

MTP40S-US/USX User Manual

Wideband Wireless

Professional Pocket

Transmitter

SN:

Rev.01 (ref. FW 1.22.0A)

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INTRODUCTION

"MTP40S is an extremely small and light pocket transmitter especially designed for professional wireless microphone applications"

Very easy and quick to use thanks to OLED display, dedicated buttons and a joggle selector.

MTP40S benefits also of the latest Wisycom RF technology along with an enhanced robustness against noise and inter-modulation.



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.

LED INDICATIONS

Led indication with LED RGB (red, green, blue) in front led (2):

- Wireless transmission status: Green when RF transmission power is on, Red when RF transmission power is off. Blue when the input signal is above the peak threshold
- Battery status: green steady, slowly blinking (< 25%), quickly blinking (<12%).
- Modulation peek (if activated and the limiter is disabled): red.
- Ptt status: red if active (push to talk "pushed").

BATTERIES

MTP40S is working with 2 AA alkaline or NiMH batteries (select correct type on setup controls). Battery status can be checked on internal OLED display or looking to LED status on power switch (see 1.1).

BATTERY SUBSTITUTION

• Open transmitter cover and insert batteries following polarity indicated. Attention: always replace both the batteries

POWERING UP

Move the wireless power switch (see Fig. 1) in "I" position to activate wireless transmission: a green LED lights up (blinking when battery is low!)

SETUP CONTROL

Open transmitter Body to access the "display and controls" area (Fig. 3):

- A Graphics Display (OLED)
- B. Channel selection buttons (ch)
- MIC gain setup buttons (gain)
 - 3 position selector (up / down / click)





Fig. 3

OLED POWER UP (OLED IS IN OFF CONDITION)

Pushing down selector (**click**), oled turns on. A first menu with serial NO and brand logo is displayed, then <status> menu enters automatically.

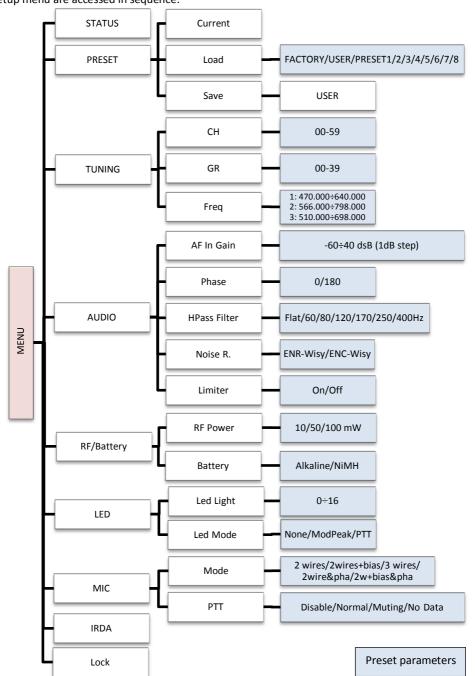
Pushing and holding selector, serial NO menu is displayed.

OLED POWER DOWN (OLED IS IN ON CONDITION)

Display turns off automatically after 15 sec, unless in <IRDA> menu or in <AUDIO> menu (with audio level < 5% from nominal).

DISPLAY MENU

Setup menu are accessed in sequence:



Using <+/-> selector all menus can be accessed in sequence, push <click> to enter edit mode (in the left side of the display appear the word EDIT and the parameter start blinking):



<+/-> to setup field

<cli>k> again to confirm changes and exit.

exit without confirmation if no button is pressed after a few seconds time out.

<START UP> menu

These menus are displayed during power up for few seconds.



First one gives information of antenna to be used. The number displayed is the center-band of the antenna to be used.



The second menu gives indication on product: product id (MTP40S), a letter which identify the working band

1	470-640
2	566-798
3	510-698

a number which identify the hardware version, the firmware release (120.0B), the band in extended format and the serial number.

Keep selector pushed to hold this menu!

<STATUS> menu

This is the first menu displayed after power up.



Major info are displayed:

- Current channel/group (i.e. CH:00 GR:39)
- Current frequency (i.e. 566.000 MHz)
- Mic gain (i.e. AF: +00 dB) and high pass filter (i.e. HP:60 Hz)
- "RF 100" or RF 50" or "RF 10" on top right if RF transmission is on at 100mW or 50mW or 10mW of power respectively
- On bottom battery bar is displayed

<PRESET> menu

This menu can be entered by scrolling selector, or pushing at the same time both <u>quick channel setup</u> <u>buttons</u> (<ch> & <gain>).



MTP40S can recall configuration presets. "FACTORY" recalls the Wisycom factory configuration. "USER" recalls the user configuration (the transmitter configuration is copied into the USER using the "save to" submenu). All "USER" menus are not locked by default, thus this is quick way to unlock features!



The other 8 configuration presets are user programmable thru the infrared and the PC interface (using the programmer UPK 300 or the receiver MRK950/MRK960). All parameters can be "left unchanged", "changed" or "changed and lock", allowing a very flexible way to pre-program MTP40S configuration.

<TUNING> menu

This menu can be entered by scrolling selector or using quick channel setup buttons (**<ch>>**).



In this menu current channel/group and frequencies can be setup. Use the selector to change values (<+/->) and <click> to confirm. Sync group is a quick self-settable channel synchronized by receiver.

Using quick channel setup buttons (**CH>**), it is possible to enter quickly in the tuning menu. Note that the menu has a different layout (see the side image)

<AUDIO> menu

This menu can be entered by scrolling selector or using quick gain setup buttons (<gain>).



"AF In Gain" setup to tune audio input sensitivity:

To help proper audio gain setting, an audio bar is supplied (with peak hold bar) indicating the headroom to audio peak (OdB) -> TRY

TO SETUP TO HAVE A MAX PEAK HOLD BAR CLOSE TO -6dB.

AF gain is shown with 2 different unit of measurements: dB (gain in dB of MTP40S amplifiers) or in dBµ peak, setting it with IR PROGRAMMER (see the picture on page 11 and the description on **CURRENT SETTINGS PANEL).**

Using quick gain setup buttons (<GAIN>), it is possible to enter quickly in the audio gain menu. Note that the menu has a different layout (see the side image)

The second <AUDIO> menu allows to set:

- Audio phase (0° or 180°)

-High Pass Filter: applies different audio HP filter: Flat /60Hz /80Hz/120Hz /170Hz /250Hz /400Hz.

Use the selector to change values (<+/->) and <click> to confirm.

The third <AUDIO> menu allows to set:

- -Noise reduction:
 - ENR: designed for maximum noise reduction
 - ENC: designed for maximum audio fidelity (use this in case of special vocal application or to remote instruments)

-Limiter: if is set "On", an input audio signal above the peak threshold (up to 30 dB above peak) is not cut but attenuate, without lost quality. The limiter acts as a variable attenuator (thanks to the feedback system), maintaining a distortion

When the limiter intervene, the front led turns blue. If this parameter is set "Off", the limiter is disable.

<RF/BATTERY> menu

This menu can be entered by scrolling selector.



RF power can be setup to 100mW(only USX option) or 50 mW or 10

Use the Battery menu to select the type of battery used. MTP40S support Alkaline/NiMH battery type.

Use the selector to change values (<+/->) and <click> to confirm.

<LED> menu

This menu can be entered by scrolling selector.



Led Light allows to change the brightness of the front led (0÷16) .

Led Mode: - <u>None</u>: allows to disable modulation peak LED on front led (the red light)

- <u>ModPeak</u>: allows to enable modulation peak LED on front led (become RED when audio get close to saturation when the limiter is not enable)
- <u>PTT</u>: allows to enable RED color on front led when PTT button is pushed.

<MIC> menu

This menu can be entered by scrolling selector.



Mode: Following Mic mode can be setup (for LEMO option)

- -2 wires: (PTT is possible) for external audio input
- -2 wires + bias: (PTT is possible) for most 2 wires MIC
- -3 wires: (no PTT) for most 3 wires MIC
- -2 wires & pha: to connect a wired mic thru a 48V adapter (PHA48)
- -2 wires+bias & pha: Allow to connect a '2 wires + bias' MIC or a '2 wires
- & phantom' MIC (with PHA48)

PTT setting defines how and what information the transmitter has to send in normal use or when the PTT button is pushed.

- **Disable**: when the PTT button is pushed, nothing happen. (the transmitter sends AF+Tone squelch)
- **Normal**: when the PTT button is pushed, the transmitter send a different RF signal. According to the receiver configuration the audio can be enabled/disable on LINE (and/or COM).
- Muting: the transmitter doesn't send the audio. The voice is cut, it doesn't enter to the microphone
- No Data: the transmitter sends neither tone squelch nor battery data.

Use the selector to change values (<+/->) and <click> to confirm.

NOTE: For DPA option (2 pin microdot audio connector), even if the MIC mode menu allows to set one of the 5 MIC modes, only **2 wires** or **2 wires+bias** mode are possible.

<IRDA> menu

This menu can be entered by scrolling selector.



While is this menu MIC can be connected to IRDA for setup or firmware upgrades.

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

<LOCK> menu

This menu can be entered by scrolling selector.



Long pressing (2 sec.) selector button (**click**) it locks MTP40S in transmission mode.

To unlock, long pressing (2 sec.) selector button again.

<BOOTLOAD> menu

This menu can be entered only turning on the transmitter while pushing at the same time both <u>quick</u> <u>channel setup buttons</u> (**<ch>** & **<gain>**).

BOOTLOAD

Device is forced in bootloader mode to allow **FIRMWARE UPDATE**.

The following table sums up which parameters can be set and the related range settings.

MENU	PARAM ETER	MEANING	RANGE SETTINGS		
	СН	Channel	0 ÷ 59		
TUNING	GR	Group	0 ÷ 39 + SYNC GROUP		
	Freq	Frequency	depends on the MTP40S Model: 1 470-640 2 566-798 3 510-698		
	AF In Gain	Gain of the audio signal	depends on the mic mode setting (ex40dB ÷ 40dB step of 1 dB)		
	Phase	Audio signal phase	0° or 180°		
AUDIO	HP Filt.	High Pass filter	Flat/60/80/120/170/250/400 Hz		
	Noise R.	Noise reduction	ENR: Wisycom Extended-NR,noise optimized ENC: Wisycom Extended-NC,voice optimized		
	Limiter	Limiter	On/Off		
RF/BATTERY	RF Power	RF Power	10mW or 50mW or 100mW(only USX option)		
KF/DATIENT	Battery	Battery type	Alkaline or NiMH		
	Led Light	Power switch green brightness	0 ÷ 16		
LED	Led Mode	It defines when the power switch led (see Fig. 3) has to become RED	None: never ModPeak: when audio get close to saturation PTT: when the PTT button is pushed		
	Mode	MIC type	'2 wires' '2 wires + bias' '3 wires' '2 wires & phantom' '2 wires + bias & phantom'		
міс	PTT Mode	It defines how and what information the transmitter has to send	Disable: when the PTT button is pushed, nothing happen. (the transmitter sends AF+Tone squelch) Normal: when the PTT button is pushed, the transmitter send a different RF signal. According to the receiver configuration the audio can be enabled/disable on LINE (and/or COM). Muting: the transmitter doesn't send the audio. The voice is cut, it doesn't enter to the microphone No Data: the transmitter sends neither tone squelch nor battery data.		

MIC Mode setting (only for LEMO option):

MIC Mode:	Pin out	Gain	РТТ	Led Mode
'2 wires':	1=GND 3=AF	-60/40 dB	Disable Normal Muting No data	None Mod. Peak PTT
'2 wires + bias':	1=GND 3=AF+5.5V	-60/40 dB	Disable Normal Muting No data	None Mod. peak PTT
'3 wires':	1=GND 2=5.5V 3=AF	-60/40 dB	Disable No data	None Mod. peak
'2 wires & phantom':	1=GND 2=3.1V (power for PHA48) 3=AF	-60/40 dB	Disable No data	None Mod. peak
'2 wires + bias & phantom':	1=GND 2=3. 1V (power for PHA48) 3=AF+5,5V	-60/40 dB	Disable No data	None Mod. peak

ACCESSORIES AND PARTS

AWF30-B1-507 AWF30-B1-590 For MTP40S-X-X1 For MTP40S-X-X1 Band 470 ÷ 547 MHz Band 547 ÷ 640 MHz Antenna Code label 507 Antenna Code label 590

AWF30-B2-616 AWF30-B2-732 For MTP40S-X-X2 For MTP40S-X-X2 Band 566 ÷ 672 MHz Band 672 ÷ 798 MHz Antenna Code label 616 Antenna Code label 732

AWF30-B3-552 AWF30-B3-646 For MTP40S-X-X3 For MTP40S-X-X3 Band 510 ÷ 595 MHz Band 595 ÷ 698 MHz Antenna Code label 552 Antenna Code label 646



CAL48

Cable to connect an MTP30 (with option /PHA) or MTP40/40S to a PHA48 to use microphone with XL3/48V connection



CAL120

AF cable (120cm), LEMO 3pole / XLR-3F connectors



PHA48

Plug-on for XLR3 Mic with 48V Phantom power. To be used with CAL48 (connected to an MTP30/40/40S) NEW REV2 with 4mA Phantom current!



ADT40

Power Adapter for MTP30/40/40S.

Power input: 9-18V DC feeding (internal switching regulation).

variants:

ADT40: without connector (pigtail) ADT40X: with XLR-4pin power connector ADT40H: with Hirose-4pin power connector

NOTE: MTP30/40/40S must have ADT option to pass thru cable



UPK300E

Infrared programming kit

(interface + software) USB interface



WISYCOM IR PROGRAMMER (VER. 1.3.2.4 AND ABOVE)

Wisycom IR Programmer allows to read, modify and update the MTP40S device configuration.

It is necessary to

- install Wisycom IR Programmer (version 1.3.2.4 or above)
 WARNING: If it is the first installation and Wisycom USB driver has not already installed in the PC, install the USB driver (run C:\Program Files (x86)\Wisycom\MTP&MTH Infrared Programmer (TX)\Drivers\ DriverInstaller.exe)
- connected the programmer UPK300 or the receiver MRK950/MRK960 to the PC through USB connection
- run the program
- enable the IRDA communication on the transmitter (see <u>IRDA menu</u>)

NOTE: Wisycom IR Programmer doesn't work whit MRK950/MRK960 if it is connected to the PC using an Ethernet cable.

The Wisycom IR Programmer's window is divided in 4 parts (see Fig. 5):

- 1 Interface and Device panel contains all the major information of the connected device
- Current Settings panel shows the current configuration. Thanks the PRESET panel, a previous saved configuration can be chosen and loaded like current setting.
- 3 Tuning Frequencies panel allows to handle Groups, Channels and Frequencies
- 4 Presets panel allows to read, change and save different configurations

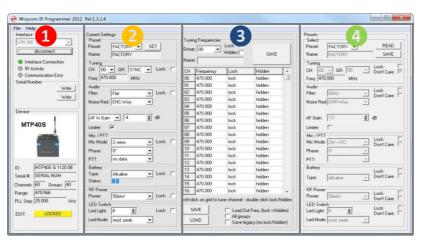


Figure 5: Wisycom IR Programmer's window

10 different configurations are available:

- FACTORY configuration is a locked configuration: no parameter can be changed.
- USER configuration is the only configuration that can be saved using the OLED display (see <PRESET> menu). Note: It is not possible to change the name of this configuration.
- Other 8 configurations where the user can change both the name and the values of all parameters.

INTERFACE AND DEVICE PANEL

At the beginning, the program checks which IR devices are detected and they appears on the **Interface** panel.

The user has to select the device and push <connect> button in order to open the communication with the IR device. A picture on the top in the Interface panel help the user in this selection showing the type of devices detected. During this process the "IR activity" led blinks to indicate that the program wait connection's answer from the IR device.

A successful connection is signaled with the "interface connection" green led, while a failed connection is signaled with the "communication error" led.

Once a supported device is found, the software automatically reads all the data related to the remote configuration, as well as the frequencies that are pre-programmed.

Firstly, in order to avoid unwanted operation, no parameters can be changes and the EDIT button, presents on the bottom of **Device** panel, is yellow and set to **LOCKED** state. Pushing the EDIT button, it becomes grey and sets to **UNLOCKED** state to indicate that the configurations can be modified.

CURRENT SETTINGS PANEL

In the Current Settings panel the user can

- with Preset panel → load one of the 10 available configurations
- with other panels → modify all the configuration's parameters (the same that are
 changeable in the OLED display). Each parameter can be locked clicking the related
 lock button, so the set value cannot be changed next using the OLED display. In the
 audio panel it's also possible to change the unit of measurements of the gain
 choosing between dB (gain in dB of MTP40S amplifiers) or in dBµ peak.



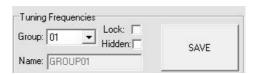
ATTENTION: All the modifies applied to the Current Settings panel are instantaneous: they are applied directly to the device and save in its memory but no saved in the preset configuration.

TUNING FREQUENCIES PANEL

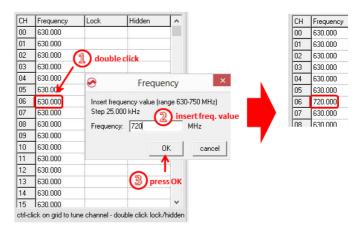
With the Tuning Frequencies panel the user can select a frequencies group (0÷39) and for each one execute the following operations:

- modify the Group's Name
- lock and/or hidden the group
- for each channel (0 ÷59) of the selected group: change the frequency value and the related status (locked/hidden) (in the center grid frequency)

The SAVE button, at the top of the panel, save the changes of the group selected (name group, lock/hidden group).



To change a frequency value for a specific channel: double click on the grid frequency panel (row=channel's number), insert the new frequency value and press OK button.

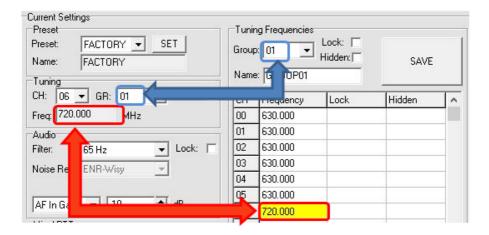




To lock/hide a specific channel, double click on the grid frequency panel.

NOTE: keeping pressed the CTRL button on the keyboard and clicking the wanted channel/group shown on the frequencies grid, the tuning process is executed. It is equivalent to configure the Tuning in the Current Settings panel but it is easier. The device is re-tuned immediately, so be sure that the RF power is turned off while changing frequencies with other RF systems in use around you!

If the currently tuned channel is on the same group that is listed on the grid, the background color of the related cell (channel) on the grid becomes yellow.



Using the LOAD/SAVE button, at the bottom of the panel, it is possible to load/save the frequencies for the selected group from/to a .wdf file. To save the frequencies of all the groups click to the related button above. The legacy option save the channels without the hidden/lock info.



PRESETS PANEL

The Preset panel allows to manage all the 10s available configurations.

For each configuration it is possible to set the name and all the parameters value except for FACTORY and USER configurations (see table below).

PRESETS:	NAME*	LOCK/DON'T CARE	PARAMETERS VALUE
FACTORY			
USER			٧
OTHERS	٧	٧	٧

√=change is allowed

If a parameter is "locked", it cannot be modified by device menu (using OLED display), while if "don't care" propriety is active, when the user load the configuration, the parameter's value doesn't changed.

ATTENTION: Changes are applied only after a "save" action.

NOTE: "a trick" In case of the user have a locked parameter and he is in great need for modify it, he can save the configuration to USER configuration by OLED (see PRESET menu) and then load the USER configuration (in this way all the parameters have the lock propriety disable and the user can modify all the parameters).

FILE MENU



Using a file menu at the top left of the panel it is possible to **load/save** all the configuration values of the device to/from a .wcf file (Wisycom Configuration File).

Save a .wcf file

With an infrared device correctly connected, select File->Save User Configuration and select the destination file.

Load a .wcf file

To load a user configuration select File->Load User Configuration and select a previously saved data file; a form will be shown, where it's possible to select which data has to be restored and which skipped. This allow the user to load a particular configuration while keeping other data.

^{*} Be careful to write a meaningful name for the preset because the name will appear on the settings list of the device menu! Please, avoid empty names.

TECHNICAL SPECIFICATIONS

	TECHNICAL SFECIFICATIONS			
Switchable channels	2400 allocated by 40 groups of 60 channels (in specific frequency range), quickly selectable with dedicated buttons			
Switching window	Up to 90 MHz, depending on band (see below code table)			
Frequencies	Quartz PLL frequency synthesizer circuit (25 kHz step)			
Frequency stability	± 2,5 ppm (in the rated temperature range)			
Temp. range	-10 ÷ +55 ℃			
Max RF power	 50 mW (ERP) for US option 100 mW (ERP) for USX option* 			
IVIAX IXI POWEI				
Spurious emissions	<2 nW			
Modulation	wideband FM, with 50 μs pre-emphasis			
Nominal deviation	±40 kHz (Peak deviation = ±56 kHz)			
Telemetry feature	MTP40S transmits also a digitally modulated sub-carrier, suitable for:			
, , , , , , , , , , , , , , , , , , , ,	•tone-squelch operating • remote battery monitoring • optional PTT (push to talk) operation			
AF input connector	Configurable on 'mic' display menu in 5 options:			
LEMO option	 '2 wires': gain selectable -60 ÷ +40 (-54 dBu ÷ +26 dBu peak), no bias voltage '2 wires + bias': gain selectable -60 ÷ +40 (-54 dBu ÷ + 6 dBu peak), 5.5 V on 4k7 bias supply 			
	• '3 wires: gain selectable -60 ÷ +40 (-54 dBu ÷ +26 dBu peak)			
	 '2 wires & phantom' gain selectable -60 ÷ +40 (-54 dBu ÷ +26 dBu peak), '2 wires + bias & phantom': gain selectable -60 ÷ +40,(-54 dBu ÷ + 6 dBu peak), 5.5 V on 4k7 bias supply 			
	• 2 wires + bias & phantom: gain selectable -oo + +40,(-54 ubu + + 6 ubu peak), 5.5 v on 4k7 bias supply			
AF input level	80 dB adjustable range from -60 dBu (775 uV) to 26 dBu (15.5 V) at peak deviation (1 kHz),			
	adjustable in 1 dB steps			
Max. input level	+26 dBu (15.5 V) at clipping, +20 dBu (7.75 V) at nominal level			
Noise-Reduction	ENR (Wisycom Extended-NR), with independent Attack- and Recovery-time, noise optimized			
	ENC (Wisycom Extended-NC), with independent Attack- and Recovery-time, voice optimized & with reduced pre-emphasis			
ART LAND	• 45 Hz ÷ 21 KHz (3dB)			
AF bandwidth	• 55 Hz ÷ 20 KHz (1dB)			
Distortion	<0.3 % (0.15 % typ.)			
Signal-to-noise	• typ. 115 dB (A) _{rms} with 40 kHz deviation			
ratio	• typ. 121 dB (A) _{rms} with 56 kHz deviation			
Led	Led indication with RGB led (red, green, blue) on wireless power switch:			
	 Wireless transmission status: Battery lifetime status: GREEN - steady (> 25%) 			
	GREEN on/off - slowly blinking (< 25%) - quickly blinking (<12%) • Modulation peek (if activated & the • Ptt status: RED if active			
	limiter is disabled): RED • Limiter into action: Blue			
Display	High contrast OLED (Organic light-emitting diode) bicolor display (96 x 36 pixels)			
	8 step battery lifetime indication: 7 <u>bars</u> (100%-87%-75%-63-50%-38%-25%) and " <u>empty bar</u> "			
	quickly blinking (12% remaining)			
PTT function	Pin 3 of the AF connector can be setup to an external push button			
Power supply	2 AA size batteries (Alkaline, rechargeable NiMH)			
MTP40S Battery	approx. 10 hours @ 50mW continuous working approx. 14 hours @ 10mW continuous working			
life	approx. 14 hours @ 10mW continuous working			
(2 AA alkaline)	72 C4 47 F (H. C. L. MCH) D. (H.) 11			
Dimensions	73 x 61 x 17.5 mm (Height-Width-Depth) without clip			
Weight	Approx. 80 g. without batteries (120g with batt.)			

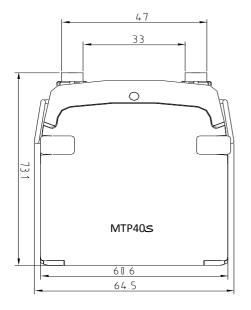
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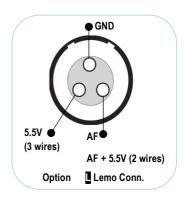
USA

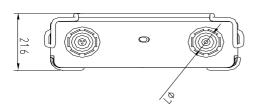
FC_{PART 74}

FCC-ID: POUMTP40 MTP40S US option FCC-ID: POUMTP40SUSX MTP40S USX option

Limited to 698 MHz







^{*}in accordance with KDB 447498 DO1 General RF Exposure Guidance v05r02.

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.

FCC Conformity

The Wisycom microphone pocket transmitter model MTP40S complies with the following requirements:

- FCC (Federal Communications Commission) Part 74

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 operations.

Changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC ID can be found inside the battery compartment.

FCC-ID: POUMTP40 MTP40S US option

FCC-ID: POUMTP40SUSX MTP40S USX option





Via Spin 156 • I-36060 Romano d'Ezzelino • Italy Tel. +39 -0424 -382605 • Fax +39 - 0424 - 382733 www.wisycom.com • e-mail: sales@wisycom.com

