ThinkTank Tank Module PRO
## Instructions for Assembly and Handling
Please read this document carefully!

Product contents

- ThinkTank Tank Module PRO PCB
- ready to use power supply cable set
- motor connectors
- proportional receiver cable set
- two cables for additional light

Overview

 1 Power supply
 2 Fuse for turret elements
 3 Connector for left chain motor
 4 Connector for right chain motor
 5 Setup mode push button
 6 DIP-switches for selecting the tank profile
 7 Connector for HengLong muzzle flash, AsiaTam recoil unit and PC Configurator
 8 Connector for HengLong muzzle flash
 9 Connector for turret elements
10 Connector for Tamiya recoil unit
11 Connector for proportional receiver
12 Servo motors connectors.
13 Main gun muzzle flash LED (also muzzle flash for 1st barrel for AA tanks)
14 Brake light LED
15 Auxiliary light
16 Muzzle flash LED for 2nd MG (also muzzle flash for 2nd barrel for twin barreled AA tanks)
 L Status LED
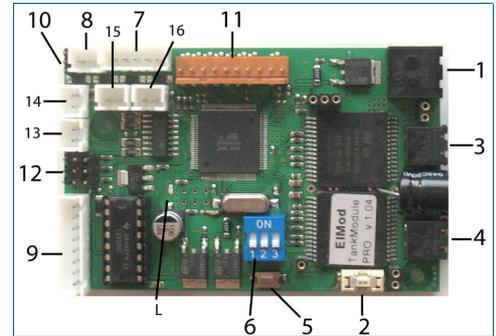
Assembly

HINT: the function of all connectors is printed on the back side of the PCB!

Power supply

Solder the loose ends of the power supply cable to a battery connector that fits to your battery type. Use the included shrinking tube to insulate the soldered wires.

Warning! The use of the switch and fuse is mandatory! Fire hazard when disregarded!

Chain motors

Use the included plugs to connect the motors to the board. Keep the wires as short as possible.

To check the correct wiring of the motors perform the following procedure:

- Jack the tank up, so that the chains can move freely.
- Attach a full charged battery to the power supply connector and switch the electronics on.
- Wait 3 - 4 seconds and press the pushbutton.
- The chains start to move. The wiring is set up correctly if both chains move forwards and the light chain runs faster than the left one. In other case, correct the wiring by swapping the adequate cables.
- Go ahead with the installation when the motors run in described manner.
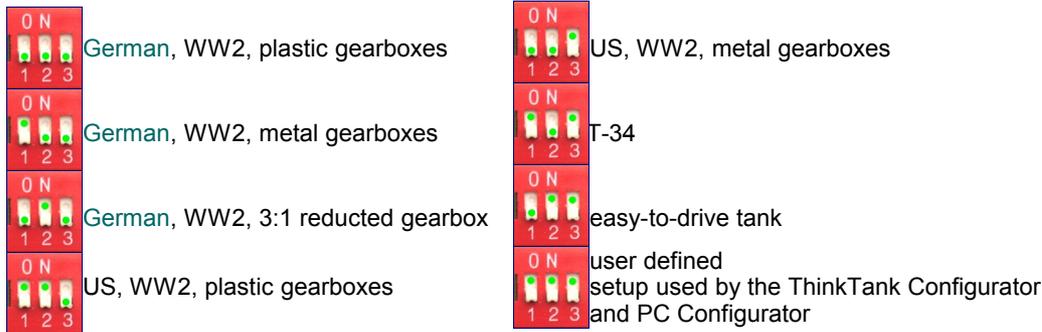
Turret elements

Connect the white 8-pin turret plug to the corresponding connector.

- If using the genuine HengLong LED muzzle flash, attach it's cables (a 5-wire and a 2-wire cable) to the board.
- If using the genuine AsiaTam turret mechanics and high voltage muzzle flash, proceed as described in the manual of the units.
- If using the genuine Tamiya recoil unit, attach it to the corresponding connector on the board. The white cable faces the edge of the board.
- Servo motors are connected as shown on the picture.
- Additional light sources may be connected to the plugs 13 to 16. They provide about 50mA each and are designed to drive one to four LEDs.
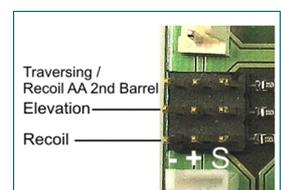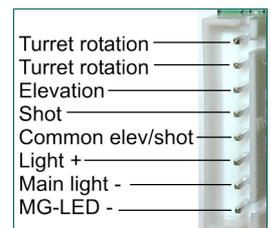
Choosing the tank profile

The driving and function setup is determined by the position of the DIP switches. The Tank Module ECO offers seven fixed and one user defined profile

 German, WW2, plastic gearboxes

 US, WW2, metal gearboxes

 German, WW2, metal gearboxes

 T-34

 German, WW2, 3:1 reduced gearbox

 easy-to-drive tank

 US, WW2, plastic gearboxes

 user defined setup used by the ThinkTank Configurator and PC Configurator

Status LED

The onboard LED shows the current status of the module

on	Tank Module is in operational state	*no connection to the sender or the transmission path between sender and receiver is disturbed. Please check the wiring and the proper function of the RC radio and receiver. If necessary check the operability of the RC equipment with a servo.
Short going out	Stick movement detected	
Fast blinking	No valid signal from receiver*	
Slow blinking	Faulty communication with another module	**undervoltage on the CPU detected. Switch the power off for 10 seconds. If the error remains, assure that the PC Configurator USB dongle is disconnected and retry.
Double blinking	Faulty CPU power supply**	

RC receiver

This Tank Module may be connected with four to eight channel receiver. The currently active mode of operation is recognized automatically. Please consider that the radio must be setup correctly (all mixers must be deactivated, the servo deflection must be 100% and the trimming is centered)

If the channels five to eight are used, they must be equipped either as a slider, knob or 3-way-switch (up-off-down). Otherwise only four-channel operation is possible (although mostly all functions are also available with only four channels). The wires of unused channels may not be connected to the receiver.

The receiver cable has to be attached to the receiver connector on the Tank Module. The wire color pin assignment is as follows:

The TankModule electronics provides the power supply for the receiver (BEC, stabilized 5V DC) via the red/black wires which are part of the proportional cable set.

Ch.	Control	4-channel mode	5-channel mode	6-channel mode
1	Right stick	Acceleration	Acceleration	Acceleration
2		Steering	Steering	Steering
3	Left stick	Turret, weapon and special functions	Turret and weapon control	Turret control
4				
5	Knob or slider	Not connected	Ignition and light	Ignition and light
6	Knob or slider	Not connected	Not connected	Weapon control

The channels 7 and 8 may be optionally used to control the user defined sounds of the sound module ThinkTank Blaster.

Ch.	Contol	Funktion
7	3-way-switch	User defined sounds: Sample 1 and 2
8	3-way-switch	User defined sounds: Sample 3 and 4

Depending on the receiver it may be necessary to adjust the channel order or swap its movement direction. Check the manual of your rc gear for details.

Turret, weapon and special functions using 4-channel mode

This mode is active if the blue wire of the receiver cable isn't attached to the receiver. The turret, weapon and special functions are controlled solely by the left stick of the radio.

Left stick (channels 3 and 4)	
↑ Lift the main gun (half deflection)	↑ Shot (maximum deflection)
↓ Lower the main gun (half deflection)	↓ Machine gun (maximum deflection)
→ Rotate turret right	↘ Auxiliary MG
← Rotate turret left	↙ Main light on/off
↖ Ignition (requires ThinkTank Blaster)	↗ Aux light on off

Turret, weapon and special functions using 5-channel mode

This mode is active if the blue wire of the receiver cable is attached to the receiver. The turret and weapon functions are controlled by the left stick of the radio, ignition and light is mapped to the 3-way switch connected to channel 5 of the radio.

Left stick (channels 3 and 4)		Switch (channel 5)
↑ Lift the main gun (half deflection)	↑ Shot (max. deflection)	↑ Ignition (requires TTank Blaster)
↓ Lower the main gun (half deflection)	↓ Machine gun (max. defl.)	↓ Main light on/off
→ Rotate turret right		
← Rotate turret left		

Turret, weapon and special functions using 6-channel mode

This mode is active if the blue and violet wires of the receiver cable are attached to the receiver. The function mapping is as follows:

Left stick (channels 3 and 4)	Knob or slider (channel 5)	Knob or slider (channel 6)
↑ Lift the main gun (half deflection)	↑Ignition (requires TT Blaster)	↑Shot
↓ Lower the main gun (half deflection)	↓Aux light (half deflection)	↓Aux. machine gun (half. defl.)
→Rotate turret right	↓Main light (full deflection)	↓Main machine gun (max. defl.)
←Rotate turret left		

User defined sounds

If a ThinkTank Blaster is connected to this ThankModule, up to four user defined sounds may be activated optionally by the user. To use this feature, the gray and white wires of the receiver cable has to be attached to the 6th and 7th channel of the receiver .The samples are activated by switching the corresponding control in the radio to upper most (user sample 1 (ch.7) or 3 (ch8)) or lower most (user sample 2 (ch.7) or 4 (ch.8)) position. The playback may be aborted by moving the switch in the opposite direction.

Under voltage protection

The TankModule features an under voltage protection to protect the batteries from deep discharge. On delivery the threshold voltage is set to 6 volts for 7.2V NiMh/NiCd batteries. If the voltage drops below 6 volts, the tank stops and the main light starts to blink. In this case replace or recharge the battery.

Fuse for turret elements

The element #2 on the PCB is a safety fuse for the turret motors. The fuse blows if the total current of the turret motors excesses 2 amps which never happens under normal conditions. In this case no turret function is given (turret rotation, elevation, shot) and all lights are off. Check the wiring for shortcuts and the mechanics for blockages. Replace the damaged fuse with a new one. The fuses are available as spare parts in our shop.