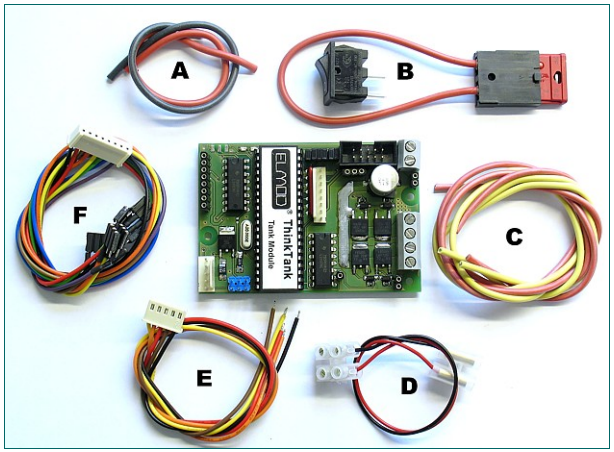
ThinkTank Tank Module

Instructions for assembly and handling

Please read this document carefully!

Product contents

- ThinkTank Tank Module PCB
- Power supply cable A
- Main fuse and power switch B
- Motor cables C
- Turret motor cable extension D
- Cable for additional lighting E
- Receiver cable F

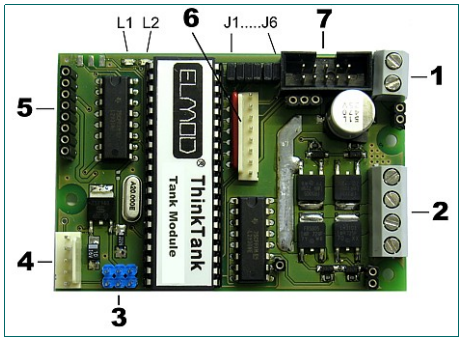


Functional range

- Full proportional drive control with mass inert simulation and control of multiple turret and light functions.
- Connection with a standard radio control gear (e. g. Futaba, Robbe, Graupner/JR, Multiplex).

Overview of connectors

1 Power supply connector
2 Chain motors connector
3 Connector for optional servo motors
4 Connector for additional lighting
5 Turret connector (HengLong compatible)
6 Receiver connector
7 EMNet link for additional ThinkTank modules
J Configuration jumpers (J1 to J6)
L1 red error LED
L2 green power LED

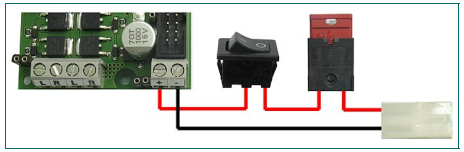


Assembly

Faulty wiring may cause permanent damage to the electronics or even fire! If anything is unclear, please look at our FAQ or write us an email!

Power supply

Connect the power supply wires A with the insulating screw joints to the main power supply of your tank (minus coming from the battery and plus cable from the main switch). If possible solder them and use the delivered shrink tubing to secure them. Install the fuse and main switch as shown on the picture.



The cables must be as short as possible to prevent interferences!

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

Chain motors

Connect the feed cables of the motor driving the RIGHT chain to the terminals of the motor connector marked with a 'R'. Do the according with the cables of the left chain motor. Replace the original, thin wires with the included ones. They have to be as short as possible.

Do the following to check the correct installation:

- 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.
- The green LED is on, the red one starts blinking.
- Remove the Jumper 6 (right most) with tweezers or another appropriate tool.

The chains start to move forward. The right chain moves faster than the left one. In other case, correct the wiring by swapping the adequate cables on the motor connector terminals.
Go ahead with the installation when the motors run in described manner.

Turret functions

Connect the white 8-pin turret plug to connector 5. The pin assignment is compatible to HengLong models. In case your tank isn't a HengLong, check the wiring of your vehicle and adjust it if necessary. The adaption is easy in most cases.

Please make sure that the indentations of the white plug point to the inner part of the circuit board!

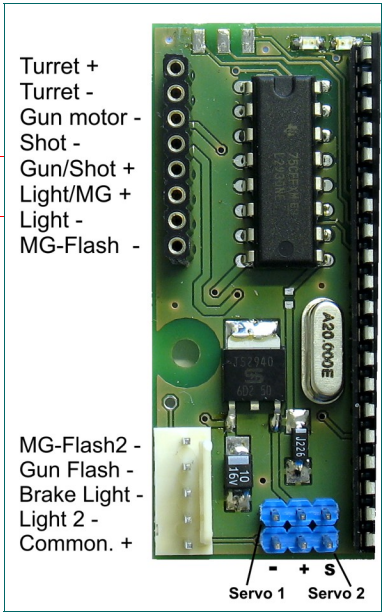
In most cases the original cables from the turret motor are too short. Extend them with cable D if necessary.

Additional lighting

The Tank Module features four additional lighting which are available on the connector 4. All ports are protected by dropping resistors and drives up to four LEDs per line without further parts. The pinout is displayed on the right picture.

Servo motors

Up to two optional servo motors may be attached to the module. The function of servo 1 is vertical movement of the main gun, servo 2 either moves the gun horizontally or acts as recoil unit for the main gun (depends on jumper settings) . The servos may be connected directly to the PCB. It provides up to 1Ampere (both servo motors together).



RC-receiver

The Tank Module has to be connected to a four or six channel receiver. The available mode is recognized automatically. Please consider that all mixers must be deactivated, the servo deflection must be 100% and the trimming is centered.

For six-channel mode the channels 5 and 6 must be either a slider, knob or 3-way-switch (up-off-down). Otherwise only four-channel operation is possible (all functions are also available with only four channels). In this case the blue and violet cable must not be connected to the receiver!

The receiver cable F has to be attached to the connector 6. The pin configuration is as follows:

red/black cable:	power supply for the receiver (BEC)
brown cable:	channel 1, acceleration (right stick, vertical)
orange cable:	channel 2, steering (right stick, horizontal)
yellow cable:	channel 3, gun elevation (left stick, vertical)
green cable:	channel 4, turret rotation (left stick, horizontal)
blue cable:	channel 5, gun and MG shot
violet cable:	channel 6, lighting and ignition

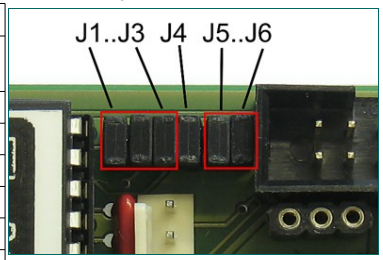
Connect the BEC-cable and the channel lines 1 to 4 (or 1 to 6 for six-channel operation) to your receiver. The plugs fit for most brands of receivers but they are not protected against polarity reversal. Check the manual for the information which pin carries the servo signal. If the plugs are connected amissly, the receiver won't work.

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

Jumper settings

The tank model is determined by the jumpers 1 to 3 (on - jumper set, off - jumper removed):

J1	J2	J3	Description
on	on	on	User defined (only when ThinkTank Configurator is used)
off	on	on	German, WW2, plastic gearbox
on	off	on	German, WW2, metal gearbox
off	off	on	German, WW2, 3:1 reduction gearbox
on	on	off	US, WW2, plastic gearbox
off	on	off	US, WW2, metal gearbox
on	off	off	T-34
off	off	off	Fun tank



Jumper 4 has no function yet and is reserved for future use.
Jumper 5 and 6 determine the used type of barrel recoil mechanics. Please consult our website for detailed information about the wiring.

J5	J6	Description
on	on	No recoil mechanics
off	on	Tamiya compatible recoil mechanics
on	off	WSN-T34 recoil mechanics
off	off	Use of servo motor 2 for barrel recoil

Operation state LEDs

A red and a green LED display the current operational state of the Tank Module

Power-LED (green)	on	Module is operational
	short blinking	Stick movement detected
Error-LED (red)	blinks	No valid signal from receiver*

* 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.

If additional ThinkTank modules are attached via EMNet-Link and the power-LED blinks permanently with the error-LED, the data transfer between the modules is disturbed. In this case please contact our support for assistance.

First run

- Make sure that all connections are well fixed and that no conductive parts can touch each other.
- Switch on the remote control and the tank in this order.
- The green power-LED lights, the red error-LED blinks 1-2 (searching for a valid receiver signal) times and stays off.
- Move the left or right stick a little and watch the power-LED. It blinks once every time the sticks are moved out of their neutral position. The electronics is operable now.

Normally, no parts should generate excessive heat. If you notice any abnormal overheating immediately switch off the power and check the following list:

- is the wiring correct and no short circuits is detectable?
- is the gearbox smooth-running?
- Are the motors properly surpressed (two capacitors between each motor terminal and the motor housing and a third capacitor between the motor terminals)?

Brakes

The Tank Module features several braking modes:

Motor brake	Chain brake	Emergency brake
Put the lever in neutral position.	move the stick to opposite direction	move the stick completely to opposite direction
Rolling out	full proportional brake	Immediate halt

Turret functions, 4-channel operation

The control of the light group and the tower unit is carried out as follows (left stick):

→ Rotate turret right	↑ Shot (maximum deflection)
← Rotate turret left	↓ Machine gun (maximum deflection)
↑ Lift cannon (half deflection)	↙ Main light (“Light” on connector 5)
↓ Lift cannon in opposite direction (half deflection)	↘ Auxiliary light (“Light 2” on connector 4)
	↖ Engine on/off (function requires a ThinkTank Blaster module)

Turret functions, 6-channel operation

The control of the light group and the tower unit is carried out as follows:

Left stick	Channel 5	Channel 6
→ Rotate turret right	↑ Shot	↑ Engine on/off (with TT Blaster)
← Rotate turret left	↓ Machine gun	↓ Main light (full deflection)
↑ Lift cannon		↓ Aux light (half deflection)
↓ Lift cannon in opposite direction		

Please visit our website and take a look on the FAQ for in-depth information

Nicht geeignet für Kinder unter 14 Jahren.
Not suitable for Children under 14 years.
Ne convient pas pour des enfants de moins de 14 ans.
Niet geschikt voor kinderen onder de 14 jaar.

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