APPI-Com / -CovR

Full-Duplex Hands-Free Radios

APPI-Com: **CE** BS-APC2-01 /A3
FCC-IC BS-APC2U-B0 /B1/B2/B3/00/01/02/03

APPI-CovR: **CE** BS-ACO-01
FCC-IC BS-ACOU-01 /02/03

USER's MANUAL **Version 3.4**

Introduction : Thank you for choosing APPI systems !

The APPI Radios enable "hands free & conference mode" communication on several free-band channels for mobile teams, without requiring any Base or Master terminal. Compatible among themselves, APPI-Com/CovR can be mixed and bring safety features: Man-Down alert, member's signal lost, etc.

	APPI-Com	APPI-CovR
Visual Interface	Screen + APPI-Smart	APPI-Smart
Integrated Headset	None	Noise Cancelling
Bluetooth	Option	Yes
Gateway to GSM	Bluetooth option	Yes
Gateway to Intercom	External	No
Gateway to Walkie-Talkie	Wired / Bluetooth	Through APPI-Com
PTT / Duplex	External	Yes
Pager / Beep	Yes	Yes
Listen Mode	Yes	No
IP Index	IP66 / 67	IP55

SAFETY INFORMATION : DO NOT charge the APPI Radios in temperatures >45°C

Note for *APPI-CovR* product: allow to dry completely before wearing or storing. Never spray liquid directly onto the headset/headphone (shell's internal side) or submerge in water or liquid.

The APPI-Com Radio: Quick Start

USAGE IN ATEX ZONE: CONNECT OR DICONNECT ONLY **OUT** OF THE ATEX ZONE
In ATEX version, connect exclusively the provided ATEX Audio accessory, OUT of the ATEX Zone.

Audio connectors (***APPI-Com***) include a keyed auto-lock connector: they can be plugged in only when the red dots on the connector and the base are aligned (figure below). **To connect:**

NEVER FORCE THE CONNECTION: gently rotate the plug until you find the right plugging position. **To disconnect** an Audio accessory, **pull the ring**: you may have to should push slightly first before pulling.

DON'T PULL THE CABLE ITSELF: it may damage the connection because of the safety lock.

Triple Keys APPI Interface: Left / Central/ Right

Start the Radio		⏻	
Sound Volume	⊖		⊕
Send Beep Alert		⏻ 2x ⏻	

Short Press

Long Press 4s

Access to menus		⏻	

Initiate the communication

Switch ON at least one **« TALK » Radio**: based on configuration, you can change the **Mode** (**Listen/Talk**) and/or the channel. If no change occurs, (5s) the conference will start.
➔TO REACH CHANNEL 5, Press the Right key 4 times.
Note: to activate the hidden menus, see « ***configuration software***»

Main Screen (APPI-Com)

1: The smiley position (Left, Central, Right) indicates the Radio's Rank **1,2, or 3 in the group**
2 & 3: Reception level for Radios of rank **2** and **3** du kit (group)
4: Battery level
5: Functioning Mode: « ***TALK*** »
6: Sound **volume**: 1 to 10 ⊖ ⊕
7: Communication Channel: 1 to 50 depending on country
8: Kit ID (group) the radio belongs to
9: Access to *Menu* with long Press (4s)

Note: **Long-Range** Channels are noted ***LR*** (1_{LR}, 2_{LR}, etc.), while the **Short-Range** ones are ***SR*** as « 16_{SR} »

The APPI-CovR Radio: Quick Start

APPI-CovR is full-duplex Radio Embedded in a Noise Cancelling Audio headset, offering the same radio features than the APPI-Com, with some changes: it has a Noise Cancelling Boomer Microphone and offers a Noise Cancelling Protection for Noisy Places.

The Radio offers the same 3 Keys APPI interface but also a HIGH Left one, allowing switch from the PTT to Duplex mode with a Long Pressing:

- PTT Mode: press to Talk
- Duplex Mode: hands-free

Switching from one mode to another is acknowledged by a vocal message.

PTT1 : R **PTT2 : L** **(not used)**

It is also possible to remote control the Radio with the ***APPI-Smart C*** app

Note: The radio confirms actions by a vocal message

Note / VOX Setting: a continuous sound is played when the microphone picks up sound/noise and emits so help setting the VOX.

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Operating principles of the APPI-Radios

Each ***APPI-Radio*** kit (group) is defined by an ID number. The APPI-Radios can communicate using one ***"Long Range"*** **channels** (4 in CE version, 32 in FCC/IC version), or (CE version) any of the 12 ***"Short Range"*** ones.

The possible use modes are: **TALK** (conference), **LISTEN** (listen only) or **MULTIplex** for groups larger than 3 peoples. This mode allows full-duplex hands-free conversation for the "priority" pair plus and infinite others to be in the group and intervene, one at a time.

➔ *No Base nor Master terminal:* in a kit of 3 radios, if one of them gets out of the group (flat battery, range, obstacle), the communication between the other two won't be affected and, as soon as it comes back on line, it will be automatically be re-synched (APPI-Technology SyncAll® Int'l Patent).

➔ *StartEasy®*: the APPI-Radios always start on the last used channel. If occupied, the whole group automatically switches to the next channel, till it finds a free one to start the conference.

Note: the APPI-Radios (none ATEX) can be used for communication while in charging mode

Common communication Kit for 3 persons

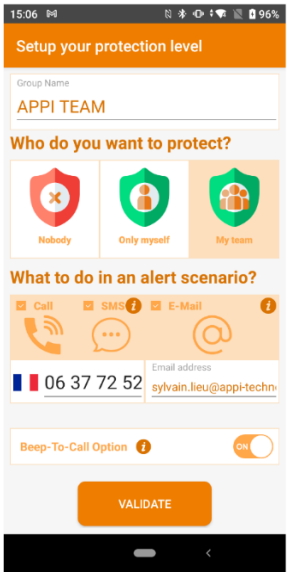
An APPI- Radio kit for 3 would generally include:

- 3 APPI-Radios & X audio headsets, depending on the configuration
- 3 USB cables (Recharge / Configuration), not to be connected/disconnected in ATEX zones.
- 1 power charger (220V) - USB X4 and one car charger 2xUSB, not to be used in ATEX zones.
- 1 USB key not to be used in ATEX zones: documentation and configuration software.
- 1 transport case.

Remote interface / Remote Control & Alerts reporting: APPI-Smart App

This Android App, useful with APPI-CovR which has no screen, works with all APPI-Radios: ***APPI-Smart C*** free App allows control the Radio through the Bluetooth connection and adds several features (PTT, etc.).

The **"S"** (Safety) version allows configuring contact information (email, phone) to relay in Real time and even Off-Network "Man-Down alerts", establishing a call, sending a txt and an email with GPS location to the contact.

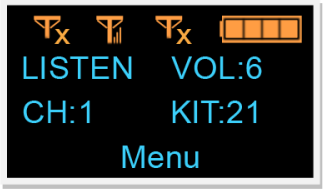


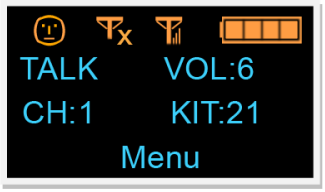
APPI-Smart C ***APPI-Smart S***

Radio reception level

Reception information messages are played in the audio equipment (see "Connection information"), and the reception level is also displayed on the screen. In case a module does not emit (switched off, out of range, communication on another channel ...), the Radio reception level is replaced by:

EXAMPLE 1: (**LISTEN** Mode) the module receives a signal from module number **2** of kit **21**
EXAMPLE 2: (**TALK** Mode) the module receives a signal from module number **2** of kit **21** but **no signal** from module number **3**.





Displaying Serial Number / Sending out a pager signal / Switching Off

Pressing the Central key, the radio will display its Serial Number and propose 3 choices:

L: Return **C:** Send a « beep » **R:** Switch Off the radio

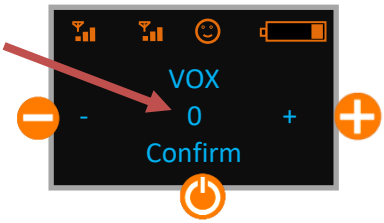
The user then **has 5 seconds to send the signal** by pressing the Central key again: if not, the paging procedure is canceled and the system goes back to normal operations.

Note: the **pager/alert signal** can be sent even with NO connected headset.

Pressing the **Central key for 4 seconds** leads to the MENUS, accessible or not based on the configuration.

Setting the microphone's (VOX) sensitivity

VOX Menu. In a noisy place, reduce microphone's sensitivity level to avoid transmitting ambient noise. At the contrary, in a very quiet place, the user can increase the sensitivity to be heard when whispering.
The factory setting is 0. This is an average sensitivity for both isolation to high noise and still not requiring to shout to trigger the voice transmission.



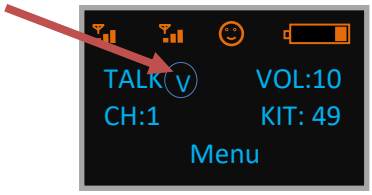
SETING: this screen allows you set the sensitivity that would trigger the mic.

The smiley is displayed **when the trigger level is and the radio is emitting**. If this appears in a noisy environment when the user does not speak, it means that the sensitivity is **too high** and needs to be **reduced**.
For the ***APPI-CovR***, when used without the APPI-Smart App, the smiley is replaced by a continuous tone.

Change this sensitivity from -10 to +10, the **lowest value (-10)** requiring the **higher sound to trigger,** and the **maximum sensitivity (+10)**, requiring the **lowest sound**. When the setting is done validate.
This setting is stored and **will apply for ALL following uses**.

NOTES:

- The headset MUST remain connected during the setting, made in the REAL noisy place.
- The user is still in communication with the team while setting the VOX
- If changing the headset type, re-set the VOX
- When the sensitivity **is *NOT* « 0 », a "V" appears on the screen**
- If the VOX is "too high" this may create:
  - An ***echo*** or your ***breathing noise*** sent to your colleagues.
  - The ***battery life*** may decrease for permanent emission
  - Other people (MULTI Mode) may not be able to speak

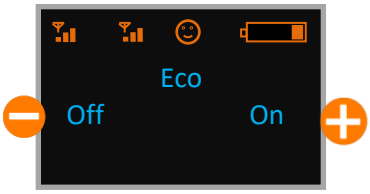


Setting the Sidetone level

Sidetone Menu. You can set the « side tone », i.e., the level of the user's own voice being bounced back to your speaker, unless the use of certain peripherals (bone conduction mic., a remote speaker, intercom cable) ➔Change the settings with the L/R keys from 0 to 9

Activating the ECO (Economy) mode (APPI-Com only)

ECO MENU. To enhance autonomy, the ECO mode reduces the emission power of the LR channels when a 800/1000m radio range is enough for the application: the battery life then gets around 1 extra hour. When « ECO » is activated, the « LR » sign becomes « ECO » on the screen for the Long-Range channels:
Example: $\mathbf{3}_{\mathbf{Eco}}$ instead of $\mathbf{3}_{\mathbf{LR}}$
NOTE: the ECO mode does NOT affect the SR channels (European version).

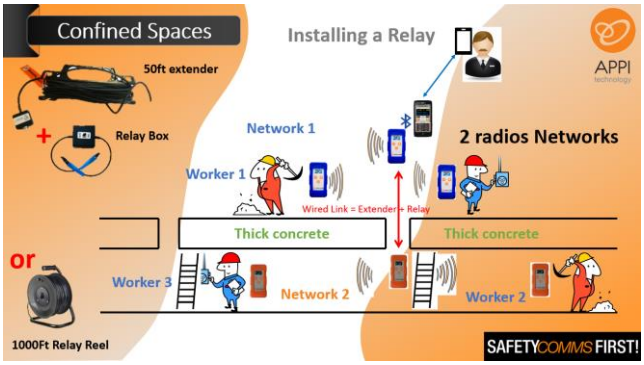


⊖ : activate the Eco mode

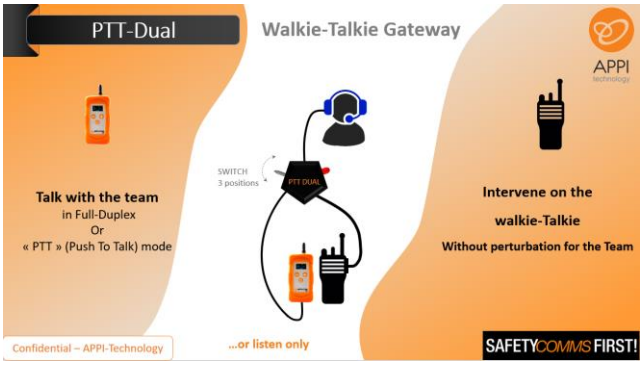
⊕ : disable the Eco mode

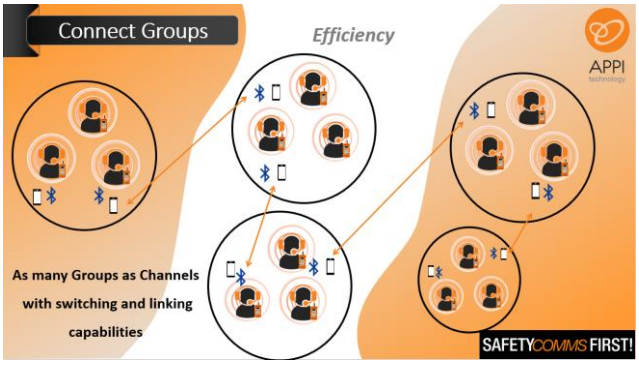
NOTE: the Eco mode status (activated/disabled) remains when switching the module off.

Application Examples: Confined Spaces, Audio relay and sending Alerts out



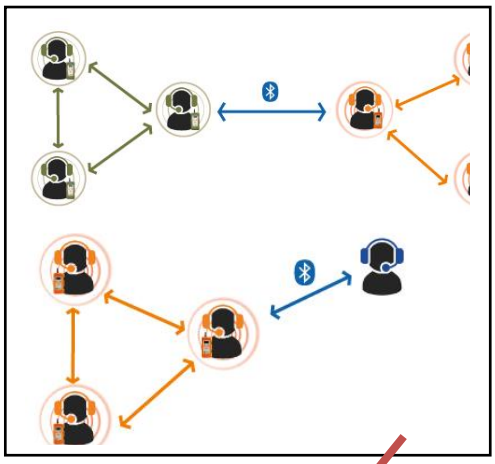
Extending/Connecting Networks: Walkie-Talkies and GSMs:





Using a Bluetooth device (BT Option)

Bluetooth MENU. If the Bluetooth option is available, you can connect:



- **A Communication device (Phone, 2Ways radio…)** to create a gateway between several networks
  ➔You can get phone calls in PRIVATE mode or share the conversation in PUBLIC mode with the group.

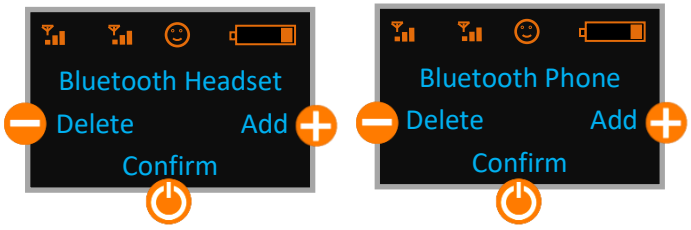
For APPI-Com ONLY:

- **Bluetooth headset:** your BT headset can be connected alone or **on TOP of a wired headset**
- When 2 headsets are connected (wired and BT), this pair can communicate by its own, or join the APPI-Com group, etc. The conversation may be PUBLIC pr PRIVATE

The Bluetooth state is indicated by the logo **Blinking**: the module tries to connect to previously paired devices, or **Fixed**: the module is connected to a BT device.

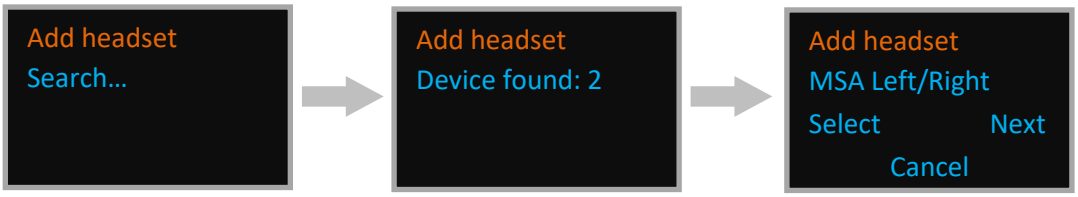
Bluetooth configuration menus

The Bluetooth device can be paired or unpaired from the ***Bluetooth menu***.

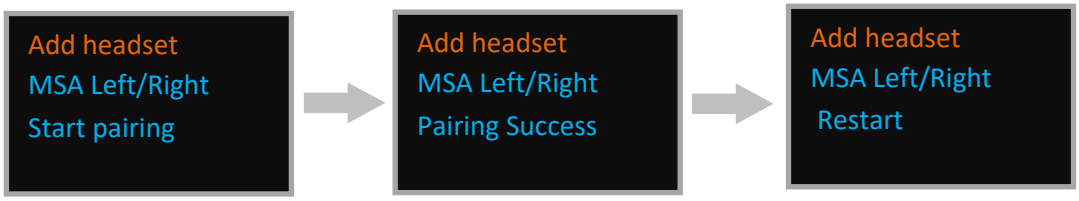


Add a Bluetooth Headset

Set the headset in "discoverable mode" or it may not be seen by the APPI-com.



Change or Confirm your choice with the **Left**, **Right** or **Central** keys: The Radio will connect to the BT device:

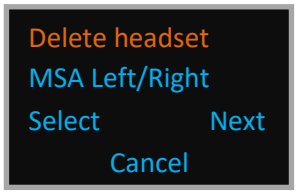


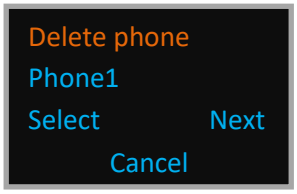
NOTE:

- You cannot connect a Bluetooth Headset to the APPI-CovR
- You alternatively connect pair up to 4 BT headsets: only the last 4 will be stored.

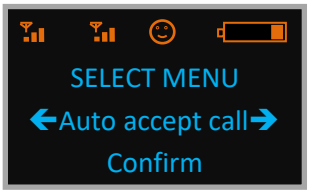
Remove a Bluetooth headset or Smartphone

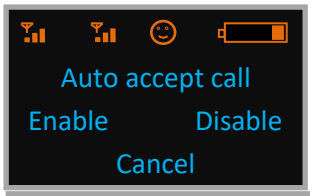
For the two Bluetooth modes, the delete menu is available from the Bluetooth menu by pressing.



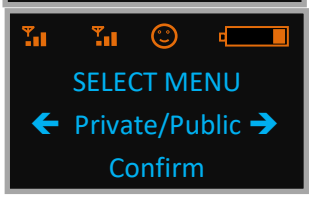


Once the device is selected, confirm your choice.
Communication with a phone
The GSM communication is activated only during the calls: for an incoming call, the "***incoming call***" message is played. You may accept it from the phone or set APPI-Com to always take it thanks to the « **Auto accept call** » function, in the "advanced configuration" menu.
The call ends with a « ***call terminated***" message.



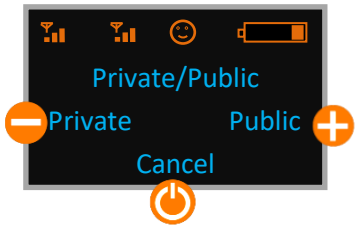


Public/Private Communication



By default, the (phone) BT communication is transmitted to the whole APPI-Com group (**Public mode).** You can restrict it to the APPI-Com's wearer (**Private mode).** You can switch ***Private/Public*** from the menu, ***even during a call***.

NOTE: The **Private** mode is activated during a call only. When the call ends, the radio resumes the APPI team communication.
NOTE: during a Call in Private mode, the radio is considered « OUT » of the APPI-Com group.

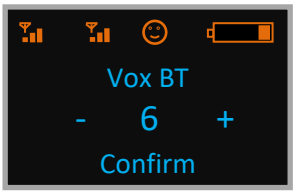


BT Audio settings

When you connect a BT device ***on top of a wired headset***, its configuration can be set in the "advanced configuration" menu where **two extra menus** become accessible:

- ***Volume BT*** for the Bluetooth device:

- ***Vox BT:*** for the Bluetooth device (same function as for the wired headset)



The settings are stored and used for the future connections.

Lone Worker Protection « LWP » (Safety Pack Option)

LWP MENU - The Radios can **detect the immobility of the wearer** (***Man-Down***). By software configuration (see "***Software Configuration***"), and for "***Talk***" module only, it is possible to activate the "**LWP**" feature. With this function activated, the device sends a voice message to all other modules of the Kit ("***Talk***", "***Listen***" or "***Multiplex***") **indicating the immobility of the wearer.**

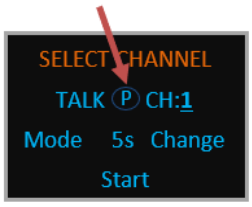
- If no motion is detected during the **pre-alert period**: a warning beep sounds in the audio equipment of the wearer to report its immobility and encourage him to move to cancel the alarm, but no alert is sent at this stage (pre-alert and alert times can be changed by the user).
- After this pre-alert, if motion is still not detected during the **alert period**, a voice message is sent to all modules in the kit. This message indicates the rank of the module in the kit (1, 2 or 3) and an intermittent audio signal is played in the audio device of the wearer to indicate that an alert is sent.

EXAMPLE: The Radio sends a vocal alert to the others that will broadcast "**APPI Com 2 immobile**".
NOTE: this function works only if the Radio is in communication with at least one other Radio.
NOTE: any movement detected cancels the alert, and the pre-alert timer is reset to 0.

Setting the LWP parameters for the Alert emission

When the LWP function is enabled on the module (see « ***Configuration software*** »), the wearer is aware thanks to the Ⓟ for "**Protection**" logo on the screen:

NOTE: when the module sends immobility alert, the symbol is replaced by a blinking Ⓟ on the screen of the immobile radio.



The parameters (see « ***configuration software*** ») of the LWP are:

- **Pre-alert period** (seconds): maximum immobility time before pre-alert.
- **Alert period**: (seconds): maximum immobility time **after** the pre-alert time before the alert is sent out.
- Authorizing the LWP function to be temporarily disabled by the wearer (Yes / No)

Setting the LWP parameters for Alert reception

Example: Radio n° 2 sends the Man-Down alert to each Radio which will:

- **Play the vocal message** "APPI Com 2 immobile" in the audio device.
- **Activate the Buzzer** in continuous mode for a few seconds
- Replace the reception symbol for Radio 2 by **the blinking** Ⓟ **symbol**.

NOTE: to make sure the alert is heard; the vocal alert stops and replaces the conversation.

Depending on configuration, the vocal alert and the Buzzer may be played **several times** (every 30 seconds, as an example) or **only once**. When the alert stops (motion detected on the wearer's module), all the alert messages stop. If the same module sends a new alert, it'll be treated as if it were the first one.

The parameters (see « ***configuration software*** ») of the LWP alert messages are:

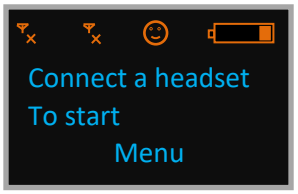
- Language (French or English)
- Number of times the message (buzzer and vocal alert) is played and period, in seconds or minutes.

IMPORTANT NOTES: It is necessary **to test the function at startup.** The receipt of immobility alert assumes that the radio link is established between with other Radios. Any obstacle to the proper radio communication between APPI-Com modules **can disable the receipt of the immobility alert.**

Information on the Connection within the group

Depending on the chosen configuration, the radio module can indicate (Audio messages) its connection/disconnection status with other members of the team. **There are 3 possible connection levels** (Configuration software):

- **NO message**: may be useful when the wearer is in an area where connection is weak and he doesn't want to hear the connect/disconnect message too often.
- **APPI Network connection (default mode):** The Radio plays "***Connected***" as soon as it gets synched with another one. It plays «***disconnected***» when no radio left is at reach.
- **SafeLine®** (Safety Pack): This patented mode lets the APPI-Com user know in quasi-real time **WHICH module** is connected in the team.



At least ONE headset HAS be connected to the Radio (wired or Bluetooth) to synch the radio with the others: if not the system will ask to connect one.

Using TALK modules

While receiving a signal from #2 (example) the wearer will hear « ***2 Connected*** »), while user #2 will hear "***1 connected***". When module #3 comes into the conversation both users #1 and #2 will hear « ***3 connected*** » and, user #3 will hear « ***1 Connected*** » and « ***2 Connected***».

Disconnection: if module #1 loses user #3 it'll play « ***3 Disconnected***».
Finally, when all others modules are disconnected, the user will hear « ***APPI-Com disconnected*** ».

Using Multiplex modules (2 TALK and 2 MULTI, as an example)
Say the 2 TALK modules are connected, when the first MULTI *(#3)* comes in *the two TALK modules will play* « ***Multi connected*** », indicating that at least ONE MULTI is in the loop.
If a second MULTI (#4) comes in, only the OTHER MULTI will hear « ***Multi connected***», indicating that another MULTI is in. The two TALK will not play any message.
When one MULTI gets out of the loop, the OTHER MULTI ONLY will hear « « ***Multi disconnected***» indicating that he's **the last connected MULTI**: the two TALK will not play any message.

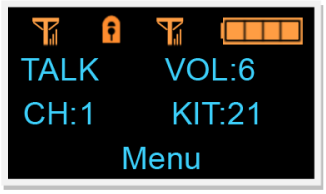
When the last MULTI gets out of the communication loop, the two TALK modules will play «***Multi disconnected***» indicating they are now alone in the loop.

NOTE1: the connection message tells the user that he receives signals from the others, but doesn't imply that they hear him.
NOTE2: do not use the **Safeline®** mode at range limit as it'd generate too many messages.
NOTE3: when the wired headset is disconnected, the others will hear the disconnection message (> 1 second). For **a Bluetooth** headset, **the delay to hear the disconnection message may last up to 10 seconds.**

Secret Mode (APPI-Com only)

It is possible to make the conversation "**secret**": no other APPI Radio would be able to listen to conversations coming from this kit. To activate this feature, you must use the "***Configuration Software***".

In « ***Secret*** » mode, the smiley will be replaced by the Locker Logo:



EXAMPLE: Radio **2** in kit **21 is** in "***Secret***" mode. Only Radios **1** and **3** from same kit 21 can communicate with it.

Listen Mode (APPI-Com only)

STARTING MENU – If enabled, this mode allows ***LISTEN*** Radios from OTHER kits, knowing their Kit ID, without being able to enter the conversation. After confirming the mode and the channel number, the user may enter the Kit ID with the 3 keys:

Next Digit Validate Upper number

When Validating Kit ID, the Radio switches to the LISTEN mode.

If the radio detects an UNKNOWN kit ID on the channel, it'll show "***WRONG KIT OR CH***" and invite you to switch the Radio off, or re-enter the information.

MULTIplex mode

This configuration allows create teams of **more than 3 members**. In that case, the 2 first modules (rank 1 & 2) are offering a full-duplex hands-free communication in "***Talk***" mode. All other modules in the kit share the third talk slot and can alternatively get into the conversation.

It can be useful that a "***Multiplex***" module is connected to **a Push To Talk**, so that it does not prevent the other multiplex to intervene. Alternatively, they may appropriately set the "VOX" function.

If configured so, the Multiplex radios can switch to **several groups (up to 10)** by switching channel (see « ***configuration software*** ») while the "TALK" radios can only be part of their own group.

Selecting another Kit/Channel

To change channel (thus group): long press the Central Key to reach the Channel selection menu. The user has 5 sec. to select the channel then the Kit ID: with no action, the Radio goes back to previous settings.

NOTE: the radio stores the Kit ID set for each channel, so the user only has to change the channel to be part of the other groups, sequentially.

Operational limitations of the MULTIplex:

- ⇨ At least one "***Talk***" module has to be at reach to INITIATE the conversation.
  Without ANY TALK at reach of ANY MULTI, these will stop communication after a few minutes, awaiting a TLK to be at reach.
- ⇨ Pager signal. Any "***Multiplex***" module can send out a pager signal (see ***Sending out a pager signal: alert /*** call), if NO OTHER "***Multiplex***" module is emitting at the very moment.
- ⇨ It is NOT possible to activate the LWP on a MULTI Radio.

Battery life and Charging

The APPI Radios use rechargeable batteries, to be charged thanks to the provided APPI/USB cable on a **5VDC/1A** source. The battery cannot be removed/changed in the field: please contact APPI-Support.

	APPI-Com	APPI-CovR
Battery Life mode TALK / LR Channel	7h	24h
Battery Life mode TALK / ECO mode / LR Channel	7h30	
Battery Life mode TALK canal SR	8 h	30h
Battery Life mode LISTEN	9h	
Charge Time / Wall Plug	2h	8h

The Charge Status is displayed on the screen and Vocal alerts are generated to warn the user:

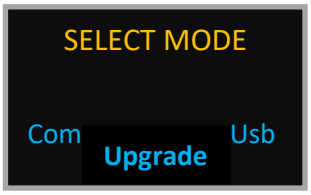
1. **« Low Battery 20% »**
2. **« Low Battery 5% »**
3. **« Switch Off »**: generates a « Beep » and shows « ***NO BATTERY*** », switch off within 5 seconds.

NOTE 1: if the battery level is low at start, the Radio alerts (vocal) the user
NOTE 2: if the battery level is too low to start, the « ***NO BATTERY*** » is displayed
NOTE 3: using a Bluetooth device decreases the battery life.

Battery life Extension / Communication while Charging

The APPI Radio can be configured to **communicate while charging** (non ATEX version) to extend Battery Life thanks to an external battery bank or directly plugged to a wall plug.

1. Connect to a battery bank or wall plug
2. Switch the Radio ON, and KEEP pressing the Central key till this screen:



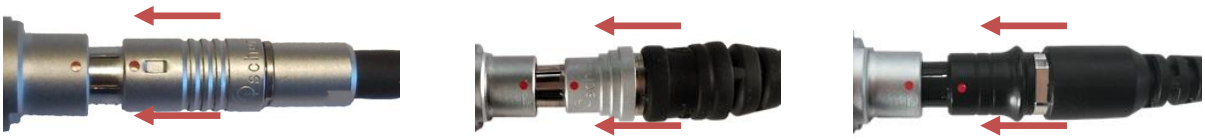
Switching USB / COM / Upgrade Mode

- **COM:** the radio communicates while charging
- **USB:** the radio goes to configuration mode (USB) while charging
- **Upgrade:** to Update the Radio's internal software (Contact APPI).

NOTE: while communicating, do not charge on a PC/tablet as the delivered power may be too low

Charging the battery (Out of the ATEX Zone)

Plug the provided USB cable. The connector has a locking function and an alignment key: it can only be plugged in one position. The red dots should perfectly match to plug the connector.



NEVER FORCE THE CONNECTION, rotate the plug until you find the right position

To disconnect an Audio accessory, pull the connector ring to unlock the connection (see diagram below):
If the connector is blocked, you should slightly push before pulling the ring.

NEVER PULL ON THE CABLE, it may damage the connection because of the safety lock.

APPI-Com ATEX version: **it is prohibited to charge the battery in an ATEX zone.**

Radio Range

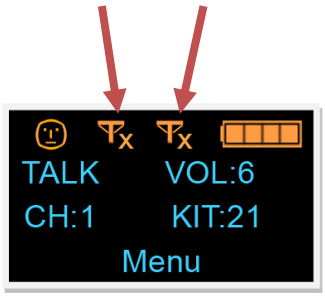
The radio range (Line Of Sight) in open space between two APPI-Radios using a ½ wave antenna **is more than 3Km LOS using a Long Range channel** (around 900m in Eco mode), and around 300m using a **SR** "Short Range" channel, but this distance can vary depending on the environment: obstacles, working within in a building, EM perturbations, etc. It is also reduced when using a **¼ Wave or an internal antenna**.

Operation Incidents

Some operation incidents may occur. Here is a list with the corrective actions:

1. **The module switches on and off only seconds** after displaying "NO BATTERY" ➔ the battery is low: charge the module.

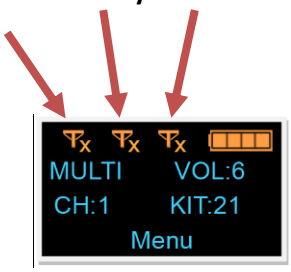
2. **The module turns on but remains in search mode** of communication more than 30 seconds (symbol not received for all other modules in the kit):



   - The other module(s) of the kit are off ➔ start the other module(s)
   - The other module(s) of the kit are out of radio range ➔ bring the modules in range
   - The module **is not configured on the same channel than** the other modules of the kit

   ➔ Restart the module and select the correct channel
   - The module is not part of the kit which is in communication on this channel (different kit number) ➔ Use the "***Configuration Software***" to integrate the module into the kit.

3. **The « Multiplex » module turns on but stay in search mode:**



   - No « priority » module (in « TALK » mode) is ON or at radio reach ➔ start at least one of them to initiate conversation: « Multiplex » modules cannot start conversation between them alone.

4. **The radio range between modules is poor:**
   - External antenna missing or loose on some modules ➔ Install or tighten the antenna
   - Another APPI-Com kit is running too close ➔ use two non-adjacent channels (1 and 3 instead of 1 and 2 for example) and / or get away from the kit's modules.

Specifics: the APPI-Com Radio

Attachment clip (Non ATEX Version)

The modules with an external antenna are provided with an attachment clip.
The clip can be installed in only **ONE position** ➔

NOTE: TOO MUCH FORCE TO PUT ON OR REMOVE
THE CLIP CAN DETERIORATE THE HOUSING OF THE MODULE.

Putting the clip on :

- ➔ Insert the module to fit the two notches
- ➔ Press the left side to clip the module in

Removing the clip:

- ➔ Spread the clip's leg out externally with the finger
- ➔ At the same time, lift the module's left side up from the clip
- ➔ When the module's left side is out, remove the module completely

Positioning the mini-clip on the rubber

Install the mini-clip thanks to the plastic rivet, its head inside the rubber as shown

APPI-Com: rubber cover (mandatory for the ATEX version)

Rubber covers are available in various colors (red, gray or orange) and can be cleaned with a damp cloth.

APPI-Com radio can be inserted into the protective cover after installing the protective glass: with external antennas, first insert the antenna, then insert the radio the rubber. This cover is particularly effective against dirt, shock and scratches and the shell is equipped with a belt clip but can also be used with the neck strap.

ATEX version: the device MUST exclusively be used with its rubber cover and its antistatic plastic screen. It is **Prohibited to remove the rubber cover in a zone 2 or 22.**
NOTE ON THE POTENTIAL DANGER OF ELECTROSTATIC CHARGES of the CASE
In use, a charge may appear by rubbing on clothing. The APPI-Com case must be worn underneath or in ATEX clothing as ATEX DIR 89/686/EEC

NOTE: APPI-Com module must be used with the provided Clip or Rubber cover (eventually inside the arm band or harness), allowing a minimum distance of 5 mm (clip/rubber cover/armband/harness + garment thickness) with the body (measurement conditions of the SAR "Specific Absorption Rate ").

Product's label / recommendations (FCC-IC Model for USA/Canada)

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.

NOTE: The grantee is not responsible for any changes or modifications not expressly approved by the party responsible for compliance.
Such modifications could void the user's authority to operate the equipment

ATEX Version (Atmosphere EXplosive): model BS-APC2-Ax

The **ATEX** version of the device is different from the standard one: one can clearly identify it with it special front side marked with the ATEX symbol Ex
ATEX certification class :
CE Ex II 3G/D Eex is T6 **IP67**
ATEX certification: usage limitations & compliance with ATEX regulation

1. Usage temperature limits: -10°C à +60°C
2. Authorized for use **in a zone 2** (GAS) and **zone 22** (DUST)
3. Authorized for use with the provided ATEX Audio accessory, exclusively.
4. Authorized for use with the provided rubber cover, exclusively.
5. Authorized for use with the provided internal or pre-fitted external antenna, ex
6. Prohibited to connect or disconnect device peripherals in a zone 2 or 22.
7. Prohibited to remove the pre-fitted external antenna in a zone 2 or 22.
8. Prohibited to remove the rubber cover in a zone 2 or 22.
9. Prohibited to use the device in a zone 1 or 21 and a zone 0 or 20, or if the plastic case is defective.
10. Prohibited to charge the battery in a zone 0, 1 or 2 and zone 20, 21 or 22.

Configuration software

An APPI-Com module can only communicate with modules **having the same kit ID**. **In factory configuration**, the Radios are configured with the same kit number: **there is therefore no need to configure**.

Thereafter, the user may wish to change the configuration of the modules in the following cases:

- Replace a radio in a kit, Create new kits (example: 3 kits of 2 modules from 2 kits of 3, etc.)
- Enable / disable the "**Secret**" mode, enable or disable the "**Talk**" and / or "**Listen**" modes, etc.

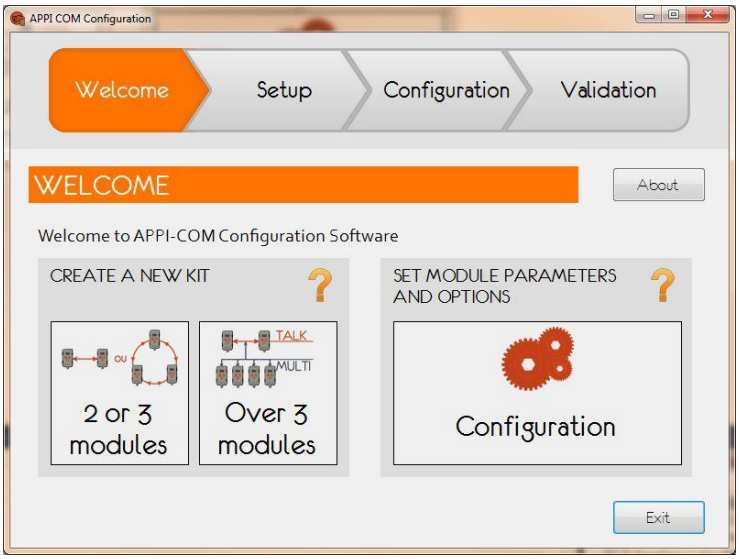
Installing the PC configuration software

- ⇨ The Software is provided on a USB key, with an **Autorun.exe** program:
- ⇨ Click on the Install button to launch the APPI-Com Configuration installation software.
- ⇨ When the software is installed, an icon will appear on the desktop to launch the software:

Configuring an APPI Kit for 3 – Tutorial

The purpose of the example described below is to create a **kit consisting of 3 Radios**:

1. The software proposes to create a Kit or an advanced configuration.
2. After choosing "2 or 3 modules", the software requests to connect the modules and indicates the number of detected modules.
3. Connect **only** the 3 Radios of the new kit, using the provided USB cables, and switch them on.

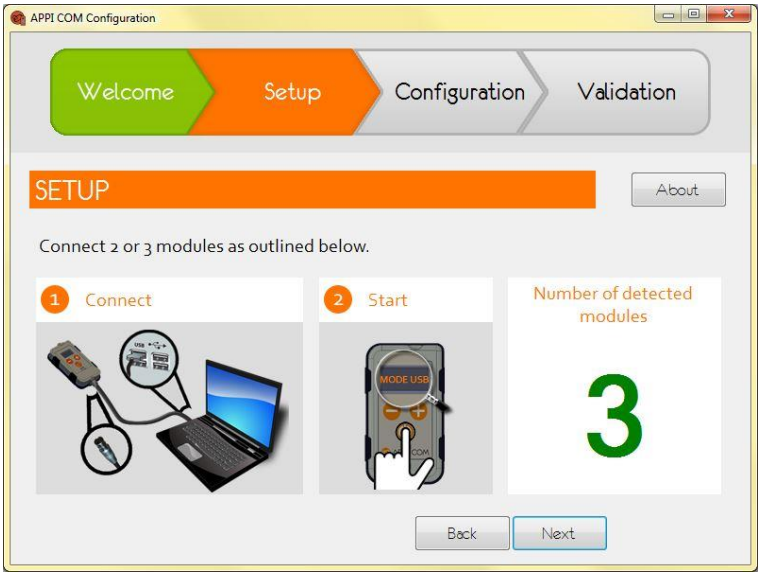


NOTE: detection could take more than a minute.

NOTE: The Radios will switch to USB Mode, if not, change the COM/USB mode to USB

NOTE: « *Next* » would only be accessible when 2 or 3 modules are detected.

➔Click on "Next" if the detected number of Radios is correct:

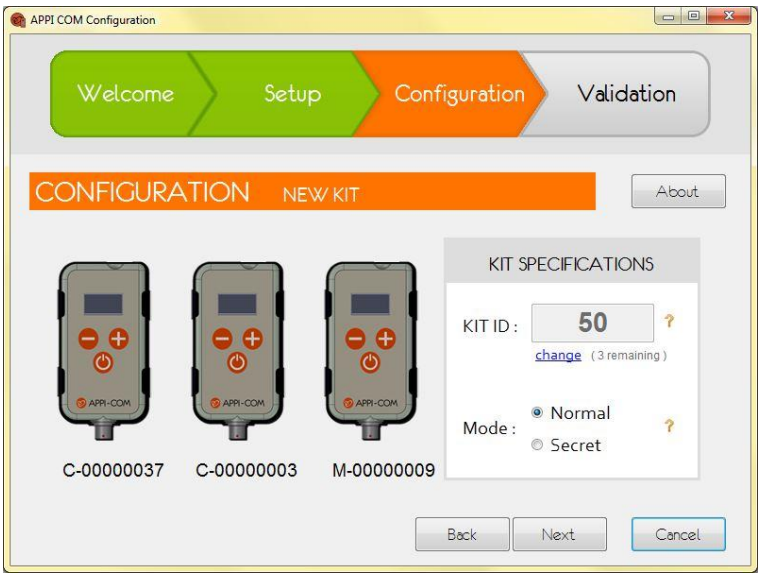


"Normal" Mode: the modules of the kit may be heard by an APPI-Com module in Listen Mode.

"Secret" Mode: NO other module would be able to listen to the modules of this kit

NOTE: if the proposed Kit ID already exists in the group, you may ask for another kit ID to be generated by clicking "change". For safety reasons, you may only request 3 changes.

Press "Next" to validate the configuration.



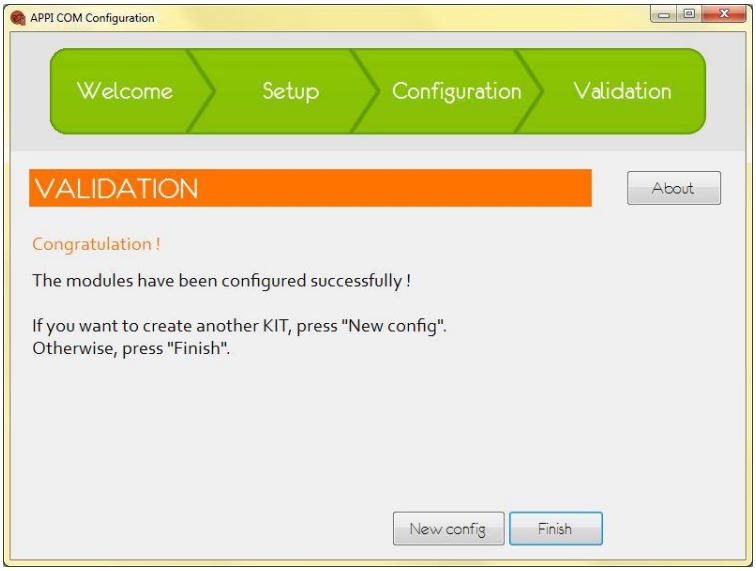
After a few seconds, this screen will confirm the configuration OK.

In this example, modules **C-000003**, **C-000037** and **M-000009** are part of kit **50** and can be heard by any APPI Radio's user in ***Listen*** mode, if he knows the kit ID.

At next start, the modules will run in conference mode, indicating their kit number: **50**.

IMPORTANT: note that all modules will start on channel 1.

REMINDER: it is also possible to create kits with 2 modules.

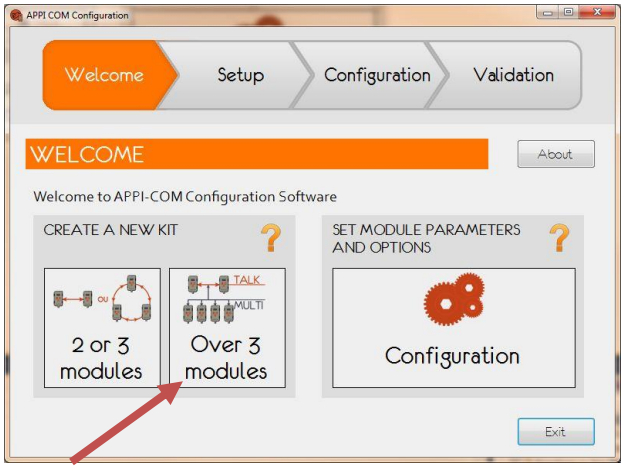


NOTE: if one of the Radios was in Multiplex Mode before creating the new kit, it'll be detached from all the kits it was part of as a "TALK" radio belongs to ONE kit (group) only..

Configuration of larger groups (MULTIplex) - Tutorial

To create a **kit with of 4 radios,** first configure the 2 priority (Talk) radios, then add the other ones:

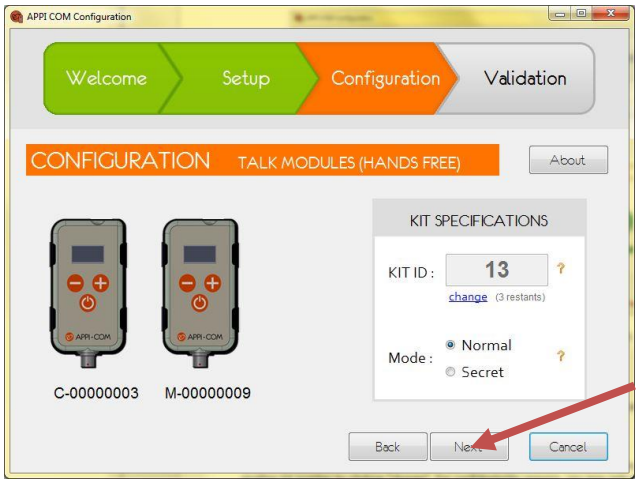
1. Choose “More than 3 modules” and only connect the 2 “Talk” ones
2. Switch on the Radios

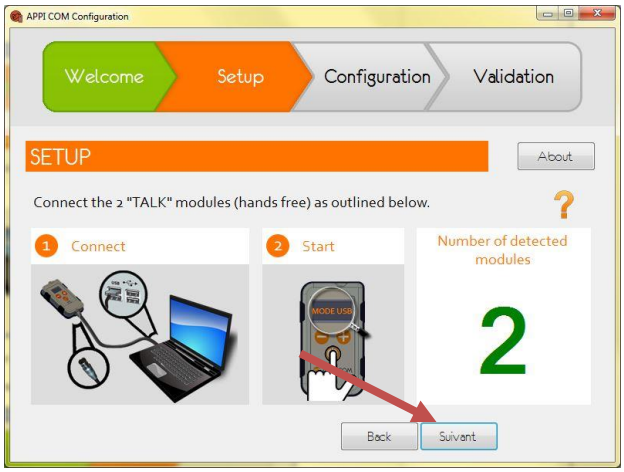


NOTE: the radios will go to the USB mode (if not change the mode from COM to USB):

NOTE: the « Next » button becomes available if the 2 « Talk » modules are detected.

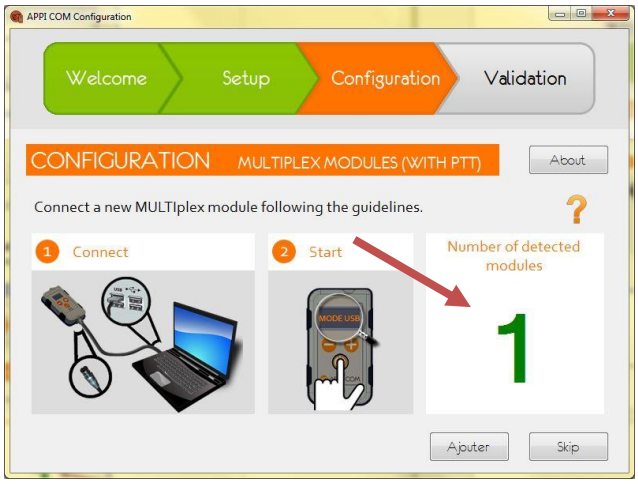
3. Choose « Next » if the number of radios is OK:



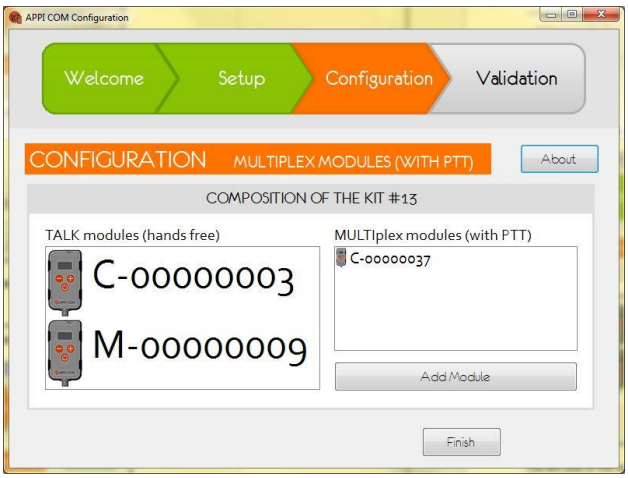


Choose “Next” to validate the configuration: the two “Talk” radios are setup, you can disconnect them and Press “OK”

4. The software requests to connect the first “***MULTIplex***” module: the “Add” button is only shown when ONE ONLY Radio is connected to the USB port.

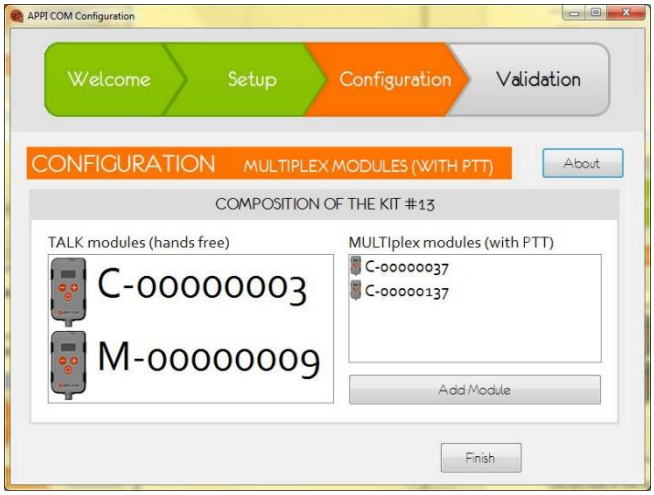


5. After clicking on “Add”, the window displays:

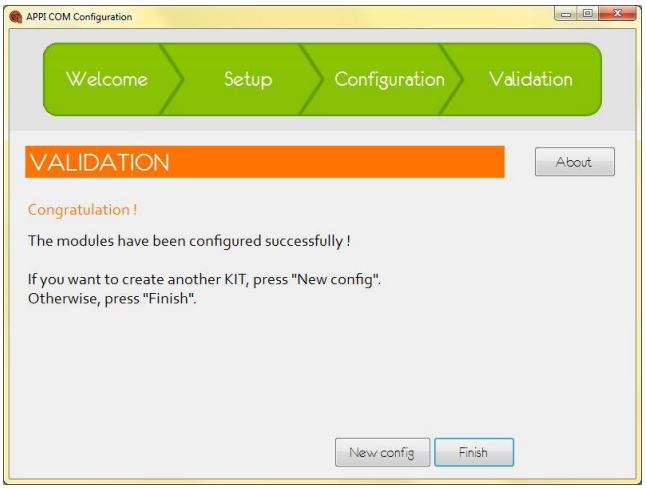


The left side of the window shows the ID of the two “Talk” modules, while the left side zone displays all the ***“Multiplex”*** modules added to the kit.

6. After choosing “Add”, you go back to the validation step with the new added ***“Multiplex”*** radio being listed:



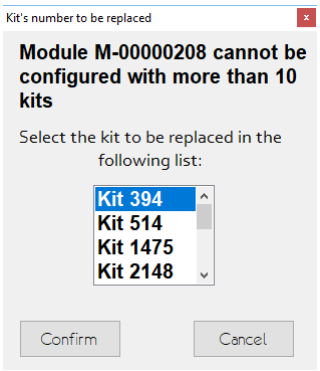
7. In this example, Radio number **C-000003**, **C-000037, C-000137** and **M-000009 are part of kit #13,** et can be heard by any APPI Radio in Listen mode provided they enter the right kit ID (13).
Radios **C-00000003** and **M-00000009** are the priority ones and can be used with hands free, while **C-00000037** and **C-00000137** are used in “Multiplex” mode and may be connected to an PTT or an adequate VOX level to make sure the others can eventually talk.



NOTE: if a problem occurs when adding a « ***Multiplex*** » module, all previous configurations are stored.

NOTE: It is possible to add as many Multiplex modules as desired, but, for operational reasons, it is advised **to limit to 8 so that all users may have a chance to talk**.

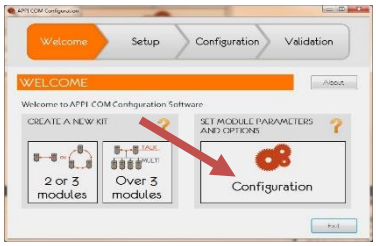
NOTE: a « ***Multiplex*** » radio can be part of up to 10 groups



If, while trying to add a Radio in a group, the Multiplex radio is already configured with 10 other groups the following window will appear:

One must select the **group to remove** from the Multiplex list: the radio would thus NOT be able to access this group.

Radios Advanced configuration – Tutorial



The objective here is to configure 3 APPI Radios (SN 0045 / 0089 / 0007)

Radio **C-00000045 & C-00000089** as such:

- Activate « ***Talk + Listen*** » modes
- Activate the ***LWP*** mode with the following parameters:
  - Pre-alert period: 40 seconds / Alert period: 10 seconds / No authorization to disable the LWP
- Playing the Alert messages every 2 minutes / "English" language for the vocal alerts
- Activate the **SafeLine** mode

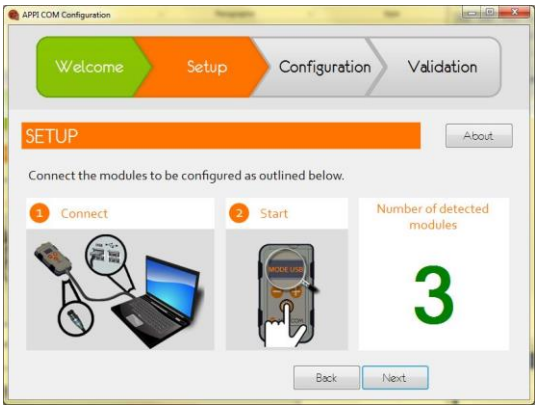
Radio **M-00000007**, we want to:

- authorize the user to disable the **LWP** function / authorize **Vox** settings
- authorize **Sidetone** settings / authorize **Eco** mode activation

1. Launch the ***APPI-Com Configuration*** software
2. The software proposes to create a Kit or an advanced configuration:
3. Choose "Advanced configuration", connect only the 3 radios to configure, and switch them ON

NOTE: Radios must be in USB mode (if not change from COM to USB)

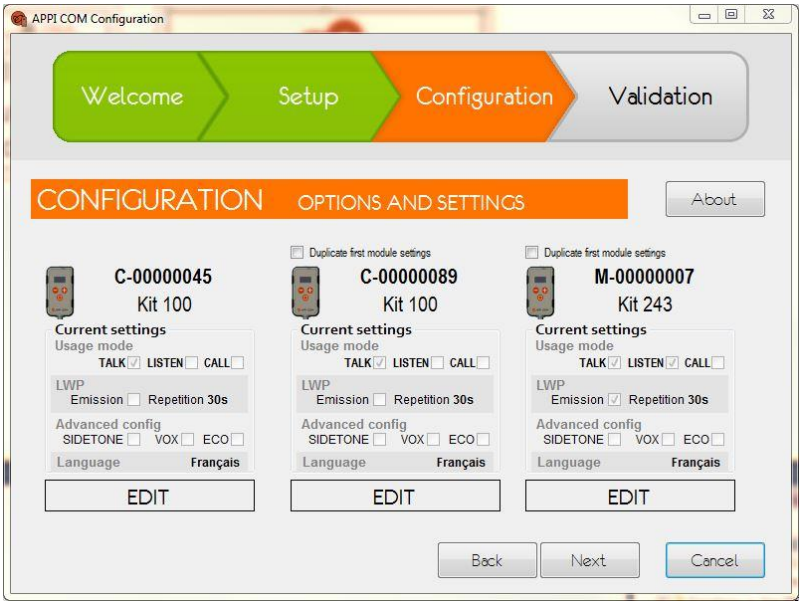
4. Choose « *Next* » when the radio number is OK



The options and settings are displayed for each Radio:

Example, module # **M-00000007** is configured as:

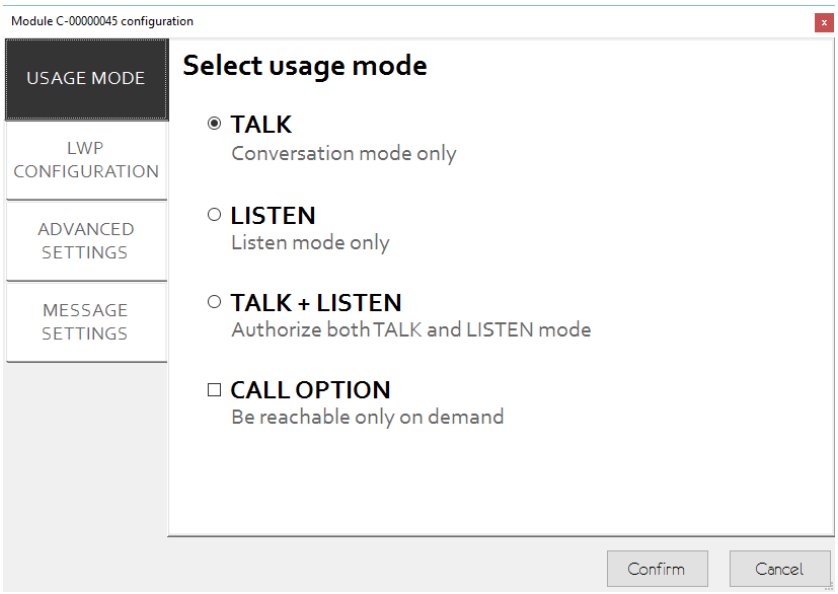
- **TALK** and **LISTEN** mode: conversation and Listen Only.
- **LWP** Function: activated
- Alert message repetition period: 30 seconds
- **SIDETONE** sensibility tuning authorization: disabled



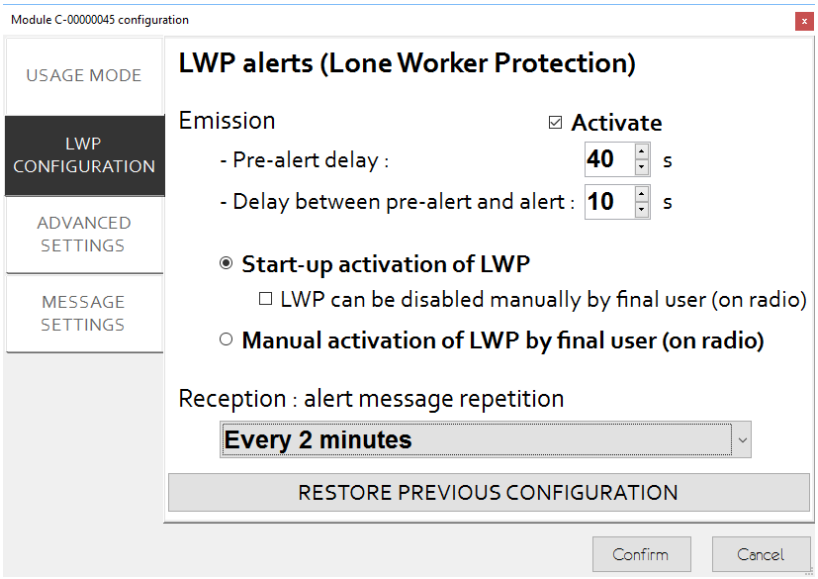
- **VOX** sensibility tuning authorization: disabled
- **ECO** mode authorization: disabled
- Language used for the vocal messages: French

5. Then « ***EDIT*** » the parameters on module **C-00000045 as desired:**

On first tab, you may choose « **TALK + LISTEN** ».



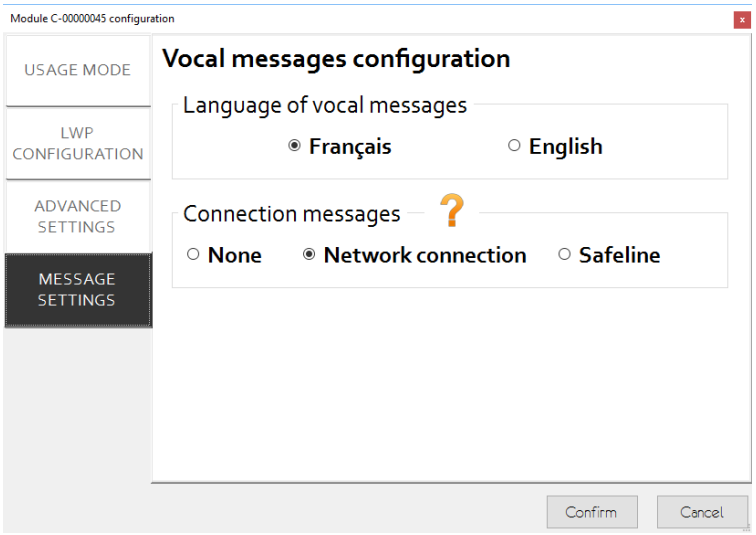
Then choose « **LWP CONFIGURATION** » tab (the CALL option is not available from 3.3 version on):



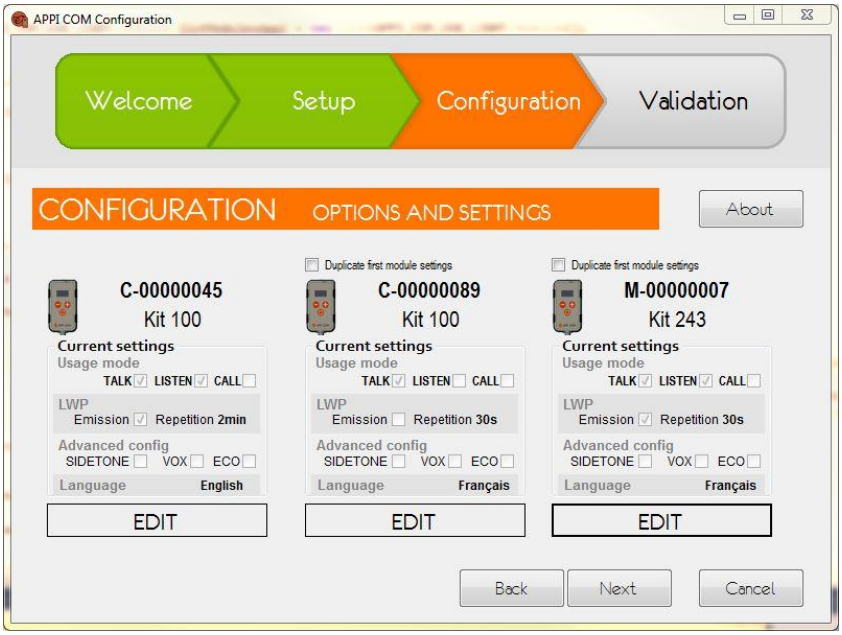
Then set the desired parameters up:

Then choose « **MESSAGE SETTINGS** » to configure « English » for language and activate the **Safeline** mode

<u>NOTE</u> : the « **Safeline »** is only available for Radio with the ***Safety Pack*** Option



6. The desired configuration of module **C-000045** is complete. Choosing "***Confirm***" you will freeze the parameters:

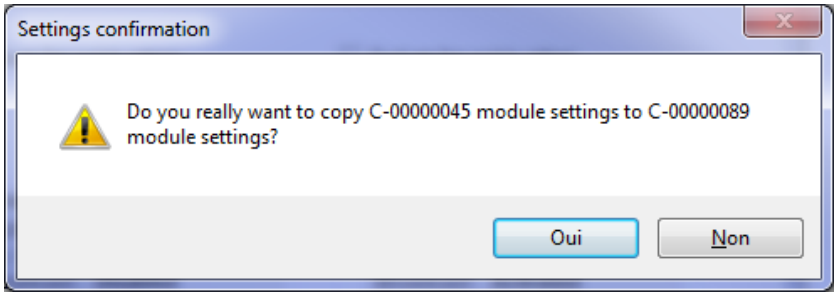


NOTE: at this stage, the modifications have NOT been stored, **thus the Radio is NOT configured yet!**

7. To duplicate this configuration to **C-000089**, choose « ***Copy the configuration of first module*** »:

By choosing « ***Yes***», the configuration is copied from module **C-000045** to module **C-000089**:

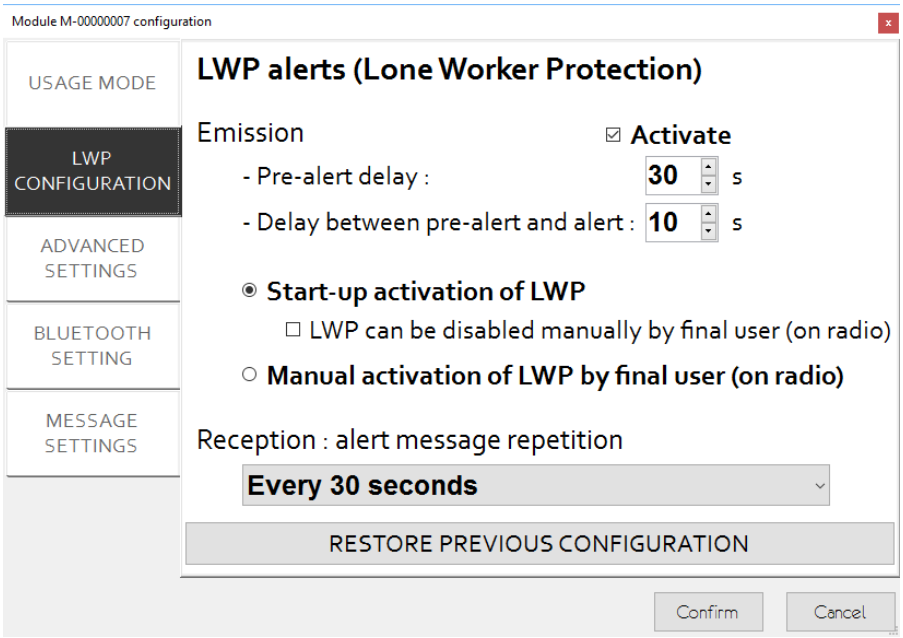
NOTE: any modification made on configuration of module **C-000045** will be replicated on module **C-000089**.



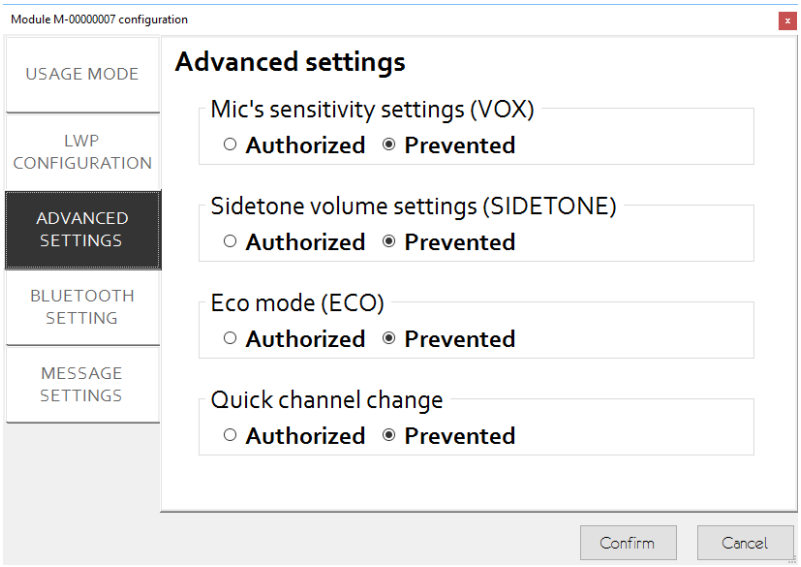
REMINDER: at this stage, **the radios are NOT configured yet!**

8. To change **M-00000007** options and settings, click « **EDIT** »:

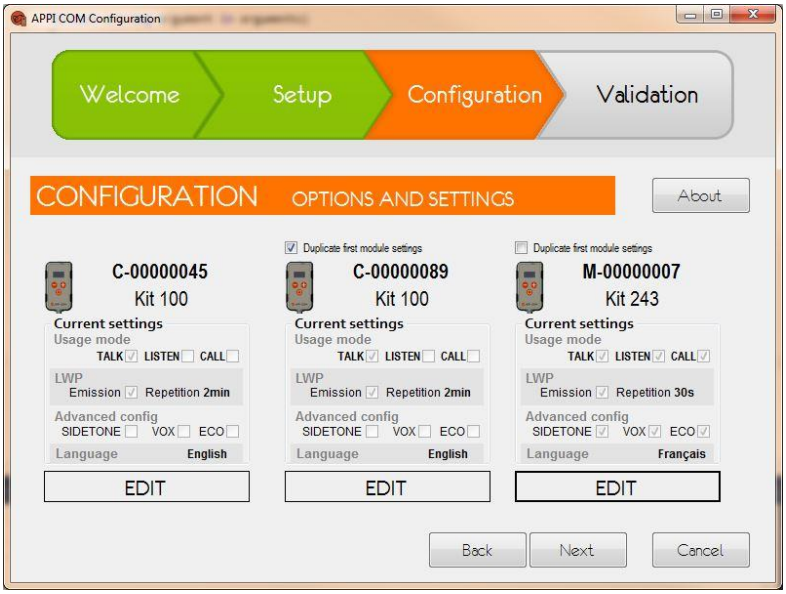
9. On the above window, go to tab « **LWP CONFIGURATION** » and check box « **LWP can be disabled by final user** »:



10. Chose « **ADVANCED SETTINGS** », check the 4 options, then click « **confirm** »

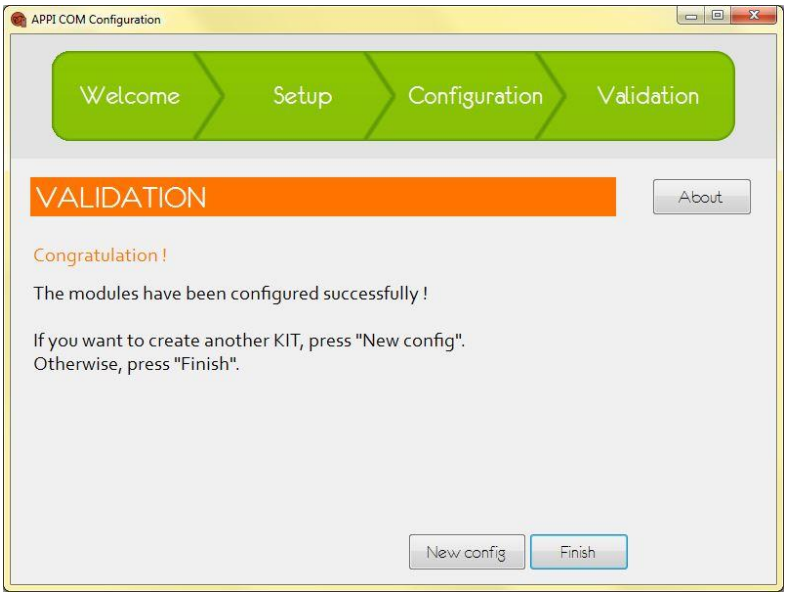


11. We then come to the above window:



By choosing « **Next** », the new parameters are sent to each radio.

After a few seconds the above window appears:



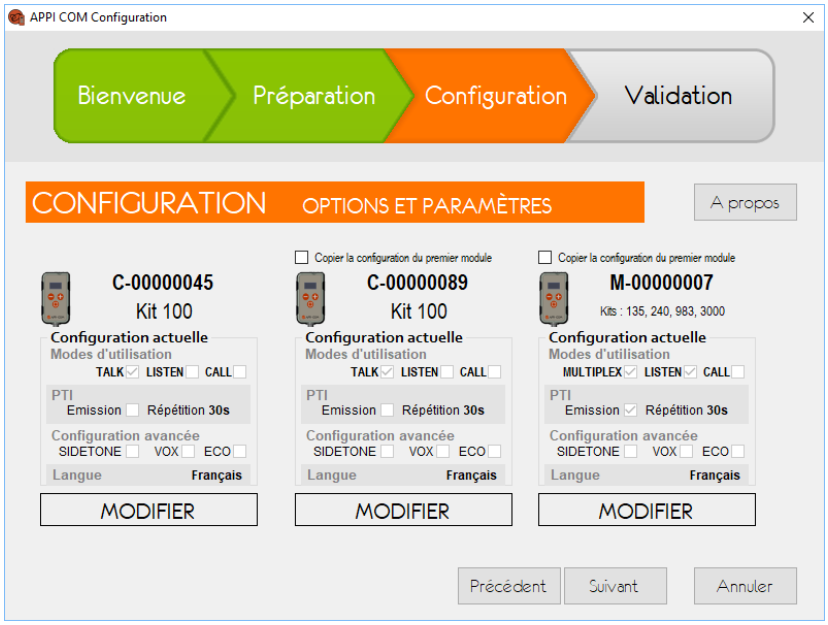
<u>This confirms that the configuration is done!</u>

<u>NOTE</u>: it is possible to simultaneously configure 1, 2 or 3 modules.

<u>NOTE</u>: for a module in « Multiplex » mode, the LWP emission parameters' tab is not accessible.

Particular case: advanced configuration for a Multiplex Radio

For a Multiplex radio, step 6 will display this (M-0000007 is Multiplex):



The same principle applies as for the « TALK » radio.

Note: A Multiplex radio can be part of up to 10 different kits. The Kit ID is replaced by a list with all kit's number the radio can be attached to. This allows check which kits this particular radio can be linked to.

Contextual help and cancellation

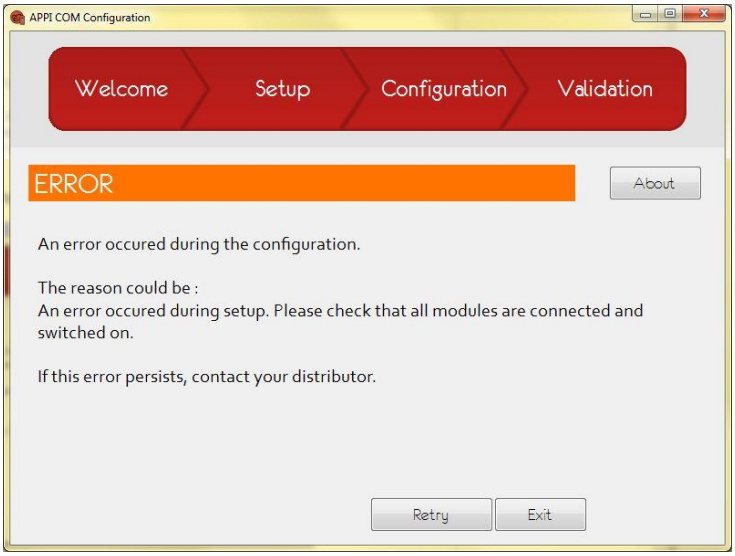
On all screens where symbol appears, it is possible to access a context-sensitive help with a click.
On each screen, you can cancel the setup process by clicking "**Cancel**": <u>no configuration action is applied to the modules and the program stops.</u>

Configuration incidents

The following problems may be encountered during setup:

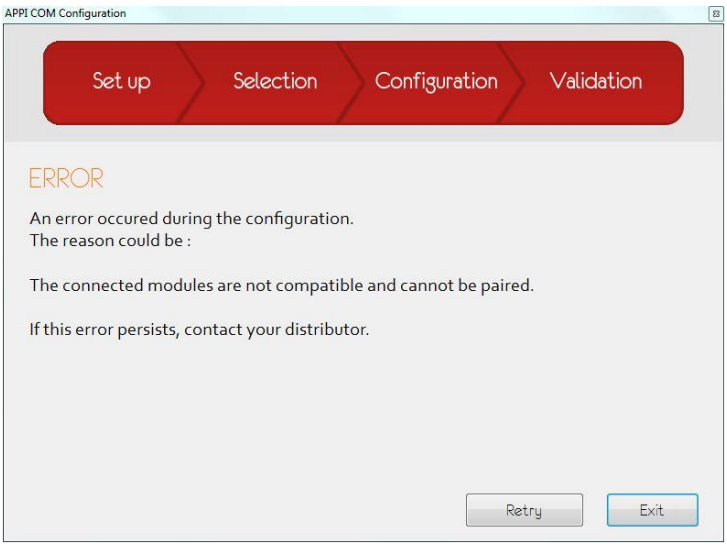
- **Radios are not detected**; Radios number doesn't match or the search symbol persists :
  - The computer may take time (several minutes) to recognize the modules via USB ➔ wait or restart the detection by choosing ***Refresh***.
  - An USB connection cable is loose ➔ check and re-connect then ***Refresh.***

- **Configuration could be "impossible"**:
  - The radios are not switched on.
  - Some Radios are not compatible and cannot be configured with this software.



NOTE: The Radios version is displayed when pressing the Central key

- During "advanced Configuration" it can be **impossible to modify the operation mode for a radio**:
  - If the module has **NEVER** been part of any Kit ➔Create a new kit using this Radio so that it could be used in both ***Talk*** or ***Listen*** mode.



- It may be **impossible to create a new kit**:
  - The Radio can be factory configured with a customer-specific encryption key that prevent them to be integrated in a "common" kit ➔ Contact your distributor.
  - Any other incident: Please contact your distributor.

Glossary

LWP: Lone Worker Protection: immobility detection.
PTT: Push-To-Talk, button connected to the audio device which activates the microphone.
Full-Duplex: Bidirectional communication, i.e., emission and reception are performed simultaneously.
Kit: Set of 2 or 3 APPI-Com modules linked together and sharing a common number, between 1 and 4094.
Throat microphone: It is an Audio device that uses throat's vibration to pick up the sound.
Listen Mode: Operation mode allowing to "***Listen"*** only, not talk.
Module: It is an APPI Radio / Terminal.
Talk Mode: ***Priority Radio / The radio can always*** "***Talk"*** and "***Listen"*** to peoples using APPI-Com modules having the same kit number.
Secret Mode: It is an Operation Mode that prevents **any module, out of the ones sharing the same kit number**, to hear the conversation.

5VDC/1A : 5Volts Direct Current ⎓, 1 Ampere

ATEX Version:

- ATEX: ATmospheres EXplosives
- Zone 0: permanent presence of explosive gas atmosphere, estimated> 1 000h per year.
- Zone 1: occasional presence of explosive gas atmosphere, estimated 10h <x <1 000h per year.
- Zone 2: rare presence of explosive gas atmosphere, estimated <10 hours per year.
- Zone 20: permanent presence of explosive dust atmosphere, estimated> 1 000h per year.
- Zone 21: occasional presence of explosive dust atmosphere, estimated 10h <x <1 000h per year.
- Zone 22: rare presence of explosive dust atmosphere, estimated <10 hours per year
- Letter G: "Gas" / gaseous environment
- Letter D: "Dust" / Dusty

SyncAll® et SafeLine® are registered brands or features described in Patents from APPI-Technology SAS.

Specifications

APPI Radios

CE / Channel Number: 19	CE: Free Bands: 863–868.6/869-870 MHz
FCC/IC: Channel Number: 32	FCC/IC: Free Bands: 902 - 928 MHz FHSS
Modulation: FM	Range LOS >3000m (canal LR, antenna 2dBi)
Emitted Power: <500mW	Audio code: « enhanced » ADPCM
Usage Temperatures: -20°C/+50°C (save ATEX)	Charging Temperature range: 0°C/+45°C
Noise Cancelling (DSP)	Bluetooth: Internal, Class 2

APPI-Com

Battery: Li-Poly 3.7v /rechargeable (T°<45°C)	Can be charged while communicating (save ATEX version)
Dimensions (H x L x P): 91×48×15 mm	Battery Life: 6 to 8 Hours (depends on usage)
Weight: 80 g (3 Oz) / depends on configuration	IP66/67 - EN 60529 :2000
	FCC/IC Version DAS (Body) : 1.1 to 1.24W/Kg

APPI-CovR

Battery: Li-ion 3.7v /rechargeable (T°<45°C)	Can be charged while communicating
Dimensions (H x L x P): 100×100×110 mm	Battery Life: 16 to 24 Hours (depends on usage)
Weight: 425g (16 Oz) without IsoSkin	IP55
CE version DAS/SAR (Head) : 0.049W/kg	FCC/IC version DAS/SAR (Head) : 0.59W/Kg

Usage recommendations and marking

Safety recommendations

It is recommended to take the following safety precautions when using this device:

• *Water and moisture* – Modules are IP66 (water jets) or IP67 Certified (1m immersion, 30mn) for the ATEX and Defense version. If exposed to more severe conditions (diving, plunge, etc.) turn immediately the power off and return the unit to the service department for a control.

• *Battery* - Do not try to change the battery. Contact the manufacturer or dealer to replace the battery.

• *Antenna* - Never use the modules with external antenna without the antenna properly tightened: the radio range will be considerably decreased, and the water-dust sealed protection is longer assured.

Note: in ATEX or FCC/IC version, the antenna is pre-fitted. Trying to remove it may damage the product.

• Risks - Avoid violent shocks to the modules and prevent scratches to the screen.

• Charging – the charging/configuration cable with an USB plug is to be used with an appropriate USB power charger (Wall/Car…) delivering a clean 600mA (minimal)/5VDC (maximal).

Do NOT charge in Temperatures >45°C.

Marking: the information can be found on the product's label at the back or lower side of the product, eventually under the rubber cover. Example:

Contains a Battery. No not remove/change the battery by yourself.
Do not put in fire, do not throw away by crushing: Risk of Explosion

FCC (USA). 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.

NOTE: The grantee is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. Such modifications could void the user's authority to operate the equipment

IC (CANADA): This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : 1) L'appareil ne doit pas produire de brouillage, et 2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Maintenance advices

To maximize comfort and duration of use of this device:

• *Cleaning* - Use a soft damp cloth. Do not use liquid cleaners, benzene, solvents or aerosols.

• *Repairs* - Do not attempt to repair or modify the circuitry of the device: contact your dealer. Use only parts and accessories recommended by the manufacturer: use with any other spare part or accessory and opening the module causes the cancellation of the guarantee.

Disclaimer:

Please note that the French and the English versions of this manual are the only ones certified by the manufacturer APPI-Technology. Any other variant provided by an authorized distributor should not be used as a reference. This disclaimer is not to be translated in any other language.

A copy of the certification or declarations of Conformity is available on request at support@appi-technology.com

APPI Products are designed and manufactured in France at:

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- *info@appi-technology.com – Tel.: +33 9 83 98 68 73* - www.appi-technology.com

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