

# MPR50-IEM User Manual

High performance

True diversity IEM

Receiver

SN: \_\_\_\_\_

Rev. 01 (ref. FW v1.1)

Date: 30 November 2016





## BRIEF DESCRIPTION

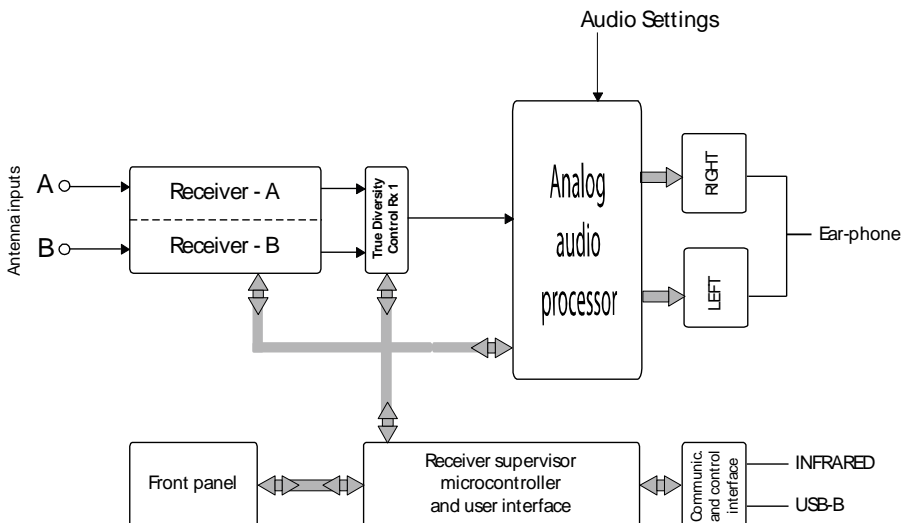
MPR50 is a compact true diversity receiver designed for professional in-ear monitoring applications. This receiver features a real TRUE DIVERSITY configuration along with a unique wideband tuning range up to 232 MHz. Audio processing can be **Stereo MPX with mix-mode function or mono FM IFB mode**.

The output audio stage is especially design to have maximum audio peak-dynamic of 200 mW.

MPR50-IEM is designed to be:

- “easy & quick to use” thanks to
  - automatic setup functions (i.e. frequencies, scan for best channels),
  - remote configuration utilities (thru infrared or micro-USB interface) using Wisycom Manager application
  - OLED display with intuitive context menu navigation
- “extremely flexible”, with an incredible frequency agility up to 232MHz
  - MPR50-IEM-N: 470/700 MHz (TV ch 21/49)
  - MPR50-IEM-M:566/798 MHz (TV ch 33/61)
- “best in class performances”, thanks to the latest Wisycom technology the unit has extreme RF sensitivity and immunity and superb audio quality
- “a light, robust and ergonomic design”

Above a schematic with an overview of main receiver functions.



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## SAFETY INSTRUCTION

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- Read this safety instruction and the manual first
- Follow all instructions and information.
- Do not lose this manual.
- Do not use this apparatus under the rain or near the water.
- Do not install the apparatus near heaters or in hot environments, do not use outside the operating temperature range.
- Do not open the apparatus, only qualified service technician are enabled to operate on it. The apparatus needs servicing when it is not properly working or is damaged by liquids, moisture or other objects are fallen in the apparatus.
- Use only accessories or replacement parts authorized or specified by the manufacturer.
- Clean the apparatus only with dry cloths, do not use liquids.
- Report the serial number and the purchasing date in front of the manual. It is needed to have proper replacement parts or accessories from the manufacturer.
- When replacement parts are needed, use only replacement parts authorized from the manufacturer. Substitution with not authorized parts could result in electric shock, hazards or fire.
- Keep attention on all the labels with warnings or hazards on the apparatus.

**WARNING:** The apparatus is intended for professional use; anyway the manufacturer alerts the user that the headphone output power of the apparatus could exceed the level of 85 dB(A) of sound pressure level and this could be dangerous for the hearings. Do not use the headphone with high power level or for long time. Reduce the power or suspend the hearing in case of any kind of hearing problem.

## BATTERIES



MPR50-IEM works with standard camera battery:

- 2xIEC-LR6 1.5 size-AA alkaline or NiMh rechargeable
- KLIC 8000 (lithium-ion, rechargeable)
- Ricoh DB-50 (lithium-ion, rechargeable)
- DR9708 Duracell (lithium-ion, rechargeable)



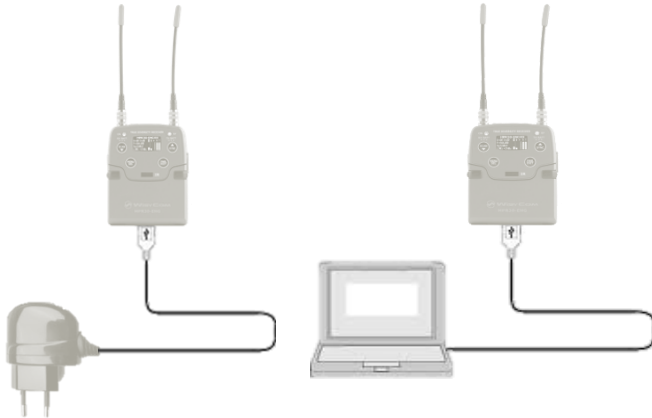
Battery status can be checked on OLED display or looking the status of [LED indicator ON](#).

Lithium-ion battery can be charged through

A. dedicated charger



B. integrated micro-usb-B connector



For B item, the charging status can be checked looking the status of [LED indicator ON](#).

**WARNING:** The receiver can be used also during the batteries charging with lithium rechargeable batteries inside.

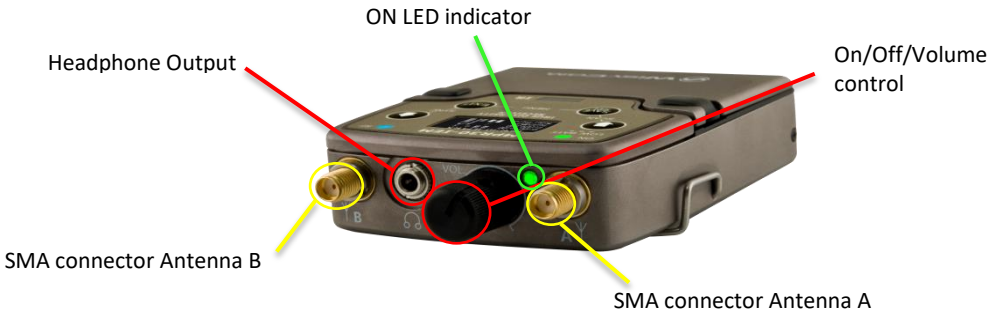
Don't use the receiver without batteries . The receiver powered thru micro-USB without batteries doesn't work correctly.

**WARNING:** DO NOT operate the device with some new and some old batteries. Always replace ALL BATTERIES.

**WARNING:** Remember to remove the batteries when the device is not in use.

## PRODUCT OVERVIEW

### Upper Panel



### SMA antenna Connector A and B

MPR50-IEM is supplied with two couple of antennas. According to the working band, different antenna models can be supply. All the models have black cap and a black label with code in white colour. For more details see the section [Accessories and Parts](#)



### Headphone Output

The audio headphone output with 3.5 mm stereo jack socket lockable (TRS).

Audio level can be adjusted with the Volume control knob and the [Audio settings> Pwr. Limit menu](#).

*Maximum output power: 2x100mW @ 32Ω*

*Pin Assignment: Tip = left (hot), Ring = right (hot), Sleeve = Gnd*

### On/Off/Volume control

The control knob in the upper panel allows:

- To switch the receiver ON: turn the control knob *volume control* clockwise until it clicks
- To switch the receiver OFF: turn the control knob *volume control* counter clockwise until it clicks
- To adjust the volume: turn the control knob *volume control* until the volume set has the desired level.
- To disable the lock volume: turn off and turn on the receiver within 1 second.

NOTE: turn off and turn on the receiver

- within 1 second → MPR50 restarts without the initialization phase
- after 1 second → MPR50 restarts with complete initialization

## Front panel

MPR50-IEM allows an easy and quick configuration using buttons, RGB LED's and an OLED display.



### OLED Display

The receiver has a high contrast display. Pushing one of the 4 buttons while the receiver is active (but the display is off), turn on automatically the display. After a time-out user setting (see [Display>Off timeout menu](#)) the display turns off automatically.

### SEL & EXIT Buttons

Push the 2 buttons together to enter on the function menu

#### SEL Button

Push this button to navigate function menu's and keep pushing to save the chosen setup

#### EXIT Button

Push this button to turn off the display.

During menu navigation push this button to exit from current menu (escape function).

#### SYNC/UP Button

Push and keep this button to start a synchronisation with a Wisycom transmitter (follow instructions on display). Before starting synchronization IRDA must be enabled on Wisycom transmitter.

During menu navigation push this button to move -up and select the previous item.

#### SCAN/DOWN Button

Push and keep this button to start the automatic scan.

During menu navigation push this button to move-down and select the previous item

**ON & RF Led Indicators (Firmware rel. v0.2)**

	<b>ON</b>	<b>RF</b>	<b>WHEN</b>	<b>MEANING</b>
power up	red	off	when the receiver is power on, during the power up phase	the receiver is not ready to use, wait the status display on display
	red	off/on	when the receiver is power on, after the power up phase	the PLL is not locked on the select frequency, wait for lock ( about 1second or less)
Tuning phase	red	off/on	when the receiver is power on, during a frequency change phase (see Gr-Ch or Frequency menu)	the PLL is not locked on the select frequency, wait for lock
	fixed green	off	after the tuning phase, no transmitter is received	the receiver is locked on the select frequency, the batteries charge is good, no transmitter is synchronized with the receiver, no output audio available
	fixed green	blue	after the tuning phase, a stereo signal is received	the transmitter is correctly tuned, the bars in the status display show the RF levels received from antenna A and B
	fixed green	green	after the tuning phase, a mono signal is received	the transmitter is correctly tuned, the bars in the status display show the RF levels received from antenna A and B, in the status display M symbol appears upper the battery level
battery status	fixed green	on/off	the batteries charge of the receiver is good (>25% lifetime)	the batteries charge of the receiver is good
	slow blinking green	on/off	the batteries charge of the receiver is low (<25% lifetime)	change or put on charge the batteries as soon as possible
	fast blinking green	on/off	the batteries charge of the receiver is very low (<12% lifetime)	change or put on charge the batteries immediately
	red	off	battery error	change the batteries
charging status	blinking blue	off	during batteries charging	the batteries are charging (<90% of complete charge)
	blinking green	off	during batteries charging	the batteries are charging (≥90% of charge reached)
	fixed green	off	during batteries charging	charge complete
	white	green/blue	device in bootloader mode*	

\* to put the MPR50-IEM in boot mode: power on the device push and keep both UP and DOWN buttons for few seconds (until the led indicators light up, then release the buttons)



## PUTTING THE DIVERSITY RECEIVER INTO OPERATION

- Insert the batteries
- Connect the headphones
- Connect the 2 antennas on the SMA connectors
- Turn the knob control clockwise until it clicks and verify on the display the Antenna model to use (if the connected antennas on the receiver is different from the antenna model indicate on the display, power off the receiver and replace them with the proper model of antennas)
- after the power up phase, the [Status display](#) is showed on the OLED display
- verify the setting and eventually adjust the settings using the [Operating Menu](#)

### Status display



- Receiver Name (ex. MPR50-IEM RX)
- Group (ex. Gr:00) and Channel (ex. Ch:01)
- Frequency (ex. Fr:697.000 MHz)
- Squelch (ex. Sq:12dBuV)
- Mode (ex. Stereo)

Squelch level



- A.** RF Level Antenna A and B (range 5 ÷ 70 dBμV)  
Between the two RF bars there is a dotted line where the first 3 dots indicate 6/8/10dBμV and the other 15 dots indicate the rest of the range (from 14 to 70dBμV with step of 4dBμV)

An orizzontal sign in a central row shows the setted Squelch level

- B.** deviation level (range of 54 dB, bar with 3dB steps; upper level= 0dB, under level =-54dB) the upper symbol:



- indicates presence of audio output
- indicates absence of audio output (RF level < Squelch)
- indicate absence of audio output (no pilot tone detected)

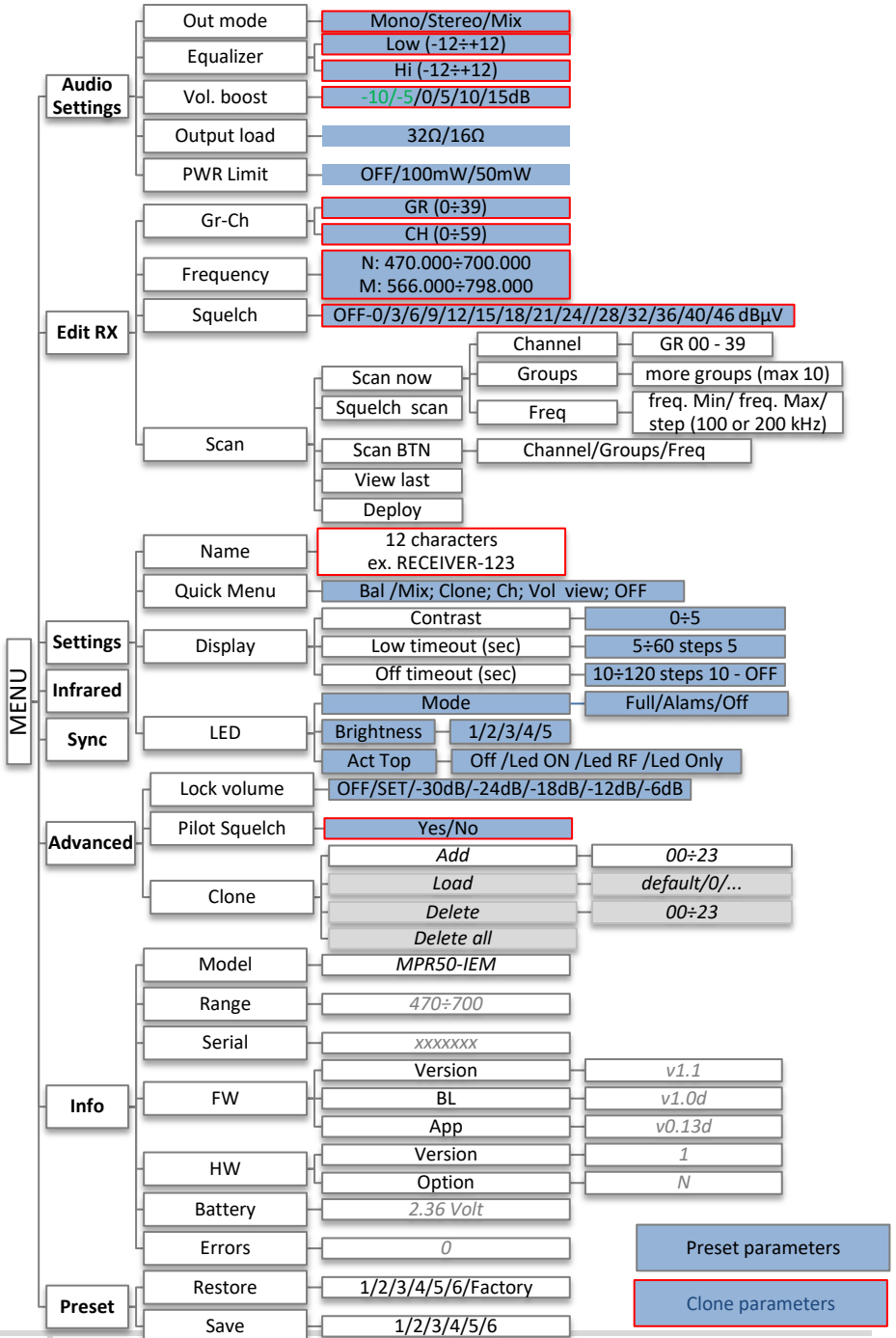
NOTE: in case of absence of pilot tone and RF level < Squelch, the symbol **S** will be display

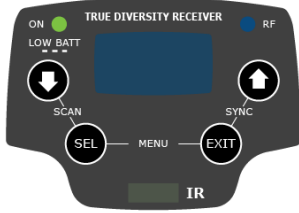
- C.** batteries level for MPR50-IEM receiver the upper symbol:



- indicates receiving of a mono signal
- indicates receiving of a stereo signal

## DISPLAY MENU





From Status Display push **SEL** and **EXIT** together to enter on the Main menu

Use **UP/DOWN** to navigate on all available menus

Push **SEL** to select a menu item

Use **UP/DOWN** to move on the different parameters of the menu

Push **SEL** to modify the parameter menu

Use **UP/DOWN** to change the parameter value

Keep push **SEL** to save changing

Push **EXIT** to return on the Main Menu

Push **EXIT** to return on the Status display

## Audio settings

The Audio settings menu allows to configure the audio output.







PARAMETER	SETTING	MEANING
<b>Out mode</b>	Stereo	The left and right signals are available as usual. The Balance setting serves to adjust the balance between the left and right stereo signal.
	Mono	The left-right signals are mixed and are available as a mono signal in both headphone channels. It is not possible to adjust the level of the 2 channels as in Out mode Mix.
	Mix	The left-right signals are mixed and are available as a mono signal in both headphone channels. The Mix mode setting serves to adjust the relative levels of the two separate channels in the mixer mono signal.
<b>Equalizer</b>	Low and High frequencies -12dB/+12dB 1dB steps	This menu allows to of adjusting the gain of low and high frequency components (bass and treble) within the audio signal. <ol style="list-style-type: none"> <li>1. Push UP/DOWN button to increase/decrease the gain of the Low frequencies (50Hz)</li> <li>2. Push SEL button to shift on High frequencies,</li> <li>3. Push UP/DOWN button to increase/decrease the gain of the High frequencies (10kHz)</li> <li>4. Keep push SEL button to SAVE</li> </ol>
<b>Vol. boost</b>	-12/-6/0/3/6/9/12dB	This menu allows to increase or decrease the volume of the output headphones, selectable from -12 dB to 12 dB. Set the appropriate volume boost and then adjust the volume with the control knob.
<b>Output load</b>	16Ω/32Ω	Set the Output load according to the impedance of the headphones connected
<b>Pwr limit</b>	OFF (only using lithium battery) / 100mW / 50mW / 30mW	This menu allows to limit the power output. If set to OFF(only lithium battery), there is no power limit control. If set to OFF using alkaline or NiMH batteries, the receiver set automatically the max value permitted (100mW)



**NOTE:** When the volume knob is rotated, appears a screen with a volume bar and the values of Pwr limit, Output load and Vol. boost

## Edit RX

The Edit RX menu allows to configure the radio frequency settings.

PARAMETER	SETTING	MEANING
<b>Gr-Ch</b>	0÷39 groups 0÷59 channels	Select current group and channel. Group name and channel frequency are displayed on the right.
<b>Frequency</b>	470÷700 MHz for MPR50-IEM-N 566÷798 MHz for MPR50-IEM-M	If the specific group/channel is not locked, the frequency can be edited in this menu.
<b>Squelch</b>	OFF or 0/3/6/9/12/ 15/18/21/ 24/28/32/ 36/40/46dBuV	This menu allows to disable the RF squelch or to setup the desired squelch level in dBuV (note 0 dBuV is equal to -107 dBm).
<b>Scan</b>		It allows making three types of scan over a desired channel, group or frequency. MPR50-IEM manages up to 2400 custom frequencies organized in 40 groups of 60 channels each. This extreme flexibility makes the scan function very flexible.
		This function can be called also using the dedicated DOWN&SEL buttons pushed together.
		“Squelch scan” indicates the threshold below which a channel is considered as free or almost free.
		“Scan BTN” is the parameter to set the rapid function called pressing DOWN&SEL buttons together. It's possible to set Channel, Group or Frequency scan.
		“View last” allows to see the result of the last scan operation.
	“Deploy” allows to send to a MTK952 the last scan. From the transmitter it's possible to see the graphic of the last scan and choose the frequency to tune.	

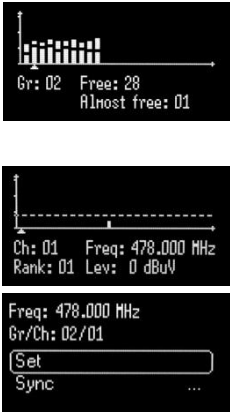
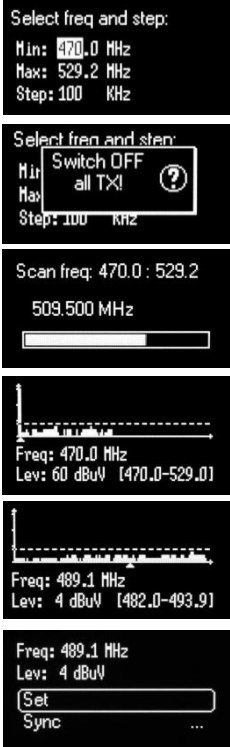
(\*)As per Wisycom standard, **group 00** and **group 01 or 09** are special; respectively the “**center frequency**” (474,482/... MHz) and the **intergap frequency** (i.e. 470/478/486/... MHz). A scan on group 00 will reveal in few seconds the overall DVB-T occupation on the area, while a scan on group 01 will give possible working frequency, usable also in presence of strong DVB-T signal (sort to speak working in the band-guard of 2 digital television channels).

“Scan now” menu

The following table lists the three types of scans that can be performed



<p><i>Channel</i></p>		<p>Once started a Channel scan operation the receiver asks for group to be used*. Press and hold the SEL button to select the group to scan.</p> <p>Then it prompts to turn off all transmitters.</p> <p>So press SEL to start the scan!</p> <p>After few seconds, scan results are displayed sorted by level, making easier to pick up the best one. The dotted line in the graph indicate the squelch threshold. Under the graph are reported the following parameters:</p> <ul style="list-style-type: none"> <li>- <b>Ch:</b> Channel</li> <li>- <b>Rank:</b> Ranking position</li> <li>- <b>Freq:</b> Frequency</li> <li>- <b>Lev:</b> RF level</li> </ul> <p>Pushing simultaneously UP and DOWN button, the results can be also displayed on a chart in ascending order according to the number of the channel.</p> <p>After the selection of the desired channel, a screen appears with the selected frequency, channel and group and it is possible to Set or Synchronize the receiver with the transmitter. We recommend setting the frequency and then synchronize it with the transmitter.</p>
	<p><i>Groups</i></p>	

		<p>After few seconds, scan results are displayed on a histogram. Each column of the histogram is divided into two parts by a black line. The lower part indicates the number of <i>free</i> channels (RF level &lt; Squelch level - 6dBμV) in the group, while the upper one the number of channels <i>almost free</i> (Squelch level &lt; RF level &lt; Squelch level - 6dBμV). We recommend to choose the group with the highest number of free channels.</p> <p>Press SEL to select the desiderate group and choose the channel as in "<a href="#">Channel scan</a>"</p> <p>After the selection of the desired channel, a screen appears with the selected frequency, channel and group and it is possible to Set or Synchronize the receiver with the transmitter. We recommend setting the frequency and then synchronize it with the transmitter.</p>
<p><i>Freq</i></p>		<p>The Frequency scan allows to select a range of frequency to scan, between a maximum and a minimum value and the step with which to perform the scans. Press and hold the SEL button to confirm.</p> <p>Then it prompts to turn off all transmitters.</p> <p>So press SEL to start the scan!</p> <p>After few seconds, scan results are displayed on a chart in ascending order according to the frequency (step 1MHz). The dotted line in the graph indicate the squelch threshold.</p> <p>Pushing simultaneously UP and DOWN button it's possible to zoom the graph to show all the steps of scan</p> <p>After the selection of the desired frequency, a screen appears with the selected frequency and the RF level and it is possible to Set or Synchronize the receiver with the transmitter. We recommend setting the frequency and then synchronize it with the transmitter.</p>

## Settings

The Settings menu allows to configure main settings of the device.

PARAMETER	SETTING	MEANING	
<b>Name</b>	12 case-sensitive alphanumeric characters	The name menu allows to change the name of the receiver. This is the name displayed in the top of the Status display and it is the name sent to the transmitter with the sync function (for the transmitter with this advanced capability). Use the UP/DOWN buttons to change the selected character and push SEL button to switch to the next character.	
<b>Quick Menu</b>	Bal/Mix ; Clone ; Off	The quick menu is displayed pushing UP or DOWN buttons when the receiver is on the <a href="#">Status display</a> . Set to Bal/Mix to enter quickly to the Balance/Mix mode menu (according to the Out mode configured). Set to "Clone" to enter quickly to the Load clone menu Set to "Off" for disable this function (if is set "Off" and UP or DOWN buttons are pushed, nothing happens).	
<b>Display</b>	<b>Contrast</b>	0÷5	Change contrast display from 0 (min) to 5 (max).
	<b>Low timeout</b>	5÷60 (steps 5)	Low timeout sets the timeout from 5 to 60 seconds (5sec steps) to decrease the brightness display.
	<b>Off timeout</b>	10÷120 (steps 10) or OFF	Off timeout sets the timeout from 10 to 120 seconds in 10 sec. steps to turn off the display. With OFF setting the display never turns off.
<b>LED</b>	Full Alarm OFF	3 LED setting are available: Full: LED indicators works normally; Alarm: LED indicators lights up only when an alarm happened; OFF: LED indicators remain off.	

## Infrared

By this menu, MPR50-IEM can be connected to IRDA for setup or firmware upgrades. When the Infrared interface is active, the following screen is displayed.



```
IR IF active...
```

NOTE: while in this menu display is not automatically turned off.

## Sync

The SYNC function is useful to tune a transmitter on the same frequency of the receiver via the IR interface. Before starting the sync function tune the receiver on desired channel, manually or using the SCAN utility. After this, enable the IR interface on the transmitter. Now press UP&EXIT buttons together or enter in the Sync menu to start the SYNC function. Keep the IR window of the transmitter in front of the IR window of the receiver and, as soon as the connection is done, the receiver will send to the transmitter all the information needed.

If the operation is not possible, (i.e. the frequency range of the transmitter is not compatible with the frequency of the receiver), the display will show an error message.

If the transmitter has the function "NAME" enabled, when the sync function is completed it will show the same name of the synchronized receiver.



## Advanced

The Advanced menu allows to manage advanced settings.

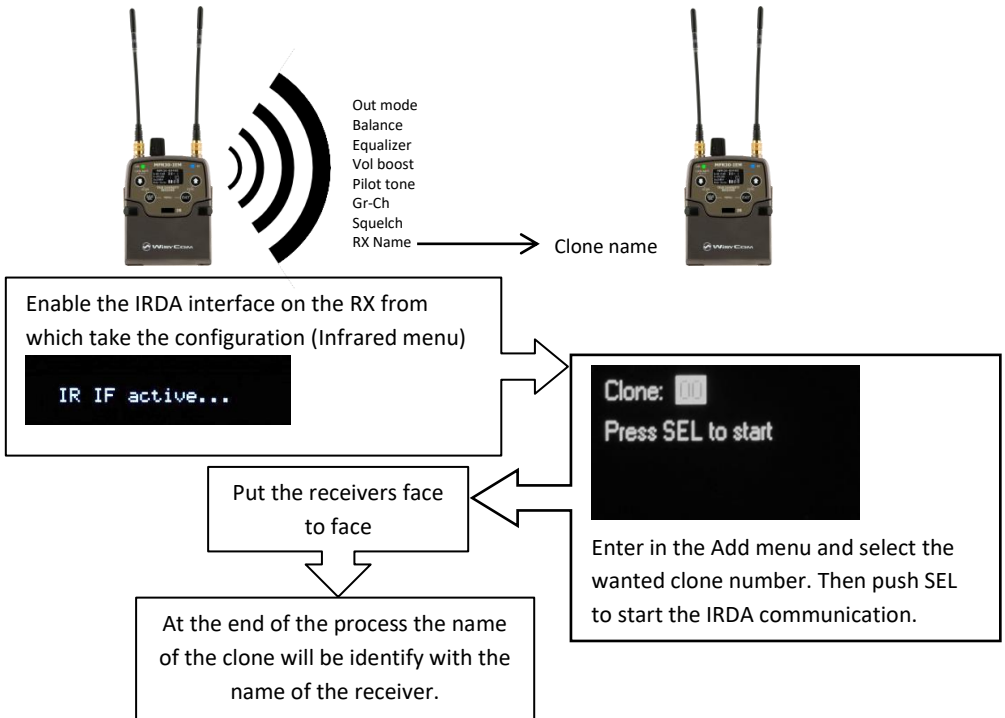
PARAMETER	SETTING	MEANING	
<b>Lock volume</b>	Yes / No	If set to Yes, during the "max brightness" of the display an open lock is displayed on the Status Display. After the " <a href="#">Display -Low timeout</a> " the lock becomes closed and the lock volume is enabled. To enable the volume setting it is necessary turn the volume knob below the previous setting or make a "quick turn off – turn on".	
<b>Pilot Squelch</b>	Yes / No	When the Pilot tone is enabled, the audio output is muted unless the correct carrier is detected (19kHz). When the Pilot tone is disable, the audio output is muted if RF level < Squelch level. For the presence/absence of audio output, check the upper symbol in the <a href="#">status display</a> .	
<b>Clone *</b>	<a href="#">Add</a>	00÷23	To add a clone
	<a href="#">Load</a>	Default/00÷23	To load a clone *
	<a href="#">Delete</a>	00÷23	To delete a clone *
	<a href="#">Delete all</a>		To delete all the clones *

\* A clone is a partial configuration of the MPR50-IEM which can be copied from a receiver to another using the IRDA interface. It consists of the same parameters of pre-set configuration for less than display, quick menu and headphones parameters (see the [Operating menu](#) for more details). From firmware version v1.3 the MPR50-IEM is able to manage up to 24 clones (from 00 to 23). The menus of the clone management allow to add/load and delete a clone.

\* It appears if exist at least a1 clone



### How to add a clone




### How to load a clone


Use Clone>Load menu or UP/DOWN button (if the quick menu is configured to clone) to load a clone. Afterwards push the arrows to change clone, SEL to activated the clone and EXIT to exit without changing.

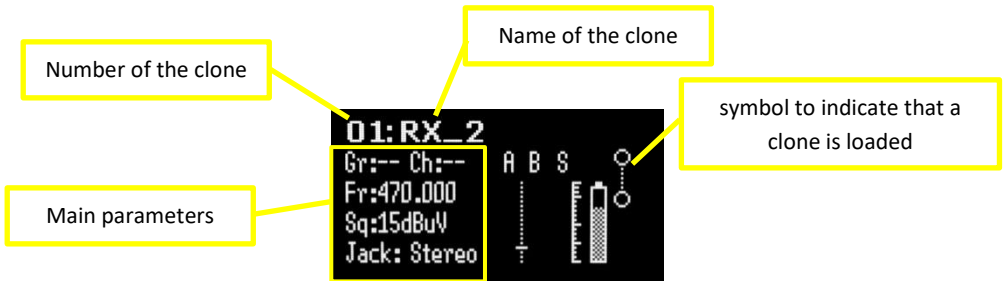
Ex.

<pre> 01 RX_2 Fr: 470.000 Boost: 0 dB Limit: 50 mH Low: 0 dB Pilot: no Hi: 0 dB </pre>	<pre> 02 RX_1 Fr: 470.000 Boost: 0 dB Limit: 50 mH Low: 0 dB Pilot: no Hi: 0 dB </pre>
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<pre> L default Fr: 619.000 Boost: -6 dB Limit: OFF Low: 3 dB Pilot: no Hi: 2 dB </pre>
---

The configuration saved before the loading of the clone is saved on the clone named **"default"**, therefore loading the default "clone" allows to return with the previous settings. The following  arrows displayed near the clone number indicates the currently clone loaded.

Loading a clone, all the clone parameters are set on the receiver. The follow icon  appears on the right of the display indicating that a clone is loaded. The number and the name of the clone are displayed on the top of the display menu and a brief list of the main parameters are displayed on the status menu.



NOTE: the clones are saved on the EPROM and remains saved also after a reboot of the device.

NOTE: If a clone is loaded and then a reboot is executed, the MPR50-IEM always restarts with the previous configuration (**default** clone).

NOTE: When a clone is loaded, it's not possible change the parameters

NOTE: When a clone with Power limit set to OFF is loaded on the receiver but the receiver isn't using Lithium battery, the power limit is set automatically to the max value permitted for no lithium battery (that is 100mW).

## Info

the INFO function shows many important features or information of MPR50-IEM receiver:

PARAMETER	MEANING	example	
<b>Model</b>	Wisycom receiver model	<i>MPR50-IEM</i>	
<b>Range</b>	Frequencies range of working	<i>470-700</i>	
<b>Serial</b>	Serial number	<i>S2334437</i>	
<b>FW</b>	<b>Version *</b>	Firmware version	<i>V1.6</i>
	<b>BL</b>	Bootloader version	<i>V1.4d</i>
	<b>App</b>	Application version	<i>V1.63d</i>
<b>HW</b>	<b>Version</b>	Hardware version	<i>6</i>
	<b>Option</b>	MPR50-IEM Options N= freq. range 470÷ 700 MHz, M= freq. range 566÷ 798 MHz	<i>N</i>
<b>Battery</b>	Batteries voltage	<i>3.71 Volt</i>	
<b>Errors</b>	Number of errors. If the number of errors is > 0 push SEL button to enter on the Errors list. For each error a brief description and the error code is showed. For more information, please see the <a href="#">Error List</a> section.	<i>4</i>	

\* The Firmware Version recaps BL (Bootloader Version) and App (Application version).

## Preset

This menu allows to load/save 6 user presets or load the Factory configuration.

PARAMETER	SETTING	MEANING
<b>Restore</b>	1/2/3/4/5/6/Factory	Select the Restore submenu and chose the presets to load: user presets or Factory preset. Push and keep SEL button to load the preset.
<b>Save</b>	1/2/3/4/5/6	Select the Save submenu and chose the user presets to save. Push and keep SEL button to save the preset

## ERROR LIST

When an error occurs, the receiver

- A. shows a message on the display

and for some error types

- B. increases the errors counter in the info menu
- C. inserts the error type and code on the error list in the info menu

When the error is solved, the message on the display disappear, but the error information (code and description) are available on the error list in the Info menu (only for some error, see the below table).

NOTE<sub>1</sub>: When the receiver is reset the error information (code and error type on the list) are lost, with the exception of errors codes 87/88/89/8A.

NOTE<sub>2</sub>: To reset the error counter and the errors list, it is necessary to contact Wisycom.

Errors	Message on display (A)	Error type (C)	Code (C)
HW init failed	HW init failed		
Battery Low	Battery Low		
Battery charge failed	Battery charge failed		
I2C communication error	I2C communication error	I2C access failed	04
Device ID copy1 invalid Memory recovered	Device ID copy1 invalid Memory recovered	Device ID copy 1	87
Device ID copy2 invalid Memory recovered	Device ID copy2 invalid Memory recovered	Device ID copy 2	88
RF copy1 invalid Memory recovered	RF copy1 invalid Memory recovered	RF mem copy 1	89
RF copy2 invalid Memory recovered	RF copy2 invalid Memory recovered	RF mem copy 2	8A
PLL unlocked	-	PLL unlocked	84
CH mem header	-	CH mem header	85
Param mem header	-	Param mem header	86

## TROUBLESHOOTING

Problem	Possible cause	Possible solution
"HW init failed" message appears on the display	Error during the hardware initialization phase	-reset the receiver, if the problem persists send to repair at Wisycom Repair Centre
"Battery Low" message appears on the display	Low level on the battery	- change batteries or - recharge the batteries
"Battery charge failed" message appears on the display	Error during batteries charger (damage batteries or wrong batteries)	- change batteries
"I2C communication error" message appears on the display	Communication error on bus I2C	- send to repair at Wisycom Repair Centre
"Device ID copy1 invalid Memory recovered" message appears on the display	Error during the initialization phase. The CRC-16 check of device data (copy 1) detects error.	- nothing (the receiver automatically replace the corrupt copy1 with copy2)
"Device ID copy2 invalid Memory recovered" message appears on the display	Error during the initialization phase. The CRC-16 check of device data (copy 2) detects error.	- nothing (the receiver automatically replace the corrupt copy2 with copy1)
"RF copy1 invalid Memory recovered" message appears on the display	Error during the initialization phase. The CRC-16 check of RF data (copy 1) detects error.	- nothing (the receiver automatically replace the corrupt copy1 with copy2)
"RF copy2 invalid Memory recovered" message appears on the display	Error during the initialization phase. The CRC-16 check of RF data (copy 2) detects error.	- nothing (the receiver automatically replace the corrupt copy2 with copy1)
The Serial Number of the receiver in the Info menu is UNCAL	Error during the initialization phase. The CRC-16 check of device data (copy 1 and copy 2) detects error.	- send to repair at Wisycom Repair Centre
The errors 87 (Device ID copy 1 ) and 88 (Device ID copy 2) appear in the errors list	Error during the initialization phase. The CRC-16 check of device data (copy 1 and copy 2) detects error.	- If the Serial Number in the Info menu is UNCAL, then send to repair at Wisycom Repair Centre - If the Serial Number in the Info menu is not UNCAL, continue to use the receiver
The errors 89 (RF mem. copy 1 ) and 8A (RF mem. copy 2) appear in the errors list	Error during the initialization phase. The CRC-16 check of RF data (copy 1 and copy 2) detects error.	- contact Wisycom for more information
The receiver is not able to tuned on the selected frequency and the ON led indicator remains red	Error during frequency tuning	- try to change the frequency, if the problem persists send to repair at Wisycom Repair Centre

The frequencies of all the channels and groups is equal to the lower frequency of the receiver (according to the receiver 470 MHz for MPR50-IEM-N 566 MHz for MPR50-IEM-M)	Error in the channel memory during the initialization phase.	if the error code 85 appears on the errors list: - load a new frequency file (wdf) in the frequency memory of the receiver and - contact Wisycom for more information
Configuration mismatch	Error in the parameter memory	if the error code 86 appears on the error list: - load a preset configuration using Preset menu and - contact Wisycom for more information

If a problem not listed in the above table occurs or if the problem cannot be solved with the proposed troubleshooting, please contact support service at [support@wisycom.com](mailto:support@wisycom.com) or [sales@wisycom.com](mailto:sales@wisycom.com).

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## ACCESSORIES AND PARTS

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### AWN130

For MPR50-IEM-N  
Band 470 ÷ 574 MHz  
Antenna Code label **520**

### AWN130

For MPR50-IEM-N  
Band 574 ÷ 700 MHz  
Antenna Code label **634**

### AWML30

For MPR50-IEM-M  
Band 566 ÷ 654 MHz  
Antenna Code label **590**

### AWMH30

For MPR50-IEM-M  
Band 654 ÷ 798 MHz  
Antenna Code label **725**



### ACM50

Rack batteries charger capable of charging up to 10 batteries simultaneously.



**CAUSBM1**

Micro USB cable (to configure MPR50-IEM and to recharge lithium battery)

**UPKmini**

Infrared programming kit  
(interface + software) USB interface

**MPRLBP**

Lithium-ion battery pack  
CS-KLIC8000 type  
Rating: 3.7Vdc @1600mAh (5.9Wh)

**MPRBAT**

Battery charger

**ADTMPR**

Power Adapter for MPR30/MPR50.  
Power input: 9-18V DC feeding (internal switching regulation).  
variants:

ADTMPR: without connector (pigtail)

ADTMPR-X: with XLR-4F connector

ADTMPR-H: with Hirose-4F connector





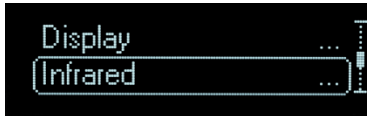
## HOW TO USE MPR50 RX MANAGER


Wisycom MPR50 RX Manager can be used to load or save the channels memory and upgrade the firmware.

### Instruction to connect MPR50 using UPKmini

1. Connect to the PC the infrared programming interface (UPKmini) using a USB cable
2. Check if the version of *ENG RX Manager* installed in your PC is the latest version. If not, uninstall the *ENG RX Manager* active in your PC and install the new version
3. Run *ENG RX Manager*
4. Power up the receiver MPR50 and enable the IRDA interface:

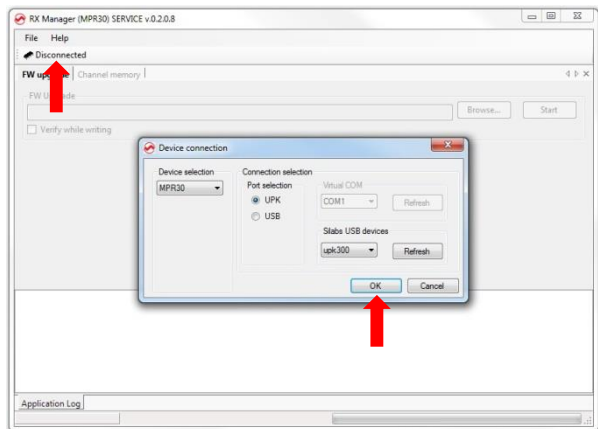
- a. push  button,
- b. push  button until that **Infrared** submenu appears on the display (Headphones>Edit RX>Display>Infrared)



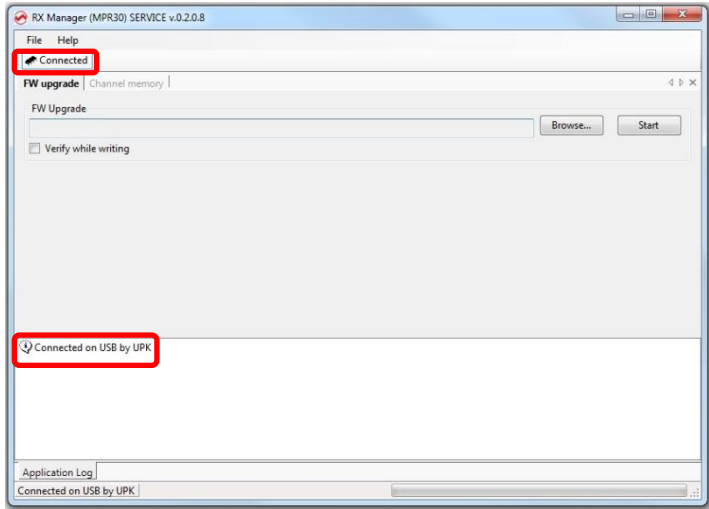
- c. push again  button and check the display shows 'IR IF active'



5. Put in contact MPR50 and UPKmini
6. Push Disconnected button. On the Device connection windows select UPK port and verify that upkmini is selected on the Silabs USB devices panel. If UPKmini device is not showed, push Refresh button and/or try to disconnect and reconnect the USB cable connected to the UPKmini. Then click OK.



7. If the connection is ended well, the Connected icon is showed on the top of the panel and "Connected on USB by UPK" is displayed on the information panel

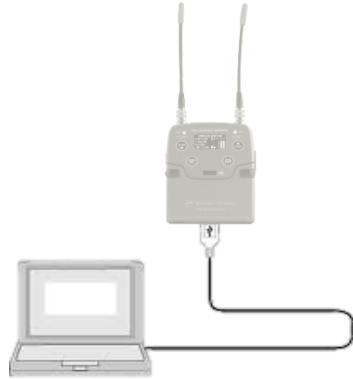




## Instruction to connect MPR50 using USB cable:

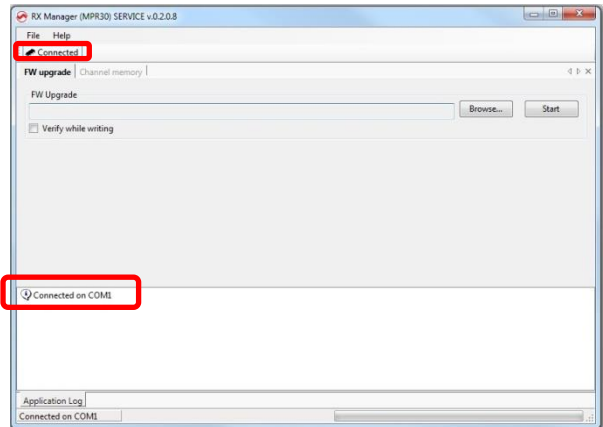
In order to use the micro USB port to configure the MPR50, it is necessary to install the MPR50 USB driver (see How to install MPR50 USB driver)

1. Connect the MPR50 to the PC through the micro USB interface using the USB cable
2. Check if the version of *ENG RX Manager* installed in your PC is the latest version. If not, uninstall the *ENG RX Manager* activates in your PC and install the new version
3. Run *ENG RX Manager*
4. Power up the receiver MPR50
5. Push Disconnected button. On the Device



connection windows select USB port and verify that a COMx is selected on the Virtual COM panel. If COMx is not showed, push Refresh button and/or try to disconnect and reconnect the USB cable connected to the MPR50. Then click OK.

6. If the connection is ended well, the Connected icon is showed on the top of the panel and "Connected on COMx" is displayed on the information panel



## How to load/save channels memory

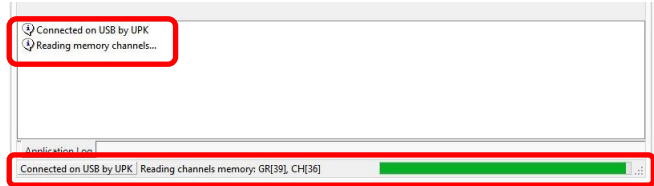
### Write:

Push the button **Write from WDF file...** and select the wdf file to load on the MPR50.

### Read and save:

Push the button **Read and save to WDF file...**, insert the .wdf file name and the path where to save the wdf file.

During the process of writing/reading & saving, a green bar below the panel shows the progress of the process and on the information panel it is possible to verify what the application is doing.



To **Modify** the wdf file, it is possible to use the spreadsheet *FREQUENCY 2010 v16.xls* available on the website:

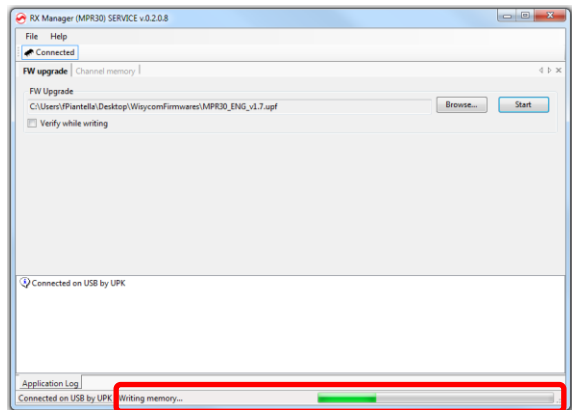
- open the file and enable changes and macro
- load the wdf file clicking on READ WDF button
- execute the desiderate changes
- save the wdf file clicking on SAVE WDF button

The WDF thus modified can be used to write on the MPR50's channels memory.

## How to upgrade the firmware

Select **FW upgrade** panel

1. Push the **Browse** button and select the upk file
2. Put the receiver in bootloader mode: power on the MPR50 keep pushing both the arrow buttons). When the receiver is in bootloader mode, all the led in the front panel are turn on.
3. Click on Start button and check the progress of the upgrade process in the green bar



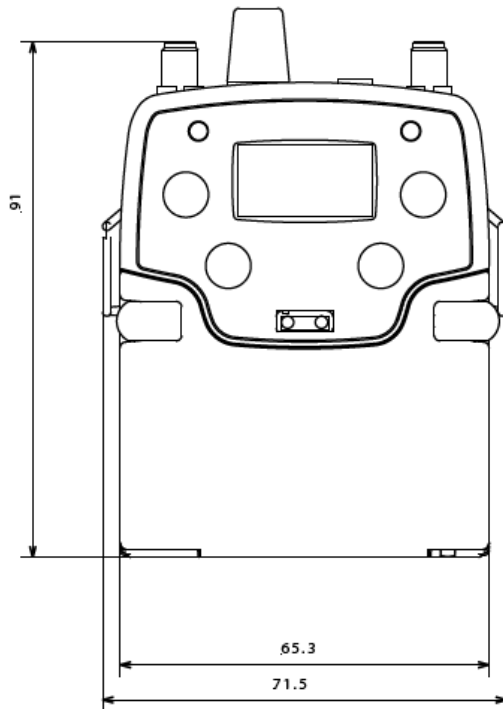
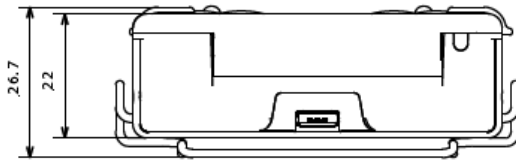
## TECHNICAL SPECIFICATIONS

- Frequency ranges : N ⇒ option 470 ÷ 700 MHz  
M ⇒ option 566 ÷ 798 MHz  
other ranges are available on request in 470÷798 MHz
  - Switchable channels : 40 groups of 60 channels fully user programmable.
  - Switching-window : up 232 MHz.
  - Frequencies : microprocessor controlled frequency synthesizer circuit, with 25 kHz minimum step. The frequencies can be easily PC reprogrammed with USB interface of optional UPKmini/UPK300E
- Programming Kit.
- Frequency error : < ± 2.5 ppm, in the rated temperature range.
  - Temperature range : -10 ÷ +55 °C.
  - Modulation (SW selectable) : FM, (stereo MPX decoding, 19 kHz sync carrier) or 100 kHz narrowband IFB
  - Peak deviation : ±48 kHz
  - "A" / "B" antenna in : with sturdy connectors.
  - Antenna input imp. : 50 ohm sma type (SWR < 1:2; typ. 1:1.4).
  - Sensitivity : ⇒ 2 µV ( 6 dBµV), for SND/N > 52 dB;  
in the whole switching-window [1].
  - Co-channel rejection : > 2.5 dB.
  - Adjacent chan. Sel. : > 80 dB typical (for channel spacing ≥ 400 kHz).
  - Spurious rec. Rej. : > 100 dB.
  - IF image rejection : > 90 dB.
  - Intermod. rejection : > 76 dB.
  - IIP3 : > +10 dBm typical.
  - Spurious emissions : < 2 nW (typical = 0.1 pW).
  - Noise Reduction : ⇒ **ENS (new)**
  - AF bandwidth : 30 Hz ÷ 15 kHz.
  - Frequency response : ± 0.5 dB in the 30 Hz ÷ 15 kHz range.
  - Distortion : 0.3 % typical.
  - SND/D ratio : 90 dB typical [1]
  - Stereo separation : > 60 dB
  - Display : Display OLED 128x64 (white)
  - Powering : 2 x IEC-LR6 1.5V size-AA alkaline or rechargeable elements
  - Weight : 100 g approx. without batteries
  - Headphone-output : Stereo Plug 3.5mm(TRS) Locking (M6 x 0.5 thread) with 2 X 100mW @ 32Ω
  - Battery life : approx. 4,5 hours (alkaline batteries), 6 hours (lithium batteries)

NOTE [1]: RMS value, 22 Hz / 22 kHz, unweighted.

The MPR50-IEM receiver complies with ETSI specifications: ETS 300 422.

## MECHANICAL DRAWING



Note: unit is mm

## DICHIARAZIONE DI CONFORMITA' DECLARATION OF CONFORMITY

Il sottoscritto, rappresentante il seguente costruttore  
*The undersigned, representative of the following manufacturer*

WISYCOM S.r.l.  
via Spin, 156 - 36060 Romano d'Ezzelino (VI) - Italy

DICHIARA che l'apparecchiatura descritta in appresso:

*DECLARES that the product:*

Descrizione <i>Description</i>	Pocket receiver
Modello <i>Model</i>	MPR50-IEM

è conforme alle disposizioni legislative che traspongono le seguenti direttive:

- direttiva 2004/108 CE (Direttiva EMC)
- direttiva 2006/95 CE (Direttiva Bassa Tensione)
- direttiva 99/5 CEE (Direttiva Apparecchiature Radio)

*is in accordance with the following Directives:*

- 2004/108 EC Directive (EMC Directive)
- 2006/95 EC Directive (Low Voltage Directive)
- 99/5 EEC (Radio Equipment Directive)

e che sono state applicate tutte le norme e/o specifiche tecniche di seguito indicate  
*and that all the following standards have been applied*

EN 60065:2002 + A1:2006 + A11:2008 + A2:2010 + A12:2011

EN 301 489-1 V1.9.2

EN 301 489-9 V1.4.1

EN 300 422-2 V1.3.1

**Luogo** Romano D'Ezzelino  
*Place*

**Data** 14 April 2016  
*Date*

**Firma** Franco Maestrelli  
*Sign*  
(nome e funzione)  
(name and title)

**WISYCOM s.r.l.**  
Franco Maestrelli  
Amministratore Unico



ITALY ONLY

## Obblighi di informazione agli utilizzatori

### *Modello di informazioni agli utenti dei prodotti di tipo “professionale”*

#### INFORMAZIONE AGLI UTENTI

ai sensi dell'art. 13 del Decreto Legislativo 25 luglio 2005, n. 151 “Attuazione delle Direttive 2002/95/CE, 2002/96/CE e 2003/108/CE, relative alla riduzione dell'uso di sostanze pericolose nelle apparecchiature elettriche ed elettroniche, nonché allo smaltimento dei rifiuti”



Il simbolo del cassonetto barrato riportato sull'apparecchiatura o sulla sua confezione indica che il prodotto alla fine della propria vita utile deve essere raccolto separatamente dagli altri rifiuti.

La raccolta differenziata della presente apparecchiatura giunta a fine vita è organizzata e gestita dal produttore. L'utente che vorrà disfarsi della presente apparecchiatura dovrà quindi contattare il produttore e seguire il sistema che questo ha adottato per consentire la raccolta separata dell'apparecchiatura giunta a fine vita.

L'adeguata raccolta differenziata per l'avvio successivo dell'apparecchiatura dismessa al riciclaggio, al trattamento e allo smaltimento ambientalmente compatibile contribuisce ad evitare possibili effetti negativi sull'ambiente e sulla salute e favorisce il reimpiego e/o riciclo dei materiali di cui è composta l'apparecchiatura.

Lo smaltimento abusivo del prodotto da parte del detentore comporta l'applicazione delle sanzioni amministrative previste dalla normativa vigente.





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