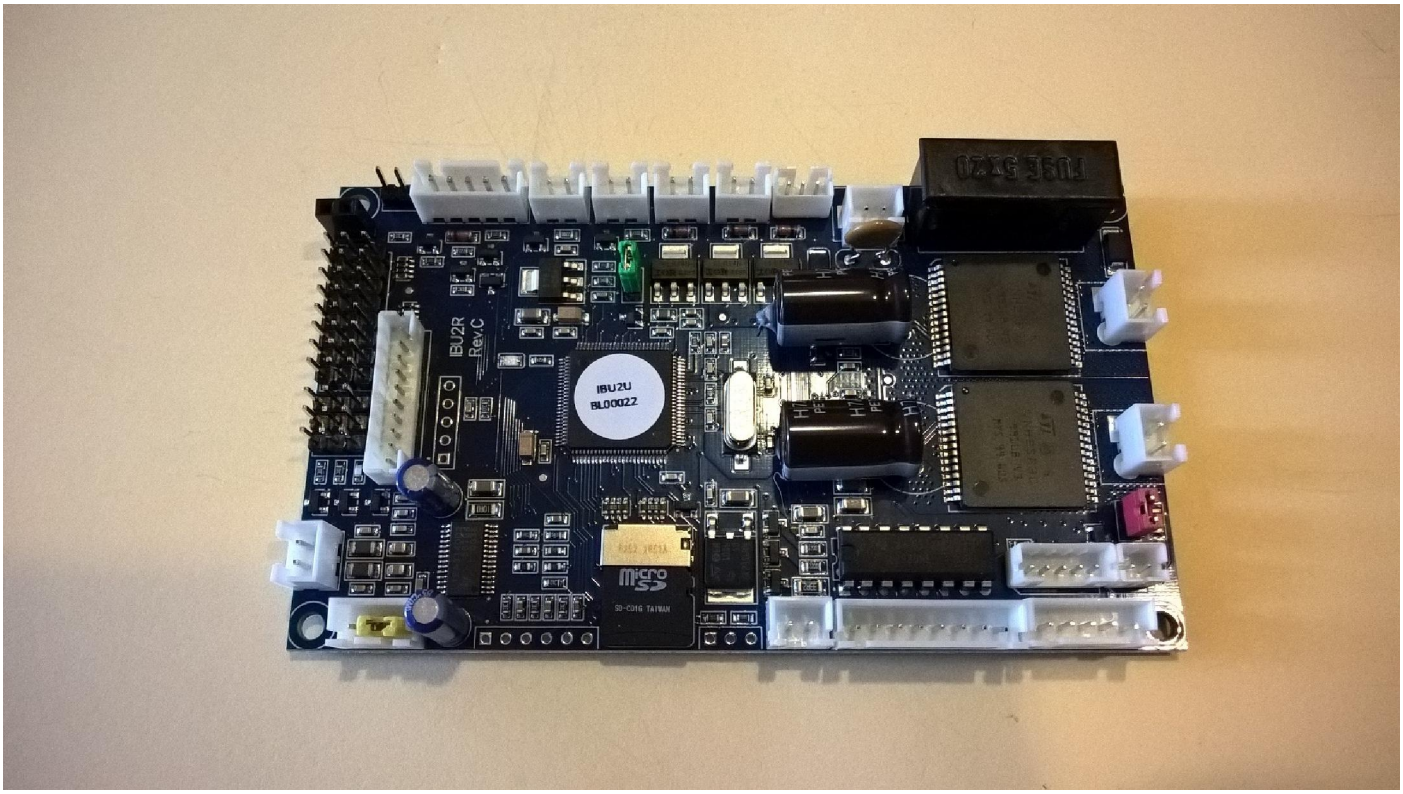


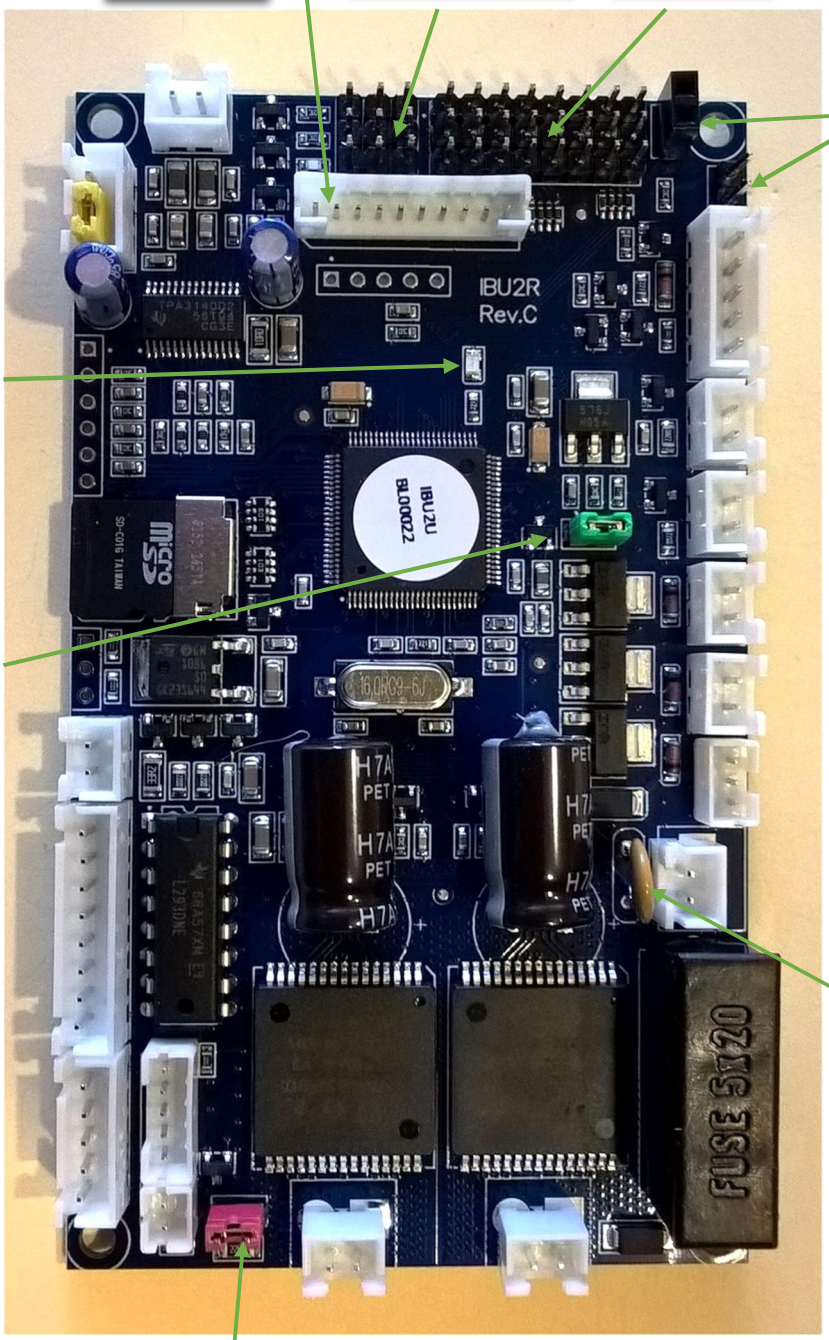
R/C TANK MULTIFUNCTIONAL MODULE

The IBU2 Ultimate module it's the natural evolution of original IBU2, it offers superior performance combined with flexibility and ease of use.
The IBU2 Ultimate module completely replaces the electronics present in the RC Tank, allowing to battle according to the IR Tamiya standards, customize all the sound effects and use a proportional radio from 4 to 8 channels (Full Option version only) (AM, FM, or 2.4 GHz) for full tank control.
The operating firmware can be updated (when released) by the user.
The board itself can be upgraded from Base to Full version simply by buying the upgrade Key.
Refer to chapter **FIRMWARE FEATURES** for details.
The IBU2 Ultimate comes in two versions B as Base and F as Full Option, the differences between version are green highlighted next page in chapter **MAIN FEATURES**

MAIN FEATURES

- Plug & Play with Heng Long models, Torro and Taigen
- ESC integrated for Tracks Control, with special (selectable) management for Clutch Gearbox (DKLM or Tamiya Leopard 2 style gearbox) (DKLM/Tamiya Full Option version only)
- 4 RX channels input (Base version), 8 RX channels inputs (Full Option version only)
- Up to 6 pre-calibrated selectable inertia curve
  (1 pre-calibrated curve for Base version, 6 pre- calibrated curve for Full Option version only)
- Neutral revving.
- Battery Management Li-Po (2 or 3 cells), Ni-Cd/Ni-Mh 6 or 8 cells), with audible and visual warning of low battery
- Fully configurable servo support for barrel recoil (speed, direction, ATV)
- Fully configurable servo support (normal and 360 °) for barrel control, traverse turret (speed, direction, ATV, neutral point) (Full Option version only)
- Output (LED) Machine Gun with flashing synchronized with the sound effect
- One output for smoke generator proportional to the engine rpm
- One output for smoke generator ON/OFF (for TARR Smoker heaters)
- Direct control for Xenon module (Heng Long / Taigen)
- Dedicated outputs for Tamiya Battle System and recoil mechanism
- Direct control of standard HL/Taigen recoil
- Direct control of standard HL/Taigen airsoft with syncronized firing cannon audio effect and microswitch input
- Control output for Taigen servo recoil
- Visual indicator output (if not using an IR receiver with integrated LEDs, Tamiya/Impact)
- Output for high-intensity led (barrel flash simulation)
- Output for rear lights and brake lights (LED)
- D-Class power audio output (10 Watts @ 8 Ohms, 15W @ 4 Ohm)
- Adjustable audio volume control by remote control (Full Option version only)
- Up to 4 Gbyte size microSD support for sounds, configuration, user-installable software upgrades (microSD memory size supplied with board may vary)
- Audio samples in .wav format, 8 or 16bit, 22.050 KHz (free download on IBU webpage)
- Exclusive tank sound sets (Full Option version only)
- Up to 12 customizable engine sounds, 2 turret sounds , 2 barrel sounds, up to 3 cannon sounds*, up to 3 Machine Gun sounds*, up to 5 mechanical noises*, up to 3 hit sounds*, up to 3 tank destruction sounds*, Rebirth sound, Repair sound (* random played)
- 4 optional sounds selectable by remote control (Full Option version only)
- Audible alerts: microSD error, Start system, low battery, empty battery, inactivity of tank or lost transmitter signal.
- Intelligent voice guided remote control calibration with acquisition and automatic matching of channels-to-function.
- Compact size 112 x 65 x 15 mm. (approx.. 4,4” x 2,5” x 0,6”)

IBU2 ULTIMATE CONNECTORS LAYOUT



Hardware expansion port for future modules

Speaker

Servo Outputs

RX Inputs

Taigen Servo Recoil

Audio volume

HL Xenon & Airsoft switch

CPU led

Barrel flash LED

Rear Lights / Brake

microSD Socket

Proportional Smoke

TX Setup Jumper

On/Off Smoke

Flasher LED

Tamiya Recoil Battery

HL turret

Services Resettable fuse

IR connector

Geared motors fuse

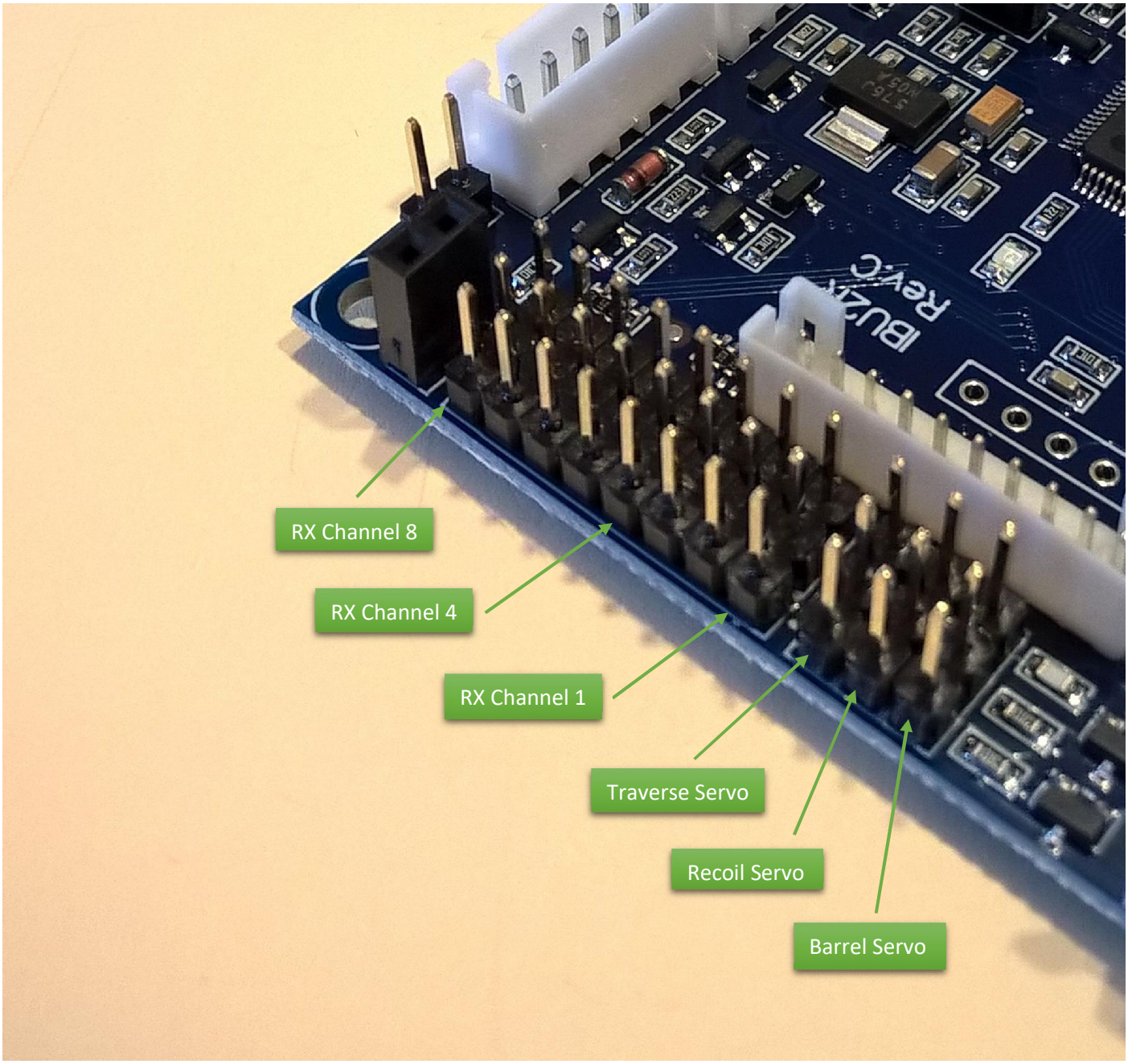
Tamiya TBU & Led

Right Motor

Left Motor

IR range

IBU2 ULTIMATE RECEIVER AND SERVO LAYOUT



CAUTION

In order to avoid faulty operation, follow carefully the instructions described in the next pages.

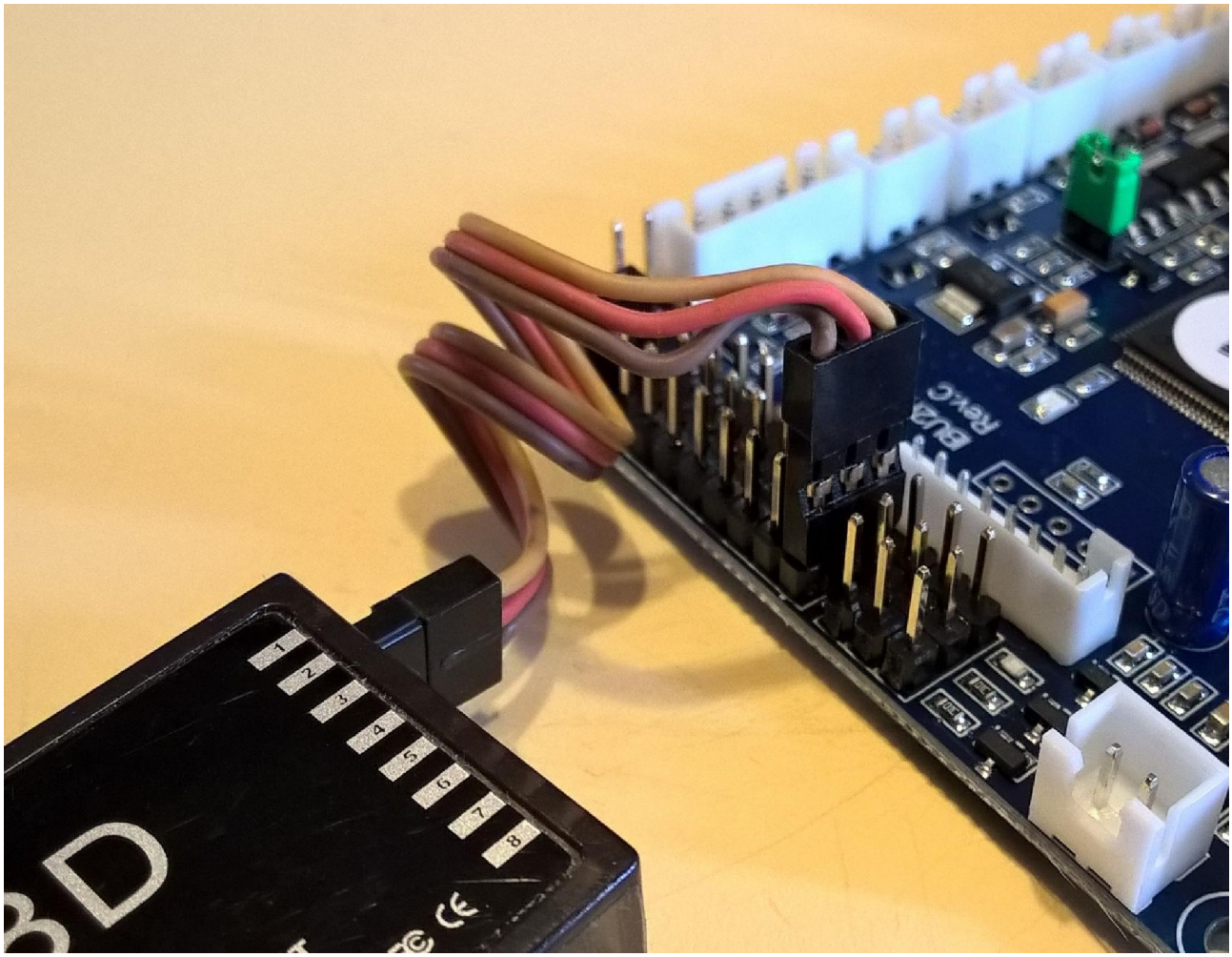
Do not connect anything to the Hardware Expansion Port, it's dedicated to additional IBU modules (when available).

Risk of permanently damaging the IBU2 Ultimate Module.

Any use of this unit different from what described in this manual is made at your own risk.

In case of failure to comply with these instructions no warranty will apply

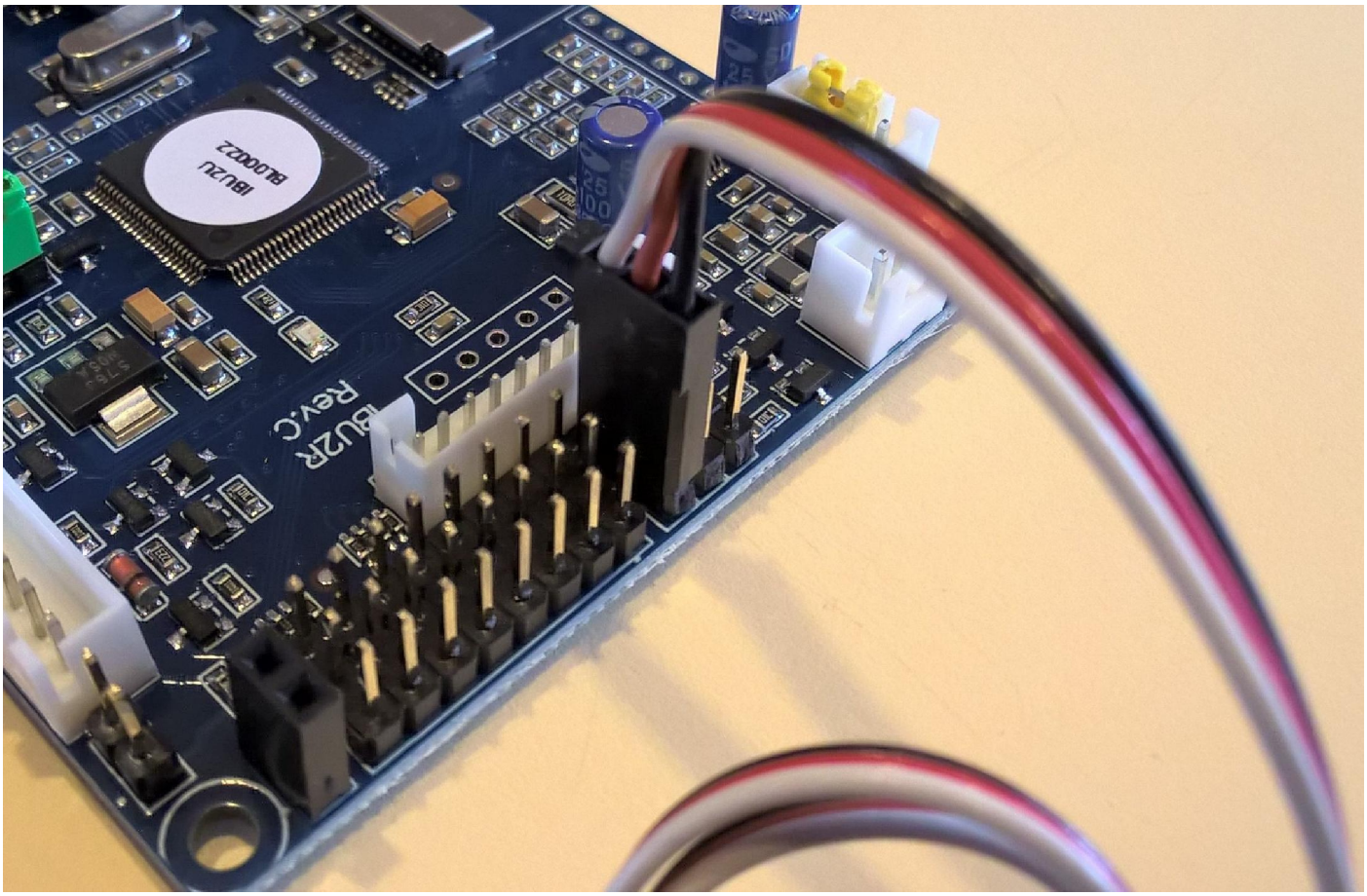
IBU2 ULTIMATE MODULE CONNECTIONS



Connect receiver channels receiver as shown in the figure, the polarity of the signal (orange) is facing towards the center the IBU2 board.

(For clarity only the first channel is connected, color of servo cable may vary)

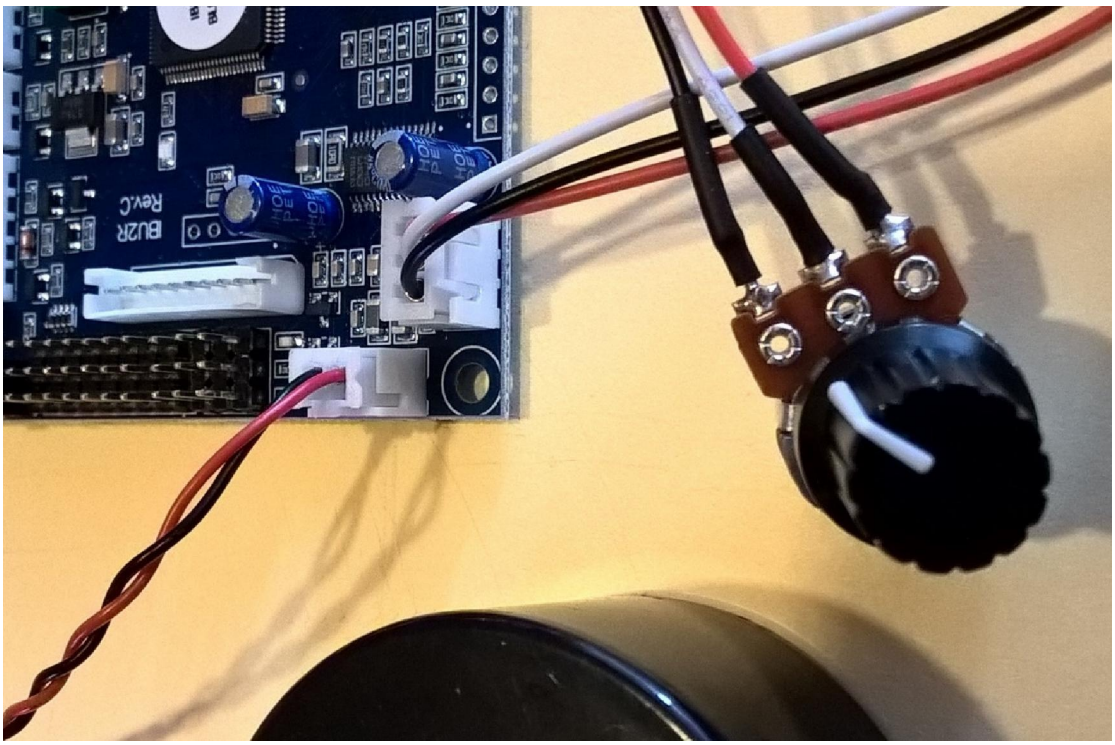
(For IBU2 Ultimate B only the first four channels are operational leave the other four additional channels free)
(For IBU2 Ultimate F all eight channels are operational)



Connect the servos as shown in the figure, the polarity of the signal (white) is facing towards the center the IBU2 board

(For clarity only the Traverse servo is shown connected, color of servo cable may vary)

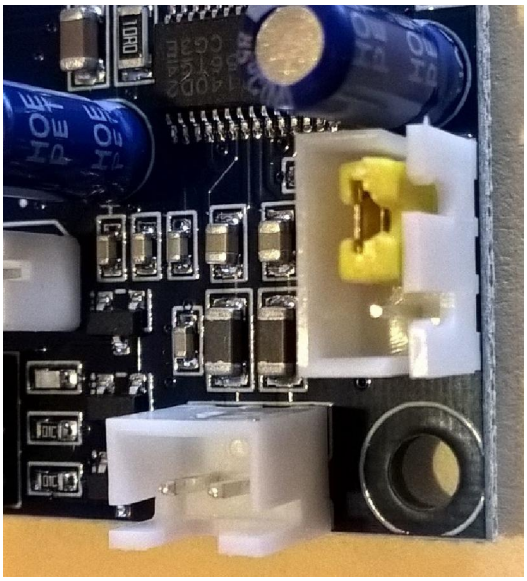
(For IBU2 Ultimate B only the Barrel Recoil servo is operational, leave the other two servo headers free)
(For IBU2 Ultimate F all three servo outputs are operational)



Connect the volume pot to Audio Volume connector

Connect the speaker to the speaker connector, it's recommended in order to avoid sound distortion, to use a good quality speaker, not less than 8 watts with an impedance of 4 or 8 ohms.

If you want to use the Original tank speaker (3 watt) it is recommended to set the "overall max volume" to about 20% in the ibu2u.ini setup file. See audio setup on page 21.

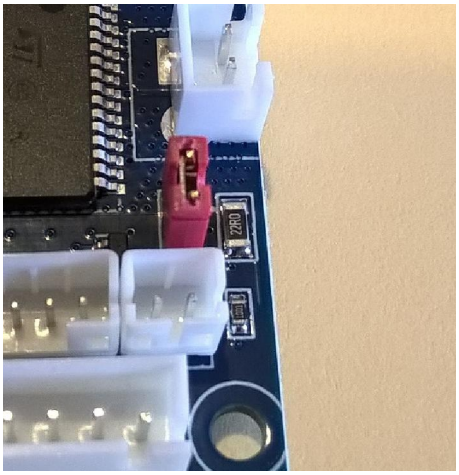


When using the remote volume control using a spare radio channel (Full Option version only) you can omit the volume control, in this case insert the yellow jumper (supplied) on Volume Pot connector as shown.

- Flash connector
  (Refer to page 3 for connector location)
  The IBU3 module allows you to connect a high-brightness LED flash to simulate the gun muzzle flash, connect this output to a high-brightness LEDs.
- Brake connector
  The module allows you to connect two leds (in parallel) to be used as tail lights and simulating the brake lights*.
  *(If the braking simulation function has been activated, see the section Configuring the IBU2 Ultimate)
- On/Off Smoke connector
  (Refer to page 3 for connector location)
  The IBU2 Ultimate allow to use a smoke unit such as TARR Smoker or similar who have cables for the separate heating resistor. Connect the output to these cables.
  (Maximum load = 3 amps)
- Proportional Smoke connector
  (Refer to page 3 for connector location)
  Output proportional to motor speed, connect to this output a standard HL/Taigen smoke generators, or the fan of the TARR unit
  (Refer to page 3 for connector location)
- Flasher connector
  (Refer to page 3 for connector location)
  If you are not using an IR receiver with integrated LEDs (Tamiya or Impact) you can connect one or more LEDs (in series / parallel) to have a visual feedback of the standard battle signals (hit received and so on).
  If the Extended Signaling is enabled * you will be able to view additional status messages
  *(see the section Configuring the IBU2 Ultimate)

	One Flash = inertia and smoke generator on / off
	Two flashes = battery warning
	Three flashes = overcurrent warning
	Four Flashes = lack of radio signals
	Five flashes = overtemperature warning

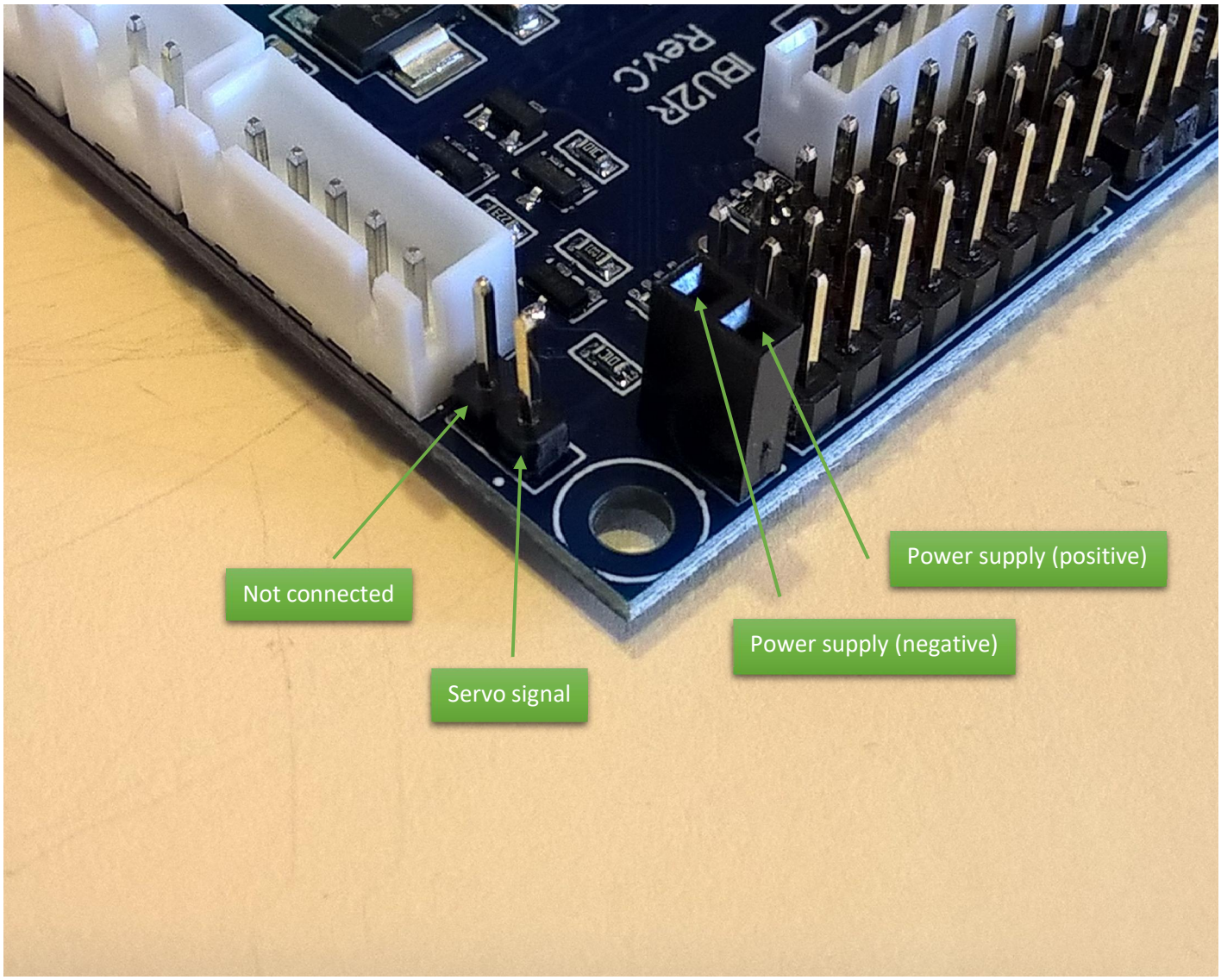
- Tamiya TBU connectors
  (Refer to page 3 for connector location)
  The IBU2 Ultimate allows you to use Tamiya IR unit without changes.
  Connect the IR receiver cable to the receiver connector and the IR LED to LED connector
- IR Port Connector
  (Refer to page 3 for connector location)
  Connect the IR cable (Heng Long/Taigen) to this connector
- Range jumper
  (Refer to page 3 for connector location)

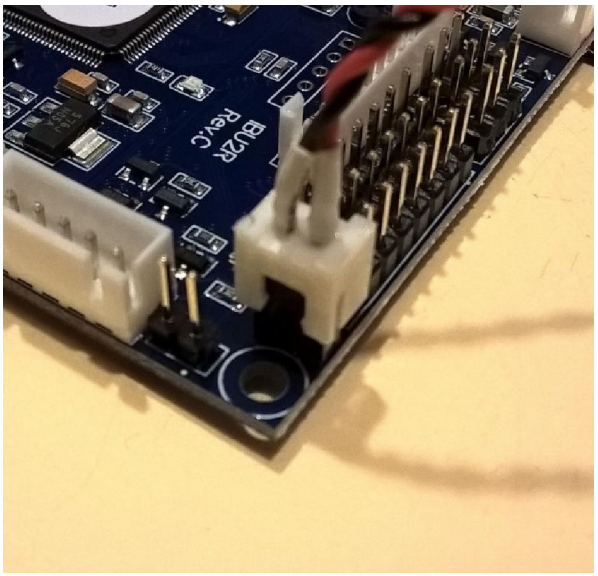


If you have selected the Recovery tank type * you must remove the red jumper to reduce the range of the IR beam to about 1 meter.
*(see the section Configuring the IBU2 Ultimate)

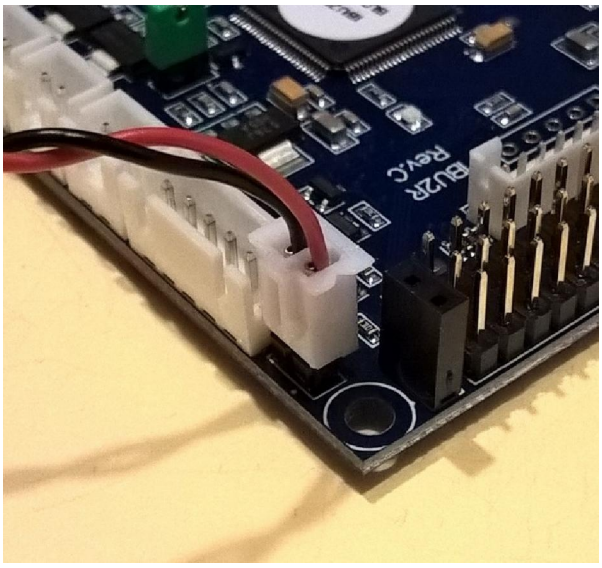
- XENON connector
  (Refer to page 3 for connector location)
  Connect the cable from HL/Taigen Xenon module, this connector is used also for the Airsoft microswitch input
- Tamiya Recoil connector
  (Refer to page 3 for connector location)
  The IBU2 module allows you to control the Tamiya recoil unit without changes by connecting the cable to this port
- Heng Long/Taigen turret port
  Connect the 8 ways tank upper hull cable here
  (Refer to page 3 for connector location)

- Taigen recoil connector
  The IBU2 module allows to drive the new Taigen recoil units for airsoft tanks without changes.





Connect the power cable (male) to the female connector as shown in Figure.
Is mandatory to respect polarity , otherwise you can damage both IBU2 Ultimate and Taigen recoil boards, double check before powering on the system.
Take note that wires colors may vary



Connect the signal cable (female) to the connector male as shown in Figure.
Take note that only red wire is used to feed the signal to Taigen Servo Recoil board, also here wires colors may vary.

- ML connector
  (Refer to page 3 for connector location)
  Connect the Left gearbox cable here
  If you are using a Clutch Gearbox (DKLM or Tamiya Leopard 2 style gearbox) connect the steering motor cable here (Full version option only)*
  *(If the Clutch Gearbox function has been activated, see the section Configuring the IBU2 Ultimate)
- MR connector
  (Refer to page 3 for connector location)
  Connect the Right gearbox cable here
  If you are using a Clutch Gearbox (DKLM or Tamiya Leopard 2 style gearbox) connect the forward/reverse motor cable here (Full version option only)*
  *(If the Clutch Gearbox function has been activated, see the section Configuring the IBU2 Ultimate)

- Battery connector
  (Refer to page 3 for connector location)
  Connect power from the battery after the main switch

HARDWARE WITH BUILT IN PROTECTION

The IBU Ultimate is equipped with internal protections.
The 16 Ampere 5x20 Fast Action Fuse (which is the only part serviceable by the user) protects the powertrain.
The PTC Resettable fuse (service fuse) protects the all the electronics, in case short circuit or wrong connections this fuse will disconnect the main supply coming from battery.
After a short time this device will reset itself automatically and the electronics will be supplied again.
If the fuse act again disconnect all the cables from the module (except for the battery supply) and check carefully the wirings.

FOREWORD

The IBU2 Ultimate is equipped with intelligent remote control calibration with acquisition and automatic matching of channels-to-function and is able to automatically detect and store the receiver signals, min/max travel and limit for each channel.

GETTING STARTED

To perform the preliminary transmitter setup you must connect the receiver channels, board power supply, speaker and volume pot, you also may have a led connected to Flasher output for visual feedback of extended signals

- Make sure the microSD is present and correctly inserted on IBU2 Ultimate board
- Turn the transmitter on
- Turn the IBU2 Ultimate board on
- The blue CPU led flashes for a few seconds during the self-test after which it is steady, this means the board is ready to operate, also you can hear the "system ready" message (Refer to page 3 for led location)

RADIO CHANNELS ACQUISITION ROUTINE

Remove the green programming jumper (Refer to page 3 for jumper location)
Now you should hear the synthetized voice which will guide you through acquisition routine
The routine will detect automatically and tell you how many channels are present, if you are using a Base version board only 4 channels will be available
Following the messages move the desired transmitter stick/switch/pot you wish to assign to function
At the end of acquisition (if successfully) you'll get a message of end of calibration, in case of failure an error message will be played
Now you can insert the green programming jumper in place when asked by the guiding voice.
The green jumper must be in place for normal operation (Refer to page 3 for jumper location)
Turn off the power on both board and transmitter

CONFIGURING THE IBU2 ULTIMATE

Now you can connect all the Tank wirings (Refer to page 3 for connectors location)
The IBU Ultimate configuration is similar to previous IBU2 Base and Pro, and is based upon the ibu2u.ini file, this specific version presents also new features as descripted in the next pages

Remove the microSD from the board and insert into your computer (you may need a microSD to USB adapter) and browse the content
Choose the appropriate tank sound folder and copy the content (audio files) into "Tank" folder in microSD root, then copy the ibu2u.ini file into microSD root
Now open the ibu2u.ini file (a simple text editor like notepad can be used)
Every line have a specific purpose as described in depth in the next pages.
Every line have a semicolon separated comment which describe in brief the purpose and value limits, make sure to not override these limits, also make sure to not delete the semicolon symbol, otherwise the line (where semicolon is missing) will be not recognized as command

AUXILIARY FUNCTIONS SETUP

You can assign auxiliary functions to left stick corners or optional channels (only available in Full Option version)

EngineOnOff=0
Set function control 0=Not used, 1=Up Left Corner, 2=Up right corner, 3=Down left corner, 4=Down right corner, 5=CH5, 6=CH6, 7=CH7, 8=CH8

LightsOnOff=0
Set function control 0=Not used, 1=Up Left Corner, 2=Up right corner, 3=Down left corner, 4=Down right corner, 5=CH5, 6=CH6, 7=CH7, 8=CH8

InertiaOnOff=0
Set function control 0=Not used, 1=Up Left Corner, 2=Up right corner, 3=Down left corner, 4=Down right corner, 5=CH5, 6=CH6, 7=CH7, 8=CH8

SmokeOnOff=0
Set function control 0=Not used, 1=Up Left Corner, 2=Up right corner, 3=Down left corner, 4=Down right corner, 5=CH5, 6=CH6, 7=CH7, 8=CH8

RemoteVolume=0
Set function control 0=Not used, 1=Up Left Corner, 2=Up right corner, 3=Down left corner, 4=Down right corner, 5=CH5, 6=CH6, 7=CH7, 8=CH8

OptionalSounds=0
Set function control 0=Not used, 1=Up Left Corner, 2=Up right corner, 3=Down left corner, 4=Down right corner, 5=CH5, 6=CH6, 7=CH7, 8=CH8

BATTERY SETUP

BatteryType=0
Sets the battery type, value can be 0=NiMh, 1=LiPo

BatteryCount=0
Set battery number of cells, value can be 0=6NiMH/2LiPo, 1=8NiMh/3LiPo

---

TRAVERSE AND BARREL SERVO SETUP

For traverse servo you can set the speed, the type of actuator, normal or 360 ° (also called continuous rotation or robotic servo), the direction, the maximum travel in both directions (ATV) and the neutral position.

TsDirection=0
Sets the movement direction 0=normal, 1=reverse

TsSpeed=20
Sets the servo speed, minimum value 20, maximum value 100 (milliseconds) increasing value will slow down movement

TsType=0
Sets servo type, value can be 0=normal or 1=360 deg. (continous rotation servo)

TsNeutralposition=1500
Sets neutral position value, minimum value 1200, maximum value 1800 (milliseconds)

TsMinposition=1000
Sets minumum position value, minimum value 900, maximum value 1500 (milliseconds)

TsMaxpositon=2000
Sets maximum position value, minimum value 1600, maximum value 2100 (milliseconds)

For barrel servo you can set the speed, the type of actuator, normal or 360 ° (also called continuous rotation or robotic servo), the direction, the maximum travel in both directions (ATV) and the neutral position.

BsDirection=0
Sets the movement direction 0=normal, 1=reverse

BsSpeed=20
Sets the servo speed, minimum value 20, maximum value 100 (milliseconds) increasing value will slow down movement

BsType=0
Sets servo type, value can be 0=normal or 1=360 deg. (continous rotation servo)

BsNeutralposition=1500
Sets neutral position value, minimum value 1200, maximum value 1800 (milliseconds)

BsMinposition=1000
Sets minumum position value, minimum value 900, maximum value 1500 (milliseconds)

BsMaxpositon=2000
Sets maximum position value, minimum value 1600, maximum value 2100 (milliseconds)

RECOIL SERVO SETUP

For recoil servo you can set direction, return mode (linear or logarithmic),recoil speed, return speed, the maximum travel in both directions (ATV).

RsDirection=0
Sets the movement direction 0=normal, 1=reverse

RsReturnMode=20
Sets the return mode 0=linear, 1=logarithmic

RsRecoilTime=500
Sets the recoil speed , minimum value 100, maximum value 9999 (milliseconds)

RsReturnTime=1000
Sets the return speed , minimum value 100, maximum value 9999 (milliseconds)

RsMinposition=1000
Sets minumum position value, minimum value 900, maximum value 1500 (milliseconds)

RsMaxpositon=2000
Sets maximum position value, minimum value 1600, maximum value 2100 (milliseconds)

MECHANICAL RECOIL / AIRSOFT SETUP

Stock mechanical recoil or airsoft gearbox are plug & play supported, if you are using the airsoft gearbox also the sound will be in sync with pellet firing, in this case the micro-switch signal coming from the airsoft mechanism is detected and the Recoil timing setup will have no effect.

MrType=0
Sets the type of unit 0=mechanical recoil, 1=mechanical airsoft

MrPulseTime=500
Sets the duration of the signal sent to mechanical recoil, minimum value 100, maximum value 9999 (milliseconds). (used only when recoil function is selected)

TANK SETUP

The tank can be set as combat or recovery unit, in case you select the recovery remember to remove the red "Range jumper" as described at page 10, also the strength class can be assigned.

TankType=0
Select the tank type 0=Combat tank, 1=Recovery tank (Berge)

TankClass=1
Strength class assignment 1=Ultra light, 2=Light, 3=Medium, 4=Heavy

The inertia (momentum) can be enabled automatically at startup by setting the appropriate value, also it can be turned on or off by transmitter.
For Base version only one curve is available
For Full Option version there's up to 6 different pre-loaded curves, you can set the desired one by setting the related value

InertiaInit=0
Set inertia status at tank power on 0=Inertia OFF, 1=Inertia ON (at start up)

InertiaType=1
Set the desired inertia curve 1=Inertia curve 1 … 6=Inertia curve 6 (from 2 to 6 curve are available only in Full Option version)

LIGHTS SETUP

You can choose the tank lights status at power on (on or off), also you can adjust the tail light intensity, we recommend (in case you have set "Brake simulation" to on) to set the value not close to 100% otherwise the brake effect will be barely visible.
You can choose to have additional visual signals enabling the Flasher output (as described at page 9)

LightsInit=0
Set the light status 0=Lights OFF, 1=Lights ON (at start up)

TailLightIntensity=50
Set the tail light brightness Value range 1 - 100 (%) set the brightness of tail lights

Flasher=0
Set the extended signaling status 0=Extended signaling OFF, 1=Extended signaling ON

SMOKE GENERATOR SETUP

You can connect either the stock smoke generator or a TARR unit, refer to page 9 for details about connectors purpose.

SmokeInit=0
Set the smoker initial status when tank is powered on 0=Smoker OFF, 1=Smoker ON (at start up)

MinSmoke=50
Set stock unit or TARR smoker minimum fan speed when engine idling Value range 1 - 100 (%)

MaxSmoke=100
Set stock unit or TARR smoker maximum fan speed Value range 1 - 100 (%)

When a TARR smoker with separate heater cable is used you can connect this cable to dedicated output. This output is pulsed (only when engine is idling) to avoid overheating when the proportional fan speed is low, the two following lines allow to set the duration of either ON and OFF status

PwrSmokeMinTime0=2 Value range 0..10 (Sec)
Set the OFF time for the fixed output (TARR Heater) when engine is idling

PwrSmokeMinTime1=2 Value range 0..10 (Sec)
Set the ON time for the fixed output (TARR Heater) when engine is idling

GEARBOX SETUP

The board powertrain can handle stock gearbox, Tamiya 540 Gearbox, DKLM or Tamiya Clutch gearbox, with a current capability up to 20 Ampere for each channel (with configurable overcurrent threshold).
It's possible to set the percentage of minimum and maximum power fed to each motor as well as the reverse speed, the minimum power will allow you to fine tune the tank movement compared to stick position in "idle to movement transition", the maximum power allow to set a speed limit maintaining the maximum torque.
If desired the tank will shake when main gun is fired, both speed and power for this feature is configurable, it's also possible to drive the tank with brakes or simply as a "fun tank", when brake simulation is enabled also the brake tail lights are active.

GbType=0
Gearbox type selection 0=Standard, 1=Clutch (Tamiya/DKLM) (Only for Full Option version)
GbCurrent=10
set current threshold for motor cut-off Value range 10 - 20 (Ampere)
GbSuperspin=100
set superspin (pivot turn) speed Value range 1 - 100 (%)
If you want to disable the superspin to make the tank turn with only one track enter value=0
GbMinPowerLeft=10
set minimum power feed to left gearbox motor / Tamiya-DKLM steer left-right
Value range 1 - 100 (%)
GbMaxPowerLeft=100;Value range 1 - 100 (%)
set maximum power feed to left gearbox motor / Tamiya-DKLM steer left-right
Value range 1 - 100 (%)
GbMinPowerRight=10
set minimum power feed to right gearbox motor / Tamiya-DKLM steer forward-reverse
Value range 1 - 100 (%)
GbMaxPowerRight=100;Value range 1 - 100 (%)
set maximum power feed to right gearbox motor / Tamiya-DKLM steer forward-reverse
Value range 1 - 100 (%)
GbReverse=100
set reverse speed Value range 1 - 100 (%)
TrackRecoilTime=10
set track recoil duration Value range 1 - 1000 (milliseconds)
TrackRecoilSpeed=10
set track recoil speed Value range 1 - 100 (%)
TrackRecoilDirection=0
set track recoil direction 0=normal, 1=reverse
BrakeSimulation=0
Set the brake simulation On/Off 0=normal, 1=brake simulation

TURRET/BARREL GEARBOX DIRECTION

Rotation direction of either traverse and barrel gearbox can be set here

TgDirection=0
direction of traverse gearbox 0=normal, 1=reverse

BgDirection=0
direction of barrel gearbox 0=normal, 1=reverse

AUDIO VOLUME SETUP

The following variables allow users to :

- Adjust the maximum overall volume level regardless to volume pot position (or remote volume)
- Set the usage of remote audio volume control (for Full Option version only)

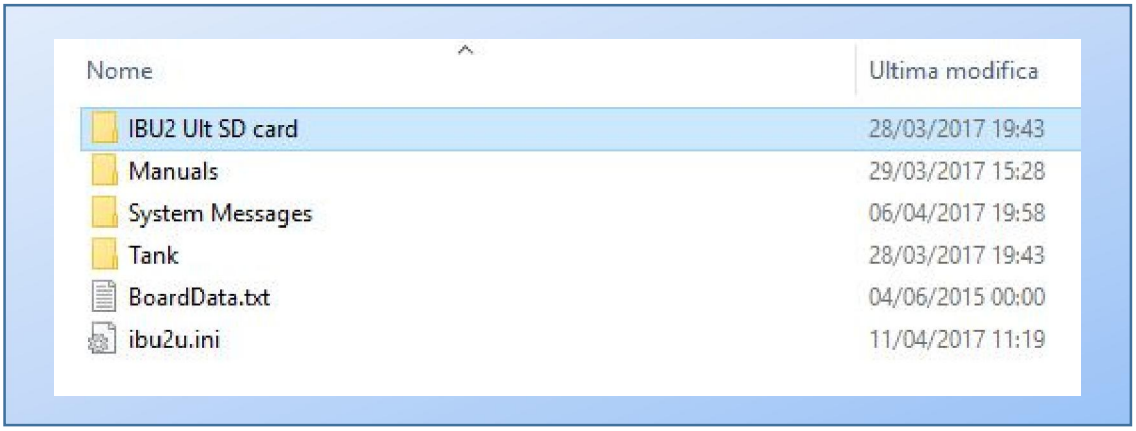
MasterVolume=100
set maximum overall volume level Value range 1 - 100 (%)

IdleLimitedVolume=100
This command allows to set the playing level of idle sample when other sounds are present
Value range 1 - 100 (%)

AUDIO SAMPLES SETUP

The format of the audio files that can be used are :

Audio WAV - mono - 22050 Hz (22Khz)- 8 bit
Audio WAV - mono - 22050 Hz (22Khz)- 16 bit
Both bit format (8 and 16) can be used in the same setup
The file name length must not exceed 16 characters, there's no file size limit.
Now the files are organized in folders as shown in picture below



Into the microSD root you can see the "IBU2 Ult SD card" folder which contains all the tanks audio files, the "Tank" folder which contains the files of model currently in use, the "System Messages" folder which contains operational firmware messages, the "Manuals" folder which contains the operating manual of the IBU2 Ultimate.
There's also the ibu2u.ini file which contains the model configuration and the BoardData file which contains the system information (Firmware version, board ID code and Board type).
Is mandatory to respect the folder and file organization as shown, also the "System Messages" folder must be present and contain the system audio files, otherwise no audible feedback messages will be available.
The audio sample management is pretty much the same as older IBU2 (Base/Pro)
There are now 3 different samples for engine start (both cold and warm) and engine stop.
There are now 3 different samples for main gun firing, machine gun firing, hit received sound, tank destroyed sound.
These sounds are randomly played and is not mandatory to have all three present on microSD "tank" folder or named into the ibu2u.ini file, the operating firmware will detect and manage depending on the case, If you intend to use only one sample is mandatory to use the first audio slot and delete the unused lines (e.g. Cannon1=filename.wav,100 and delete the lines Cannon2= and Cannon3=)
For each sample the volume level can be adjusted individually, the value (default 100) following the comma symbol means that the sample will be played at 100% of original volume.

The engine steps are played accordingly with stick position as well as the engine revving up and revving down. You can have up to 20 engine step sample, they will be automatically managed by the operating firmware, simply add the samples you want to use and add to "EngineStep" lines into ibu2u.ini file.

The mechanical sounds such as track noise/squeaks, turret rotation, barrel movement are again played randomly, just like the others mentioned before

Up to 4 optional sounds can be played, again here there isn't limitation except for the file format (Full Option version only)

On this board several system sounds are present, they are used as audible feedback signaling to users board status, warnings and speech guided setup, as described below

System messages (mono, 8 or 16 bit, 22050 Hz)

WARNING do not delete folder, either name or memory sound file otherwise no audible feedback will be available.

You can create your own messages, in this case is mandatory to respect file format and filename.

LowBattery=0021.wav
BatteryCutOff=0022.wav
Inactivity=0023.wav
SystemReady=0024.wav
InitCalibration=0001.wav
EndCalibrationOk=0002.wav
EndCalibrationKo=0003.wav
4ChSound=0004.wav
5ChSound=0005.wav
6ChSound=0006.wav
7ChSound=0007.wav
8ChSound=0008.wav
BarrelStickUp=0009.wav
BarrelStickDown=0010.wav
TraverseStickLeft=0011.wav
TraverseSticKRight=0012.wav
EngineSticKUp=0013.wav
EngineSticKDown=0014.wav
SteeringSticKLeft=0015.wav
SteeringSticKRight=0016.wav
Channel5Assign=0017.wav
Channel6Assign=0018.wav
Channel7Assign=0019.wav
Channel8Assign=0020.wav

Engine sound files (mono, 8 or 16 bit, 22050 Hz)

You can create your own audio files , in this case is mandatory to respect file format

EngineColdStart1=EstartC_1.wav,100
EngineColdStart2=EstartC_2.wav,100
EngineColdStart3=EstartC_3.wav,100
EngineWarmStart1=EstartW_1.wav,100
EngineWarmStart2=EstartW_2.wav,100
EngineWarmStart3=EstartW_3.wav,100
EngineStop1=Estop_1.wav,100
EngineStop2=Estop_2.wav,100
EngineStop3=Estop_3.wav,100
EngineIdle=Eidle.wav,100
EngineRevving=RevUp.wav,100
EngineRelease=RevDw.wav,100
EngineStep1=Es01.wav,100
EngineStep2=Es02.wav,100
EngineStep3=es03.wav,100
EngineStep4=Es04.wav,100
Brake=RevDw.wav,100

Mechanical noise sound files (mono, 8 or 16 bit, 22050 Hz)

You can create your own audio files , in this case is mandatory to respect file format

Squeak1=Sk06.wav,100
Squeak2=Sk07.wav,100
Squeak3=sk08.wav,100
Squeak4=Sk09.wav,100
Squeak5=Sk10.wav,100
TurretEngineOff=Turr_off_1.wav,100
TurretEngineOn=Turr_on_2.wav,100
BarrelEngineOff=Turr_off_2.wav,100
BarrelEngineOn=Turr_on_2.wav,100

Weapons sound files (mono, 8 or 16 bit, 22050 Hz)

You can create your own audio files , in this case is mandatory to respect file format

Cannon1=88kwk36_1.wav,100
Cannon2=88kwk36_2.wav,100
Cannon3=88kwk36_3.wav,100
Mg1=MG34_1.wav,100
Mg2=MG34_2.wav,100
Mg3=MG42_1.wav,100

Battle sound files (mono, 8 or 16 bit, 22050 Hz)
You can create your own audio files , in this case is mandatory to respect file format

Hit1=hit_1.wav,100
Hit2=hit_2.wav,100
Hit3=hit_3.wav,100
Dead1=Explosion_1.wav,100
Dead2=Explosion_2.wav,100
Dead3=Explosion_3.wav,100
Rebirth=7th_Cavalry.wav,100
Repair=repair1.wav,100

Optional sound files (mono, 8 or 16 bit, 22050 Hz) (Full Option version only)
You can create your own audio files , in this case is mandatory to respect file format

Slider1=Ger_voice_1.wav,100
Slider2=Ger_voice_2.wav,100
Slider3=Ger_voice_3.wav,100
Slider4=preus.wav,100

The volume level of every single audio file can be adjusted separately, simply changing the percentage value which is comma separated after the filename as per following example

EngineColdStart1=filename.wav,100
EngineColdStart2=filename.wav,80

The lines above means the audio sample set for EngineColdStart1 will be played at 100% of original level and the audio sample set for EngineColdStart2 will be played at 80% of original level, if a sample is somehow too high can be adjusted reducing the percentage that follows the comma separator.
If you want the sample played at half level you only have to change the value from 100 to 50 and so on.

FIRMWARE FEATURES

The IBU2 Ultimate offers two new firmware features :

Firmware update

Now it's possible for users to update the operating firmware (when released) without the need of return the board to Dealer or Factory, by simply downloading and writing a file on the microSD.

Operating firmware update

When a new version of firmware will be released, it will be available for free download
After download unzip the file in a known position (e.g. on desktop)
Now copy the file into microSD root (make sure you don't put the file into a sub-folder)
Insert the microSD into the IBU2 socket and turn on the power
The led will be lit steady during the automatic erasing and programming cycle
When done the board will automatically resets and the LED will blink during initialization then become steady
Now you're ready to go !!!

Board version upgrade

A user that already have a Base version and would like to have all the features offered by Full Option version can request and buy a software key to upgrade the board.
Same as for firmware update this is done by simply writing the key into microSD root

Upgrading from B (base) to F (full option version)

Remove the microSD from the board and insert into your computer (you'll need a microSD to USB adapter)
Open the BoardData.txt file
Find the Board ID code, copy the code (highlight it and use the copy function)
Go to IBU Website (www.ibu-electronics.com)
Into the IBU2 Ultimate section and select the "Key request form"
Fill the request form and paste the Microprocessor ID code you previously copied
You will be contacted shortly by IBU staff, once payment is cleared you'll receive by e-mail the License Key file , copy this file (highlight it and use the copy function) into microSD root.
Insert the microSD into the IBU2 socket and turn on the power
Now you're ready to go in Full Option mode !!!

Authorized Dealers

Europe	RC Tank DE	http://www.rctank.de/index.php
U.K. USA Asia Oceania	RC Tank Electronics	http://www.rctankelectronics.com/
Italy	Modeltecnica	http://www.modeltecnica.it/catalog/index.php
Japan	AYARD Corporation	http://shop.ayard.jp/

Disclaimer

I.B.U. Electronics provides the equipment solely to be used by each purchaser in accordance with the specific instructions supplied with each IBU2 module and that the purchaser undertakes that the IBU2 module and any associated equipment such as speakers and so on will be operated within the parameters contained therein.
I.B.U. Electronics accepts no liability for any damage to any IBU2 module if it is determined that the damage has been caused by either not adherence to the instructions or due to any malfunction by any cause or reason whatsoever within the model or its equipment and thereby outside of the control of I.B.U. Electronics.
I.B.U. Electronics supplies each IBU2 module on the strict undertaking that it will be used in such a manner to comply with the laws of the purchaser's country of residence.
I.B.U. Electronics has no control over the final assembly, no liability shall be assumed nor accepted for any damage resulting from any use by user of the final assembled product, the user accepts all resulting liability.

Technical changes reserved

Not suitable for children under 14 years