

RPU500-Tx User Manual



High-power,
reporter
portable unit

Rev.06 (ref. FW v1.4)

Date: 01 September 2021

SAFETY INSTRUCTION

- Read this safety instruction and the manual first
- Follow all instructions and information.
- Do not lose this manual.
- The unit is designed for Professional Use only
- 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.
- THE DEVICE CAN ONLY BE WEAR WITH THE BELT CLIP PROVIDED BY WISYCOM (code: BCL500), It is not possible to wear other belt clips NOT authorized by Wisycom

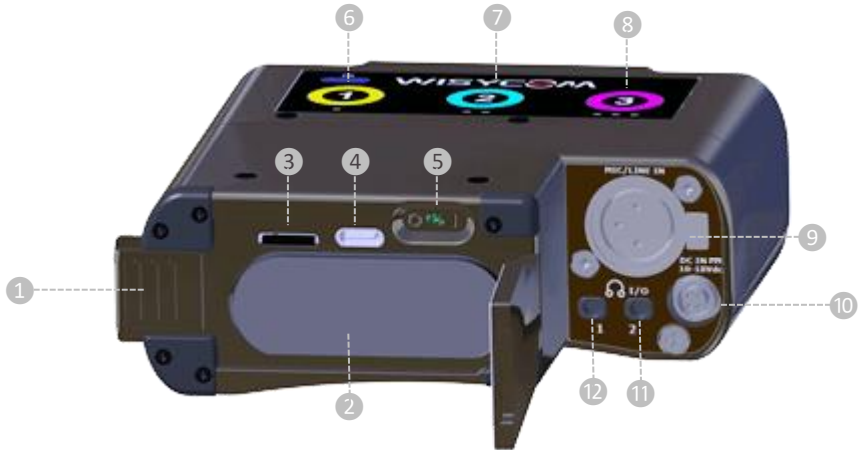
PRODUCT OVERVIEW

FRONT



- | | | | |
|---|----------------------------------------------------------------|----|------------------------------------------------|
| 1 | TNC antenna connector | 8 | TALK button
(to activate TALK transmission) |
| 2 | REC button
(for audio recording on SD card) | 9 | VOLUME knob |
| 3 | Play audio from SD card | 10 | SAVE or SEL button |
| 4 | Led ON
(green when transmitter is on) | 11 | EXIT button |
| 5 | SYNC button (for automatic
synchronization with Wisycom RX) | 12 | DOWN arrow button |
| 6 | FN button
(for quick menu selection) | 13 | UP arrow button |
| 7 | ON AIR led
(green when transmission is active) | | |

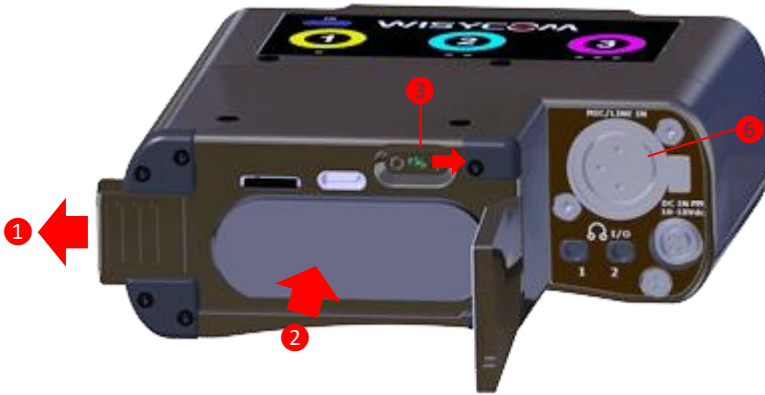
REAR



- | | |
|----------------------------------------------|--------------------------------------------------------------------------|
| ① battery compartment latch | ⑦ Lazy 2 button* |
| ② battery compartment | ⑧ Lazy 3 button* |
| ③ SD card slot | ⑨ XLR-3pin connector
for MIC/LINE audio input |
| ④ USB-C connector
(for power and control) | ⑩ Hirose 4-pin power supply
connector
10-18V (pin1:GND, pin4:+Vdc) |
| ⑤ ON/OFF switch | ⑪ waterproof jack 3.5mm
(audio output or Aux input) |
| ⑥ Lazy 1 button* | ⑫ waterproof jack 3.5mm
(audio output) |

QUICK SETUP

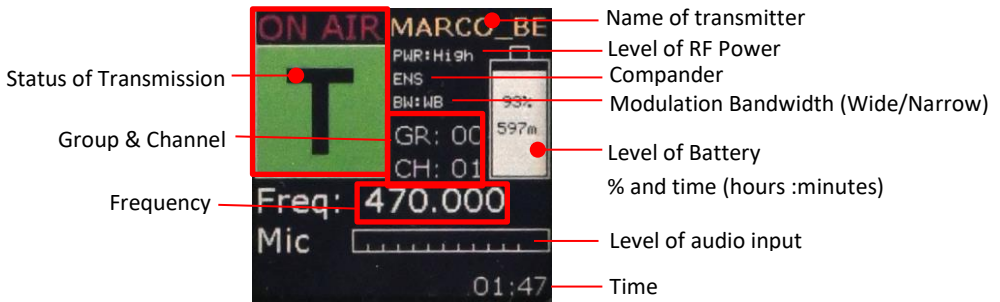
1. unlatch the battery compartment latch at the bottom of the device
2. insert the battery
3. move the wireless power switch in "1" position to power on the device
4. the front LED lights up green and
5. the display switch on












6. connect the XLR MIC (If required enables Phantom 12V/48V thru *Audio>Phantom* menu)
7. set frequency thru RF>FREQ menu
8. connect the antenna (according to set frequency)
9. set RF Power thru RF>Power menu
10. push the TALK button to activate transmission

DISPLAY

This is the first menu displayed after power up



Status of Transmission:

- **OFF:**
RF transmission is OFF
- **ST-BY [Stand-by]:**
It is the status of the transmitter after the power on when “TX Start” menu is set to MUTE. The transmitter sends the carrier with an auxiliary tone (@28kHz) without the audio (The TX occupies the channel) → MRK980 receiver puts in MUTE the audio output A  icon is showed to indicate that the audio is muted
- **ON-AIR:**
RF transmission is active with audio and an auxiliary sub-tone. According to the pushed button the auxiliary sub-tone is different and the display show a different icon:
 -  when  button is pushed (sub-tone@~33kHz)
 -  when  button is pushed (sub-tone@ 32687 Hz*)
 -  when  button is pushed (sub-tone@ 32869 Hz*)
 -  when  button is pushed (sub-tone@ 33013 Hz*)

*Standard Wisycom sub-tone. Other sub-tones can be configured in Wisycom factory

In the Talk mode, just press the Talk button once and the transmission remains active until the button is pressed again. In Lazy mode, on the other hand, it is necessary to hold down the Lazy buttons to keep the transmission active.

Wisycom receiver MRK980 detects the sub-tones and pass this information to the mixer (via Ethernet / Ember + protocol). From the mixer it is therefore possible to configure the audio routing.

MENU

Using navigation buttons it is possible to quick & easy navigate through the RPU500 menu:

- SAVE/SEL to enter on a sub-menu or change a parameter
- EXIT to exit from a sub-menu or exit from a parameter modification
- Arrow up/down to circle on the same level
- SAVE/SEL press and hold to save the modified parameters Product overview

	FREQ.	Freq.	...
		GR:	0-39
		CH:	0-60
RF -----	Power	High/Mid/Low	
	Mod. BW	WB/NB	
	TX Start	OFF / Mute / Talk / Tk+Lz	
	Pwr Profile	NONE/Europe/USA	
	Talk	Temp/Latch/OFF	
Buttons -----	Lazy 1	Temp/Latch/OFF	
	Lazy 2	Temp/Latch/OFF	
	Lazy 3	Temp/Latch/OFF	
	FN	OFF/Mic gain/AUX gain/In mix	
	Mic gain	0/2/4/6/....38dB	
	Phantom	OFF/12V/48V	
	Limiter	No/Yes	
Audio -----	MIC HPF	FLAT/60/80/120/170/240 Hz	
	MIC LPF	20/15/12/10/7/5/4 KHz	
	Aux. con.	Input/Headphone	
	Aux. gain	0/2/4/.../40 dB (2dB step)	
	In mix	MIC/AUX/REC/MIC+AUX/MIC+REC/AUX+REC	
	Comp.	ENS	
	Mic phase	0°/180°	
Recorder -----	...		

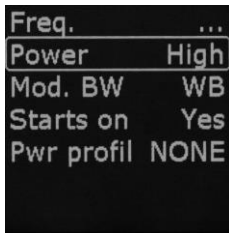
Info -----	Model	RPU500		
	Regulatory			
	Serial	F123456		
	Range	170:960		
	HW	...	Main rev	0
			Main opt	
	FW	...	App.	v1.0
		BL.	v1.0	
	Alarms		0	
Clock Setup	TIME	13:41		
	DATE	2020:04:28		
Batt. Status	Level	69%		
	Time	267m		
	Volt	11.80V		
	Current	452mA		
	Temp	30°C		
Options -----	Batt. Data	N/E		
TX Status	<u>RF diagnostic</u>			
	PWR	1000 mW		
	SWR	1.13		
	FWD	1091 mW		
	RFL	3 mW		
Display	Brightness	1/5		
	Low Timeout	5-60 sec (step 5 sec)		
	OFF timeout	OFF/from 10 to 120 min (step 10 min)		
Diagnostic	<u>Diagnostic</u>			
	Pwr	1093 mW		
	Vext	-		
	Vdd	17.83 V		
	Idd	147 mA		
	Temp	35 °C		
Factory				

NOTE: Features not still implemented (reference firmware v1.4):

- SD card recording
- Bluetooth

They will soon be available with a next firmware update.

RF menu:



Thanks to the RF menu is possible to configure all the RF parameters related to the transmission.

Freq. menu:



In this menu current channel/group and frequencies can be setup.

Channel frequency (in 5kHz step)

Group number (1 to 40) and group name (8 char.)

Channel number (0 to 60)

Max power allows at set frequency

Use the selector and arrows to change values and SAVE to confirm.

Sync group is a quick self-settable channel synchronized by receiver (with SYNC group, on the top right of the display is shown the name of the synchronized receiver).

NOTE:

The device has 40 groups of 60 channels each. Connecting with computer with WISYCOM MANAGER software, it is possible to hide single channels or even complete groups of channels: once hidden those items are not shown anymore on the channels or groups selection. To show channels or groups hidden use again the WISYCOM MANAGER software.

Using this software it is also possible to lock channels or groups. When a channel is locked, it is not possible to change the frequency from the front panel of the device. Locking a group means that all channels are locked. When a channel or a group are locked, at the left of the group name will appear a lock icon as shown thus changing frequency is not possible.

Power:

RF power can be set in 3 levels: Low, Mid and High.

These 3 levels can be configured by the user with WISYCOM MANAGER.

Factory pre-configured values in Wisycom are: Low 100mW, Mid 300mW and High 1000mW.

Modulation Bandwidth:

Select the type of modulation bandwidth:

- WB (Wideband) : 40kHz of nominal deviation, 56kHz of peak deviation and 50±21kHz of AF bandwidth

- NB (Narrowband) : 35kHz of nominal deviation, 25kHz of peak deviation and 50±17kHz of AF bandwidth

TX Start:

It is possible to select 3 startup modes:

- **OFF:** RF output remains OFF. To activate the transmission, select the Talk or Lazy buttons.
- **MUTE:** activates a specific tone at 28kHz which engages the channel (no audio) which is recognized by the MRK980 receiver and mutes the audio output
- **TALK:** immediately activates transmission (send audio and tone at 33kHz). A lock icon appears on the display to inform the user that Talk and Lazy buttons are locked.
- **TALK + LAZY:** immediately activates transmission (send audio and tone at 33kHz). A lock icon appears on the display to inform the user that Talk button is locked. The Lazy buttons (1,2 and 3) are active and follow the settings defined on the “Buttons” menu.

The choice of one of these modes is instantaneous (no need to restart the device)

Pwr profile:

Wiscom pre-configure a Power Profile in the memory of the device which automatically limit the RF level and/or the frequency ranges according to the county specification.

With NONE Pwr profile, no limit is configured.

Buttons menu:

Buttons menu allows to configure the behavior of the Talk button, Lazy buttons and Function (FN) button.

Talk and Lazy buttons can be configured in:

- OFF: when pressed no action is triggered
- Temp: transmission active as long as the button is held down (temporary)
- Latch: pressed once activates transmission, pressed again disables transmission

Function (FN) button can be configured in:

- OFF: no function
- Mic gain: active the “Audio> Mic gain” menu
- AUX gain: active the “Audio> AUX gain” menu
- In mix: active the “Audio> Input mix” menu

Audio menu:

```

Mic gain  0 dB
Phantom   OFF
Limiter    No
Mic HPF    FLAT
Mic LPF    20KHz
Aux con.   Input
Aux gain   0 dB
  
```

Thanks to the Audio menu is possible to configure all the audio parameters.

Mic gain:

To change gain from 0 to 38 dB on MIC/LINE IN audio input port.

Phantom:

To enable phantom power (12V or 48V).

Limiter:

To enable audio limiter.

MIC HPF:

To set audio High Pass Filter (FLAT/60/80/120/170/240 Hz)

MIC LPF:

To set audio Low Pass Filter (20/15/12/10/7/5/4 Hz)

Aux con.:

To set jack 3.5mm audio connector as auxiliary input or as headphone output.

Aux gain:

To adjust audio level on the auxiliary input (from 0 to 40 dB, 2 dB step)

Input mix:

To define audio inputs and mix different audio sources (MIC/AUX/REC/MIC+AUX/MIC+REC/AUX+REC)

Compander:

To select audio compander. Firmware version v1.0 supports only ENS compander. Other companders will be available very soon.

Options menu:

```

Info      ...
Clock setup  ...
Batt. status  ...
TX status   ...
Display     ...
Diagnostic  ...
Factory     ...
  
```

Thanks to the Option menu is possible to verify:

- Information of device (Serial, Hw version, Fw version)

- Status of the device (alarms, RF diagnostic, Supply diagnostic, Battery status)

The Display sub-menu allows to change display parameters like brightness and timeout.

To set the factory parameters select the Factory submenu.

ACCESSORIES AND PARTS



Item: LBP500

Standard Lithium Battery pack 10.80V / 3.35Ah / 36.20Wh



Item: LBC500

Mini Smart Battery Charger with external power supply



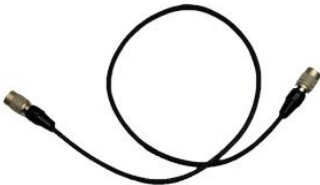
Item: CAL1x

Power Cord 2 m. black
CAL11: USA, NEMA 5-15P / IEC 60320 C5
CAL12: Europe, SCHUKO / IEC 60320 C5
CAL13: UK, UK / IEC 60320 C5



Item:CAUSBC1

USB Cable 1m
USB B - USB C Male Black
To monitor/control/power RPU500



Item: CDC34

External power feeding cable
CDC34: Hirose 4pin Male/raw wires (50 cm)
CDC34HM: Hirose 4pin Male/ Hirose 4pin Male (50 cm)



Item: PSP910-H

AC/DC Power Supply, Switch Mode with Hirose 4 pin connector (to use one “desktop” apparatus alone)
Input:100 - 240V ac
Output:12V@700mA, 8W, Plug type: EU



Item: BCL500
Belt Clip RPU500



Item: AWB500-xxx 1/2 Dipole antenna with BNC connector:

- AWB500-494: band 470-517 MHz
 - AWB500-540: band 515-563 MHz
 - AWB500-590: band 562-609 MHz
 - AWB500-625: band 609-645 MHz
 - AWB500-670: band 645-696 MHz
 - AWB500-950: band 940-960 MHz
- (*) other frequency bands on request



Item: AWT500-xxx 1/2 Dipole antenna with TNC connector:

- AWT500-180: band 170 - 188 MHz
 - AWT500-197: band 188 - 206 MHz
 - AWT500-213: band 206 - 220 MHz
 - AWT500-229: band 220 - 238 MHz
 - AWT500-455 : band 440 - 470 MHz
 - AWT500-494 : band 470 - 517 MHz
 - AWT500-540 : band 515 - 563 MHz
 - AWT500-590 : band 562 - 609 MHz
 - AWT500-625 : band 609 - 645 MHz
 - AWT500-670 : band 645 - 696 MHz
 - AWT500-950 : band 940 - 960 MHz
- (*) other frequency bands on request
-

TECHNICAL SPECIFICATIONS

Frequency ranges	T1 band (MHz): 170-230 MHz + 450-696 MHz + 715-744 MHz + 940-960 MHz T2 band (MHz): 170-230 MHz + 440-696 MHz + 715-744 MHz + 940-960 MHz (*) Japan 160/460 MHz (optional)
Switchable channels	2400 managed in 40 groups of 60 frequencies completely user customizable
Frequencies	5 kHz step The frequencies can be easily PC reprogrammed with USB C, Bluetooth 5 (long range) or optional UPKmini Programming
Frequency error	< ± 2.5 ppm, in the rated temperature range
RF Power	switchable Low / Medium / High, typ. 100mW / 300mW / 1W (*) note: in some countries high power can be disabled, for local norm!
Antenna connector	TNC type female (BNC for T1 version)
RF impedance	50 ohm
Modulation	FM mono, wideband or narrowband IFB (SW selectable)
Nominal deviation	± 40 kHz (wideband), ± 25 kHz (narrowband)
Peak deviation	± 56 kHz (wideband), ± 35 kHz (narrowband)
Spurious emissions	< 2 nW (typical = 0.1 pW)
Noise Reduction system	ENS - Wisycom Extended-Sound Optimized (other on request)
AF bandwidth	50 Hz - 20 KHz (1dB) (Wideband, ARM based, SW switchable) 50 Hz - 15 KHz (1dB) (Narrowband, ARM based, SW switchable)
Audio input connector	1 x XLR3-F type (MIC/Line level) for audio input 1 x Jack 3.5mm for audio input/output (sw selectable) 1 x Jack 3.5mm for audio output
Managing interface	USB C, Bluetooth 5 (long range) or optional UPKmini Programming
Command buttons & signaling	<ul style="list-style-type: none"> • Pgm • Talkback 1 • Talkback 2 • Talkback 3
Display	Transflective color display with high visibility in the sun
Power supply	standard battery pack RRC2040 or External = 10 - 18 Vdc (10W max) with Hirose 4-pin connector
Power consumption	440mA @12V / 5.28W in VHF range 450 - 530 mA @12V in UHF range depending of the frequency and temperature (display off, 1 Watt)
Battery life	> 5h (power profile & IIP3 trade off) with Lithium RRC2040
Temperature range	-10 - +55 °C
Dimensions	114mm x 118mm x 55mm (H x W x D) with beltclip
Weight	950g (battery included)

Compliance

Code	In Compliance with	Max Power & Freq. range	Country
RPU500-EU	EN 301 489-1/-9 EN 60065 EN 300 422-1/-2 EN 300 454-1/-2	Up to 1W 170-230 Mhz 440-696 Mhz 715-744 Mhz 940-960 Mhz	Europe CE
RPU500-US	FCC PART 74 FCC-ID: POURPU500	50 mW @ 174-216 Mhz 1 W @ 450-451 Mhz 1 W @ 455-456 Mhz 250 mW @ 470-608 Mhz 20 mW @ 614-616 Mhz 20 mW @ 653-657 Mhz 20 mW @ 657-663 Mhz 1 W @ 940-960 Mhz	USA
RPU500-CA	RSS-123, RSS-210 IC: 11967A-RPU500	50 mW @ 174-216 Mhz 1 W @ 450-451 Mhz 1 W @ 455-456 Mhz 250 mW @ 470-608 Mhz 20 mW @ 614-616 Mhz 20 mW @ 653-657 Mhz 20 mW @ 657-663 Mhz 1 W @ 940-960 Mhz	Canada

MANUFACTURER DECLARATIONS

Statements regarding FCC and Industry 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 UNDESIRE OPERATION.

WARNING: Wisycom srl. 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.

The FCC and IC identifier is visible in the display when the device is switched on and it is also available by accessing the *Options> Info> Regulatory* submenus.

EN

This device complies with Industry Canada license-exempt RSS-123 and RSS-210 standard. 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.

This radio transmitter (identify the device by certification number, or model number if Category II) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

FR

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence RSS-123 et RSS-210. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Le présent émetteur radio (identifier le dispositif par son numéro de certification ou son numéro de modèle s'il fait partie du matériel de catégorie I) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

This equipment complies has been evaluated for and shown compliant with the FCC and ISED RF Exposure limits. The unit of measurement for RF exposure is Specific Absorption Rate (SAR). The FCC SAR limits for is 1.6W/Kg per 1g of tissue

The maximum SAR levels tested has been shown to be 0.89 W/kg at head with 0mm of separation distance from the body.

This device operates on a no-interference, no-protection basis. Should the user seek to obtain protection from other radio services operating in the same TV bands, a radio license is required. For further details, consult Innovation, Science and Economic development Canada's Client Procedures Circular CPC-2-1-28, **Voluntary Licensing of License-Exempt Wireless Microphones in TV Bands.**

Antenna types (50 Ohm impedance, max gain 2.15dBi)

- AWT500-180: band 170 - 188 MHz
- AWT500-197: band 188 - 206 MHz
- AWT500-213: band 206 - 220 MHz
- AWT500-455 : band 440 - 470 MHz
- AWT500-494 : band 470 - 517 MHz
- AWT500-540 : band 515 - 563 MHz
- AWT500-590 : band 562 - 609 MHz
- AWT500-625 : band 609 - 645 MHz
- AWT500-670 : band 645 - 696 MHz
- AWT500-950 : band 940 - 960 MHz

In compliance with the following requirements



- RoHS Directive (2002/95/EC)
- WEEE Directive (2002/96/EC)

Please dispose of the diversity transmitter at the end of its operational lifetime by taking it to your local collection point or recycling center for such equipment

ITALY ONLY

Obblighi di informazione agli utilizzatori

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"

Smaltimento di apparecchiature elettriche ed elettroniche di tipo professionale



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 ambientale 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.

Smaltimento batterie usate



Questo prodotto può contenere batterie. Questo simbolo apposto sulle batterie significa che non possono essere smaltite insieme a normali rifiuti domestici, bensì devono essere depositate negli appositi punti di raccolta delle batterie.

Iscrizione al Registro A.E.E. n. IT0910000006319



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