



Setting of optimal parameters (driving and turret)

EIMod FusionX, EIMod 4WD

Preconditions

Your model already has an EIMod FusionX or an EIMod 4WD installed and the vehicle is fully functional. You have already driven it and gained initial experience.

Likewise, you have already familiarized yourself with the EIMod App. The App is installed and connects to the EIMod central unit.

You also know that there is a detailed description of each parameter in the EIMod App. To access it, let the mouse pointer rest over the parameter name for a brief moment. A new window with the explanation of the parameter appears.

Background

EIMod central units are universal control units that work perfectly with very many different models. These models differ in many ways:

- Type of drive (chains, wheels)
 - size and weight (scale, material)
 - Friction and self-locking (gears, width of chains)
 - Power supply (voltage)
- and much more

The condition of the terrain on which the vehicle is to be driven also has a not inconsiderable influence.

For an optimal driving experience it is inevitable to work out the individual parameters for each model. In addition to the driving characteristics, this also includes all other engine-driven components such as turning the turret, raising/lowering the gun, but also, for example, the brightness of the lighting or the firing cadence of the MG.

This manual deals with the optimization of the driving parameters and correct setting of the turret functions (turning and raising/lowering).

After optimizing the settings, you can save them in the EIMod App (Windows and macOS) under "Save Profile". This gives you a copy in case your settings are lost in the central unit, for example due to the loss or defect of the SD card. The profile can also be transferred to other central processing units of the same type.

Driving parameters

- Turn on the radio control, start your model and connect it to your computer and start the EIMod App.
- All settings relevant for the driving behavior can be found in the tab "Drive".
- Start the motor. Set the "V min" parameter so that the start noise matches the movement for the drive. Depending on the motor type and the gear box, the value is usually between 1 and 30.
 - If the model starts to move while the idle noise can still be heard, decrease the value.
 - If the model doesn't move while the driving noise can already be heard, increase the value.
 - Remember: on a smooth floor (parquet) the value may differ significantly from the value that applies in open terrain.
- Set the parameters "Vmax ahead" and "Vmax back" to the desired value. The formula for converting the speed true to the prototype is: $\text{speed of the model (in m/s)} = \text{speed of the prototype (in km/h)} : (\text{scale} \times 3.6)$. Example: the maximum speed of the prototype is 60 km/h. The model has a scale of 1:16. The model should now move $60 : (16 \times 3.6) = 1.05$ m/s fast.
- Set the shift points for 2nd and 3rd gear so that they are evenly distributed (parameters: "2nd gear speed" as well as "3rd gear speed").

- If necessary, adjust the acceleration values so that you are satisfied with the driving pattern (value for "Acceleration 3rd gear" higher than "Acceleration 2nd gear", higher than "Acceleration 1st gear").
- ElMod FusionX: Set the speed of the spin turn (parameter "Spin turn speed") so that the vehicle can be controlled well. If the vehicle should not be able to drive a spin turn, set the value to zero.
- ElMod FusionX: Now drive a few curves at maximum speed.
 - If the curve radius is too large (vehicle does not steer strongly enough), increase the "Outer chain turn power" and "Inner chain turn power" values evenly.
 - No jerk or change in speed should be visible when exiting the curve.
 - If the tank speeds up when exiting the curve, increase the value of the parameter "Outer chain turn power".
 - If the tank slows down when exiting the curve, decrease the value of the parameter "Outer chain turn power".
 - If your vehicle has no track steering, set the parameters "Outer chain turn power" and "Inner chain turn power" to zero and activate axle steering via servo in the "Servos" tab (Parameter "mode").
 - Adjust the settings "Servo left limit" and "Servo right limit" so that the steering servo covers the entire possible steering range.
 - If the servo deflects in the wrong direction, activate the "Servo reverse" parameter).
 - "Parameter 1" defines how much the steering deflection decreases with speed. At 100%, the vehicle will only drive straight ahead at full throttle; at 0%, the steering angle will be exactly the same as when stationary.
- ElMod 4WD: Switch to the "Servos" tab.
 - Adjust the settings "Servo left limit" and "Servo right limit" so that the steering servo covers the entire possible steering range.
 - If the servo deflects in the wrong direction, activate the "Servo reverse" parameter).
 - "Parameter 1" defines how much the steering deflection decreases with speed. At 100%, the vehicle will only drive straight ahead at full throttle; at 0%, the steering angle will be exactly the same as when stationary.

Turret control

To create a new profile suitable for your model, proceed as follows:

- Set the startup speed of the turret so that the sound of the turret rotation noise matches the turret movement (Tab "Turret", parameter "Turret min. speed").
- Set the maximum turret rotation speed so that it matches the model. Here are three examples:
 - Tiger: 60 sec.
 - T34: 25 sec.
 - Leopard II: 9 sec.
- Depending on the type of tank and the turret rotation speed, it may not be possible to reach the prototypical speed.
- Proceed accordingly with the settings for the gun elevation (parameters "Gun elevation min speed" and "Gun elevation max speed").

Save and reset

The settings can now be saved under "Save profile". Now drive the tank a little and adjust the parameters further if necessary so that you are satisfied with the driving pattern.

If you want to return to the factory settings, perform a reset:

- Turn off the power and wait a few seconds. For safety, disconnect the drive motors from the electronics or jack up the vehicle so that it cannot drive off.
- Switch the voltage back on.
- As soon as the blue LED lights up (approx. 0.5 seconds after switching on) press and hold the setup button immediately.
- The blue LED goes out. After approx. ten seconds, the blue and red LEDs flash together once.
- Release the setup button. All parameters are now reset to the factory settings. Please note that this also resets the direction of rotation of the motors (see section "Connection of the drive motors" in the manual of your central unit).

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