WISYCOM™

MTH610 USER MANUAL
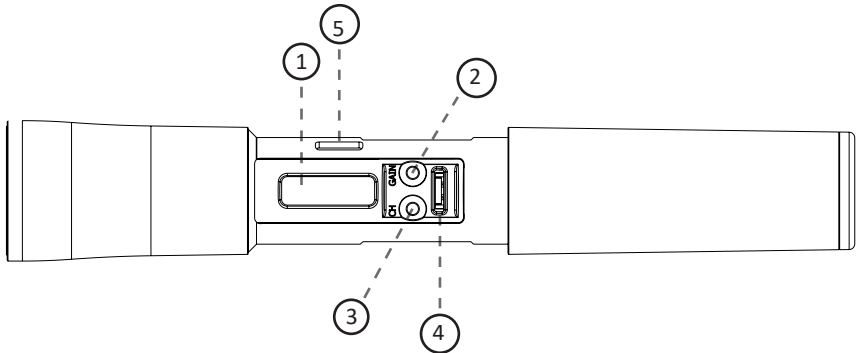
MULTI-BAND WIRELESS

PROFESSIONAL HANDHELD
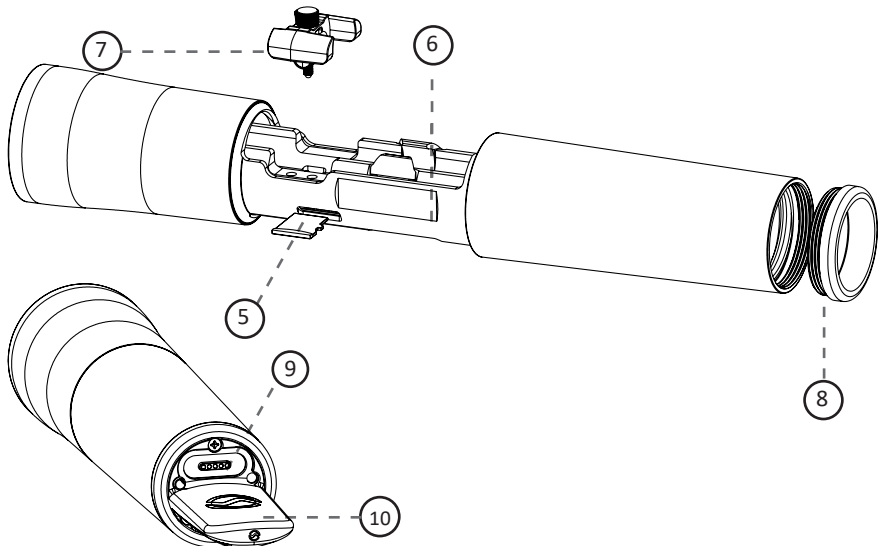
TRANSMITTER

Rev.2 (ref. FW 1.0.0)

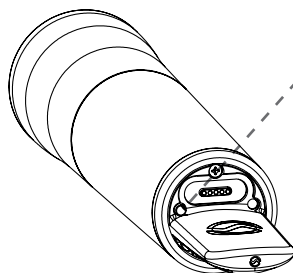Date: 7th January 2025

PRODUCT OVERVIEW

1. OLED white display (128x32 px)
2. GAIN setup button
3. CHANNEL selection button
4. 3 position selector (up / down / click)
5. Micro-SD card slot
6. Battery compartment
7. Removable spacer for 14430 Li-ion batteries

8. Colored ring (default black, other colors available to order separately)
9. Magnetic connector (power, control, LTC Timecode sync, internal recharge of 14430 Li-ion batteries
10. Antenna

LED INDICATIONS

RF/Power LED

- ⚪ **OFF:** MTH610 is OFF
- 🟢 **GREEN:** Transmission is ON
- 🔴 **RED:** Peak Modulation
- 🔴 **RED SLOW BLINK:** battery < 25%
- 🔴 **RED FAST BLINK:** battery < 12%

SETUP CONTROL

To access internal setup controls and batteries compartment **unscrew & slide down cover**:

POWERING UP

Pushing down selector (click), the graphic display oled turns on.
At the beginning a <START UP> menu is displayed, then <STATUS> menu enters automatically.
In order to keep the <START UP> menu active, it is necessary to push and hold selector (click) for at least 2 sec.

STATUS menu

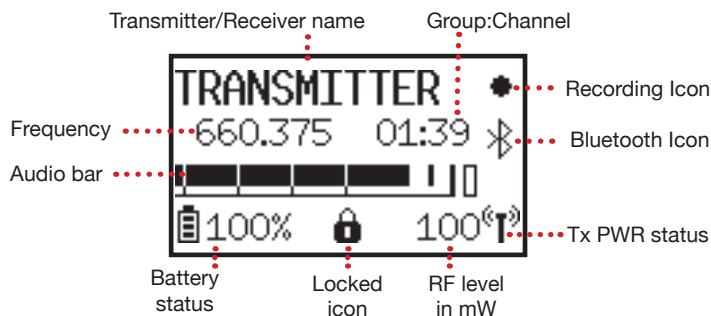After the power up phase, the Status menu is showed where major info are displayed:

Transmitter/Receiver name
Group:Channel
Recording Icon
Frequency
Bluetooth Icon
Audio bar
Tx PWR status
Battery status
Locked icon
RF level in mW

From the status menu it is possible to access the main functions of the transmitter thanks to the quick selection keys:

- **GAIN** to change the audio gain level
- **CH** to change group / channel / frequency
- **SELECTOR** (up/down/click)

SETUP menu

Power on the MTH610
• configure battery type (Settings>Battery menu).
The transmitter works with
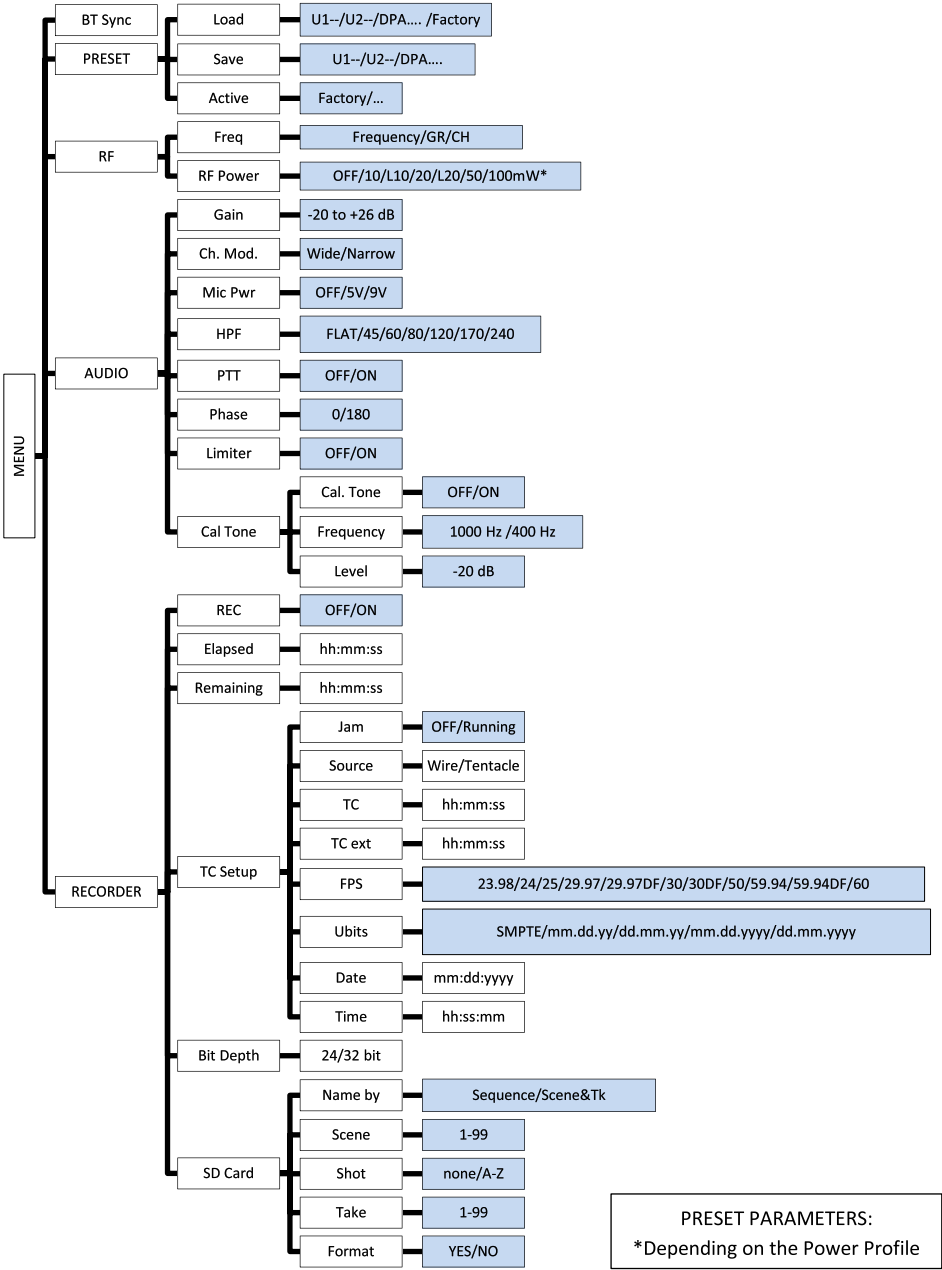- 2x AA batteries: alkaline, NiMH or lithium (needs to be configured)
- 2x 14430 lithium ion batteries (no need to be configured, automatically detected)
• enable Bluetooth and syncronize with Wisycom receiver
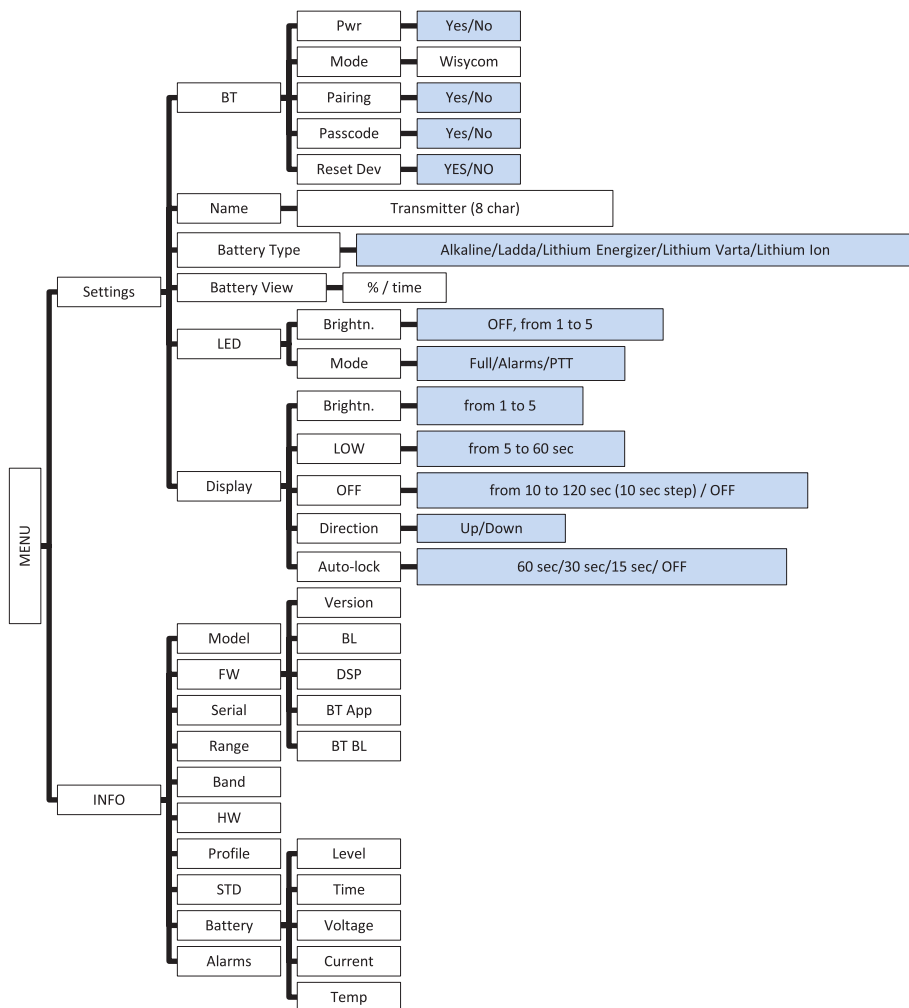• set the gain, with the maximum input signal, avoiding the peak on the audio bar.
TRY TO SETUP TO HAVE A MAX PEAK HOLD BAR CLOSE TO -6dB.
• configure power level (RF > RF Power)
• activate

OPERATING MENU (page 1/2)

BT Sync	Load	U1--/U2--/DPA…. /Factory
PRESET	Save	U1--/U2--/DPA….
	Active	Factory/…
RF	Freq	Frequency/GR/CH
	RF Power	OFF/10/L10/20/L20/50/100mW*
AUDIO	Gain	-20 to +26 dB
	Ch. Mod.	Wide/Narrow
	Mic Pwr	OFF/5V/9V
	HPF	FLAT/45/60/80/120/170/240
	PTT	OFF/ON
	Phase	0/180
	Limiter	OFF/ON
	Cal Tone → Cal. Tone	OFF/ON
	Cal Tone → Frequency	1000 Hz /400 Hz
	Cal Tone → Level	-20 dB

MENU

RECORDER:

REC		OFF/ON
Elapsed		hh:mm:ss
Remaining		hh:mm:ss
TC Setup	Jam	OFF/Running
	Source	Wire/Tentacle
	TC	hh:mm:ss
	TC ext	hh:mm:ss
	FPS	23.98/24/25/29.97/29.97DF/30/30DF/50/59.94/59.94DF/60
	Ubits	SMPTE/mm.dd.yy/dd.mm.yy/mm.dd.yyyy/dd.mm.yyyy
	Date	mm:dd:yyyy
	Time	hh:ss:mm
Bit Depth		24/32 bit
SD Card	Name by	Sequence/Scene&Tk
	Scene	1-99
	Shot	none/A-Z
	Take	1-99
	Format	YES/NO

PRESET PARAMETERS:
*Depending on the Power Profile

OPERATING MENU (page 2/2)

```
MENU
 ├─ Settings
 │    ├─ BT
 │    │    ├─ Pwr ──────────── Yes/No
 │    │    ├─ Mode ─────────── Wisycom
 │    │    ├─ Pairing ──────── Yes/No
 │    │    ├─ Passcode ─────── Yes/No
 │    │    └─ Reset Dev ────── YES/NO
 │    ├─ Name ──────────────── Transmitter (8 char)
 │    ├─ Battery Type ──────── Alkaline/Ladda/Lithium Energizer/Lithium Varta/Lithium Ion
 │    ├─ Battery View ──────── % / time
 │    ├─ LED
 │    │    ├─ Brightn. ─────── OFF, from 1 to 5
 │    │    └─ Mode ─────────── Full/Alarms/PTT
 │    └─ Display
 │         ├─ Brightn. ────── from 1 to 5
 │         ├─ LOW ─────────── from 5 to 60 sec
 │         ├─ OFF ─────────── from 10 to 120 sec (10 sec step) / OFF
 │         ├─ Direction ───── Up/Down
 │         └─ Auto-lock ───── 60 sec/30 sec/15 sec/ OFF
 └─ INFO
      ├─ Model
      │    ├─ Version
      │    ├─ BL
      │    ├─ DSP
      │    ├─ BT App
      │    └─ BT BL
      ├─ FW
      ├─ Serial
      ├─ Range
      ├─ Band
      ├─ HW
      ├─ Profile
      ├─ STD ── Level
      ├─ Battery ── Time
      └─ Alarms ── Voltage
                ── Current
                ── Temp
```

PRESET menu

MTH610 can recall configuration presets:
- "Factory" recalls the Wisycom factory configuration.
- "USER" (U1, U2…,, U8) recalls the configuration saved by menu

RF menu

Freq to change of Group/Channel/Frequency

Check the maximum power level that can be selected based on the power profile configured in your transmitter*

The MTH610 has 40 groups of 60 channels each. Normally this is too much for wireless microphones applications.

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 display menu of the transmitter. Locking a group means that all channels are locked. When a channel or a group are locked, at the left of the frequency will appear a lock icon to indicate that the frequency is not editable.

RF Power to set power level (10, L10, 20, L20, 50, 100 mW, OFF to disable transmission). LED becomes fixed red when the transmitter is tuned and RF Power is set to OFF, becomes fixed green when the transmitter is tuned and RF power isn't OFF. Increasing the power level increases the coverage but also increases the power consumption and in small environments it can cause intermodulation problems. Use L10 or L20 levels to set 10mW or 20mW of power and activate Linear technology.

Linear is suggested for situations where spectrum is limited and frequencies need to be placed in close proximity. This allows to operate EQUALLY SPACES frequency (placed every 400kHz (Wideband) or 200kHz (Narrowband | High Density)
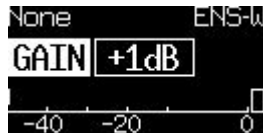*Note that power consumption of L10 and L20 levels are comparable to the consumption of the level 100 mW.*

*The transmitter is factory programmed with a power profile capable of complying with the regulations in force in the country of sale of the MTP60. this profile limits the selectable frequencies and the maximum power level allowed.

AUDIO

Gain to set the sensitivity of the audio input.
You can access this menu directly from the status menu by pressing the UP / GAIN button. To help proper audio gain setting, an audio bar is supplied (with maximum peak indicator) indicating the headroom to audio peak (0 dB , nominal deviation 40KHz).
Set the gain with the maximum input signal, avoiding the peak on the audio bar.
TRY TO SETUP TO HAVE A MAX PEAK HOLD BAR CLOSE TO -6dB

Ch. Mod. menu defines the type of modulation between Narrowband or Wideband. This reduces or expands the spectrum occupation of the MTP60 Transmitter.

When the transmitter is set to WideBand the audio bandwidth is limited to 20 KHz and the peak deviation is set to ±56 kHz so that the occupied bandwidth is approx. 150 KHz.
When the transmitter is set to NarrowBand the audio bandwidth is limited to 17 KHz and the peak deviation is set to ±35 kHz so that the occupied bandwidth is approx. 100 KHz.

Switching to Narrowband provides an additional 3dB of RF Sensitivity on the receiver.
Note: make sure to set the receiver channel to the same modulation setting of the transmitter.
Ex. Wideband or Narrowband.

HPF menu to set High Pass Filter of the audio signal.
Different filters are available (FLAt means no filter).

TONE menu set to normal to enable Wisycom Tone Squelch (@33kHz). The tone is used by the receiver to to send to recognized Wisycom transmitter is active. In the same tone the transmitter sends to the receiver the battery lifetime, the compander and the ch. modulation too.
Set tone to No Data if you don't want to send these additional information.

PTT menu allows to configure the behaviour of PTT accessory when it is pushed.
If PTT is set to Mute, the audio is muted when the Push to Talk button is pushed.
If PTT is set to ON, Wisycom receiver is able to do an audio routing according to Tone squelch matrix set on the receiver (see receiver user manual for more details).
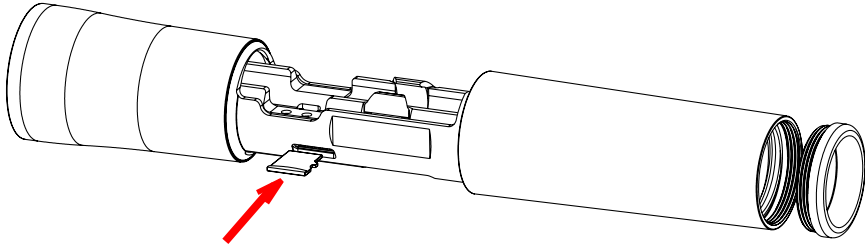
Limiter to enable or disable the limiter function. Whem limiter is anable and the audio input level is too high (level on the audio bar arrives to the peak) the transmitter adapt acutomatically the audio level to avoid distorsion.

Cal. tone to activate the calibration tone.
The CALIBRATION TONE function generates a tone at specific frequecies (400Hz or 1000 Hz) at -20dB level on the audio input.

RECORDING

Open the battery door and insert the SD card into the card slot

The MTH610 records on SD card exFAT formatted.
During start up the MTH610 checks the SD card status.
If it is not formatted or it is not exFAT formatted, it asks for formatting.

Press "SEL/ON" to format the card and wait some seconds until the process is completed.
DO NOT turn off the transmitter during formatting!

If the card is detected correctly, the card icon appears at the top right of the MAIN menu

It is recommended to use U3 or C10 cards only.
To start recording enter on the Recorder menu and set REC to ON.
If during recording accidentaly the battery door is open or the battery dies, the transmitter au-
tomatically save the file up to 15 seconds prior the event. if the transmitter restarted with the
same SD card in, the recording file is completely recovered without any data loss.

NOTE:

MTH610 fully support EX-FAT (extended Fat) with a storage limit of 2 TB.

Recorded audio is full quality not compressed.

example:
24 bit is 3 bytes with 48000 samples/sec.
That makes 144000 bytes/sec.
That makes around 520 Mb/hour.

The MTH610 records 32-bit float RF64 WAV (over 4 GB) files at 48 kHz sampling rates.
Bit Depth can be change to 24 bit using "Recorder > BitDepth" menu.

The file name format is "Transmitter name-<sequential number>.WAV or:
Transmitter name-T<trace number>S<sequence number>.WAV
according to the Name setting on Recorder>SD Card menu.
All files are recorded in a folder with the tranmsitter name.

example:
Transmitter name: PAUL LEE
Recorder trace 4 is saved in the folder PAUL LEE with the name PAUL LEE-0004.WAV

SETTINGS
Use this menu to
- power on or off the Bluetooth interface
- set type of battery used and type of view % or time.
- configure LED behavior
- configure display behavior

INFO
Use this menu to check information about the transmitter (firmware, serial number, frequency range and hardware version) and its status (voltage, temperature and alarms).

BATTERIES
The MTH610 works with 2 AA batteries (Alkaline, Ladda, Li-Energizer, Li-Varta, or Li-Ion). Select the correct type in the setup controls. You can check the battery status on the internal OLED display or by looking at the LED status on the power switch (see the LED INDICATION section).

Battery substitution:
•Open MIC body: unscrew counter-clockwise the below cover to access batteries holder;
•Take out below battery to release upper battery leverage;
•2nd battery falls down and can be remove

Attention: always replace both the batteries

TECHNICAL SPECIFICATION

Frequency ranges	from 470 to 1260 Mhz, depends on the country (see Configurations)
Switchable channels	2400 managed in 40 groups ofr 60 frequencies completely user programmable
Switching-window	Up to 362 MHz, depending on band (see Configurations)
Frequencies	Quartz PLL frequency synthesizer circuit (5 kHz step)
Frequency error	±2.5 ppm, in the rated temperature range
RF Power	10mW/ L10 W/ 20 mW/ L20 mW/ 50 mW/ 100 mW on specific configurations
Modulation	Wideband and Narrow-band with DSP based digital signal processing
Nominal deviation	±40 kHz Wideband / ±25 kHz Narrowband
Peak deviation	±56 kHz Wideband / ±35 kHz Narrowband
Spurious emissions	< 2 nW
Telemetry feature	TX transmits also a digitally modulated sub-carrier, suitable for: tone-squelch operating remote battery monitoring, compander and modulation control optional PTT (push to talk) operation
Noise Reduction system	ENS - Wisycom ultra-high permorfmance compander
AF bandwidth	Audio frequency response (dBa) in NarrowBand mode (NB): 45 Hz ÷ 17 KHz (3dB) in WideBand mode (WB): 45 Hz ÷ 20 KHz (3dB)"
Distortion	**< 0.3 % (0.15 % typ.)**
SND/D ratio (Analogue)	typ. 115 dB (A)rms with 40 kHz deviation; typ. 121 dB (A)rms with 56 kHz deviation Wideband typ. 115 dB (A)rms with 25 kHz deviation; typ. 121 dB (A)rms with 35 kHz deviation Narrowband
Audio input connector	directly interchangeable microphone-heads
Audio input level	adjustable in 1 dB steps
Max input level	6 dBu
Max sound pressure	"depending on head 144 dB SPL with DPA 2028, 152 dB SPL with DPA d:facto™ 4018, 155 dB SPL with Neumann KK 105 S, 149 dB SPL with Shure® KSM9"
Compatible heads	most common microphone heads. Example: DPA Microphone: 2028, d:facto™ 4018 (with SLI adapter), Shure®: Beta58A, Beta87A, Beta87C (with HHA-SHS adapter)
Storage media	removable micro SD memory card (.wav files - BWF)
Time code	Linear Timecode decoding
Bit rate	24 bit / 32 bit
Sampling rate	48 kHz
Managing interface	remote control interface (Bluetooth and LoRa) and proprietary waterproof magnetic connector 5 pin (USB HS +power +LTC)
LED	bicolor led (red & green)
Battery lifetime indication	percentage or minute/second
PTT function	with optional PTT accessory
Display	High contrast OLED white display (128 x 32 pixels)
Power supply	2 x AA Alkaline or 2 x AA NimH or 2 x 14430 Li-ion (internally charged)
Battery life	"approx. 16 hours @ 10mW with 14430 Li-ion batteries approx. 12 hours @100mW with 14430 Li-ion batteries approx. 13 hours @10mW with Alkaline batteries"
Temperature range	-10 ÷ +55 °C
Dimensions	200 x 37 mm (length x diameter) without microphone-head
Weight	Approx. 220g without microphone-head

CONFIGURATION

MTH610-<*Contry range*>

Country range:

EU: 470-832 MHz, Max power 50mW

EUX: 470-832 MHz, Max power 100mW

UK1: 470-663 MHz, Max power 100mW + 960-1075 MHz, Max power 50mW

UK2: 510-698 MHz, Max power 100mW + 960-1075 MHz, Max power 50mW

US*: 470-608 MHz,Max power 100mW+614-663 MHz,Max power 20mW+940-960 MHz,Max power 100mW

CA: 470-608 MHz,Max power 100mW+614-663 MHz,Max power 20mW+940-960 MHz,Max powe 100mW

KR: 510-698 MHz, Max power 100mW + 925-937,5 MHz, Max power 10mW

JP1: 470-714 MHz, Max 10mW

JP3: 1240-1260 MHz, Max 50mW

MX: 470-608 MHz, Max power 100mW+614-832 MHz,Max power 100mW

*Simultaneous recording and wireless transmission is not available on transmitters sold in the USA

MANUFACTURER DECLARATIONS

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

Battery Directive (2006/66/EC)
The supplier batteries or rechargeable batteries can be recycled. Please dispose of them as special waste or return them to your specialist dealer. In order to protect the environment, only dispose of exhausted batteries.

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 apparecchia¬tura giunta a fine vita è organizzata e gestita dal produttore. L'utente che vorrà disfarsi della presente apparecchiatura dovrà quindi contattare il produt¬tore 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 succes¬sivo 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 re¬impiego 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 am¬ministrative 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.

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 UNDESIRED 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 Info> STD 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.
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.

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 0.133 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, V**oluntary Licensing of License-Exempt Wireless Microphones in TV Bands.**

WISYC⌒M

COMPLIANCE

Model	In compliance with	Range and max power	Country
MTH610-EU	EN 301 489-1/-9 EN 600065 EN 300 422-1/-2	470-832 MHz max 50 mW	Europe
MTH610-EUX*	EN 301 489-1/-9 EN 600065 EN 300 422-1/-2 EN 300 454-1/-2	470-832 MHz max 100 mW	Europe
MTH610-US	FCC PART 74 FCC-ID: POUMTH610	470-608 MHz max 100 mW 614-663 MHz max 20 mW 940-960 MHz max 100 mW	USA
MTH610-CA	RSS-123, RSS-102 IC:11967A-MTH610	470-608 MHz max 100 mW 614-663 MHz max 20 mW 940-960 MHz max 100 mW	Canada

The model "MTH610-xx" and conformity logos are shown on the box and can be checked in the menu Info > STD (regulation standard).
step 1: access submenu Info;
step 2: access submenu STD.
Before putting the device into operation, please bserve the respective country-specific regulations!
* MTH610-EUX is not an SRD device, thus it requires specific authorization by your local frequency authority!

SAFETY INSTRUCTION
- 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.

WISYCOM

EU DECLARATION OF CONFORMITY

We,

WISYCOM S.r.l.

via Tiepolo, 7/E

35019 Tombolo (PD) – Italy

declare under our sole responsibility that the product

Model **MTH610**
Description **Wireless Handheld Transmitter**

conforms to the essential requirements of the following European Directives and their associated norms:

Directive	Applicable Standards	Description
RADIO Directive 2014/53/EU (RED)	EN 300 422-1 v2.1.2	Wireless Microphones; Audio PMSE up to 3 GHz; Part 1: Class A Receivers; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU
EMC	EN 301 489-1 v1.9.2	"ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU and the essential requirements of article 6 of Directive 2014/30/EU
	EN 301 489-9 v2.1.1	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 9: Specific conditions for wireless microphones, similar Radio Frequency (RF) audio link equipment, cordless audio and in-ear monitoring devices; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU
Safety	EN 62368-1 2014	Audio/video, information and communication technology equipment — Part 1: Safety requirements (IEC 62368-1:2014, modified)
Human Exposure	EN 62311:2020	Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz — 300 GHz)
RoHS	EN IEC 63000:2018	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

Date: December 10th, 2024

Enzo Frigo, Technical Director

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