keep Signal Booster's output power at a fixed level when input signals exceed maximum values, avoiding quality signal degradation by intermodulation generation.

When AGC is active AGC leds from UL or DL (or both) will blink, this means that signal level from donor site (or from service area) plus Signal Booster gain produces an output power that is above the maximum composite output power of the Signal Booster. This should not be considered an undesired working condition,

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far from that; this is the best operating condition because you are getting the maximum composite output power available from the Signal Booster.

Anyway is a good practice to increase attenuation (reducing gain), until AGC led turns off, this operation releases AGC circuitry dynamic range.

Also is a good practice to check signals from donor site to ensure that undesired signals are not being amplified by the Signal Booster, or even desired signal levels are not excessively high taking Signal Booster to an overload condition.

### Overload Protection

When AGC circuit reaches its limit, the power amplifier stage is shut down to prevent harmful distortion and potential damage to the Signal Booster. After approximately ten seconds the system checks if overload condition is still present, if this happens amplifiers will remain off. This cyclic check will continue until condition that makes AGC circuitry reach its limits disappears.

Conditions that can cause AGC to reach its limits include the presence of one or more very strong channels, a strong in-band noise source, or amplifier oscillation due to poor antenna isolation.

When overload protection lower row led from UL or DL (or both) will be ON permanently.

### Laboratory Measurements

For specific parameters verification and laboratory tests, please contact factory.

Detailed procedures, recommended tests set up, and a knowledge engineering team will bring adequate support to perform this measurements in a comfortable and safely way.

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## Part 2 SOFTWARE

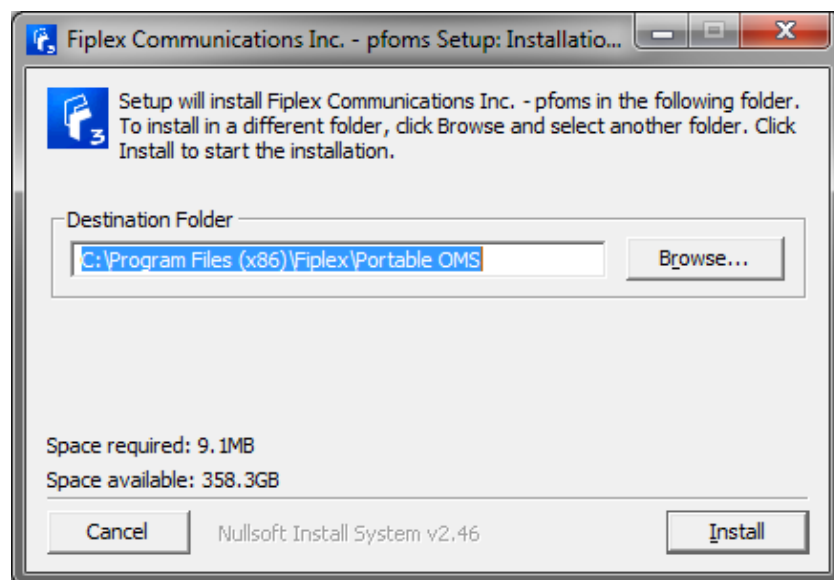
### 5. Installation

The following section will describe the steps to be followed in order to install and use the pOMS software with your Fiplex Signal Booster.

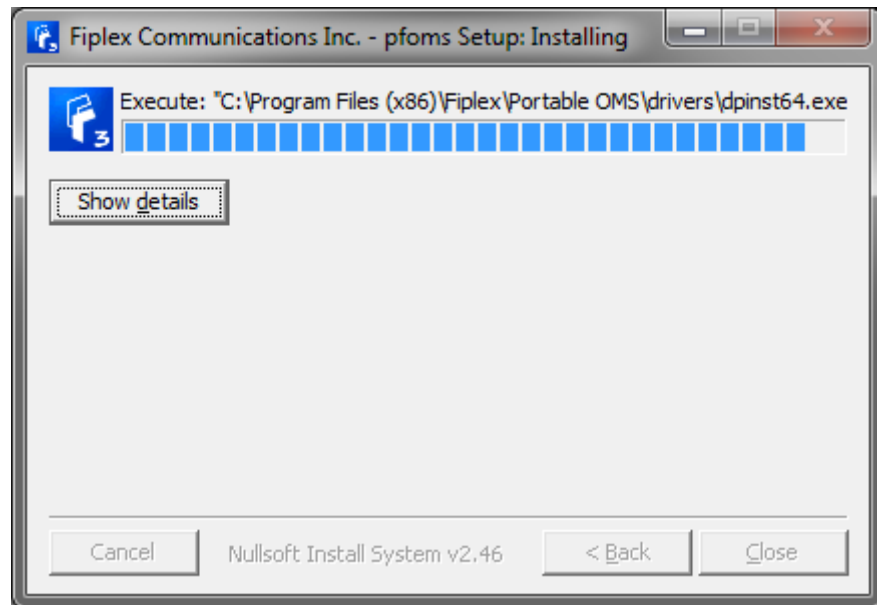
1. Run the FiplexPomsInstaller.exe File. A splash screen will appear...



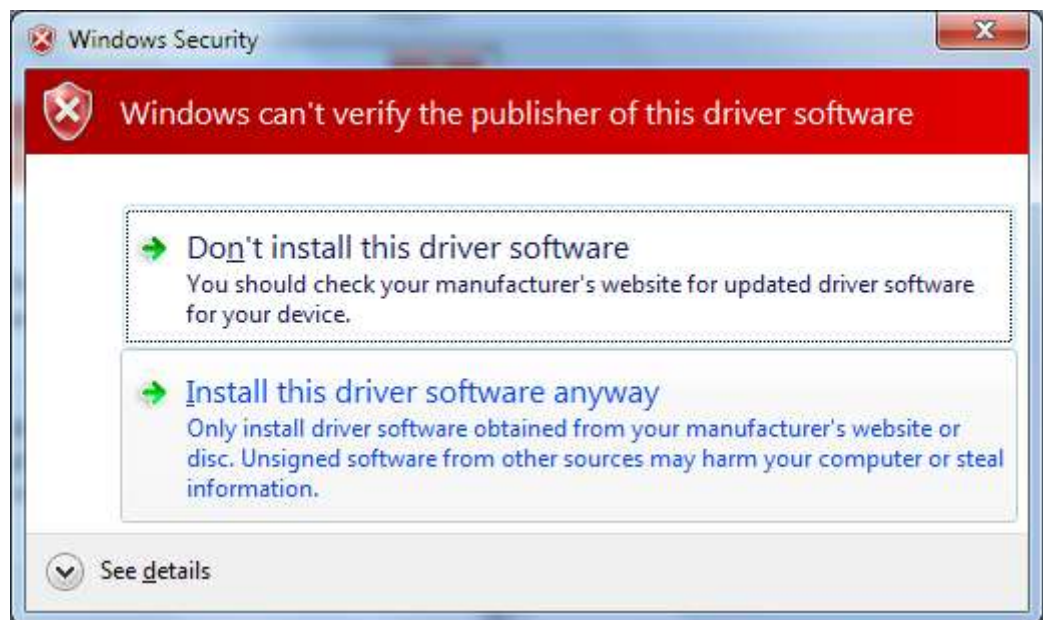
2. Choose the default installation path "C:\Program Files (x86)\Fiplex\Portable OMS". Note that this can change according to your system configuration (32bits or 64bits), language and Windows Version.



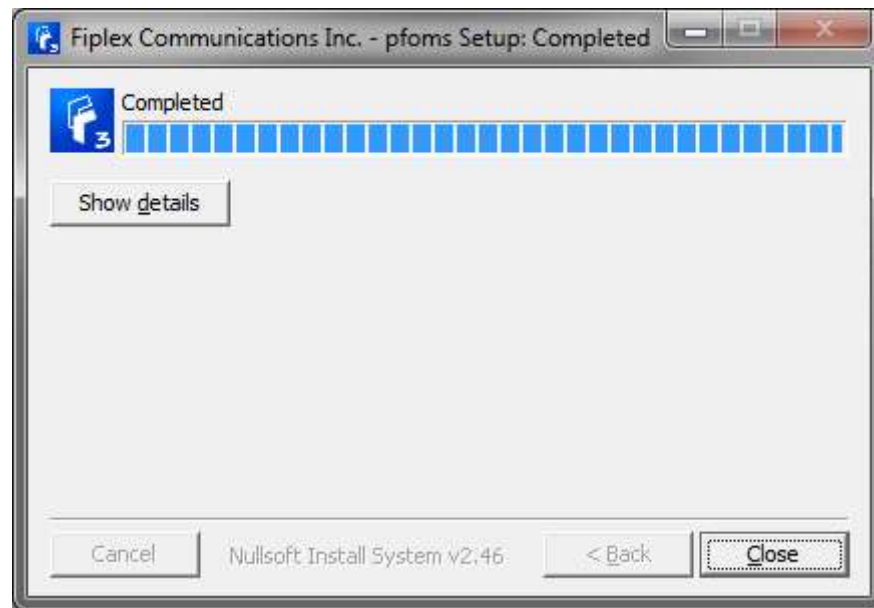
3. The installer will start to copy the necessary files.



4. Following this, the installer will attempt to install the device driver. According to your windows configuration, a screen like the following can appear. This indicates that you are going to install a not official windows driver. Choose to **install the driver software anyway**.



- 
- Now you can watch the details of the installation or simply close.



- Turn on the Signal Booster

**BE SURE THAT “TO MOBILE” AND “TO BASE” PORTS ARE PROPERLY LOADED EITHER WITH 50 OHMS DUMMY LOADS, OR RADIATING SYSTEM.**

- Plug in USB cable to USB male connector labeled as “COMM”. If the driver is installed properly you should see a new COM port in your device list.



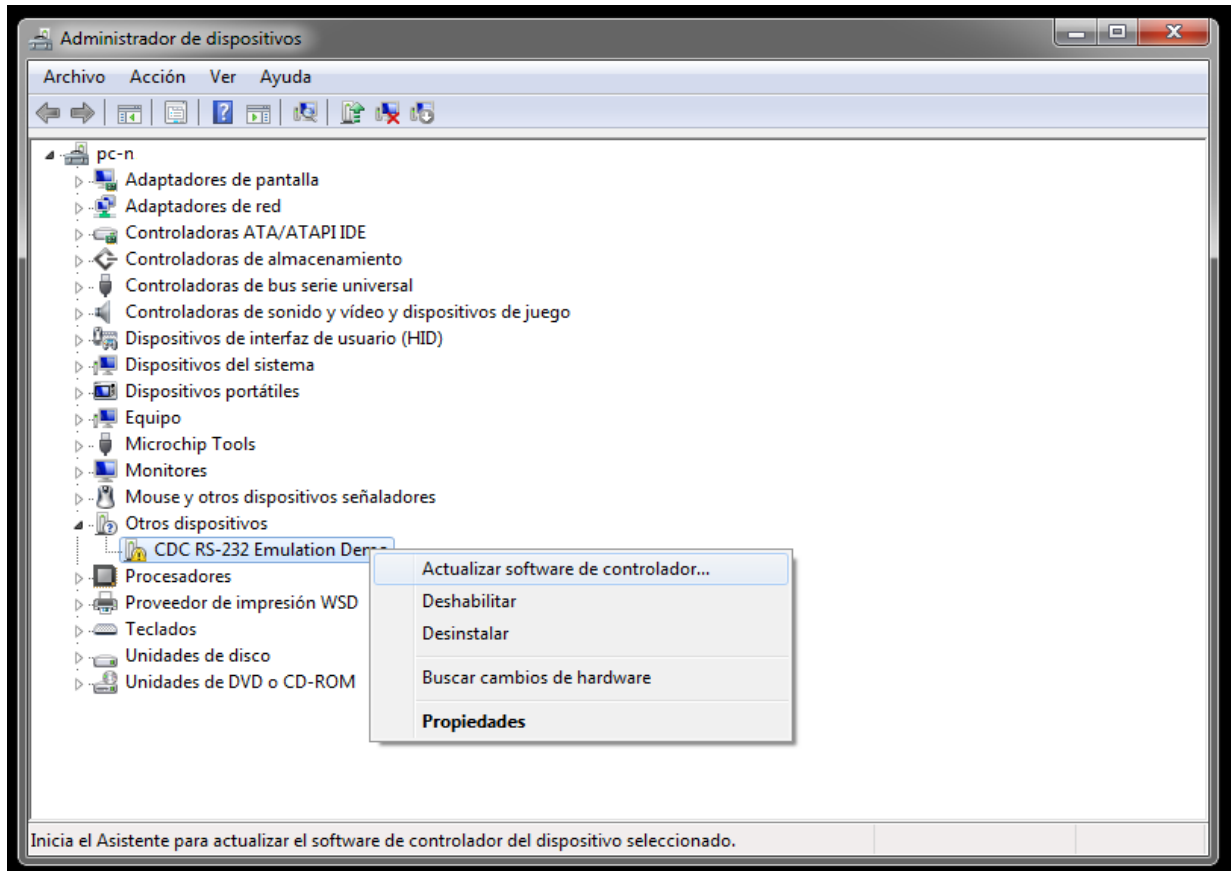
## 6. Software Installation Troubleshooting Guide

### 6.1. Driver installation failure

If the automatic driver install process fails for some reason, you can do it manually. You **must** have your PC connected via USB to your Fiplex nano Signal Booster.

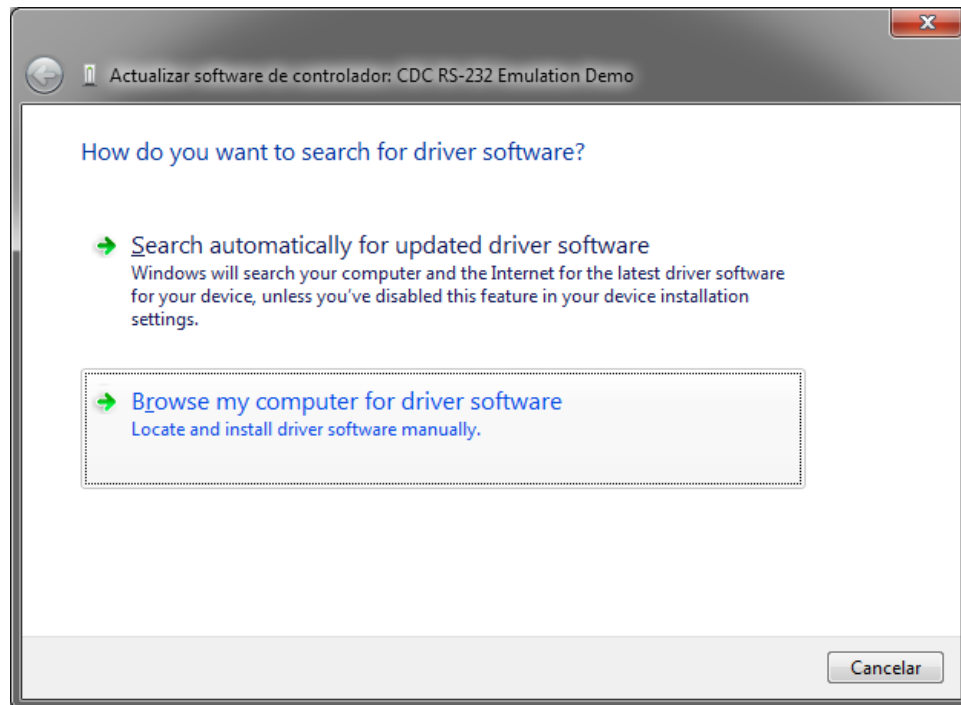
Open your Control Panel and then go to Device Manager. You should see a screen like the following where you can see an exclamation mark indicating that your OS does not have the proper driver installed.

Right click on it and then choose “Update Driver Software”.

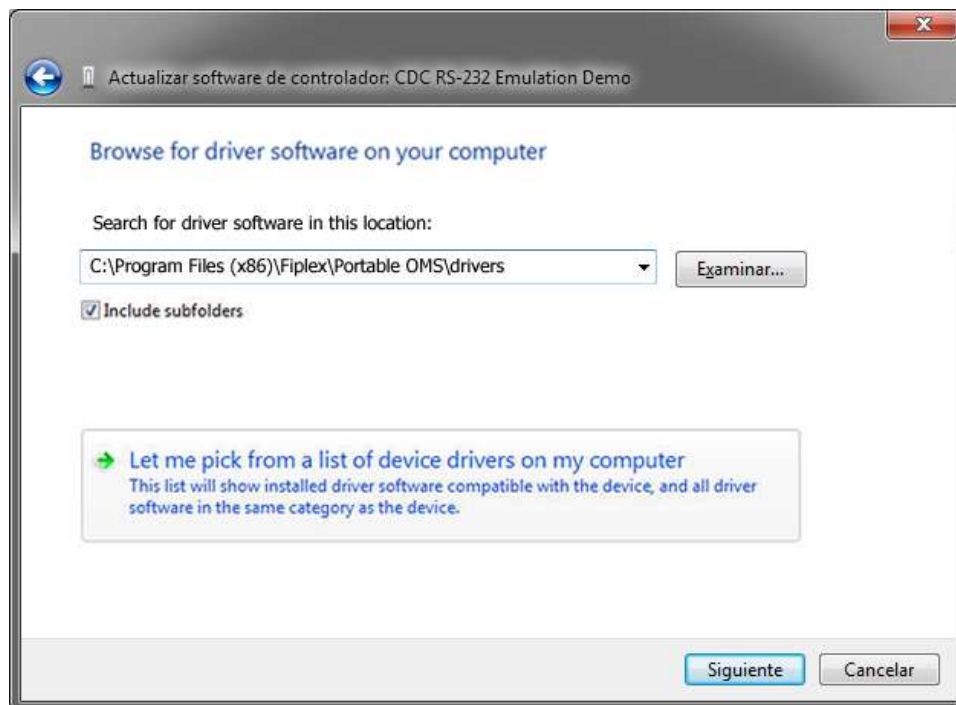


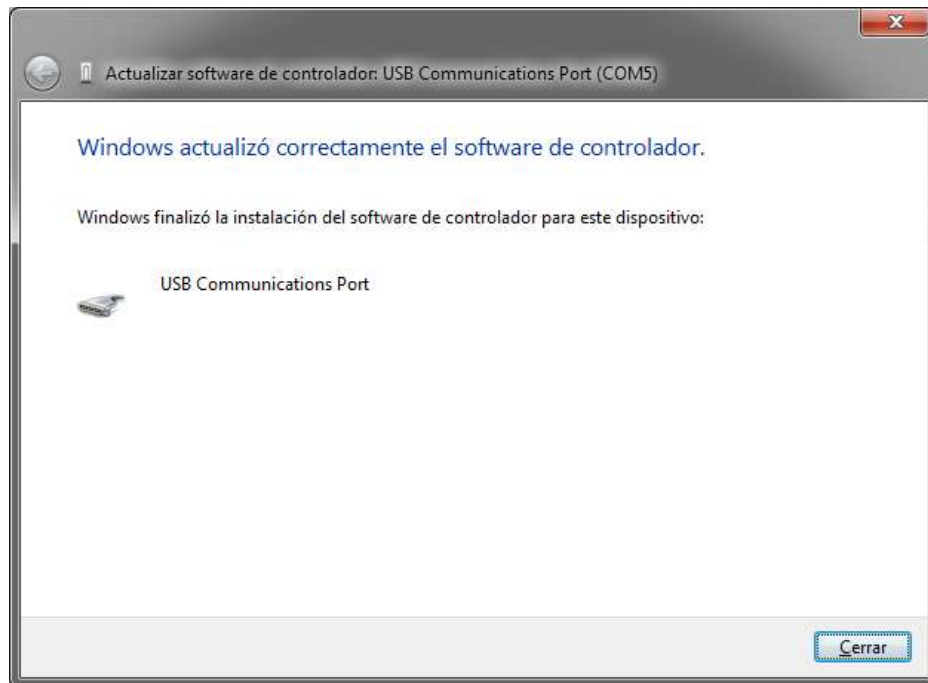
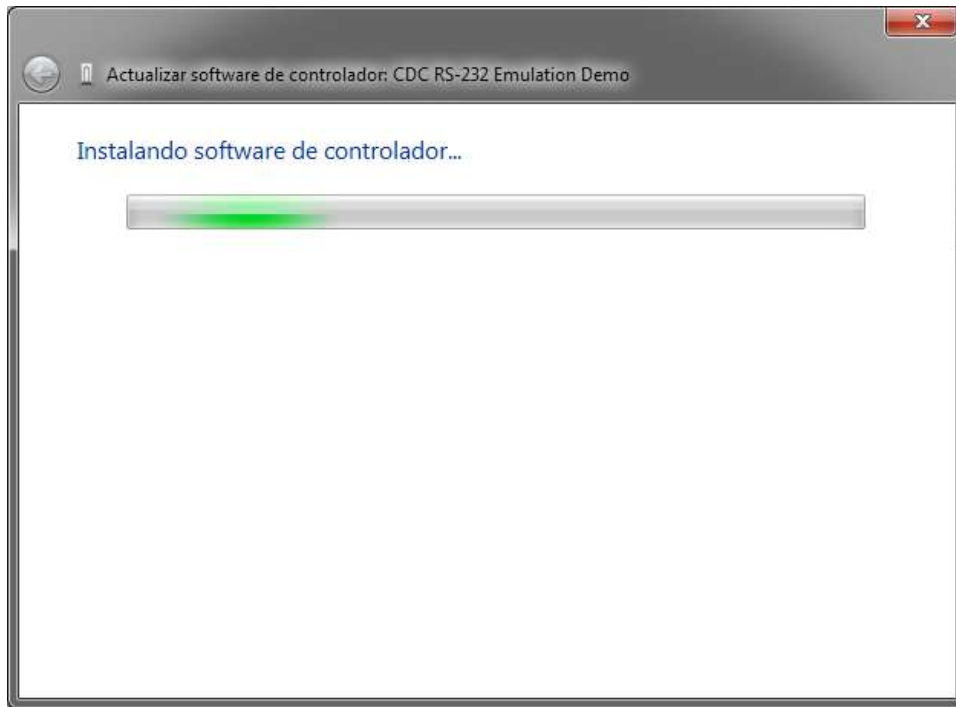
If the automatic driver install process fails for some reason, you can do it manually. You **must** have your PC connected via USB to your Fiplex nano Signal Booster.

Open your Control Panel and then go to Device Manager. You should see a screen like the following where you can see an exclamation mark indicating that your OS does not have the proper driver installed. Right click on it and then choose "Update Driver Software".

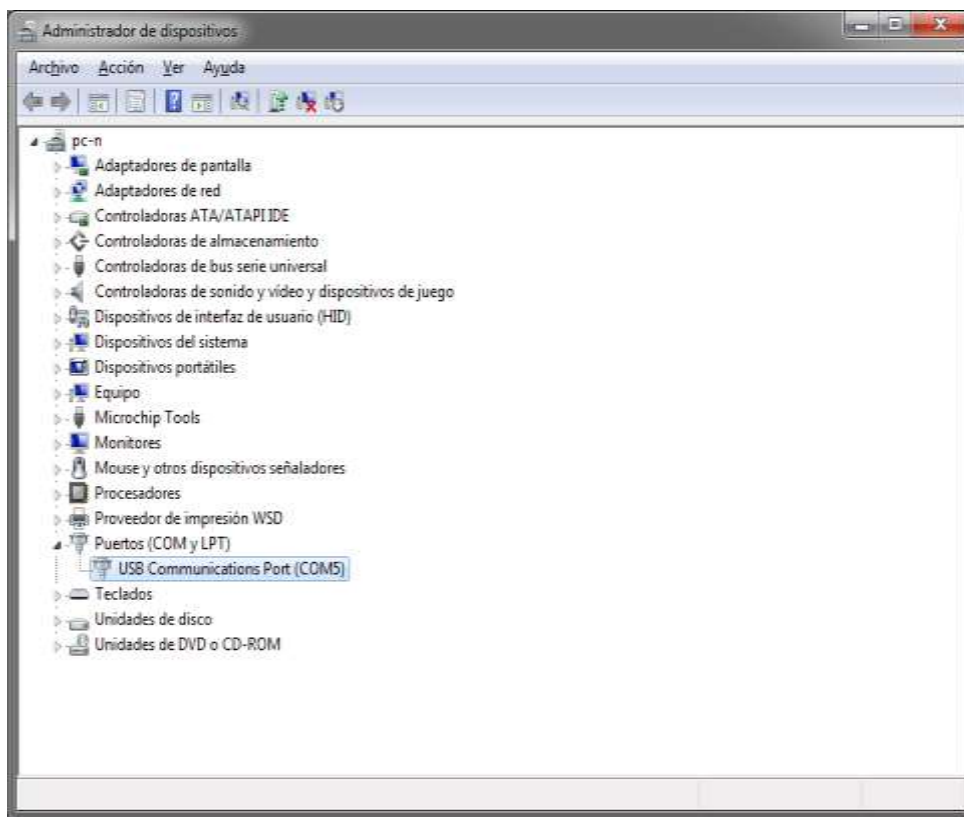


The device drivers are installed in the "drivers" subfolder in your installation path. The next images shows the default driver location on a Windows 7 64bit.





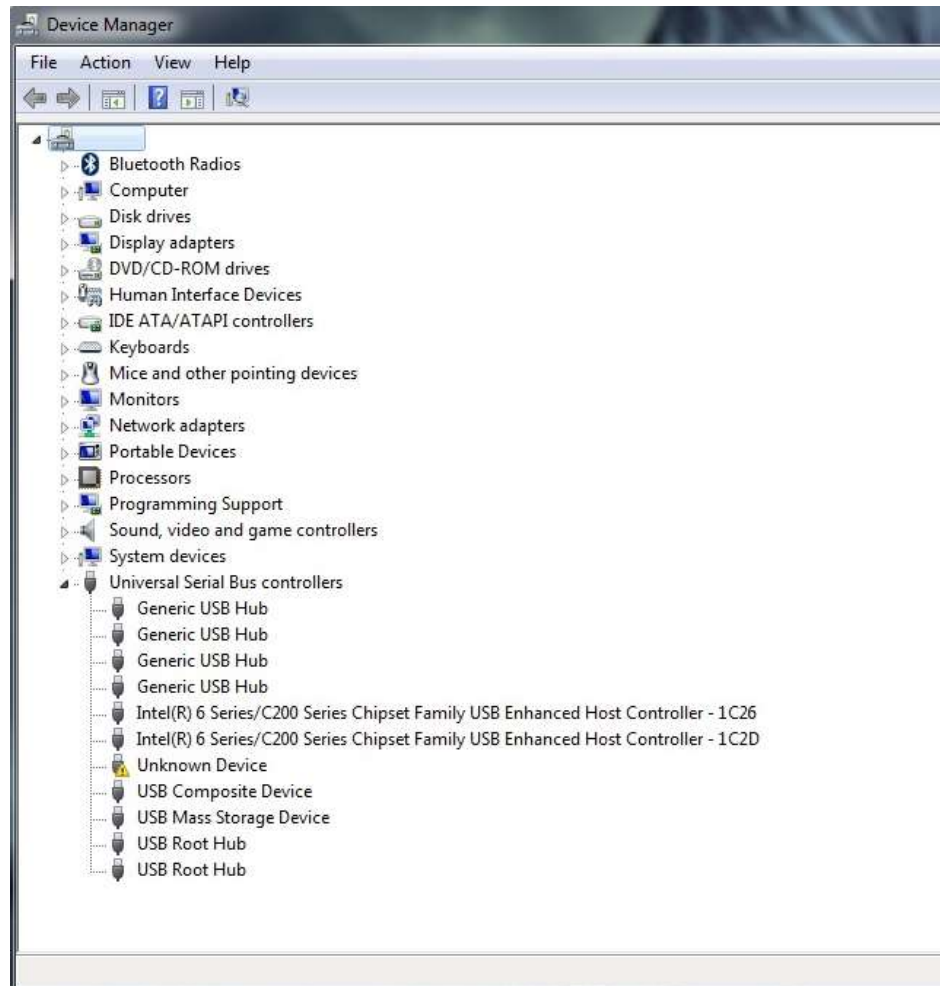
If the installation finishes successfully you should have a new USB virtual com port installed on your PC. The COM number can vary depending on the hardware previously installed in your system.



## 6.2. Device Unknown legend in driver.

If you cannot connect to the Signal Booster, and there's no new COM port installed in your system after plugging the USB connector to the PC, go to the device manager list.

If there's a device named as 'Device Unknown' that appears and disappears every time you connect the USB to the Signal Booster, this can be due to problems in the USB cable. Replace it and try again.

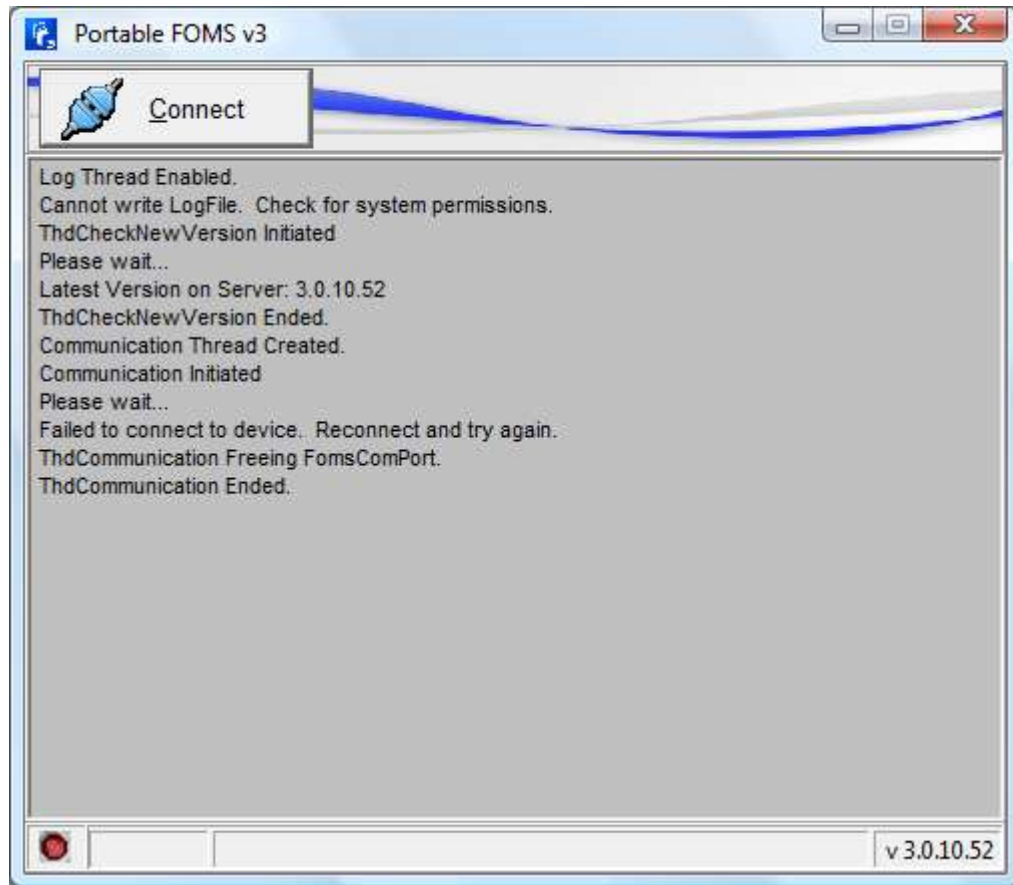


### 6.3. Failed to connect to device

Sometimes the pfoms can inform in the activity box that if Failed to connect to device.

The problem happens to be that the chosen COM port number it is not connected to a Fiplex Signal Booster.

Solution: Click in connect again and choose the right COM port number. If this doesn't work, turn off and on the Signal Booster and try again.



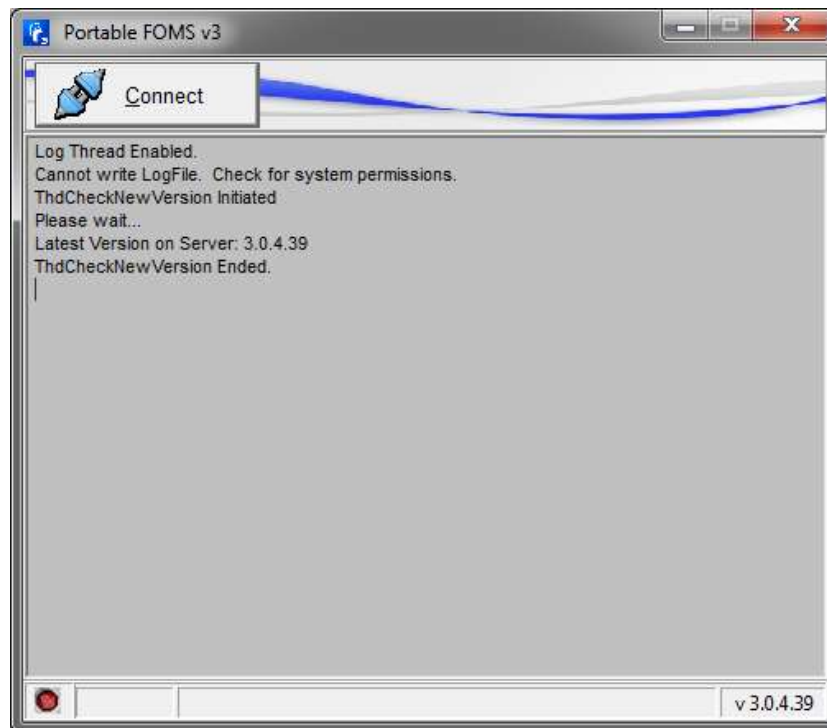
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## 7. Using Portable OMS Software

After having installed the CDC-RS232 Fiplex driver, run pFOMS Software.



Click in "Connect".



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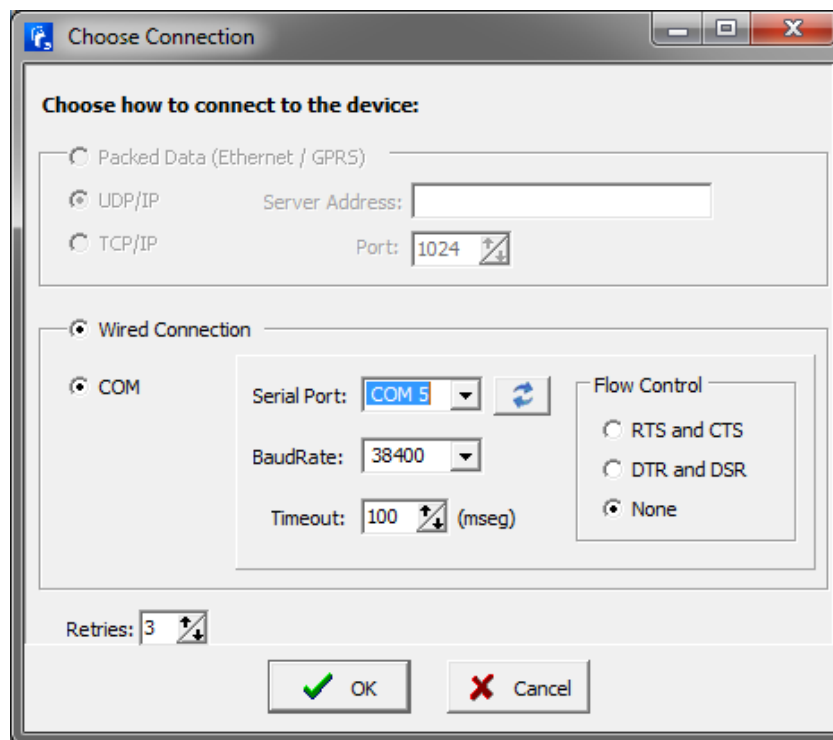
Select the serial COM port that just appeared on your PC. Remember that the BDA driver installs itself as a generic COM port so if properly installed, you should have a new comport not present before connecting the Signal Booster.

If the Signal Booster is not connected yet you can plug it now to your PC USB connector. The OMS software should detect the new COM port automatically.

Note that the OMS will show only unoccupied COM ports. If you have more COM ports that are being blocked by another application they won't be show in this window.

For this devices Flow control should be set to None.

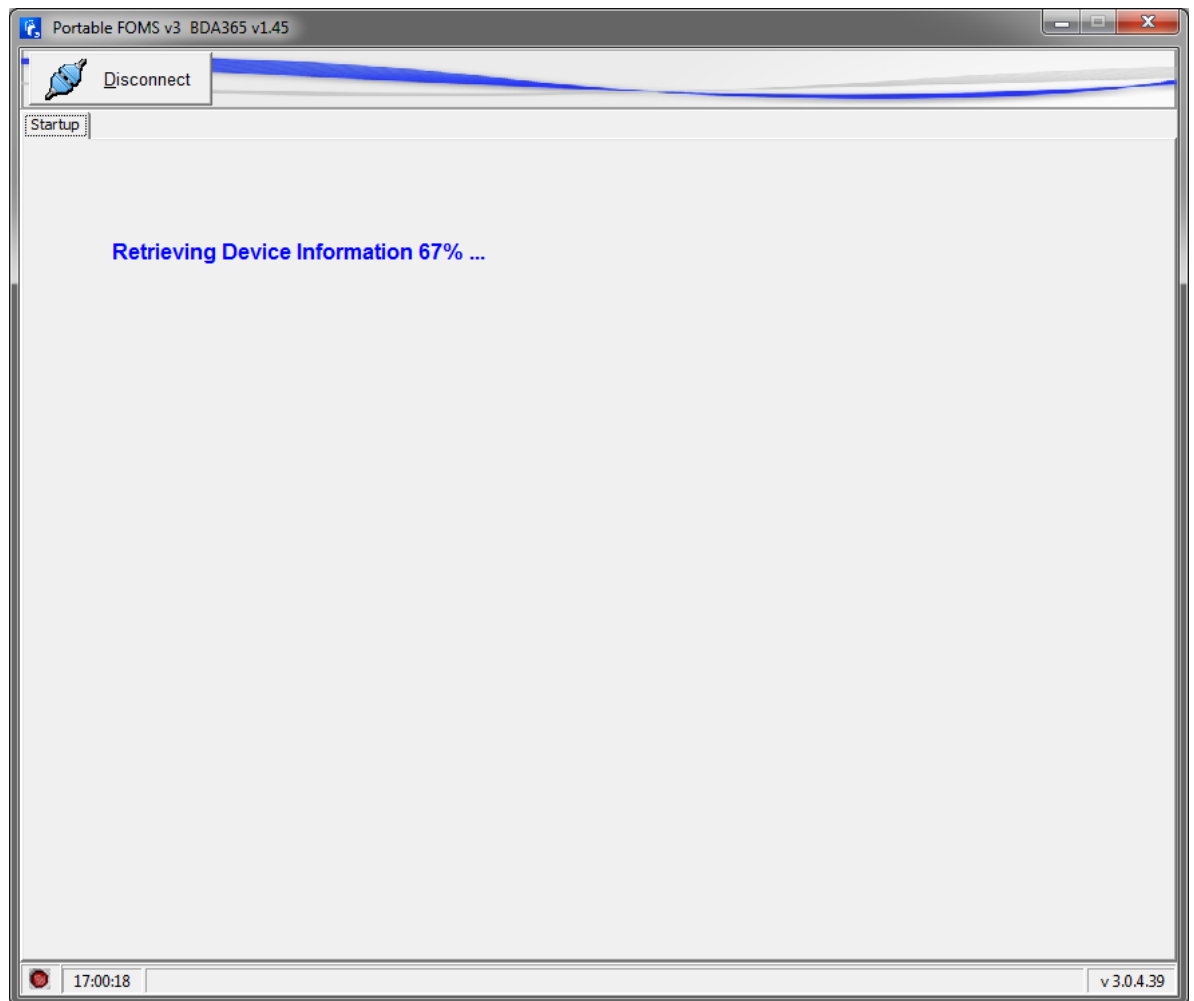
Click "OK" in order to continue.





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After clicking in ok a new window will be active while the Signal Booster is transferring information with pFOMS.



## 8. Overview

### General Tabsheet

Portable FOMS v3 BDA365 v1.45

Disconnect

General | Status

Serial Number: 55555555

Model: PE-1A10S-35

Description: Picosaw 10dBm, 35MHz BW, freqs 880-915 / 925-960MHz

Firmware Name: fp365a

Firmware Version: 1.2

Hardware Name: fp365

Hardware Version: 4.0

OMS Version

Filters:

**Device Information**

|                   | Uplink | Downlink |
|-------------------|--------|----------|
| Attenuation Range | 18 db  | 18 db    |
| AGC Range         | 20 db  | 20 db    |
| Gain              | 65 db  | 65 db    |
| Output Power      | 10 dbm | 10 dbm   |

**Gain**

|                    | Uplink | Downlink |
|--------------------|--------|----------|
| Manual Attenuation | 0 db   | 0 db     |
| AGC                | 0 db   | 0 db     |
| Effective Gain     | 65 db  | 65 db    |

Downlink Composite avg Output Power 20 dbm

RSSI -45 dbm

17:11:54 v 3.0.4.39

This tab sheet displays general information from Signal Booster.

First eight fields at the upper left corner of the window displays identity information of the Signal Booster, this information is stored at Signal Booster's firmware.

Modem information is displayed at the bottom left corner, these read/write fields allow user to set up wireless connection via modem when available.

Device Information: four fields at the upper right of the window displays static nominal value of the Signal Booster, this information is shown by pFOMS after detecting Signal Booster model.

Gain: these fields allow user to know actual manual attenuation, AGC, and effective gain of Signal Booster, this is dynamic information, constantly and automatically being updated by pFOMS.

## Status tab sheet

Portable FOMS v3 BDA365 v1.45

Disconnect

General Status

**Filter 1** EGSM Uplink Bw=35MHz - [1017 / 1018]

☒ ON

Start Channel 1 End Channel 176

**Uplink** Start Freq. 880,000 MHz End Freq. 915,000 MHz Bandwidth [MHz] 35,000

**Downlink** Start Freq. 925,000 MHz End Freq. 960,000 MHz ☒ Lock

Uplink Attenuation 0

Downlink Attenuation 0

Accept

Cancel

17:19:35 v 3.0.4.39

This tab sheet shows configurable parameters of the Signal Booster:

Filters can be programmed over its working range. Some can be moved, some can be turned on and off, other have fixed features and are not meant to be modified.

They can be moved or turned on/off enabled filters will appear in green, disabled (powered off) filters will be shown in red. Band selective programmable filters show Start / Stop channel and Start / Stop frequency.

Channel selective programmable filters will only show Start channel, in this case the meaning for start channel is filter center BW channel.

Band selective fixed filters will show start frequency or channel and the meaning is center BW frequency or channel.

Manual attenuation: shows the status of uplink and downlink attenuation.

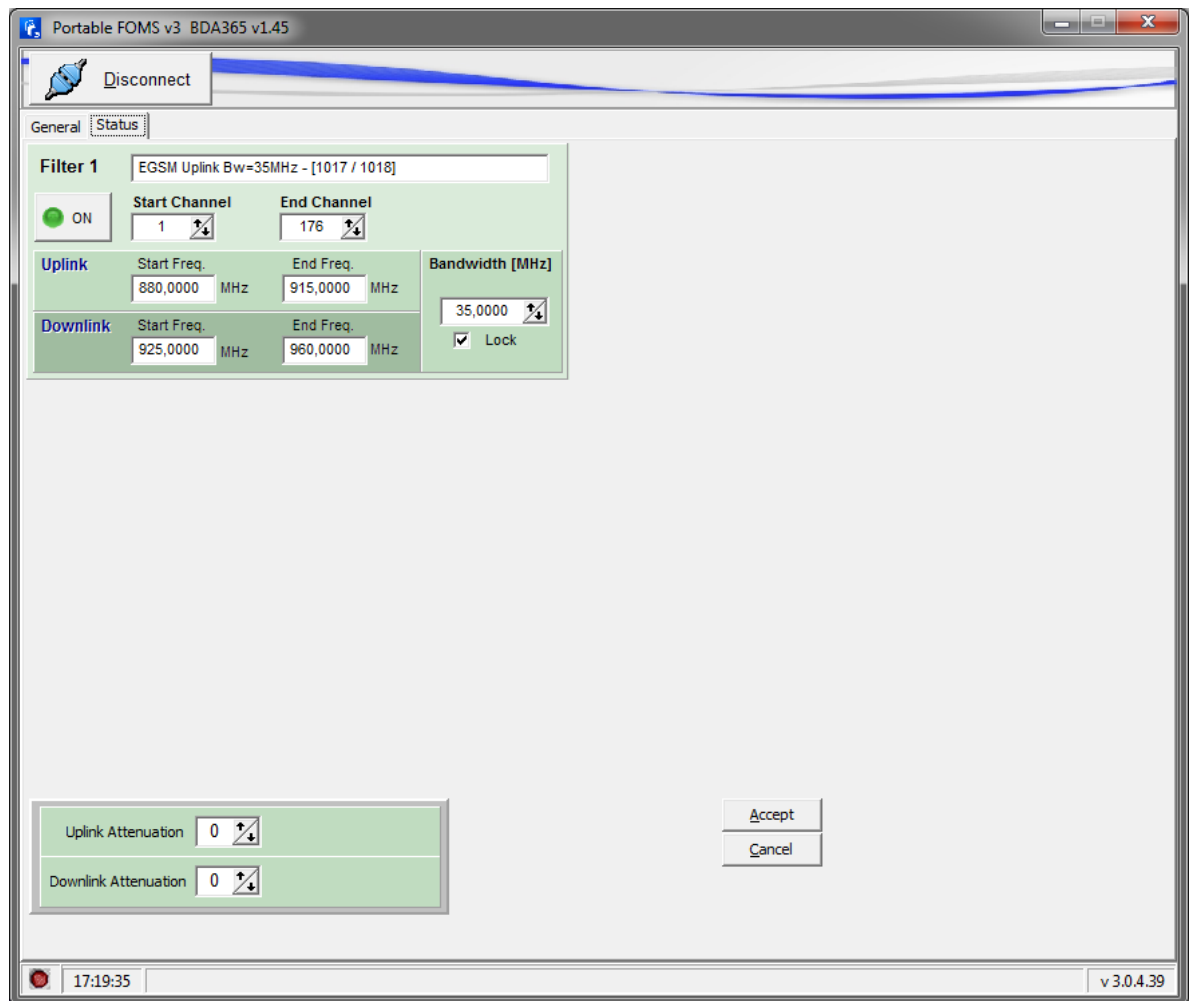
PA: shows power amplifiers operative status. Some Signal Booster may not have this feature.

## Configuration

Filters and attenuation controls can be edited by clicking in the up/down arrows. After having set the new desired parameters, user must click in Accept button in order to send the new parameters to the Signal Booster.

For operations in the Upper 700 MHz PS-BB spectrum (758-768 MHz and the 788-798 MHz bands) the TX filter shall be set to:

- Downlink Start Frequency shall be greater than 763 MHz
- Downlink End Frequency shall be less than 768 MHz
- Uplink Start Frequency shall be greater than 793 MHz
- Uplink End Frequency shall be less than 798 MHz



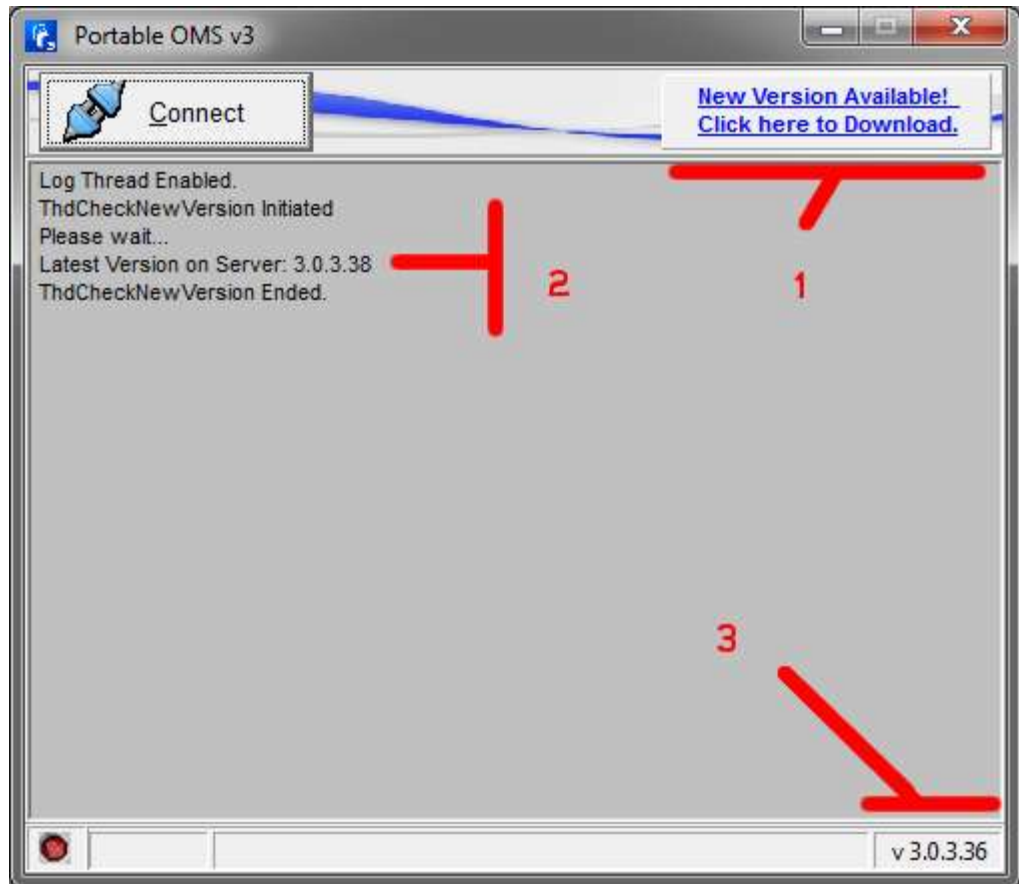
## Update Features

The Fiplex Portable OMS v3 software has a new feature that will check if there's a new OMS software version present.

If a new version is available a direct download button will be shown (1).

In (2) you can check the latest server version available. It is recommended but not mandatory to have the latest version installed as it will have support for more devices.

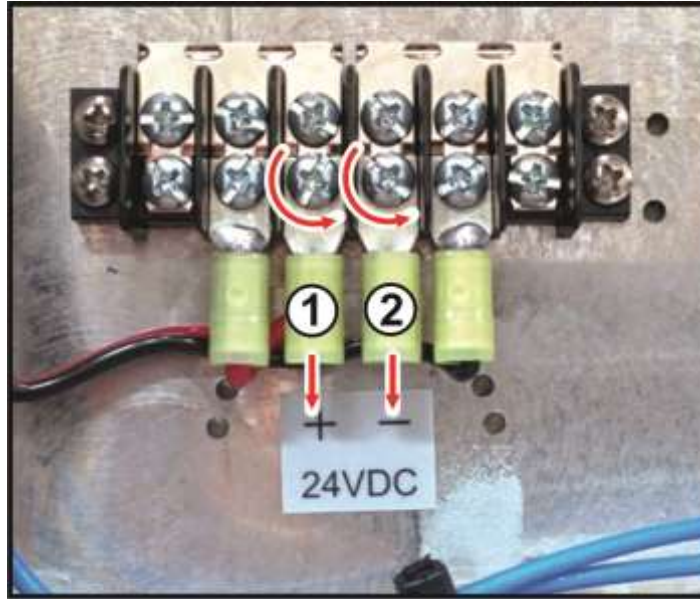
In 3, you can watch the current software version.



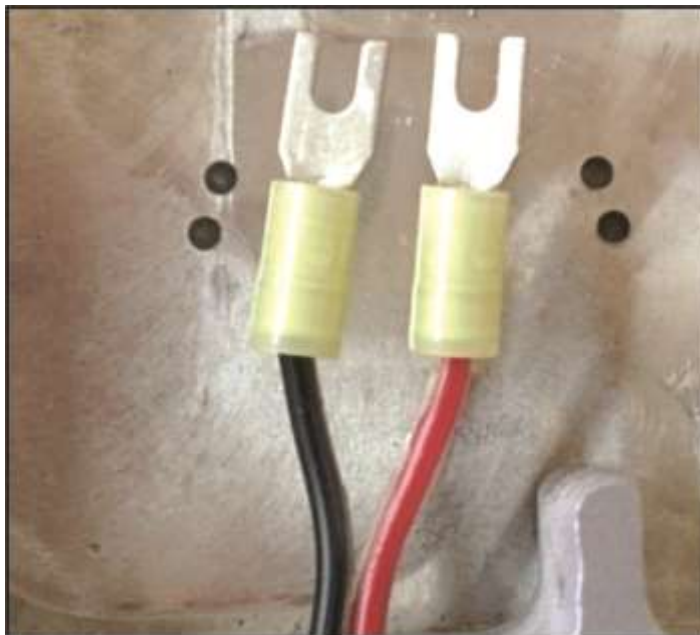
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## ANNEX 1 - 24 Volts DC Operation

This Signal Booster can have the option of being powered externally with 24 volts DC voltage. To connect the DC Power to Signal Booster follow the next steps.



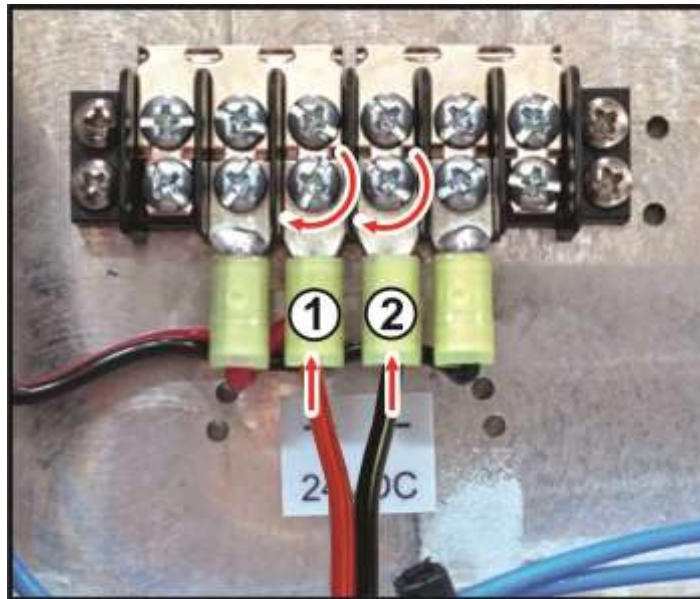
Remove the fork terminals 1 & 2. Use a phillips screwdriver No.1 



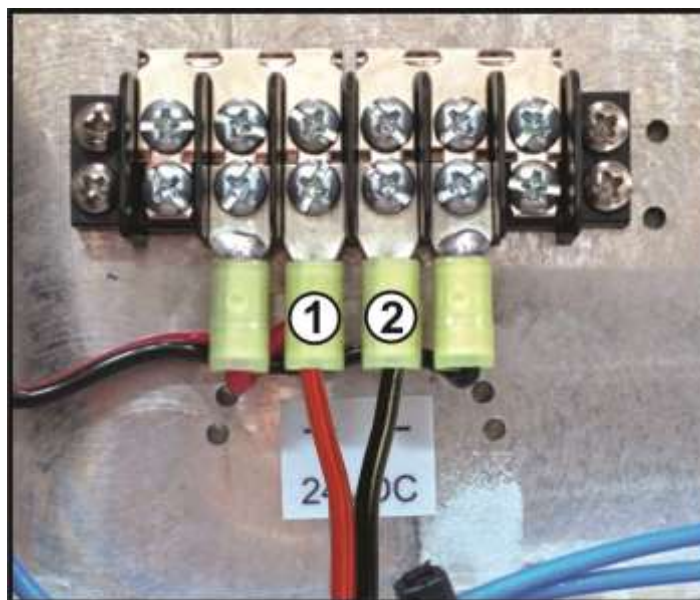
Crimp the Fork terminal to the wire

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Before starting the crimping process, please confirm that the wire to be used is within the range of the chosen crimping terminal.



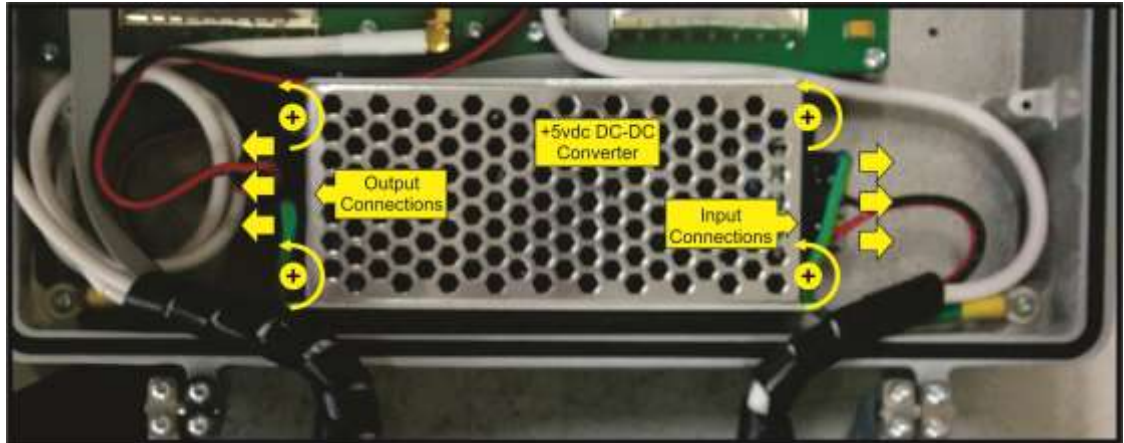
Connect the terminals to the terminal barrier and tighten the screws clockwise. Use a phillips screwdriver No.1 



Verify that there is no short circuit between terminals 24VDC(1 & 2)

Connect 50Ohms loads on the RF Ports and connect the voltage 24VDC. Verify with a multimeter, the voltage level.

## ANNEX 2 – Replacing +5VDC DC-DC Converter



Removing the damaged DC- DC converter

**Warning** Do not touch any of the exposed leads, terminals, or components. Hazardous voltages may be present in this product.

- 1) - Disconnect the Main Power.
- 2) - Remove the Input and Output connections of the power supply.
- 3) - Release the #6-32 Philips screws(x4)
- 4) - Remove the power supply.
- 5) - Install the new power supply