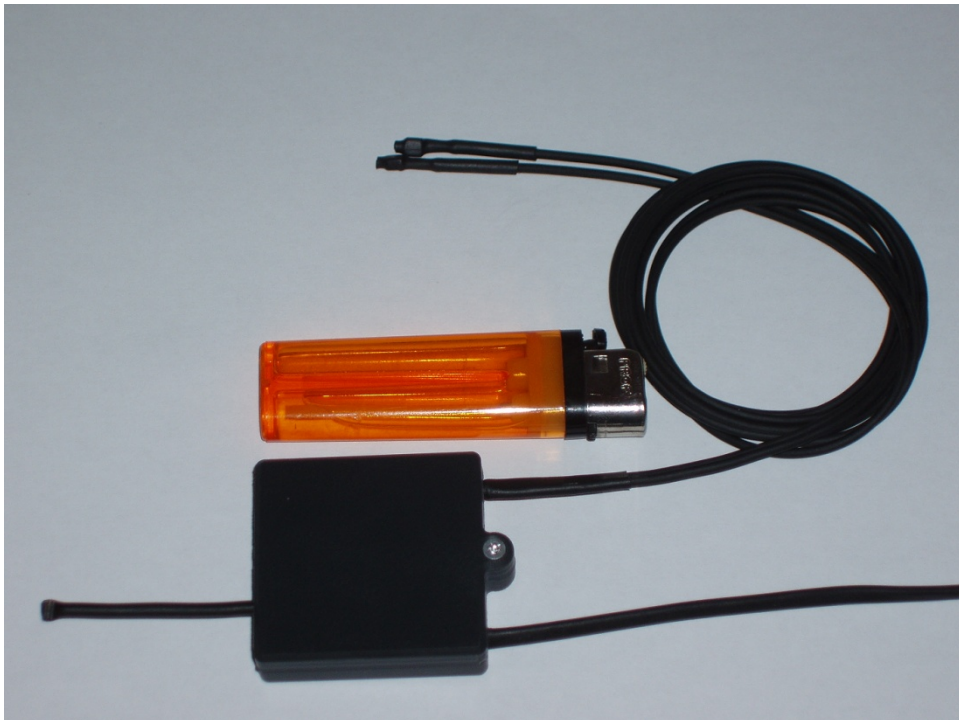


**USER MANUAL FOR GSM
QUAD-BAND AUDIO TRANSMITTER
BABI FULL FW V1.3 OR GREATER**



• PREFACE:

This technical manual introduces the users at the correct use of audio GSM transmitter BABI FULL V.1.3

First of all, check this simple four steps before insert the SIM in to BABI FULL.

Using a standard mobile phone:

- Disable the PIN request on the SIM that you want use.
- Remove the conference call, call transfer and any other answering service.
- On prepaid SIM check the credit on it.
- On multi numbering SIM (voice, data and fax), use always the voice number as target for sending the SMS.

Send the SMS command following the instructions below, **all the command MUST be sent with uppercase characters.**

Wait about 30 seconds between one SMS and each other giving the network the right time to deliver the message and the time to the BABI unit to decode, respond and delete.

When BABI receive the SMS, it will indicate the acknowledgment of the command with a tone DTMF of short duration on the voice channel (if you are already in a voice call).

At the same time BABI will do a series of led-flashes to indicate that the message has been received, interpreted and cancelled.

• INDEX:

NUMBER SETUP VOICE/SMS:_____ pag. 4

GENERAL FUNCTIONS:_____ pag. 5

VOICE COMMANDS:_____ pag. 6

REMOTE DEBUG MESSAGES:_____ pag. 8

GENERAL NOTE:_____ pag. 9

APPENDIX:_____ pag. 10

DIFFERENT POWER SUPPLY MODE:_____ pag. 11

TECHINICAL SPECIFICATIONS:_____ pag. 12

- **NUMBER SETUP VOICE/SMS:**

THIS COMMAND SET THE PHONE NUMBERS CORRELATED WITH THE SPECIFIC FUNCTION. (SET THE NUMBER WITH THE INTERNATIONAL PREFIX; EX: +39..., +33..., +44...).

##NExxx* SET THE **INCOMING NUMBER**, IF SET THE UNIT WILL ACCEPT ONLY CALL FROM THE PROGRAMMED NUMBER

##NVxxx* SET THE **VOICE OUTGOING NUMBER** THE UNIT WILL CALL THIS NUMBER IF A PHYSICAL MOTION IS MEASURED OR, IF ENABLED, IF THE VOX LEVEL IS REACHED

##NMxxx* SET THE START VEHICLE SMS ALARM

##NSxxx* SET THE STOP VEHICLE SMS ALARM

Ex: xxx = PHONE NUMBER = +441231234567*
##NV+441231234567* SET THE VOICE NUMBER

WARNING: TO DISABLE A SPECIFIC FUNCTION, YOU WILL SEND 5 ZEROS AS NUMBER TO THE SPECIFIC NUMBER COMMAND YOU WANT DISABLE
EX: **##NV00000*** FOR DISABLE THE VOICE NUMBER.

IMPORTANT NOTE: REMEMBER ALWAYS TO SEND AN ASTERISK (*) AT THE END OF THE NUMBER.

• GENERAL FUNCTIONS:

##FORMAT CLEAR AND DELETE ALL THE USER PROGRAMMED FUNCTION AND SET THE UNIT IN TO THE FACTORY RESET STATE, THE UNIT WILL ALSO DO AN HARDWARE AND SOFTWARE RESET.

##RESET THE UNIT WILL DO AN HARDWARE AND SOFTWARE RESET WITHOUT LOOSING THE USER PROGRAMMED FUNCTION.

##Qx THE UNIT WILL GO IN TO THE SLEEP MODE FOR THE TIME LISTED IN THE FOLLOWING TABLE:

x = 1 -> 15 MINUTES

x = 2 -> 30 MINUTES

x = 3 -> 60 MINUTES

x = 4 -> 90 MINUTES

x = 5 -> 2 HOURS

x = 6 -> 4 HOURS

x = 7 -> 8 HOURS

x = 8 -> 16 HOURS

x = 9 -> 20 HOURS

WHEN THE MESSAGE IS DECODED, THE UNIT WILL SHUTDOWN IMMEDIATELY. IF IT IS DISCONNECTED FROM THE POWER, THE NEXT TIME IT WILL RECONNECTED IT SEEMS IT DOESN'T WORK OR IT IS BURNED. ALSO THE LED WILL NOT WORK. SO DON'T CONFUSE A SLEEPING UNIT WITH A BURNED OR DON'T WORKING UNIT. WAIT THAT THE SLEEPING TIME WILL END LEAVING THE UNIT CONNECTED TO THE POWER.

##TRxx TIMEOUT ON RECALL, IF THE CALL END ABNORMALLY, THE UNIT WILL WAIT THIS TIME **BEFORE** TRY AGAIN TO RECALL THE TARGET NUMBER
xx = 00->99 MINUTES
xx = 01 DEFAULT

##L0 THE LED IS ALWAYS OFF

##L1 THE LED IS IN NORMAL WORKING CONDITION WITH VARIOUS DIAGNOSTIC LED FLASH (DEFAULT)

##RAN DISABLE ALL THE RECALL FUNCTIONALITY WITHOUT DISABLE THE PROGRAMMED NUMBERS

• VOICE COMMANDS:

- ##TVxx** VOICE TIMEOUT AFTER THE VEHICLE IS STOPPED OR, IN VOX MODE, TIMEOUT AFTER THE LAST NOISE IN THE ROOM
xx = 01->98 MINUTES
xx = 05 DEFAULT
- ##Vx** MICROPHONE SENSIVITY
X = 1 -> 3
x = 1 MINIMUM
x = 2 MEDIUM
x = 3 MAXIMUM (DEFAULT)
- ##MOVx** ENABLE THE SHOCK SENSOR AND SET THE MOTION SENSIVITY
x = 0->9
x = 0 HIGH SENSIVITY, A LITTLE MOVMENT IS ENOUGH TO TRIGGER THE UNIT (DEFAULT)
x = 9 LOW SENSIVITY, A LONG AND DURABLE MOVMENT IS NECESSARY TO TRIGGER THE UNIT.
WARNING: WHEN THIS COMMAND WILL BE DECODED, THE UNIT WILL DO AN HARDWARE RESET AND WILL RESTART WITH THE NEW CONFIGURATION.
THIS CONFIGURATION WILL AUTOMATICALLY DISABLE THE ##VOXxx OPTION.
- ##VOXxx** ENABLE THE VOX SENSOR AND SET THE VOX LEVEL.
xx = 01->99
xx = 00 HIGH SENSIVITY VOX, IS ENOUGHT A LITTLE NOISE TO TIGGER THE UNIT
xx = 99 LOW SENSIVITY VOX, AN HIGH AND DURABLE NOISE IS NECESSARY TO TRIGGER THE UNIT
(IS A GOOD WAY DON'T SET THIS VALUE BELOW 10 TO AVOID FAKE TRIGGER CAUSED FROM ELECTRICAL NOISE)
WARNING: WHEN THIS COMMAND WILL BE DECODED, THE UNIT WILL DO AN HARDWARE RESET AND WILL RESTART WITH THE NEW CONFIGURATION.
THIS CONFIGURATION WILL AUTOMATICALLY DISABLE THE ##MOVx OPTION.
WHEN BABI IS CONFIGURED IN VOXxx MODE, YOU CAN NOT CALL AND LISTEN IT WITH A PHONE, ONLY THE BABI THAT CAN CALL YOUR PHONE AT THE PROGRAMMED NUMBER.

##Mx MICROPHONE SELECTION
x = 0->4
x = 0 ENABLE MIC1 + MIC2 AT THE SAME TIME (DEFAULT)
x = 1 ENABLE MIC1
x = 2 ENABLE MIC2
x = 3 DYNAMIC1: ENABLE MIC1 IF THE CAR IS STOPPED, AND
AUTOMATICALLY
ENABLE MIC2 IF IT'S MOVING.
x = 4 DYNAMIC2: ENABLE MIC2 IF THE CAR IS STOPPED, AND
AUTOMATICALLY
ENABLE MIC1 IF IT'S MOVING.

##EMxxx ENABLE DSP PARAMETER WHEN THE CAR IS MOVING
xxx = 000->159 (SEE THE TABLE VALUE IN APPENDIX)
xxx = 255 DISABLE THE DSP FUNCTIONALITY
xxx = 255 DEFAULT

##EFxxx ENABLE DSP PARAMETER WHEN THE CAR IS STOPPED
(SAME AS ##EM)

##FILTRO x,H ENABLE/DISABLE INTERNAL HIGH FILTER (H):
x = 0 DISABLE FUNCTION
x = 1 ENABLE FUNCTION

##FILTRO x,L ENABLE/DISABLE INTERNAL LOW FILTER (L):
x = 0 DISABLE FUNCTION
x = 1 ENABLE FUNCTION

##RV IMMEDIATELY START ONE VOICE RECALL ON THE PRE PROGRAMMED
VOICE NUMBER.

##RAV ENABLE THE VOICE RECALL ON MOTION /VOX EVENT
THIS FUNCTION MUST BE ENABLED FOR USE THE MOV/VOX TRIGGER
OPTION

##RAI ENABLE THE INFINITY VOICE RECALL, ALWAYS WITHOUT MOTION/VOX
(24h/24h)

• REMOTE DEBUG MESSAGES:

WITH THIS COMMANDS YOU CAN GET THE STATUS OF THE UNIT THROUGH SMS MESSAGES.

THE DEBUG MESSAGES ARE SENT BACK TO THE PHONE NUMBER THAT ASK FOR THEM WITH THE SPECIFIC SMS COMMAND.

(ARE SHOWN THE DEFAULT VALUES)

- ##D1 REQUEST THE STATUS OF THE INFORMATION DESCRIBED AT THE PAG. 4 OF THIS MANUAL:
- KIND OF UNIT, NAME, VERSION FW, - D1
 - ##NMov:NON PROG.
 - ##NStop:NON PROG
 - ##NVoce:NON PROG
 - ##NEntr:NON PROG
- ##D2 REQUEST THE STATUS OF THE INFORMATION DESCRIBED AT THE PAG. 5,6 OF THIS MANUAL:
- KIND OF UNIT, NAME, VERSION FW, - D2
 - ##MOV0
 - ##TR01
 - ##RAN
 - ##L1
 - IMEI:123456789012345
- ##D4 REQUEST THE STATUS OF THE INFORMATION DESCRIBED AT THE PAG. 6 OF THIS MANUAL:
- KIND OF UNIT, NAME, VERSION FW, - D4
 - ##V3
 - ##M0
 - ##TV05
 - ##TAV00
 - ##VOX00
 - ##FILTRO L=OFF, H=OFF
 - ##EM-OFF
 - ##EF-OFF
 - CONN_V :0
- ##D6 REQUEST THE STATUS OF THE MAIN GSM SECTION OF THE BABI UNIT:
- KIND OF UNIT, NAME, VERSION FW, - D6
 - SIGN:26
 - MAIN CELL: 222,10,272D,4°62,51,88,37,,,0,,0
- ##D7 REQUEST THE STATUS OF THE SECONDARY GSM CELL SELECTION:
- CELLE: (ALL SECONDARY CELL THAT BABI IS LISTENING)
- ##DA REQUEST ALL THE PREVIOUS STATUS MODE LISTED AT THE SAME TIME:
WARNING:: ##D7 WILL BE SENT ALONE ONLY WITH THE EXPLICIT REQUEST

- **GENERAL NOTE:**

USE THE ##D1 COMMAND FOR KNOW THE TYPE OF BABI UNIT (BABI-FULL, BABI-LIGHT) AND THE OPERATIVE MODE PROGRAMMED (MOV, VOX).

THESE ARE TWO TYPICALLY OPERATIVE MODE OF BABI:

“A-BABI FULL V1.3 – D1” BABI IS PROGRAMMED IN MOVEMENT MODE
(##MOV_x IS ENABLE, ##VOX_{xx} DISABLE)
AT THE POWER ON YOU WILL SEE 3 LED-FLASHES

“A-MICRO-BABI FULL V1.3 – D1” BABI IS PROGRAMMED IN VOX MODE
(##VOX_{xx} IS ENABLE, ##MOV_x DISABLE).
AT THE POWER ON YOU WILL SEE 10 LED-FLASHES

WARNING: WHEN BABI IS CONFIGURED IN VOX_{xx} MODE, YOU CAN NOT CALL AND LISTEN IT WITH A PHONE, ONLY THE BABI THAT CAN CALL YOUR PHONE AT THE PROGRAMMED NUMBER.

WITH THE REMOTE COMMAND “##D4”, YOU CAN SEE THE “CONN_V:x” VALUE:

- “CONN_V :0” MEANS THAT **THERE IS NO** A VOICE CALL IN PROGRESS.
- “CONN_V :1” MEANS THAT **THERE IS** A VOICE CALL IN PROGRESS.

WITH THE REMOTE COMMAND “##D6” YOU CAN SEE:

THE “SIGN:xx” VALUE WHERE xx = GSM SIGNAL LEVEL.

xx = 00 NOT GOOD SIGNAL.(MIN VALUE).

xx = 30 VERY GOOD SIGNAL (MAX VALUE).

THE “MAIN CELL:xxxx...” VALUE WHERE xxxx ARE THE MAIN CELL DATAS ON WICH THE BABI IS CURRENTLY REGISTERED.

WITH THE “##D7” DEBUG MESSAGE YOU CAN SEE ALL THE OTHER SECONDARY CELL THAT THE BABI IS LISTENING

• **APPENDIX :**

THE FOLLOWING TABLE LIST THE RIGHT VALUES FOR CONFIGURING THE DSP OPTIONS
(##EM, ##EF):

FUNCTION	VALUE
ECHO CANCELLER	1
DYNAMIC ECHO SUPPRESSOR	2
NOISE SUPPRESSION	4
CONFORT NOISE INJECTION	8
EXTRA SUPPRESSION OF NON-LINEAR ECHOES	16
NON-LINEAR PREPROCESSING OF FAR-END SIGNAL	128

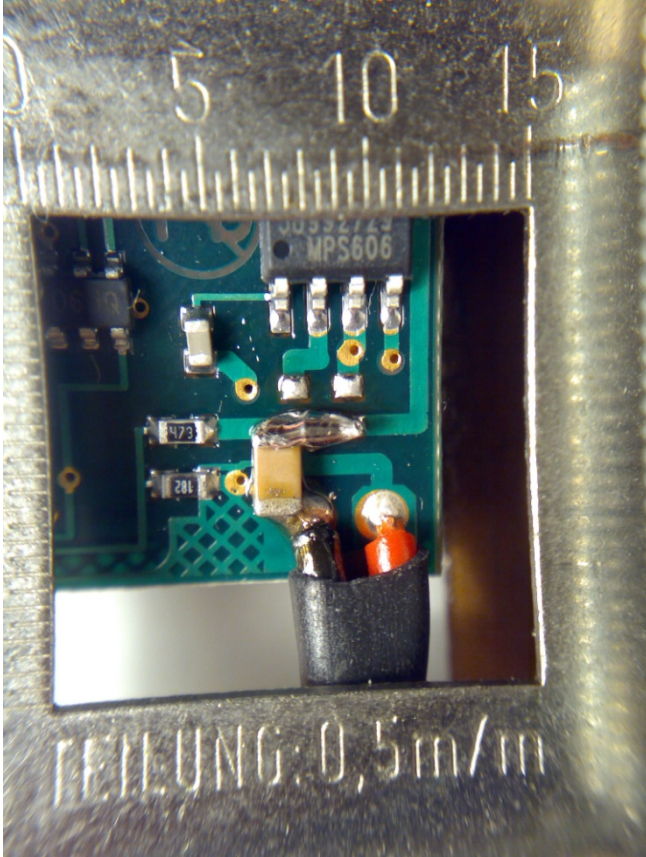
NOTE: MANY DIFFERENT DSP FUNCTIONS MAY BE ENABLED AT THE SAME TIME: SUM THE SINGLE VALUE IN THE TABLE AND SEND THE RESULT WITH THE APROPRIATE COMMAND (##EM, ##EF).

SEND ALWAYS THE VALUE WITH 3 DIGITS.

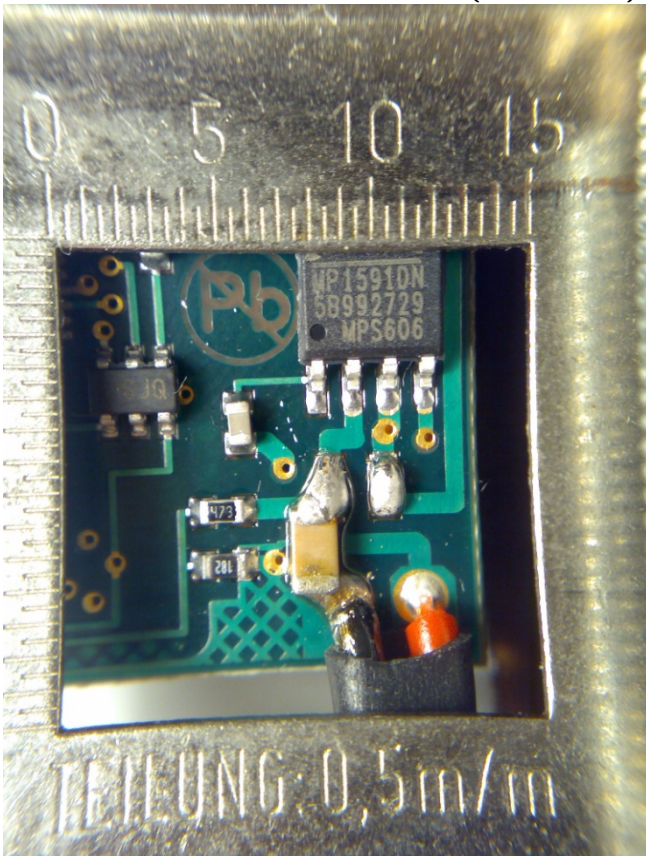
WITH THE 'MICRO' FEATURES ENABLED, USE THE '##EF' COMMAND TO SET THE DSP, THE '##EM' COMMAND WILL BE IGNORED.

- DIFFERENT MODE OF POWER SUPPLY:

POWER SUPPLY AT 3,6Vdc :



POWER SUPPLY AT 7-28Vdc (DEFAULT) :



• TECHNICAL SPECIFICATIONS:

GSM SECTION:

GSM BAND:	Quad – Band GSM 850/900/1800/1900 MHz
RF POWER:	2W Class 4 (900 MHz) – 1W Class 1 (1800 MHz).
SIM:	slide SIM card reader.
SMS:	Text

AUDIO SECTION:

VOX FUNCTION:	Switchable VOX with several steps levels.
FILTER OPTION:	HI-PASS and LOW-PASS independently switchable filter.
DSP OPTION:	Different stackable algorithms: noise reduction, echo cancellation, redundant noise cancellation and others.
MICROPHONE SELECTION:	Two independently selectable microphones, at the same time (pseudo-stereo) or with dynamic-mic option

SECTION TRANSMITTER:

POWER SUPPLY.:	Two different solutions: 7-26 Vdc internally stabilized through an high efficiently switching power regulator 3,6 Vdc direct (for hi-lion battery direct connection)
CONSUMPTION:	(in sleep and at maximum audio level transmission) 3,6 Vdc = 75mA sleep, 200mA max 7,0 Vdc = 41mA sleep, 190mA max 9,0 Vdc = 35mA sleep, 135mA max 12 Vdc = 30mA sleep, 100mA max 18 Vdc = 22mA sleep, 69mA max 24 Vdc = 18mA sleep, 42mA max 26 Vdc = 17mA sleep, 40mA max
MICROPHONES:	Two selectable microphones both or independently.
GSM ANTENNA:	flexible /patch.
CONNECTIONS:	Power supply with red (+) and black cable (-). Microphones cables with anti tear steel core and double shielding.
OPERATING STATES:	Operating status led.
SENSORS /PARAMETERS:	Variable shock sensor sensivity and vox threshold level.
WEIGHT:	30 gr. approximately.
DIMENSIONS:	40 x 39 x 9 mm.