

Before installation always carefully read and comply with all these instructions.

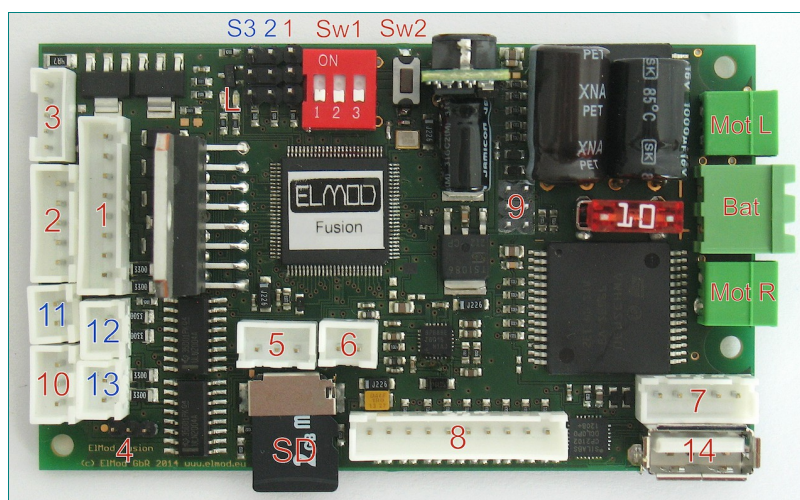
We congratulate on your purchase of the *EIMod Fusion*, the innovative and universal full-option-solution for different types of vehicles. The *EIMod Fusion* enhances your model by true to scale movement, extensive weapon-, lighting- and other functions combined with simple installation. All functions right down to the last detail may be easily adjusted on your PC or Notebook by over 100 parameters which are reasonable grouped and explained in detail. By ongoing improvements and software updates, which may be easily applied at home within few minutes, you bought a future-proof product.

### Scope of delivery

Before starting the installation, check the scope of delivery for completeness.

- *EIMod Fusion* PCB
- volume control rotary knob with cable
- cable for the RC receiver
- plug with cable for connecting to the battery
- plug for connecting up to two drive motors
- shrink tube for the protection of the connection between power cable and battery connector
- cable for connecting to the loudspeaker
- microSD card (already plugged-in on the PCB)
- USB cable for connecting to the PC or Notebook
- *EIMod Fusion PRO only*: three cables for connecting to auxiliary light sources

### Connectors and operating elements



#### Fusion ECO and Fusion PRO

Bat	battery connector (red/black for positive and negative poles)
MotR	connector for the right motor
MotL	connector for the left motor
F	main fuse
Sw1	DIP-switch for the configuration of the IR battle function
Sw2	pushbutton for the drive setup, firmware update and reset
S1	servo connectors
L	status LEDs
SD	microSD card
1	turret connector (HengLong®)
2	muzzle flash connector (Taigen®, HengLong®)
3	connector for IR battle functions
4	connector for the Tamiya® barrel recoil mechanics
5	connector for the volume control rotary knob
6	connector for the loudspeaker
7	connector prepared for a WLAN-adaptor
8	connector for the RC receiver
9	connectors for external motor drivers
10	connector for a smoke unit and extension modules
14	USB port for PC/Notebook

#### additively Fusion PRO (marked blue)

11	connector for the muzzle flash of the auxiliary MG
12	connector for rear/brake lights
13	connector for auxiliary light (e.g. camo light)
S2,S3	servo 2 & 3

Hint: all connectors are marked and described on the bottom side of the PCB.

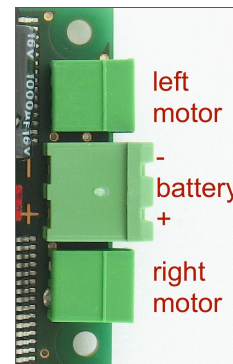
In this paragraph the installation is described step by step. It is essential that each step is accomplished correctly and completely. Wrong or improper connection may cause malfunction or damage and/or destruction of the electronics, the installed components or the model. Please contact us if you have further questions regarding the installation.

## Connection of the power supply

- solder the loose ends of the power cable to a suitable battery plug
- to prevent short-circuits use the provided shrink tube for insulation
- connect the red cable with the + terminal and the black cable with the – terminal of the battery plug. Incorrect connection causes the destruction of the electronics!
- keep the cable length as short as possible in order to prevent interferences!

The following battery types can be used:

Variant	Battery type	Cells	Voltage	Under voltage shut down
ECO/PRO	NiMh/NiCd	6	7,2 V	6 V
ECO/PRO	NiMh/NiCd	7	8,4 V	7 V
ECO/PRO	NiMh/NiCd	8	9,6 V	8 V
PRO	NiMh/NiCd	9	10,8 V	9 V
PRO	NiMh/NiCd	10	12 V	10 V
ECO/PRO	LiPo	2S	7,4 V	6,4 V
PRO	LiPo	3S	11,1 V	9,6 V
PRO	Pb	-	12V	10V



If the battery voltage drops below a certain threshold, the protective under voltage shut down will be activated. The voltage value depends on the used battery type as listed in the table.

If the battery voltage exceeds a maximum value, the protective over voltage shut down will be activated.

The protective shut down (under voltage and over voltage) deactivates all functions of the *EIMod Fusion*. The engine turns off and the vehicle cannot be operated any more. The announcement "Low Battery" or "Voltage too high" follows via loudspeaker every 5 seconds and the red status LED shows an error state (see chapter "Status LEDs").

The factory setting is NiMh/NiCd-battery 7,2V (6 cells). If another battery type is used, it has to be set in the configuration software, otherwise the undervoltage protection shut down won't work correctly.

**If any other battery type as listed is used, a proper function cannot be guaranteed. The warranty is void if higher voltage than allowed is used!**

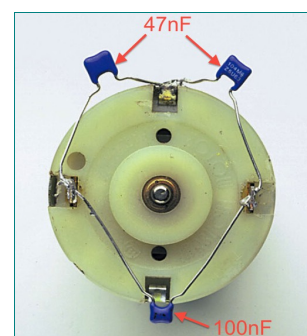
## Connection of the drive motors (integrated drivers)

The *EIMod Fusion* supports one or two DC motors for the main drive. Brushless motors and motors with an extra high current consumption may be used optionally by commercially available external drivers (see next chapter). It is not possible to operate integrated and external drivers simultaneously. The maximum current consumption of the drive motors is internally limited to 30 A peak. The allowed permanent load is 10 A. The motor drivers need no further cooling. They are protected against short circuit and overload.

- attach the motor wires for the right drive to the connector *MotR*
- attach the motor wires for the left drive to the connector *MotL*
- for vehicles with only one drive motor use one of the two connections
- it is indifferent which cable (+/- of the motor) is connected to which screw terminal of the plug
- keep the cable length as short as possible in order to prevent interferences! For additional interference protection the motor cables can be twisted.
- IMPORTANT! The motors must be interference-suppressed. This is accomplished with the use of three capacitors as shown in the figure. Many motors are interference-suppressed already. Please check this by asking the producer or distributor of your motors.

For checking the correct wiring of the motors proceed as follows:

- make sure that the driving shaft is free to rotate and the model cannot move uncontrollably
- connect a fully charged battery to the electronics and connect the power supply in accordance with section "connection of the power supply"
- please wait for 3-4 sec. until the blue LED starts blinking constantly
- press and hold the setup pushbutton
- the motors start rotating. The motors are connected correctly if the left one is rotating slightly slower as the right
- every few seconds the motors change their rotation. Release when the chains or wheels rotate forward. Now the motors are set up correctly.
- By use of just one motor proceed respectively. Release the button when the motor rotates forward.

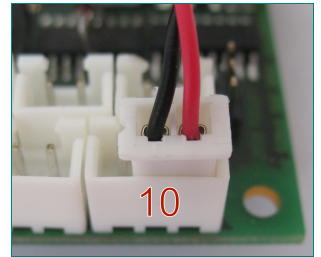


## Connection of the drive motors (external drivers)

Commercially available external drivers may be connected directly to the *EIMod Fusion*. The operating type (internal/external drivers) must be set by the configuration software (tab "drive", parameter "motor drivers"). It is not possible to operate integrated and external drivers simultaneously. The external drivers are connected with the *connectors* 9. The black ground wire of the drivers points to the lower edge of the PCB.

## Smoke generator

The smoke generator is connected to the connector for the smoke- and extension module ( *connector 10* ). The two wire plug of the Taigen® smoke unit is plugged as shown on the image. Therefore the plastic sprue of the smoke unit's plug must be removed with a sharp knife. The smoke volume depends on the driving situation. The amount of the generated smoke may be widely set up by the configuration software. The smoke function may be switched on and off by the radio freely. When using the Taigen® smoke unit, the red and black wires may be swapped. It has no effect on the function.

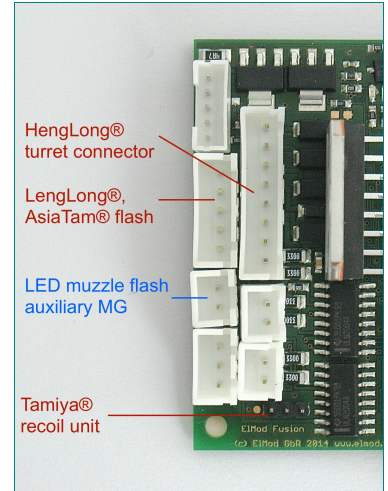


## Turret and weapon functions

The *EIMod Fusion* provides a HengLong® compatible 8-pin turret terminal ( *connector 1* ). This connector is used by the turret rotation motor, gun elevation motor, main gun trigger motor, front lighting and muzzle flash of the main MG.

- an optional adapter allows the use of a Tamiya® turret. The functions turret rotation, main gun elevation and also main lighting and muzzle flash of the main MG are supported
- the Taigen® barrel recoil mechanic may be connected according to the manufacturer's manual
- The Tamiya® barrel recoil mechanic may be attached directly to the *connector 4* of the *EIMod Fusion*. The white wire of the plug points to the mark left of the connector.
- The Taigen® XenonFlash and the HengLong® muzzle flash LED are equipped with a 5 pin plug and may be connected to *connection 2*. The Tamiya® xenon flash is not supported.

*EIMod Fusion PRO*: *connector 11* is scheduled for the muzzle flash of an additional MG. A LED may be connected directly (preferably super bright, white or red). No further parts or wiring is necessary. For details see next chapter.



## Light functions

The *EIMod Fusion* is able to control several light channels:

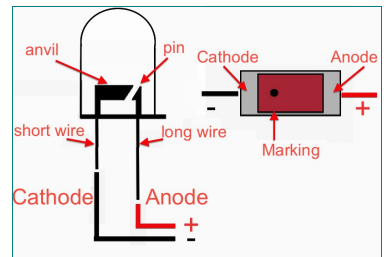
- front light and MG muzzle flash on the HengLong® turret connection (turret and weapon functions)
- xenon or LED muzzle flash of the main gun and muzzle flash of the MG (see chapter turret and weapon functions)

*EIMod Fusion Pro* provides further light sources:

- connector 11 for muzzle flash of the auxiliary MG (see chapter turret and weapon functions)
- connector 12 for combined rear and brake lights. This the rear light is controlled together with the front light. The brake light is active independently of the state of the main/rear light.
- connector 13 for auxiliary light (e.g. camo light)

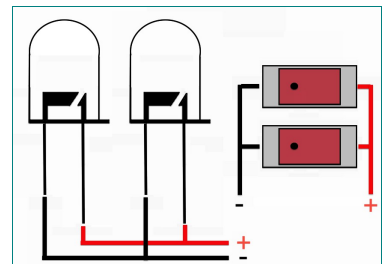
Each light channel handles up to four LEDs in any color and type. The light connections are short circuit protected and current limited to 30-40 mA.

The LEDs are polarity sensitive. If the LED is wrong connected it won't light up. Nevertheless due to the circuit protection, the LEDs cannot be damaged. To light up the LED, the so-called anode must be connected with the red wire and the cathode with the black wire (see image). If you use wired LEDs the polarity may be distinguished as follows: the shorter wire is usually the cathode. Also the larger electrode or the flattening of the body marks the cathode. If you use SMD-LEDs you can recognize the cathode by a little dot inside the LED or a marking on the body.



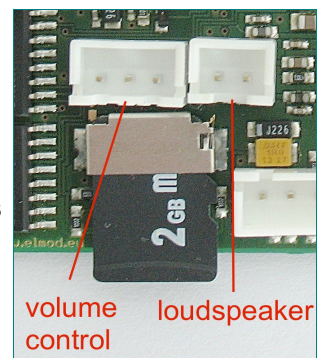
If several LEDs are connected to one light channel, the following must be observed:

- if the LEDs are unicolored and the same type, they have to be parallel-connected (see image)
- if the LEDs are mixed (color and type), the LEDs of the same type are parallel-connected. These groups are series-connected then.



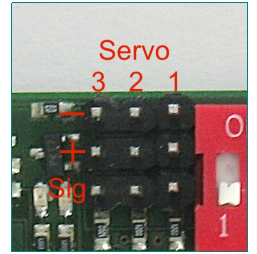
## Sound: installation and connection

- plug the provided volume rotary knob to *connector 5*
- the *EIMod Fusion PRO* also provides the option to control the main volume by the radio. To activate this feature the appropriate parameter has to be set in the configuration software (tab "sound volume", parameter "main volume control"). In this case the volume control knob on *connector 5* will be deactivated.
- connect the loudspeaker's cable with the output of a suitable 8 Ohm loudspeaker ( *connector 6* ). The loudspeaker's polarity (+/-) makes no difference at this. We recommend the Visaton® FRS7-8 (loud, high pitch) or Visaton® FRS8-8 (quieter, lower/deeper pitch)
- install the loudspeaker in an insulated airtight chassis with as large volume as possible.
- check the correct fitting of the micro SD card. If the card is not well fitted or its contents is faulty, the sounds cannot be played.
- connect a fully charged battery to the *EIMod Fusion* and wait 3-4 sec. until the blue LED starts blinking constantly
- now push the setup button. You hear a voice saying "setup".
- if this doesn't happen, please check if the volume is set too low



## Servos

Depending on the type of your *EIMod Fusion* one servo (*EIMod Fusion ECO*) or three servos (*EIMod Fusion PRO*) may be driven. The servos are power supplied by the board. The maximum current is 0,8 A (*EIMod Fusion ECO*) or 1,5 A (*EIMod Fusion PRO*). The servos are connected so that the ground line points to the upper edge of the PCB (see image).



Each servo may be assigned to one of the functions listed below. The same function may be assigned to several servos simultaneously but every instance of this function may be configured independently (e.g. for the control of three steering axles of a truck with different steering lock angle). For each function the servo lock angle may be reversed or be limited (right and left side separate). This is useful if the attached mechanic has a smaller movement clearance as the servo's side arm). By two other parameters each function may be further adjusted (see table).

function	module type	effect	param 1 (0-100%)	param 2 (0-100%)
barrel recoil	ECO/PRO	barrel recoil after firing the main gun	retraction speed	extraction speed
steering	ECO/PRO	steering axle	speed dependent steering lock angle (0% - off, 100% - no steering on max. speed)	-
elevation	PRO	horizontal movement of the main gun. The larger the stick deflection the faster the movement	max. speed	
traversal	PRO	vertical movement of the main gun. The larger the stick deflection the faster the movement	max.speed	
hatch function	PRO	simulation of an open/close function. On: servo moves to the end position. Off: servo moves to the origin position	opening speed	closing speed
radar/wiper function	PRO	wipe function. On: servo moves between the both end positions. Off: servo moves back and remains in the starting position	speed of the "to" movement	speed of the "fro" movement

The hatch and radar function are auxiliary functions that are activated by the special functions on the radio (see chapter "function control"). E.g. the commander's hatch may be attached to servo 1, AA radar to servo 2 and the driver's hatch to servo 3, the functions are triggered as follows:

- switch on channel 5 must be positioned to auxiliary functions
- left lever to the left for activation/deactivation of the first servo's function (commander's hatch)
- left lever to the top for activation/deactivation of the second servo's function (radar)
- left lever to the right for activation/deactivation of the third servo's function (driver's hatch)

## IR battle functions

The EIMod Fusion provides a Tamiya® Battle Unit compatible battle function. The configuration takes place by three DIP switches. Thus it is independent of the availability of a PC or Notebook and provides full flexibility on outdoor use. The DIP switches are assigned as shown below. After the change of the switch's position the vehicle must be powered off and on again.



Battle function deactivated. This setting should be selected, when you do not use the battle function.



Test mode activated. To check the function of the receiver you may trigger a hit by any infrared remote control.



Battle function with light vehicle active. Short reload time, but light armor.



Battle function with medium vehicle active. Moderate reload time with medium armor.



Battle function with heavy vehicle active. Long reload time, but strongest armor.



Default battle. The vehicle returns to operational state after a short time after being destroyed.



Hard core. Vehicle stays destroyed until it's switched off and on again.



The selection of the vehicle's type affects its behavior during the battle. These features are listed in the following table:

setting	Hit count			Time in seconds			Mushroom blinks after power up
	slight slow down*	strong slow down*	destruction	reload time	invulnerability after a hit	delay until resurrection	
test mode	1	3	6	3	2	5	4x
light	1	2	3	3	15	15	1x
middle	1	4	6	5	12	15	2x
heavy	1	5	9	9	10	15	3x

\* reduction of the maximum velocity of the vehicle

The *EIMod Fusion* indicates specific events with four sounds:

- a fanfare after switch on with activated battle function and after each resurrection. The vehicle stays invulnerable for several seconds (see table: reload time).
- reloading sound. Until this sound is heard you cannot fire again.
- metal impact after a hit. The vehicle stops and cannot be operated for two sec.
- an explosion during vehicle's destruction. The vehicle cannot be operated for the interval shown in the table (delay until resurrection).

For the IR battle function additional gear is required:

- an IR sensor for the detection of a hit and signaling LEDs (sensor mushroom)
- an IR transmitter that is preferably installed in the main gun barrel.

These components are supported in the following version:

- the *EIMod Fusion BU set* is connected directly to *connector 3*
- Tamiya® sensor mushroom and transmitter are connected to *connector 3* by using an optional adapter
- HengLong®/Taigen® sensor mushroom and transmitter are connected to *connector 3* by using an optional adapter

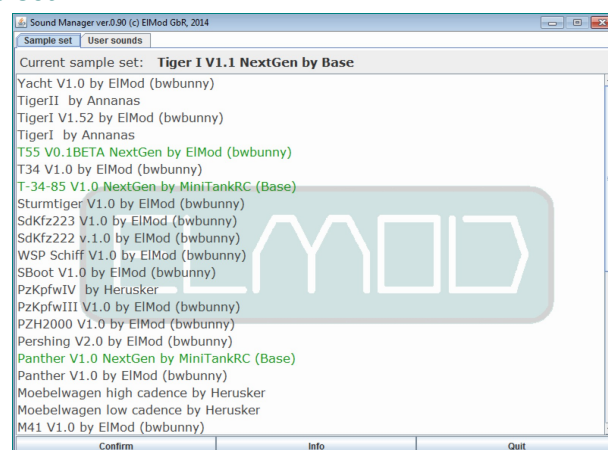
## Setup of the sample set

The provided micro SD card contains several sample sets for different vehicle types (tanks, half-tracks, ships and trucks). At delivery the sample set for a german Tiger tank is activated. For another set, insert the microSD in a PC (use a suitable card reader or card adapter) and start the file "SoundManager.exe" (for Windows®) or "SoundManager.app" (for Mac® OS X®) located in the root folder of the card. Follow the screen instructions.

There are two different types of sample sets available:

- *NextGen* (green). These are advanced sample sets, that reproduce the different driving conditions prototypically. These sample sets should always be preferred.
- Legacy (grey) are older sample sets, that won't exhaust the abilities of the *EIMod Fusion*

By the click of "confirm" the selected sample set will be activated. After quitting the program please ensure that the card was signed out correctly. Don't remove the card until it was signed out correctly from the system.



**The SD card must not be removed or inserted in the EIMod Fusion board during operation!**

## RC receiver

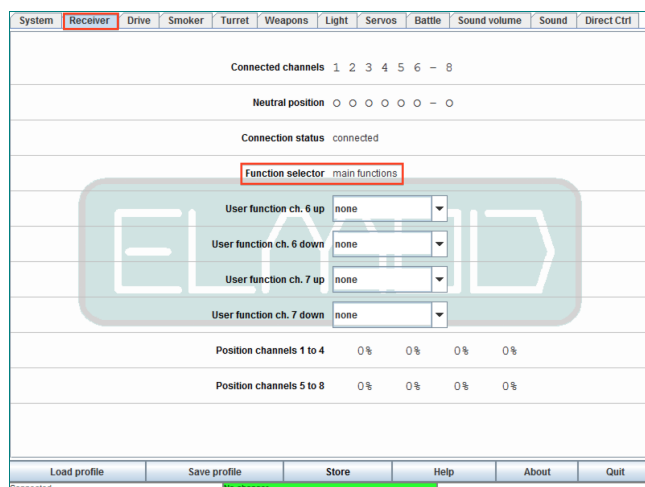
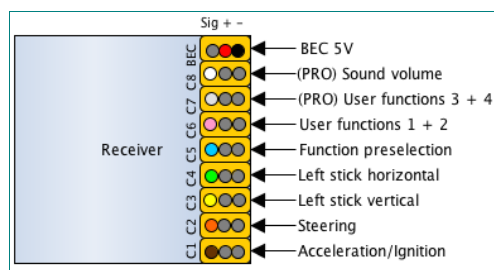
The EIMod Fusion operates with a common radio gear. The number of required channels depends on the demands and is summarized in the table below. The power supply of the receiver is provided by the *EIMod Fusion* (5V BEC, servo plug with red/black wire). An additional battery for the receiver is not necessary.

module type	channel	function	wire color	control
ECO/PRO	1	acceleration and ignition	brown	stick
ECO/PRO	2	steering	orange	
ECO/PRO	3	turret, weapons, light and auxiliary functions	yellow	stick
ECO/PRO	4		green	
ECO/PRO	5	selection of the function group	blue	3-way switch (up/off/down) or slider/knob (reduced function when using an on/off switch)
ECO/PRO	6	user functions 1 & 2	violet	3-way switch (up/off/down) (reduced function when using an on/off switch)
PRO	7	user functions 3 & 4	grey	3-way switch (up/off/down) (reduced function when using an on/off switch)
PRO	8	volume control	white	slider/knob

The number of channels to use is determined automatically. For the correct identification and the correct function all mixers must be deactivated, the servo angle lock must be set to 100% and the trimming exactly centered. Please contact us if you have problems with the identification and the operation of your radio with the EIMod Fusion. In the majority of cases the cause/reason is detected and fixed easily by the configuration software or by the optionally available available EIMod PropTester.

The control of channel 5 should be either be a three way switch (top - center - bottom) or a slider/knob. The switch's position determines which function group is active on the left stick (main functions, auxiliary functions or user sounds). If the fifth channel is not present, the main functions are available only. If an on/off switch is installed instead, two of three function groups are accessible. Use the configuration software to figure out which function groups are available (tab "receiver" parameter "Function selector". see figure).

The wires carrying the receiver's signals must be plugged in on the receiver so that the cable on the plug is connected with the signal bearing receiver's pin (usually the upper or inner pin on the receiver, see image). The black wire of the red/black power supply plug must be connected with the ground pin (usually the lowest or furthest pin at the power supply connection of the receiver). If your receiver doesn't provide polarity protected terminals, read the manual of the receiver to find out the correct pin assignment. Wrong connected plugs won't damage the components in most cases but the receiver won't work.

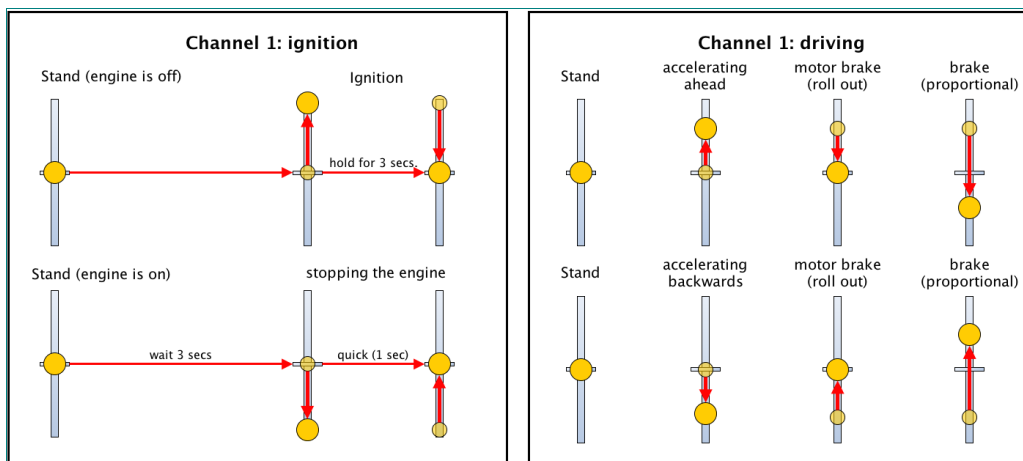


Depending on the used RC it may be necessary to change the order of the channels or to inverse the servo travel. Please read the manual of your RC gear for details. The signal of channels, that remains unused should stay not connected.

## Motor control (channels 1 & 2)

The ignition and acceleration/brake control is made by channel 1 (brown wire). After power up the engine doesn't run and the vehicle cannot be moved. To start the engine the throttle control must be moved to upper most position and hold until the ignition sequence starts (see image below). Wait until the ignition sequence is finished and the idle sound is played. Now the vehicle is operational.

- for moving the vehicle forward, the throttle control must be moved to the top. After engaging a gear the vehicle starts moving gently.
- is the throttle control released or is moved back to the center, the vehicle slows down (engine brake)
- is the throttle control moved in the opposite to current direction, the vehicle brakes (actively braking)
- the brakes are full proportional. That means, the higher the deflection in the opposite direction the stronger the brake force.
- if the vehicle comes to a stop and the throttle control is not put back to the center, the vehicle will stand still for a moment and start moving in the opposite direction.
- the vehicle direction is controlled by the horizontal deflection of the right throttle stick (depending on the configuration by chains and/or steering axles)
- if the model stands still and the right throttle stick is moved horizontal, the vehicle does a spin turn. Depending on the model type this behavior may not be desired and can be deactivated.
- all drive relating parameters, such as maximum speed ahead and back, acceleration and deceleration power, hold time during directional change and many more may be configured by the configuration software.



To switch the motor off, do the following: stop the vehicle for at least three seconds. After that the throttle stick must be quickly put to the bottom and released back to the center position. This procedure may not last longer than one second.

Is the motor restarted after just a short time, a shorter start up sequence (warm start) is played. The time of cooling down the engine may also be configured by the software.

## Function control (channels 3 to 7)

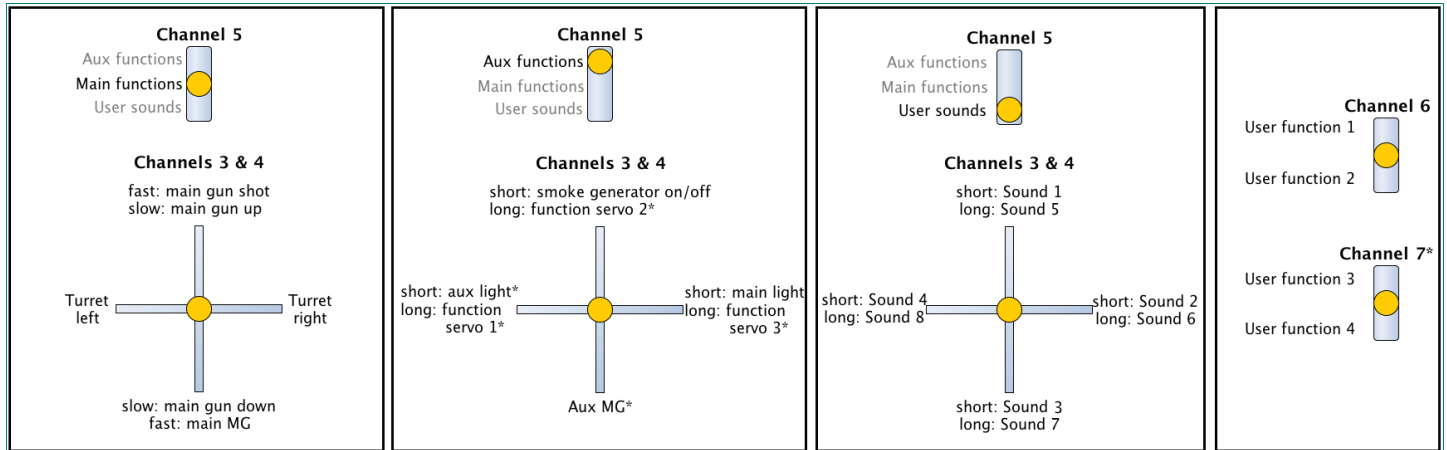
The control the functions of the turret, weapons, lights and the servos by the left throttle stick and the switch or slider/knob on channel 5. Depending on the position of the switch on channel 5, the right stick controls

- main functions (turret rotation, elevation and traversal of the main gun, fire the main gun and the primary MG),
- auxiliary functions (switch on/off of the light, operation with auxiliary MG and activation of the servo's auxiliary functions),
- or the playing of user sounds (e.g. horn).

Depending on the sample set there are different numbers and contents of user sounds. If a particular user sound is not defined, the call "User 1" to "User 8" is played. Custom user sounds may be easily added with the Sound Manager.

Channel 6 (*EIMod Fusion ECO*) or channels 6 & 7 (*EIMod Fusion PRO*) may be assigned freely to different functions with the configuration software. This allows quick access to frequently used functions such as light control or smoker operation.

The function layout is shown below. Short operation means holding for about 1 sec. Long operation means holding for 2 secs or longer.



\* *EIMod Fusion PRO* only.

## Status LEDs

The blue and red status LEDs on the PCB show the current operating status of the *EIMod Fusion*.

off			on	ready to operate. blue LED blinks once after stick movement
off			blinking	no receiver signal identified
on			off	under or over voltage protection active
on			on	no SD card inserted, card empty or its contents faulty (operation only with default settings and without sound)
				blinking red LED means that the currently played sound is clipped. That happens when the volume of several sound types was raised in the configuration software. To fix the problem, lower these settings. Otherwise the sound may be distorted.

## First start up

- ensure that all wires are connected correctly
- switch on the RC
- attach a fully charged battery to the electronics and turn on the vehicle
- the blue status LED blinks shortly after turning on and goes out again
- after 2-3 secs. the blue LED starts blinking periodically (search for receiver signal)
- the blue LED lights permanently as soon as valid receiver signals has been detected
- start the engine and have fun!

## Installation

By choosing the fitting position please consider the following points:

- make sure that short circuits are excluded. The board must not touch any voltage carrying parts. Insulate all open wire connections with a shrinking tub.
- keep the cable length (especially the cables for the motors and the battery) as short as possible in order to prevent interferences!
- ensure that the antenna of the receiver is not located near metal parts (e.g. within a metal hull of a tank model) or between strong power consumer (motors). This can lead to a radical deterioration of the radio signal, the malfunction of the radio signal and cause the loss of control of the model. The *EIMod Fusion* provides fail-safe-mechanisms that help to detect the malfunction of the radio signal. For proper function the fail safe of the receiver should be deactivated.

## Firmware update and configuration

The freely available software for Microsoft® Windows® (Mac® OSX® is available on demand) provides more than 100 different parameters which may be manipulated to get the most out of your vehicle. Furthermore firmware updates of the *EIMod Fusion* may be transferred with this software suite. Please notice, that the software needs direct access to the USB hardware and thus must be run with administrator rights. Also ensure that your malware protection software doesn't block the USB hardware access.

The *EIMod Fusion* may be connected directly to a PC or Notebook by the provided USB cable.

## Configuration and tuning

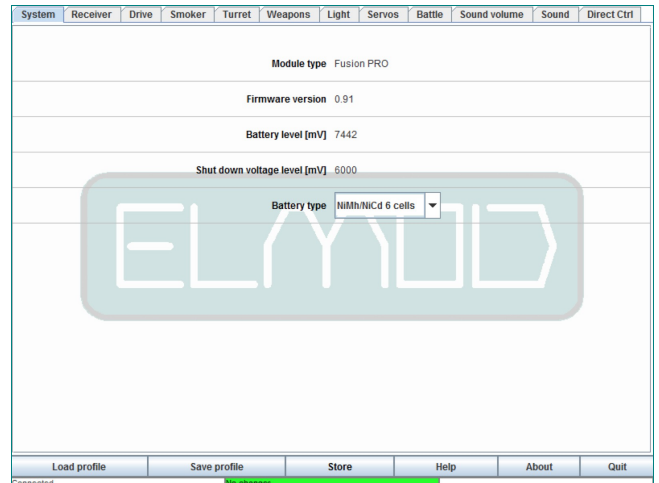
The factory settings of the *EIMod Fusion* matches a german 1:16 World War 2 tank with a weight of about 5kg, metal tracks and an *EIMod* gear box or a reduced metal gearbox. The settings for some other common vehicle types are provided with the configuration software. Press the button "load profile" to choose one of them. You can also save your own profiles by pressing the "save profile" button.

To change settings with the configuration software a connection to the EIMod Fusion must be present. Proceed as follows:

- power on the *EIMod Fusion* and connect it to the PC or Notebook
- start the configuration software with administrator rights
- after 2-5 sec. the *EIMod Fusion* will be detected and the current settings are shown on the screen.

With the configuration software various settings can be made and different informations are displayed. The main screen is divided in four areas:

- on the upper edge there is a tab to chose the parameter's group
- in the center area the parameters in the chosen category are listed. For each parameter a detailed description is given. It is shown whenever you hoover the mouse pointer over the parameter's name wait moment.
- below are several buttons:
  - "Load profile" loads a previously saved or provided setting profile from your hard disk
  - "Save profile" saves all current settings on your hard disk
  - "Store" saves current settings made changes on the *EIMod Fusion*. If this button is not pressed after parameters have been changed, all changes will be lost after switching off the battery
  - "Help" shows a brief manual for the configuration software
  - "About" shows the version number of the program/software and legal notes
  - "Quit" closes the configuration software
- on the bottom edge the left area shows the current connection status. The colored center area has the following meaning:
  - green: no parameter has been changed
  - yellow: settings have been changed but not saved yet on the *EIMod Fusion* by pressing the "Store" button. All changes will be lost after switching off the battery.
  - red: the firmware update mode of the *EIMod Fusion* is active and the module is ready to receive new firmware.



## Create a profile

A profile which fits perfectly to the model is extremely rare. Different battery voltage, motor types, gear boxes and types of transmission, track material and weight are just a few examples for properties that may influence the drivability drastically. In most cases a new profile must be created for optimal drive experience. To do so proceed as follows:

- switch on the RC, start your model and connect it with your PC or Notebook. Start the configuration program.
- adjust the correct battery type (tab "system", parameter "battery type"). Check, if the battery is fully charged (tab "system", parameter "battery level"). If not so, please charge the battery now!
- start the engine. Adjust the parameter "Vmin" (this and all further parameters are located in the tab "drive") so that the starting sound and the motion of the vehicle occur in the same moment. Depending on the motor type and the chassis the value is between 1 and 20.
  - if the model starts driving while the idle sound is still heard, raise the value.
  - if the model doesn't move although the driving sound can be already heard, reduce the value.
- adjust the parameters "Vmax ahead" and "Vmax back" to the desired value. The formula for converting the speed to scaled value is : velocity of the model (in m/s) = velocity of the prototype (in km/h): (scale x 3,6). Example: the maximum speed of a tank is 60 km/h. The model has the scale 1:16. So the model should drive with a velocity of  $60:(16 \times 3,6) = 1,05$  m/s.
- set the shift points for the second and third gear so that they are evenly distributed (parameter: "2nd gear speed" and "3rd gear speed").
- if necessary adjust the acceleration values until you are satisfied with the result (value for "Acceleration 3rd gear" higher as "Acceleration 2nd gear", higher as "Acceleration 1st gear").
- adjust the speed of the spin turn (parameter "spin turn speed") so that the vehicle is well controllable. If a spin turn is not desired adjust the value 0.
- now drive several curves with max. speed



- if the curve radius is too high (vehicle doesn't steer strong enough), raise the value of the parameter force outer track and force inner track evenly
- while driving out no jerk or change of the speed should be seen
  - if the tank is moving faster, raise the value of the parameter "Outer chain turn power"
  - if the tank is moving slower, reduce the value of the parameter "Outer chain turn power"
- if your vehicle doesn't have track steering, set the parameters "Outer chain turn power" and "Inner chain turn power" to 0 and activate axle steering (tab "Servo", parameter "Mode")
- adjust the starting speed of the turret rotation so that the sound of the turret rotation corresponds to the turret movement (tab "Turret", parameter "Turret min. speed")
- adjust the max. speed of the turret rotation so that it corresponds to the prototype (tab "Turret", parameter "Turret max. speed").
- proceed appropriately with the adjustments for elevation of the main gun (tab "Turret", parameter "Gun elevation min speed" and "Gun elevation max speed").
- the most important adjustments are now set. Store these changes on the *EIMod Fusion* (press the button "Store", see chapter "configuration and tuning") and save the new profile on the hard drive (button "Save profile").

## Reset to factory defaults

To reset all settings to factory values proceed as follows:

- switch off the voltage and wait for 3 sec. Preventively disconnect the motors from the electronics or jack up the vehicle so that it cannot move
- switch on the voltage again
- as soon as the blue LED lights up (about 0.5 sec. after power on) press and hold immediately the setup pushbutton
- the blue LED goes out. After about 4 secs the blue LED and the red LED light up together
- release the setup button. All parameters are set to delivery condition.

## Firmware update

For updating the firmware the *EIMod Fusion* must be connected to the PC or Notebook. To set the PCB in update mode, switch off the voltage and press and hold the setup pushbutton on the *EIMod Fusion*. Switch the voltage on again. The blue status LED blinks three times. Now start the configuration software and press the red "Update" button. Follow the instructions. on the screen.

The newest firmware versions are always included in the current installation package of the configuration software. A new version of the configuration software may be installed anytime. It's not necessary to deinstall the existing version before.



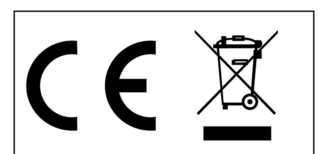
## In-Depth informations

You can find several (english) documents describing various aspects of the *EIMod Fusion* Modules in our forum. Just enter the URL <http://www.rceifel.de/forum/showthread.php?t=8155> in your browser or go to <http://www.rceifel.de> → Forum → Tipps und Tricks rund um EIMod → EIMod allgemein, posting "important informations about EIMod".

**Nicht geeignet für Kinder unter 14 Jahren.**  
**Ne convient pas pour des enfants de moins de 14 ans.**

**Not suitable for Children under 14 years.**  
**Niet geschikt voor kinderen onder de 14 jaar.**

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