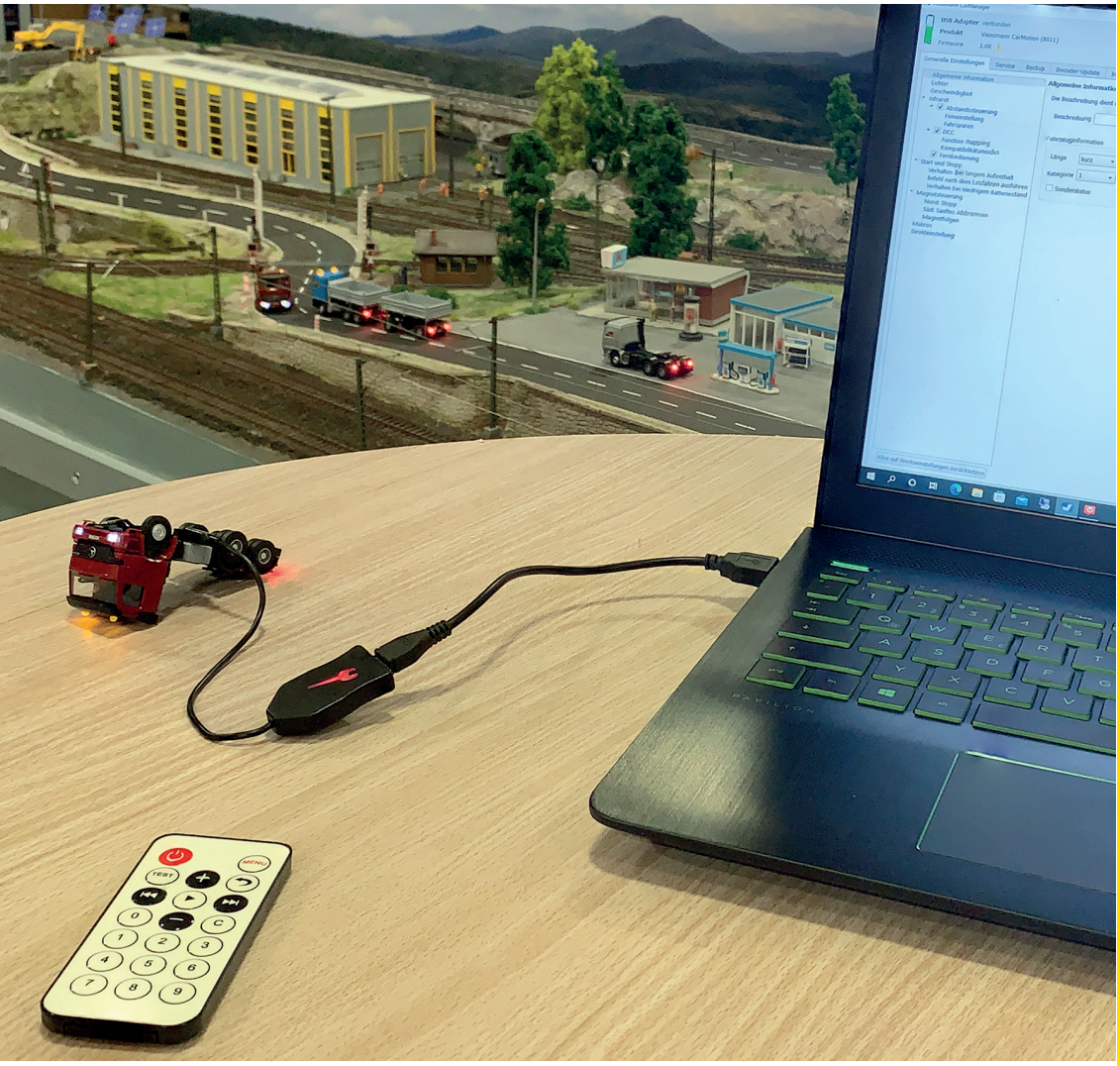
CAR motion

Viessmann®

CarManager



User guide

Innovation, die bewegt!

1. General information

The CarMotion vehicles can be configured using the programming device (item 8401), in combination with the CarManager software that can be downloaded for free from our website. The remote control (item 8402) can also be used to a certain extent. You will need a terminal with a USB connection and either Windows or MacOS software.

Before making any significant changes to your vehicle settings, we recommend that you create a data backup. This will enable you to return to this version at any time.

Visit our website (www.viessmann-modell.com/carmotion/) to obtain the latest software versions for your vehicles and the CarManager. Once connected to the internet, the CarManager software checks for updates and refers you to the update page.

Note: The software does not update automatically. Updates must be downloaded and installed manually.

To download the latest version of the USB driver for your software, visit: https://www.silabs.com/developers/usb-to-uart-bridge-vcp-drivers?tab=downloads.

1.1 System requirements

Your system must meet the following requirements:

Free hard drive space: 100 MB

Software: Windows 7 / MacOS X 10.11 or higher

2. Introduction

With the Viessmann programming device (item 8401) and the CarManager software, you can customize your Viessmann CarMotion vehicle to suit your layout

The CarManager offers a variety of setting options to configure the basic functions of your vehicle and specific operational scenarios. You can give control commands for a specific time, a specific distance, or both. You can also update your vehicle with the latest software versions

We highly recommend that you read this user manual carefully to familiarize yourself with the functionality and the range of setting options

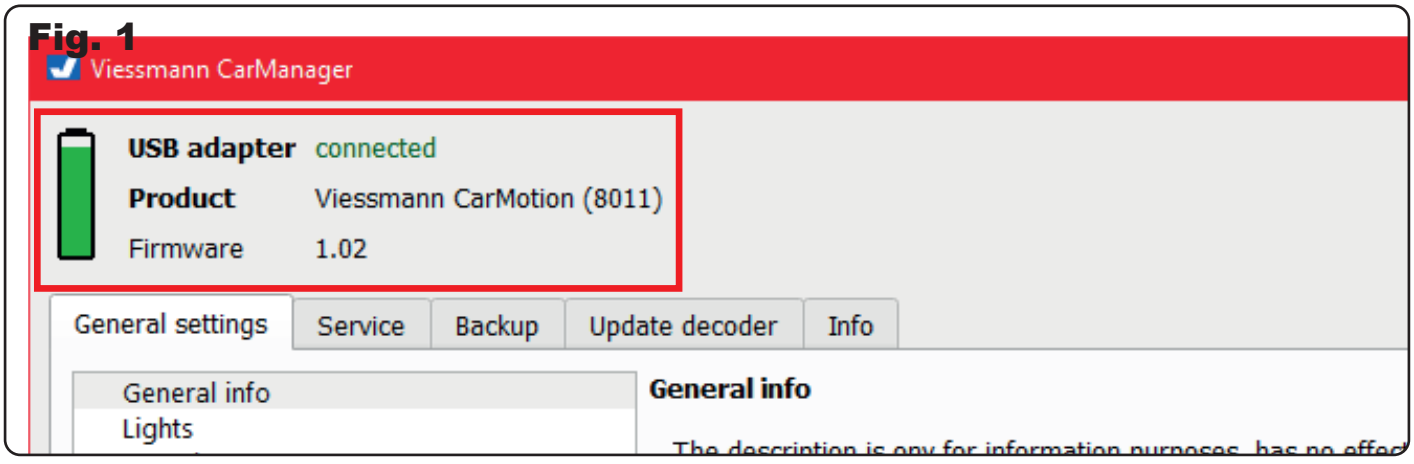
Open the CarManager app and connect the programming device (item 8401) to your terminal. The USB adapter should be recognized automatically. If the programming device is not recognized, you need to install the required driver (see Chapter 1).

Connect the vehicle to the programming device via the six-pole connection socket, as shown in the vehicle‘s manual. If the vehicle does not switch on automatically, use the magnetic bar attached to the vehicle to turn it on. When you turn on the vehicle, the motor stops automatically. However, you can still control all other functions using the remote control (item 8402). This will help you to familiarize yourself with the handling of the remote control (range and control of the vehicle‘s functions).

When the programming device and vehicle are properly connected, the main screen is displayed (Figure 1), showing the item number for the connected vehicle.

Note: All options in the CarManager are further explained by tooltips. To activate, move the mouse cursor over an entry field. A text field with further explanations will open up.

Fig. 1



3. Menu overview

This user manual is designed to familiarize you with the numerous setting options for your vehicles. This will allow you to adjust them to the characteristics of your layout and the planned operation.

General information: In this section, you can assign a description or further specifications to the vehicle. This subject is explained in more detail in Chapter 4.1.0.

Lights: This section allows you to configure the light functions and brightness of your vehicle‘s lights.

Speed: This section enables you to set the basic speed, as well as the acceleration and deceleration rate of your vehicle.

Infrared: In this section, you can choose from a wide range of configurations that allow you to realize your personal ideas and take into account the specific characteristics of your layout. For example, layouts depicting urban traffic will require somewhat different configurations than layouts showing rural landscapes. A multitude of configurations are available for you to not only implement your personal preferences but also to respond to the circumstances of your CarMotion system. For instance, systems that depict urban traffic require slightly different settings than those depicting rural landscapes. This chapter also covers functionalities intended for other car systems. Additionally, the functionality of the remote control, Art. 8402, is explained.

Start and Stop: In this chapter the start and stop behaviour of the vehicle is explained.

Magnetic control: This chapter explains how the magnet sequences in the CarMotion system interact with the vehicle and the various options available to the user. One of these options is the ability to set the vehicle to start moving slowly and come to a smooth stop

Macros: This chapter contains a description of additional commands that can be activated by passing over magnet sequences, using infrared transmitters, or by meeting specific conditions.

Direct configurations: Just like on your model railway, you can directly access and modify configuration variables (CVs) according to your preferences. These CVs are numbered consecutively and come with a brief explanation when selected.

4. Menus

In the following chapters you will find the different setting options of the CarManager software described in detail.

4.1 General information

You can give your vehicle an individual name in the „Description“ text field. This is useful when you have multiple vehicles of the same type (fig. 2). You can also assign a value to the vehicle in the „Vehicle information“ box (fig. 3). This is especially helpful when using external modules that process information about vehicle length. We recommend using the following categorization for road clearance and turning radius:

- Value 0: passenger cars or very short trucks (such as items 8010, 8011, 8030)
- Value 1: longer trucks, trucks with semitrailers or buses
- Value 2: trucks with a long trailer
- Wert 3: special purpose vehicles with an excess length

Note: „Very Short Trucks“ are vehicles that can navigate curves with the same minimum radius as passenger cars.

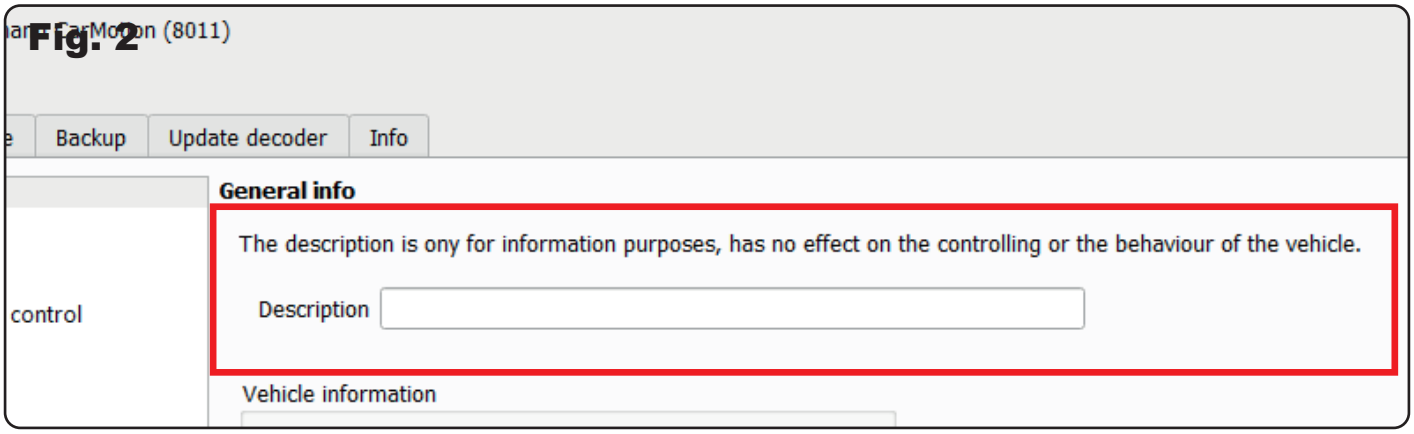
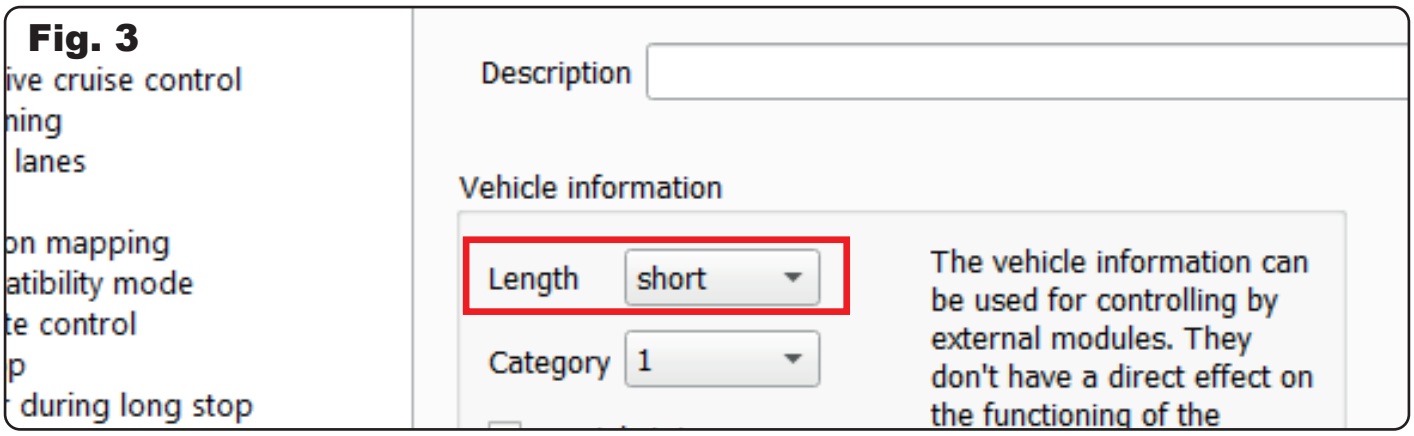


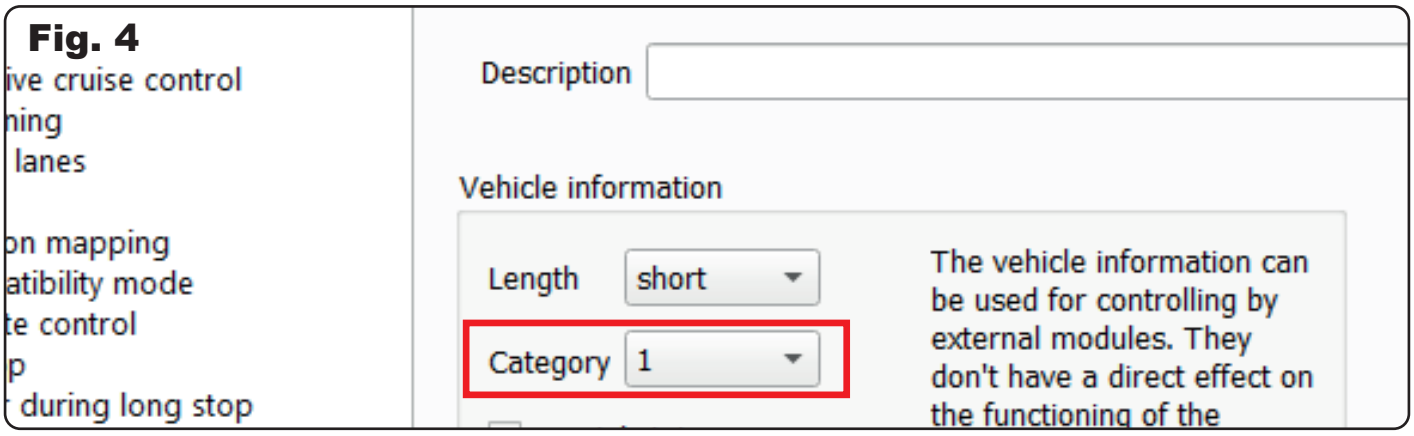
Fig. 2

Fig. 3



Organizing vehicles into „categories“ can be useful when sending specific control commands to individual vehicles through external modules. Up to 8 categories can be created (fig. 4).

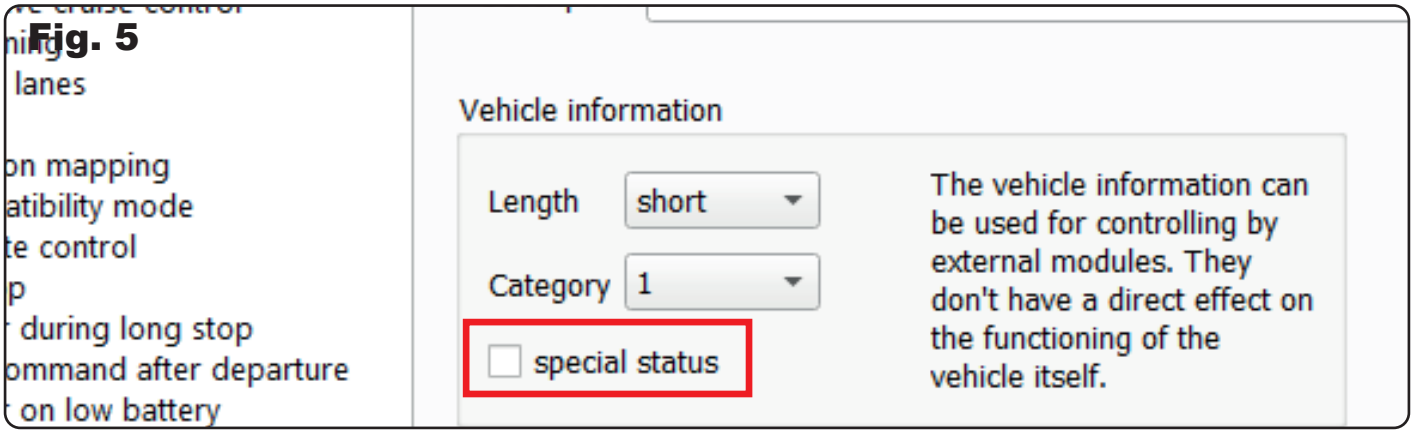
Fig. 4



The „special status“ checkbox is used to distinguish a vehicle from others (as shown in fig. 5). By selecting this option, the vehicle may be granted certain privileges, such as the ability to pass through red traffic lights

Please note that selecting a specific vehicle length, category, or assigning a special status will not affect the driving behavior of the vehicle.

Fig. 5



4.2 Lights

In this menu, you can choose which lights you want to turn on when the vehicle is powered on. You can adjust the brightness of each light using the sliders. If your vehicle has roof warning lights, you can also select the type of beacon you want to use. You can see all the light functions and brightness levels directly on the vehicle, so you can customize them to your liking (see figure 6).

Note: If you choose a higher brightness setting for the lights on your vehicle, the battery life will be shorter

4.3 Speed

In this section, you have the ability to adjust three crucial speed parameters. Firstly, you can set the default speed, which indicates the maximum speed the vehicle can achieve, along with its acceleration and deceleration rates (refer to Figure 7.

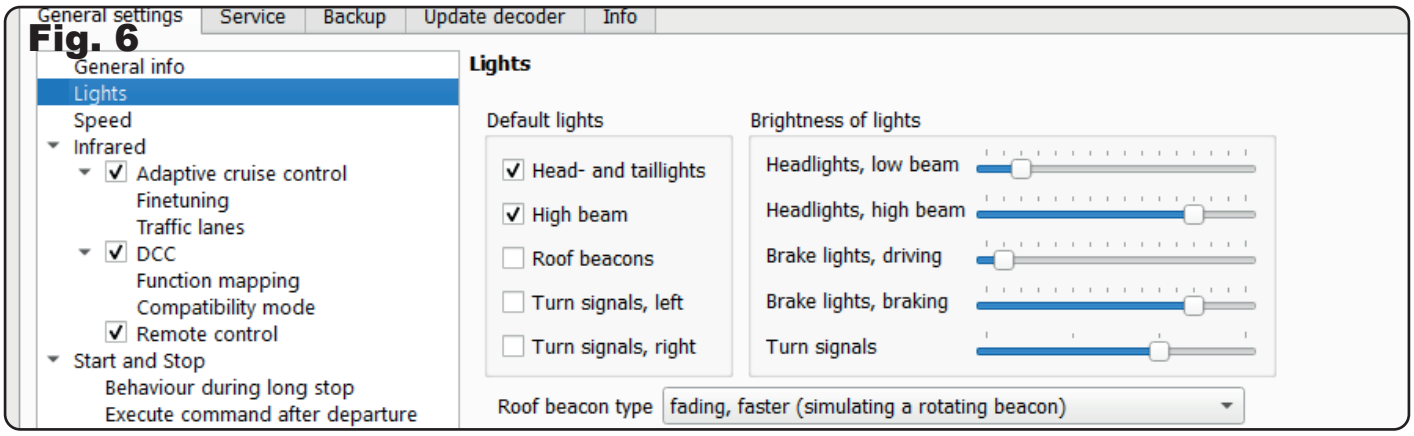


Fig. 6

Note: If you use the remote control (item 8402) to adjust the speed of your vehicle, the default speed will also be affected

The acceleration rate refers to how fast the vehicle‘s speed increases per second, measured in kilometers per hour. If the default setting of 10 is selected, the vehicle will take approximately 6 seconds to accelerate from 0 to 60 km/h.
Note: To achieve a more realistic and diverse driving experience, it is recommended to increase the acceleration rates for vehicles without semi-trailers or trailers..

Deceleration rate: The deceleration rate is calculated in a similar way, but only applies when the vehicle can brake freely. For instance, a vehicle traveling at 60 km/h will decelerate at the default rate of 15 km/h per second and come to a complete stop within 4 seconds. At 30 km/h and the same deceleration rate, the vehicle will stop within 2 seconds

The rate at which the vehicle slows down can be adjusted in this section, and it will be utilized when you decrease the speed of the vehicle through the remote control or when it is impacted by a magnet sequence, such as S S N, which could indicate entry into a speed-restricted area with a limit of 30 km/h.

It is important to note that this deceleration rate does not affect the behavior of the vehicle‘s distance control functions, nor does it have an impact when the vehicle slows down at a stop point. In these instances, the deceleration rate is automatically and dynamically adjusted to allow the vehicle to slow down in response to the distance. This setting is saved in the vehicle‘s software..

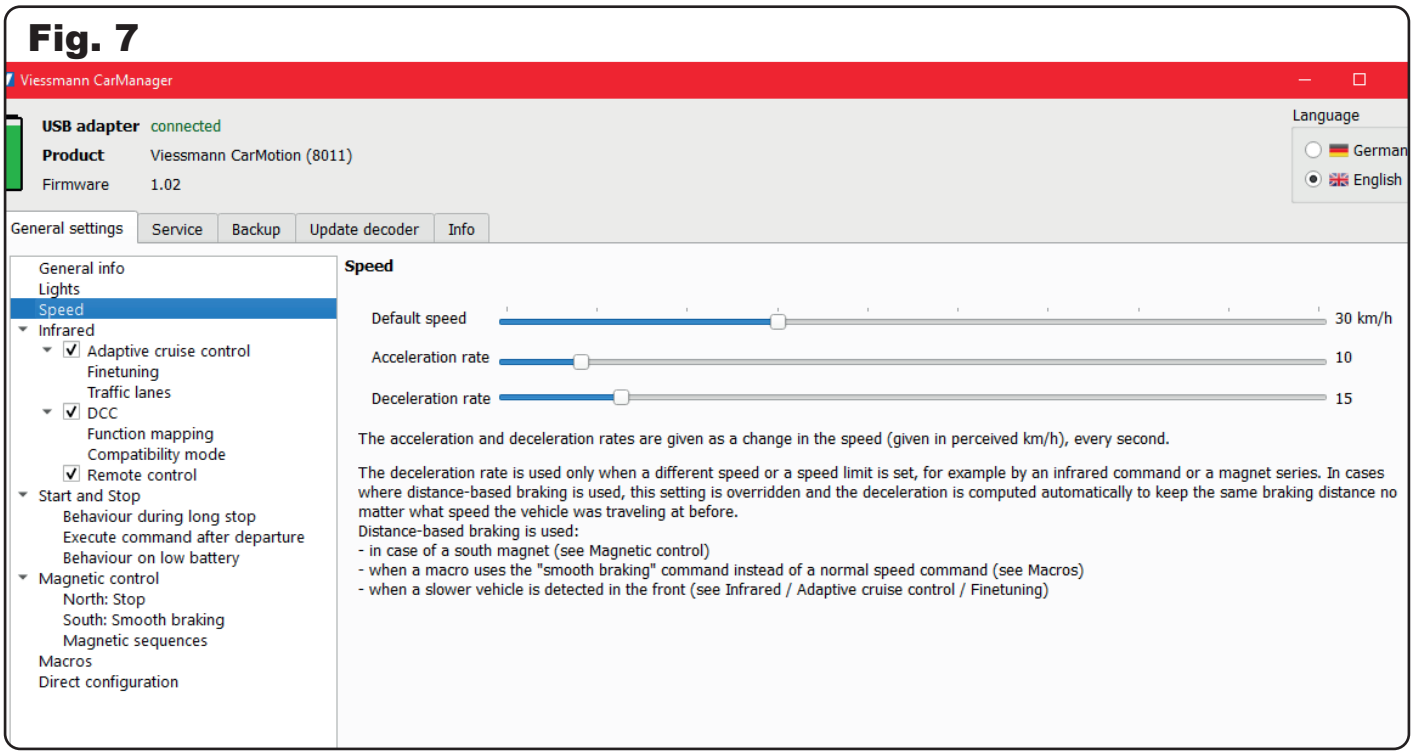
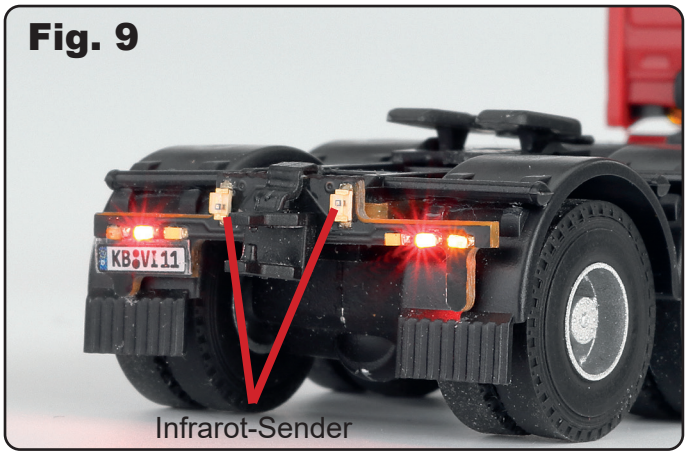


Fig. 7

4.4 Infrared

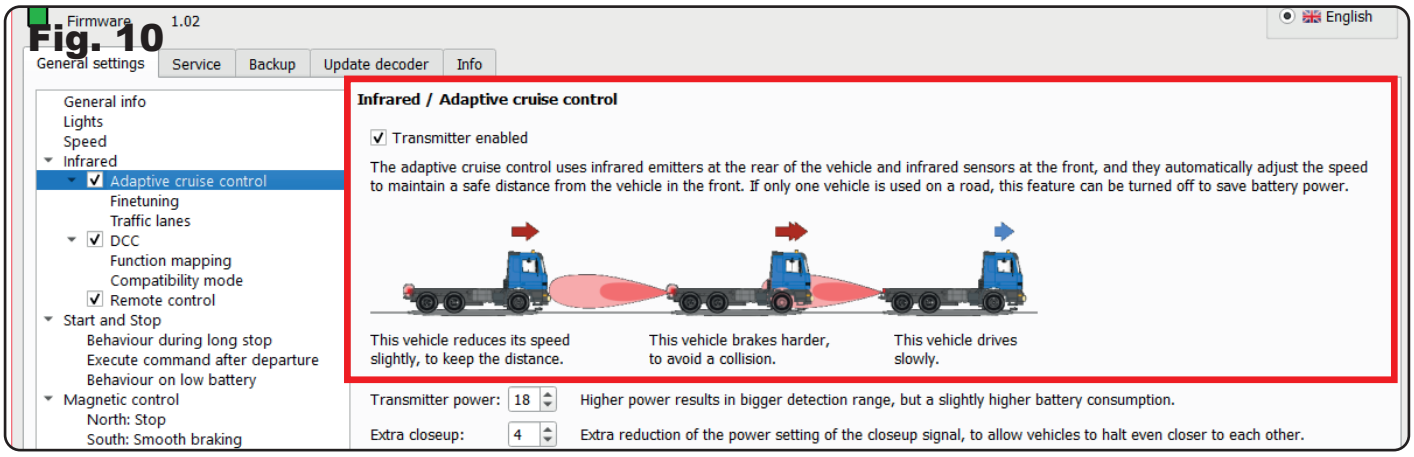
The infrared system on Viessmann CarMotion vehicles is expertly calibrated to deliver an aesthetically pleasing driving experience. The vehicle‘s infrared receivers are situated beneath the front bumper (as depicted in figure 8), while the emitters are located at the rear (to the left and right of the coupler pockets) as illustrated in figure 9. Through the infrared emitters, the vehicles relay information to subsequent vehicles, including vehicle category, speed, and other useful driving data. It is important to safeguard these areas against dirt and damage.

Note: The infrared control may be affected by strong sunlight or near-complete darkness.

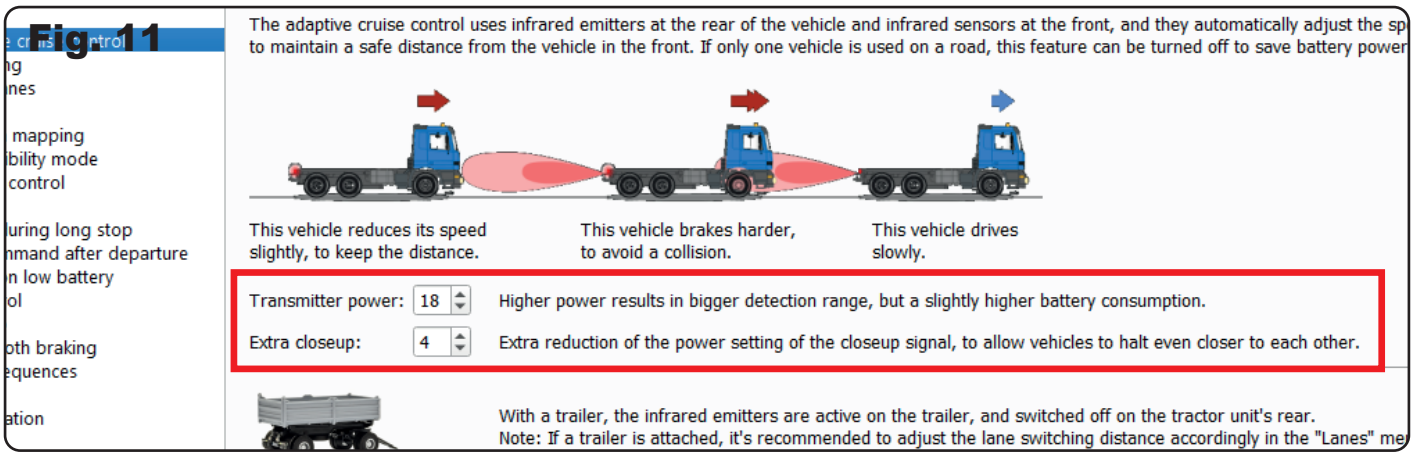


4.4.1 Distance control

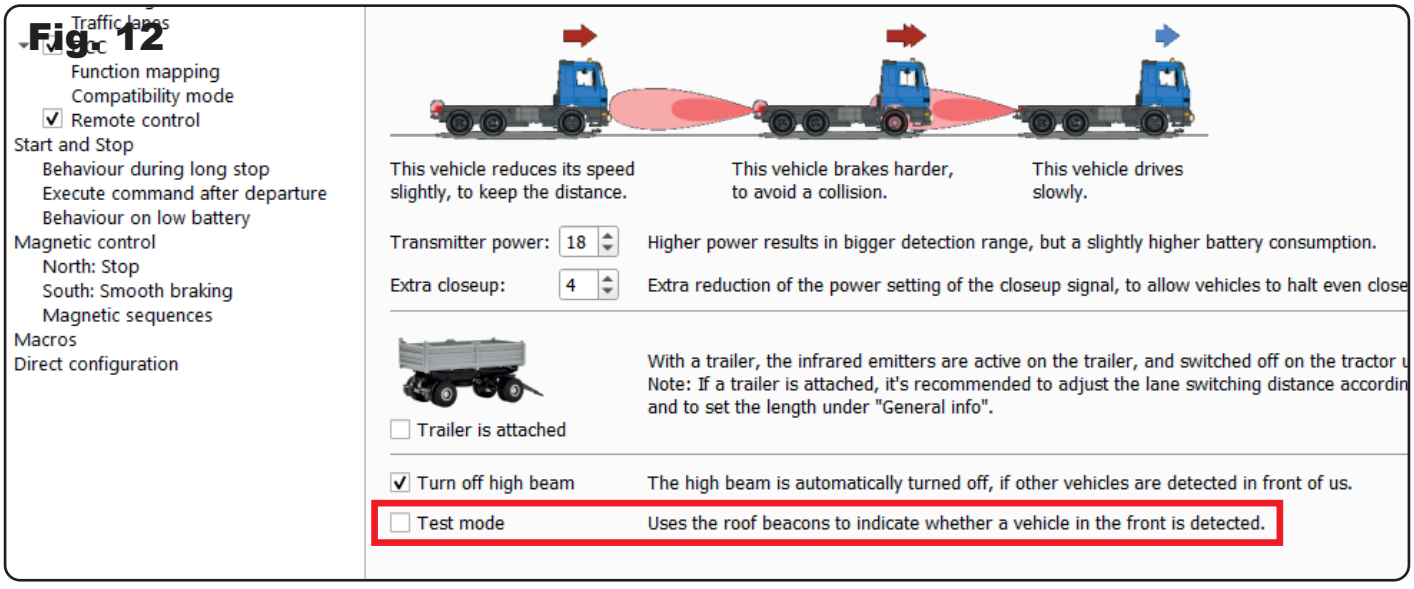
The CarMotion system uses two infrared signals of varying intensities, transmitted in alternation, to regulate the distance between two vehicles. This feature allows a vehicle approaching from behind to adjust its deceleration rate according to the speed difference between the two vehicles and automatically match its speed to that of the vehicle in front (see fig. 10). As a result, the vehicle‘s speed may differ significantly from the speed set in the basic settings. However, the basic speed is reinstated as soon as the obstruction from the vehicle in front is removed.



The default settings for CarMotion layouts assume that the vehicles have good visibility and are traveling at moderate speeds (fig. 11). However, for layouts where higher speeds are required, we suggest adjusting the transmitter intensity for the infrared far range to a value of 25 and reducing the intensity for the infrared close range to 0. This will allow the vehicles to initiate braking maneuvers earlier and make the best use of collision protection. Additional adjustments are detailed in section 4.1.2 „Fine-tuning“.



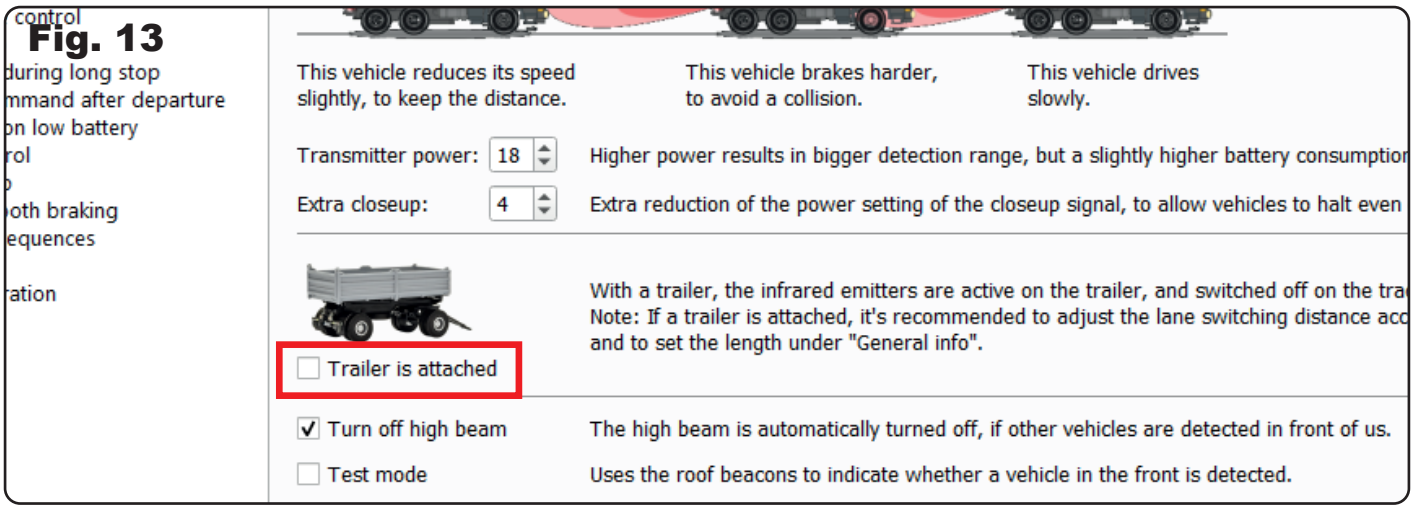
If you have at least two CarMotion vehicles, and at least one of them has rotating flashing lights, it is recommended that you temporarily activate the „Test mode“ checkbox for these (fig. 12). This mode allows you to check the reception of the infrared signals by observing the LEDs of the roof beacons. The right roof beacon flashes when receiving strong infrared signals (far range), and the left beacon indicates weak infrared signals (close range). This function is particularly useful in critical areas such as curves or turning points to ensure that the vehicle in front is detected in time. The transmitters and receivers operate along the longitudinal axis of the vehicles, so for vehicles that need to stop at right angles to each other, it is essential to check if braking distances are sufficient. High speeds require greater distances and higher transmitter intensities for collision protection. Low transmission intensities are suitable for urban layouts as they simulate flowing traffic. You can use the test mode to determine the distances between vehicles to avoid rear-end collisions.



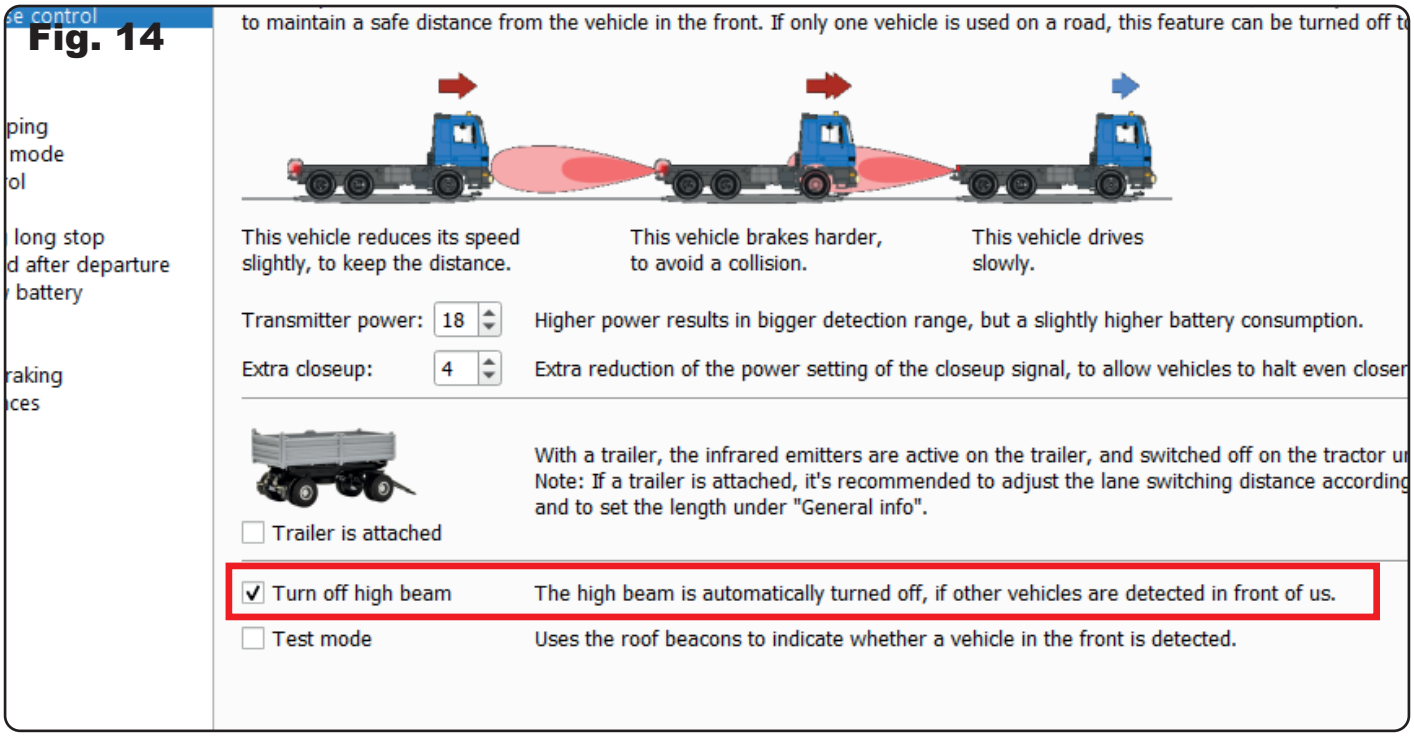
If you want to use a trailer, we recommend activating the „Trailer is attached“ checkbox (fig. 13). Although the distance control for the trailer is active even without checking this option, it has limited strength since the infrared transmitters on the tractor unit are also active. By activating this option, the distance control of the trailer will work at full strength, and collision protection can be ensured. Additionally, by turning off the infrared signals on the tractor unit, the vehicle‘s battery life can be extended

Warning!

If you intend to use a vehicle without a trailer, but the control box is still active, the distance control system will not function as the infrared signals from the vehicle will be turned off.



Additionally, you have the option to command the vehicle to switch off the high beam (if it is on) when a leading vehicle is detected. Once the vehicle no longer receives driving information from the leading vehicle, it will automatically turn the high beam on. This option can be activated through the „Turn off high beam“ checkbox (see fig. 14)

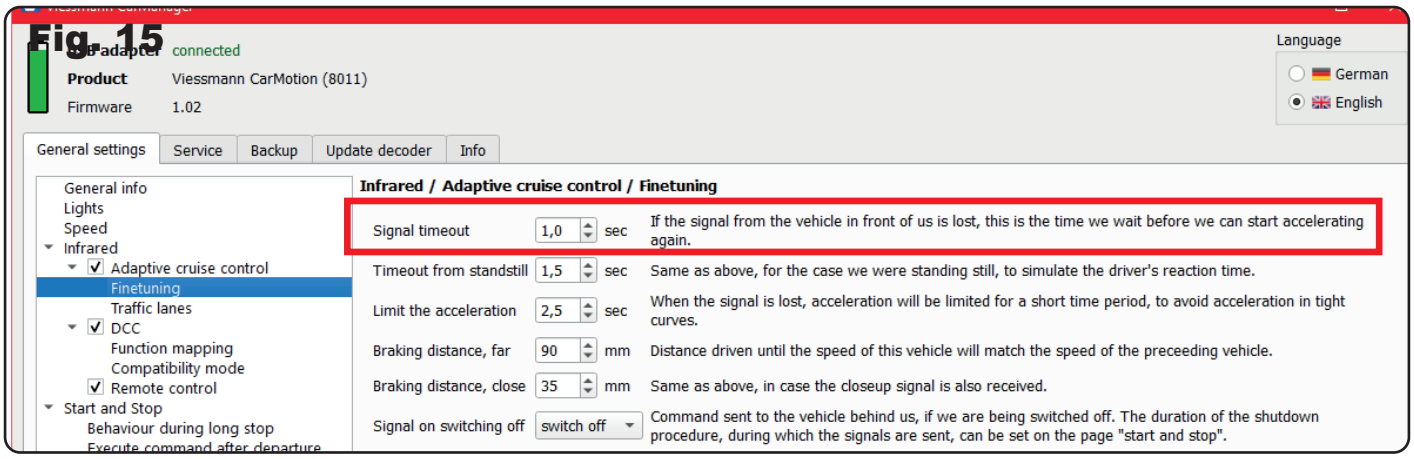


4.4.2 Fine-tuning

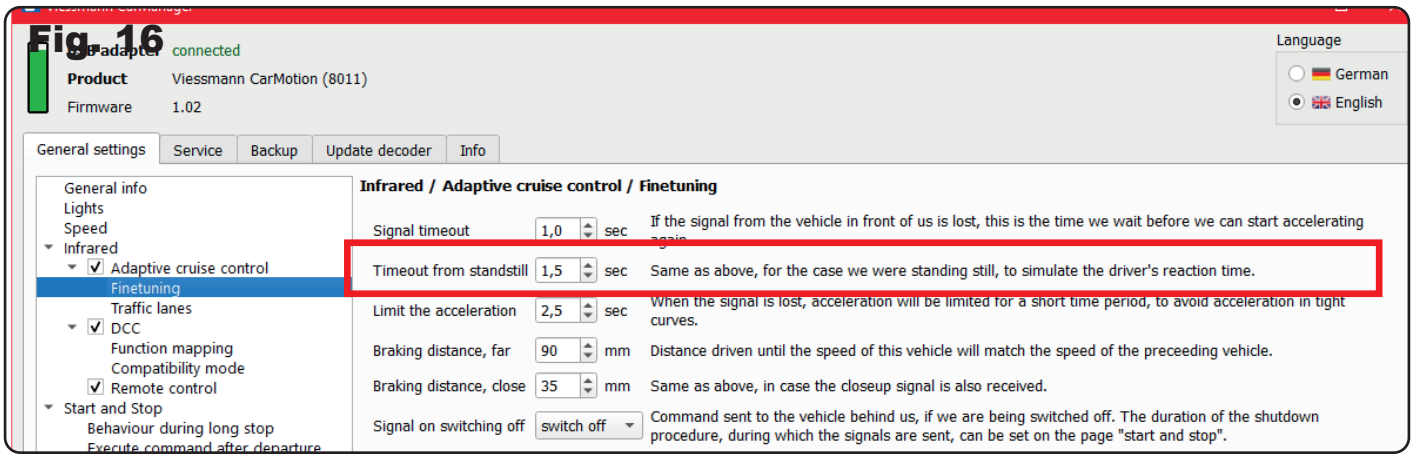
In this chapter, you will learn how to adjust the driving behavior of a following vehicle to a leading vehicle. The main objective is to determine how the vehicle reacts when it no longer receives the infrared signal from the preceding vehicle.

The „signal dropout“ option specifies the duration for which the last driving information from the preceding vehicle is considered valid in case of signal loss (fig. 15). This setting allows you to adjust the response time when a vehicle no longer receives infrared information. The signal loss is deemed valid by the vehicle when the set time span is exceeded and no new information is received from the preceding vehicle during this time. As a response to the signal loss, the following vehicle may accelerate at a reduced acceleration rate to its preset base speed, if it is higher than the last driven speed. This deceleration in acceleration is intended to prevent the vehicle from accelerating excessively and following the preceding vehicle too closely, even though it is still on the same lane.

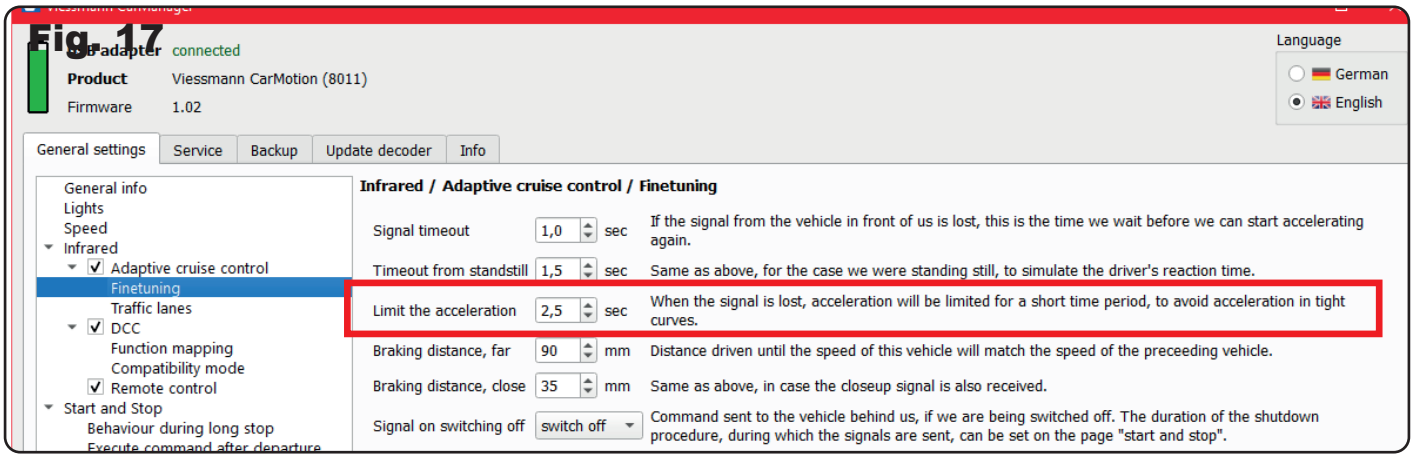
Example: The time interval is set to 1 second. If no new driving information is received from the preceding vehicle within this time interval, the vehicle accelerates at a reduced acceleration rate to its set base speed.



With the „start-up delay“ option, the vehicle reacts similarly to a „signal failure“. It is intended to simulate the driver‘s reaction time after the preceding vehicle has driven off (fig. 16).

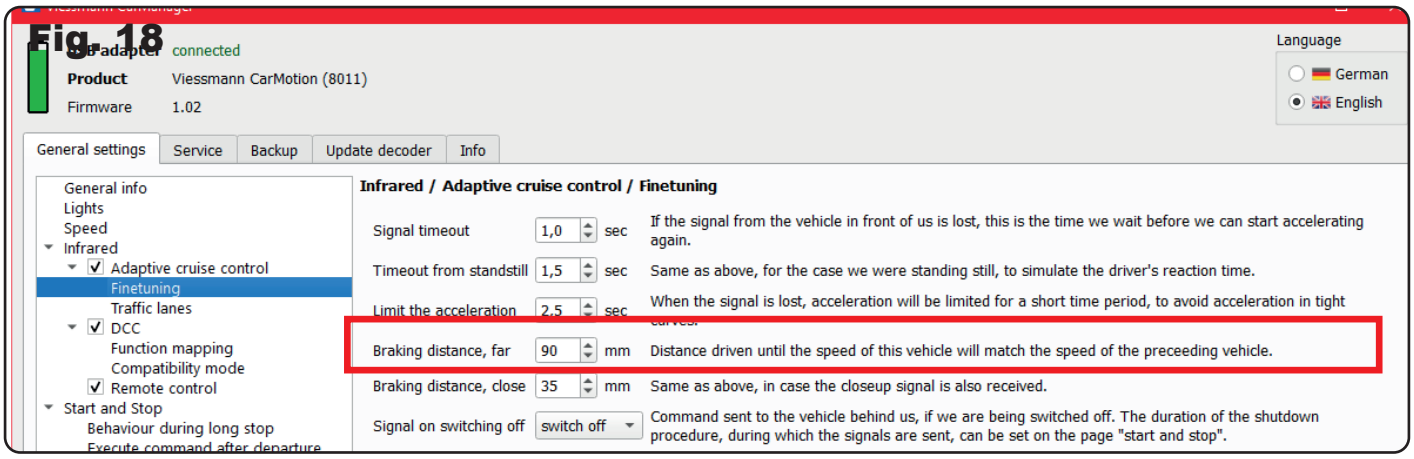


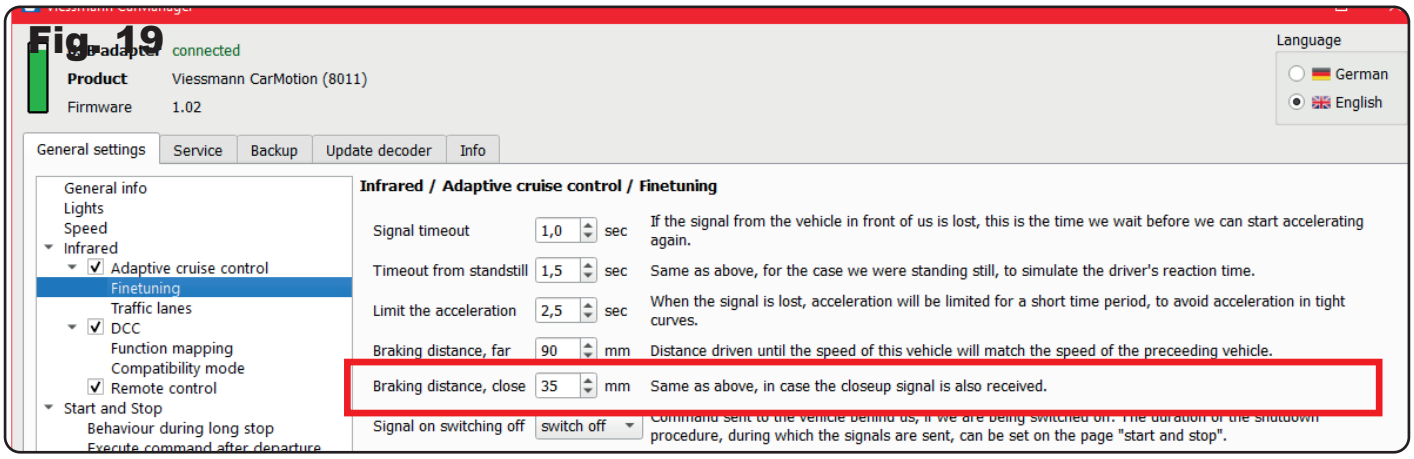
The „acceleration limit“ option specifies the time frame for the reduced acceleration rate at which a following vehicle accelerates to its set base speed in the event of a signal loss (fig. 17). This option can be useful, for example, in tighter curves where „line of sight“ to the preceding vehicle is briefly lost. The „accordion effect“ between the vehicles can be avoided.



The „long braking distance“ option describes the reaction to receiving the long-range infrared information from the preceding vehicle. The vehicle tries to adjust its speed to that of the slower preceding vehicle within a standard set driving distance of 90 mm (fig. 18).

The „short braking distance“ option describes the vehicle‘s reaction to receiving the close-range infrared information from the preceding vehicle. If the vehicle enters the close range of a preceding vehicle, the vehicle brakes to the speed of the preceding vehicle on the set braking distance to prevent a collision (fig. 19).

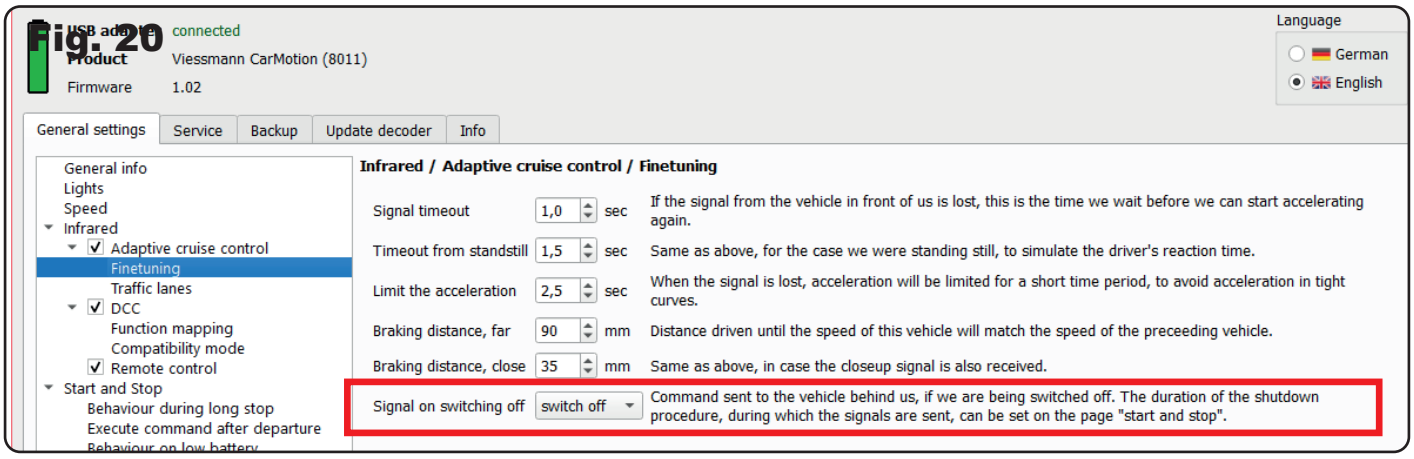




Hint: To achieve a more realistic driving operation, the braking distances can be adjusted. To determine the best possible values for your CarMotion system, we recommend that you carry out driving tests with different settings.

A slow-moving section directly behind a curve would be a case that may require adjustments. A vehicle is in the slow-moving section but is not visible to a vehicle coming from behind due to the curve. In this case, the braking distance may need to be adjusted in the „short braking distance“ parameter. The roof blinkers in test mode can help to determine when the vehicles can actually „see“ each other.

The „Signal on shutdown“ option of the vehicle allows you to gather all vehicles at a stop behind the front vehicle and turn off the leading and all following vehicles with a single shutdown command - either magnetic or remote. However, you can also customize the command to bring all vehicles to a standstill or allow the vehicles to ignore the shutdown command (fig. 20)

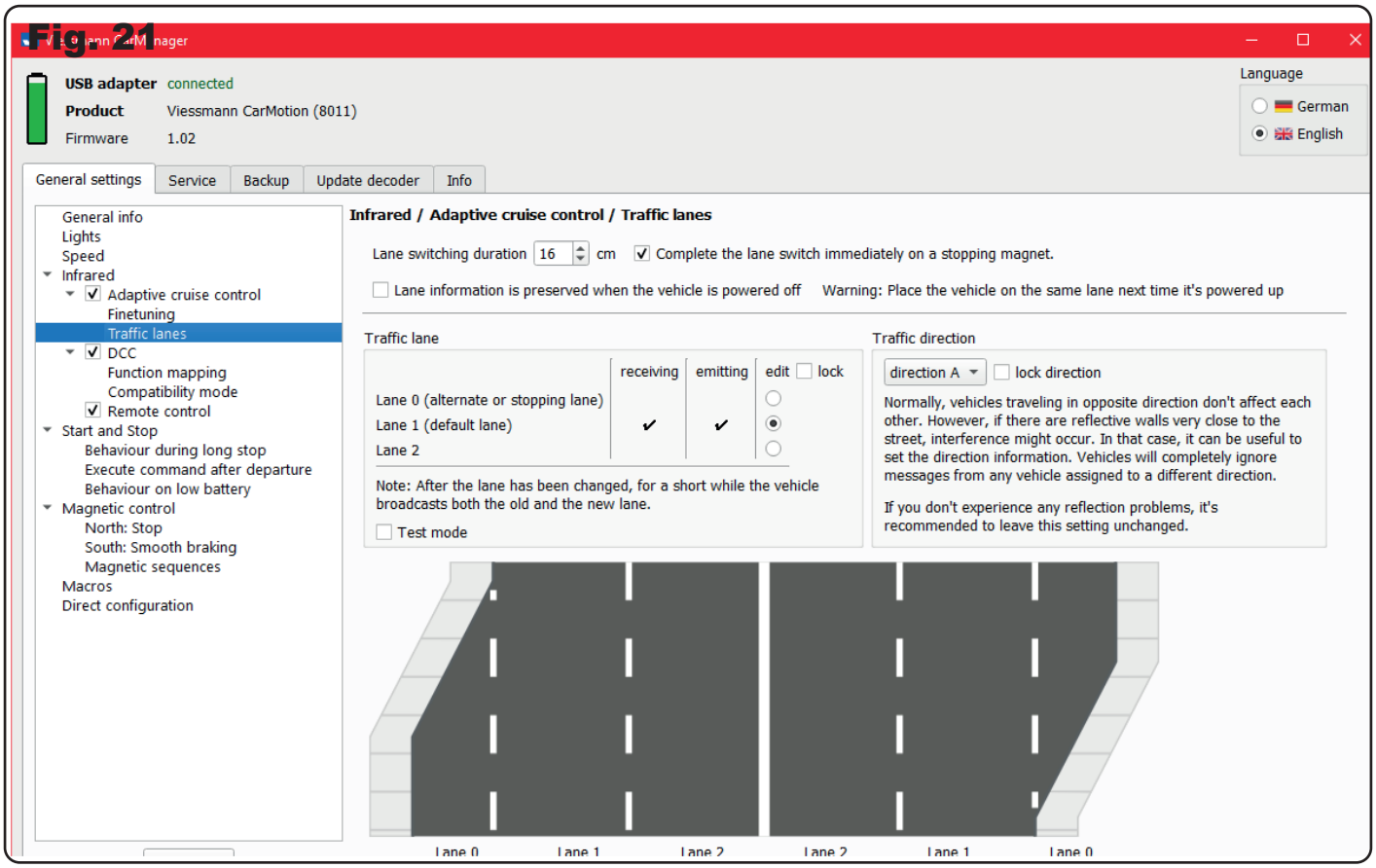


4.4.3 Lanes

With our CarMotion system, you have the ability to drive on 3 logically independent lanes. Lane 1 serves as the standard lane, Lane 0 should be used as a stopping lane, such as for a bus stop. Lane 2 can be used as an overtaking or turning lane on your layout (fig. 21).

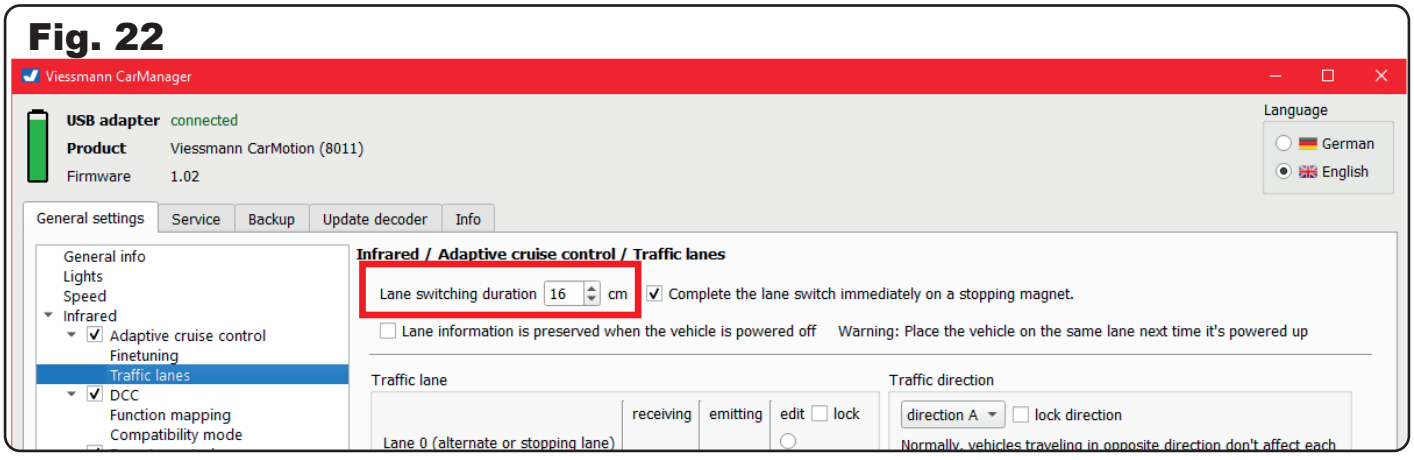
This distinction of tracks is important so that vehicles with different speeds can pass each other. For example, in the case of a bus stop, an incoming vehicle does not know that an infrared signal from the front vehicle, which is standing on its own stopping track, is irrelevant – meaning that it does not have to brake, even though the front vehicle is signaling a speed of 0 km/h. Therefore, it is important that the stopping vehicle sends the track information for track 0 in this case. However, the vehicle coming from behind drives on track 1 and therefore ignores the received speed level and passes the stationary vehicle.

Fig. 21



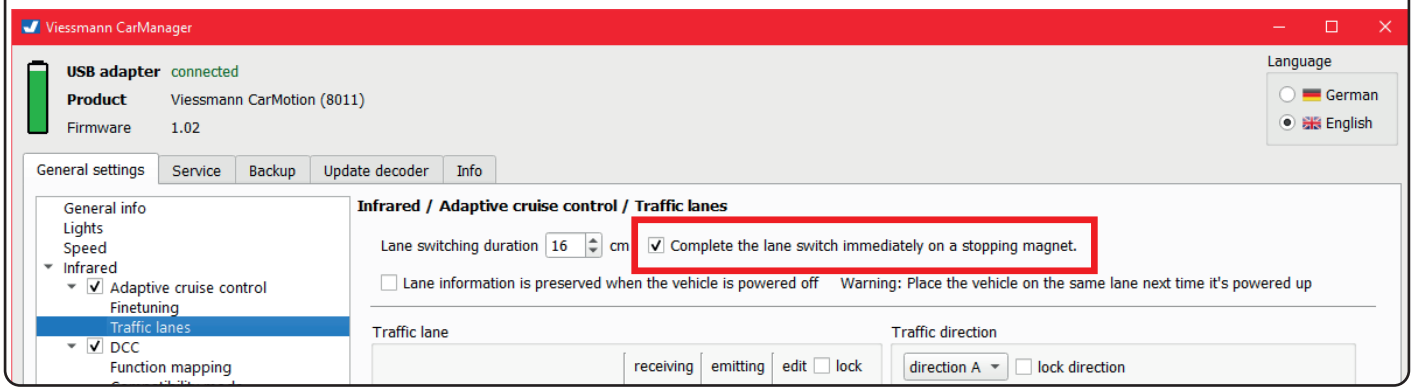
With the option „Duration of track change“, you can specify the distance with which a vehicle completes the track change (fig. 22). A track change is initiated by a magnet sequence and the vehicle sends the information for both tracks backward for a certain amount of time. This prevents a vehicle approaching from behind from accelerating too quickly and running into the swing range of the front vehicle, which has not yet completed the track change. Depending on the situation, the value can be adjusted here. The test mode is also recommended here to determine a suitable distance..

Fig. 22



With the checkbox „Finish track change immediately when stopping at a stop magnet“, you have the option, especially in confined spaces, to automatically complete a completed track change where the distance between the corresponding magnet sequence and a stop magnet is not sufficient (fig. 23).

Fig. 23

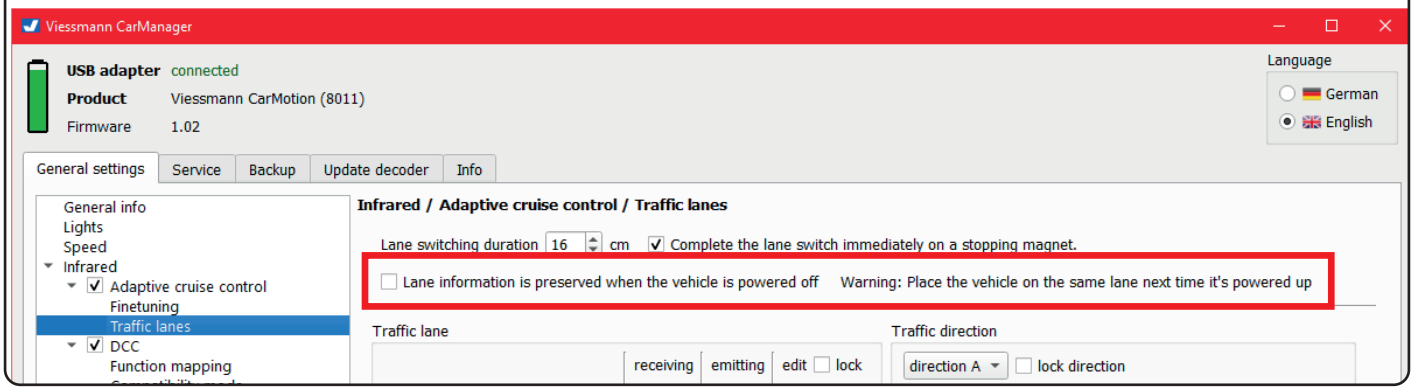


If a vehicle is not switched off on the main track, you can activate the „Track information retained“ option (fig. 24). Then, when the vehicle is turned back on, it knows that it is on a secondary track and therefore sends the correct infrared commands backward.

Note:

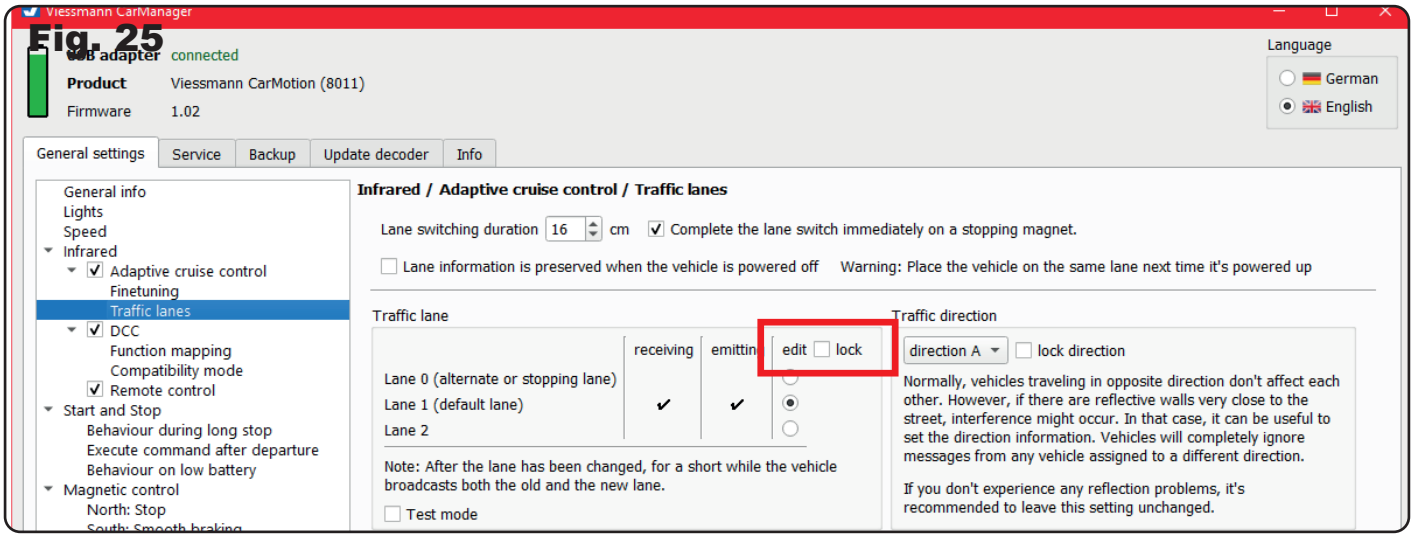
In this case, however, you must also switch the vehicle back on the corresponding track. Otherwise, vehicles approaching from behind could collide due to incorrect track information.

Fig. 24



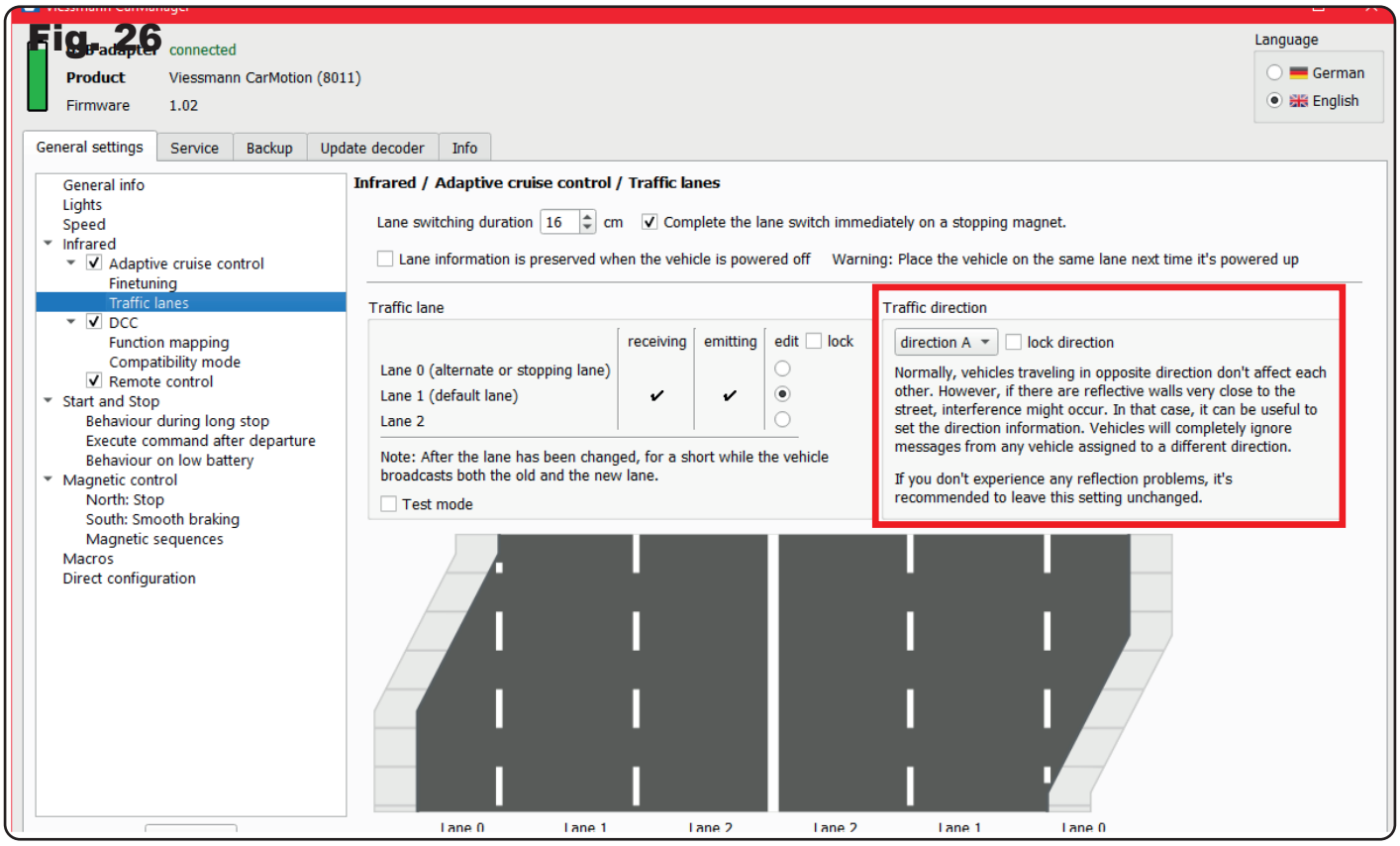
By using the „Track lock“ option, you have the option to assign a fixed track to a vehicle (fig. 25). The vehicle will then not respond to track change commands..

Fig. 25

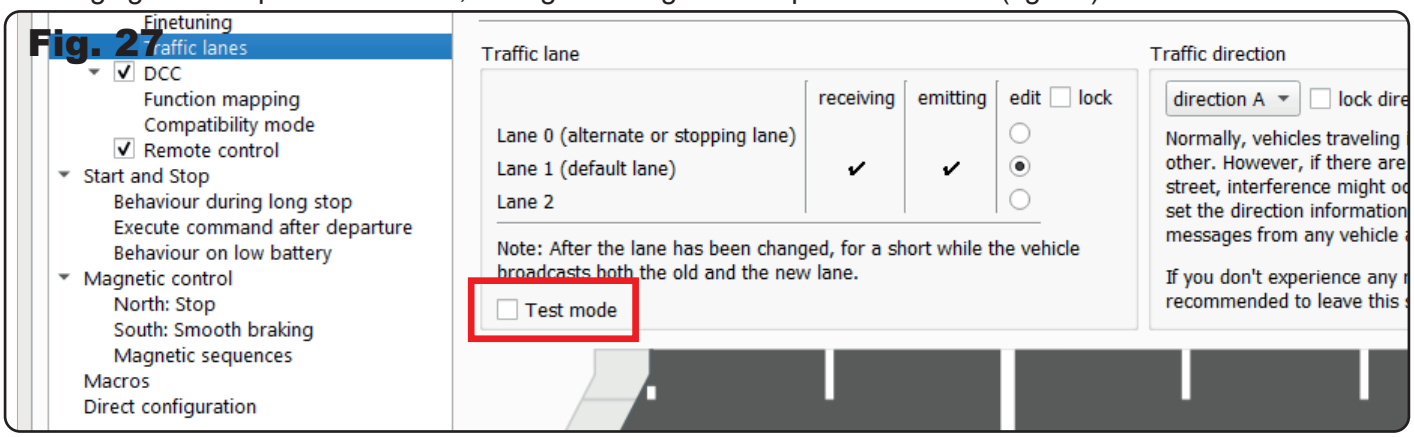


Note: In rare cases, vehicles driving in opposite directions may still influence each other. In general, this has no effect, except when the vehicles are moving slowly and one is, for example, standing at a bus stop. Then, it could happen that a slowly passing vehicle also stops under unfavorable conditions.

With the option „block traffic direction“, you have the possibility to assign a fixed direction of travel to a vehicle. The vehicle then only reacts to infrared information coming from vehicles in the same direction of travel (fig. 26).

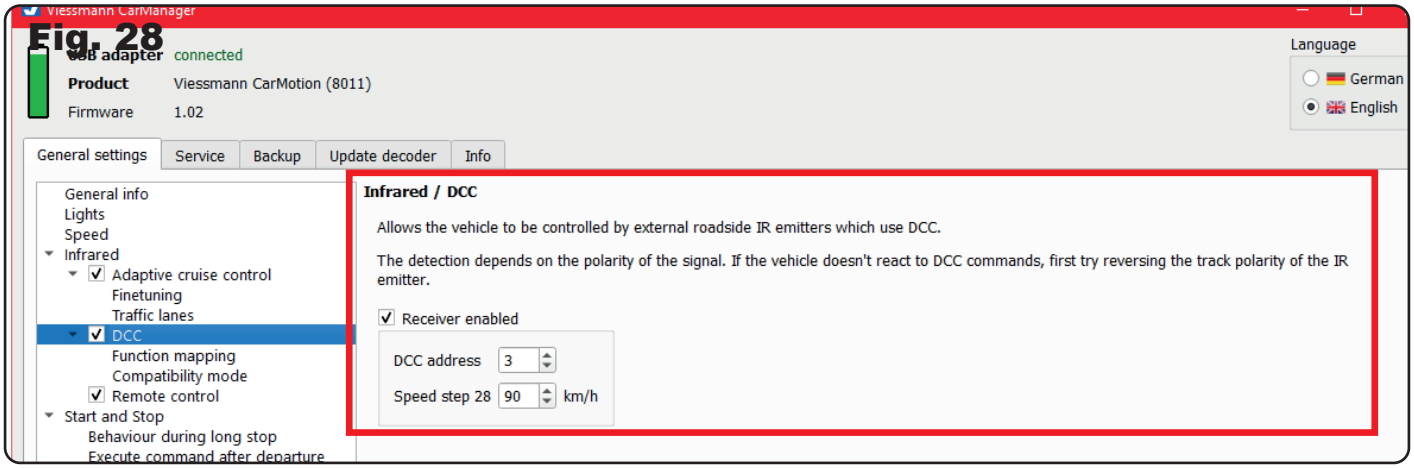


In „test mode“, you can directly check on which lane the vehicle is located. The illumination of the left roof warning light corresponds to lane 1, the right roof light corresponds to lane 0 (fig. 27).



4.4.4 DCC mode

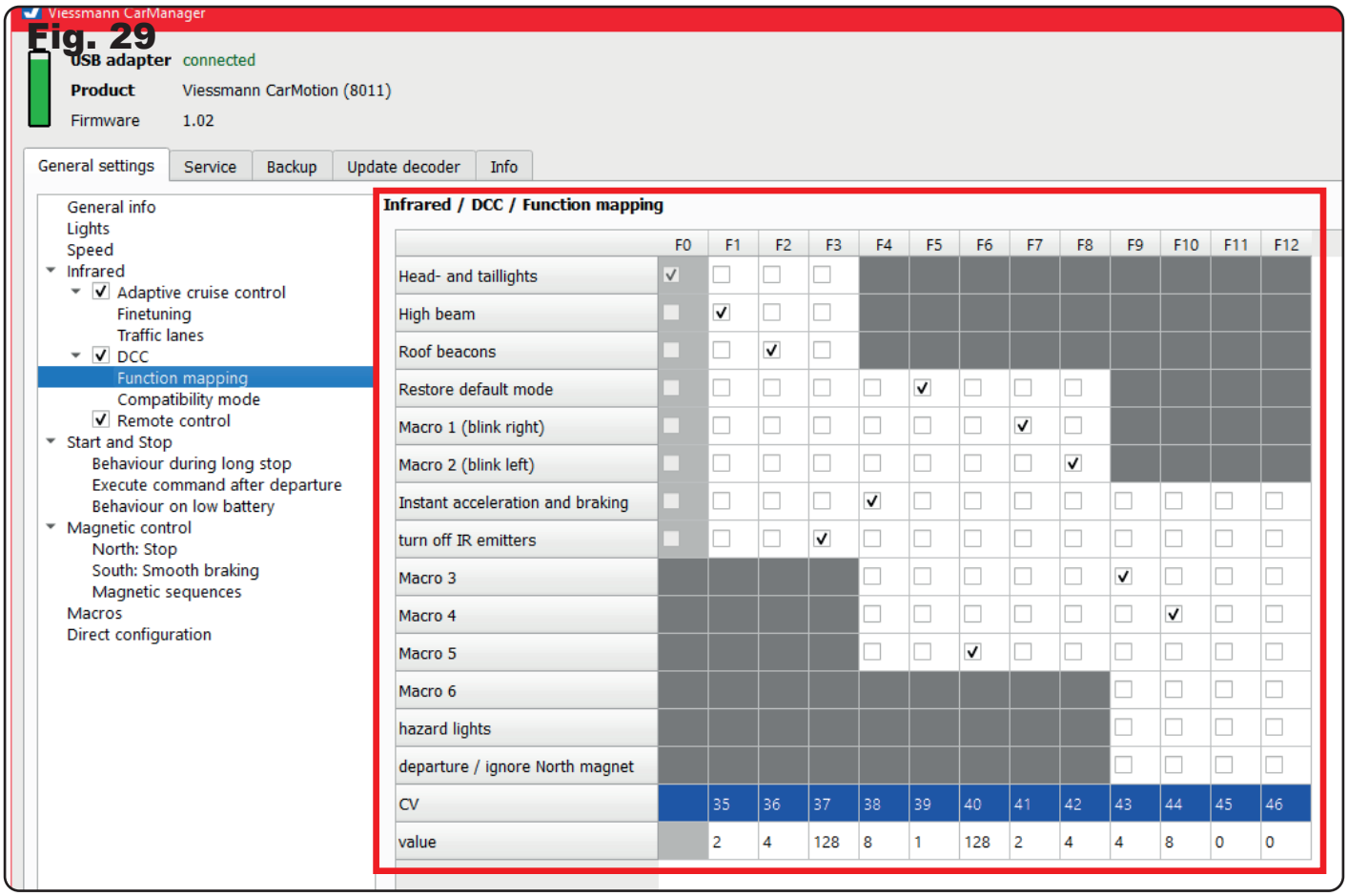
When the DCC mode is activated, the CarMotion vehicles can receive DCC commands from external infrared transmitters, both from vehicles and stationary transmitters, on the track (fig. 28).



4.4.4.1 Function mapping

In this overview, you have the opportunity to assign the desired function keys to the functions of the vehicle (fig. 29).

Fig. 29

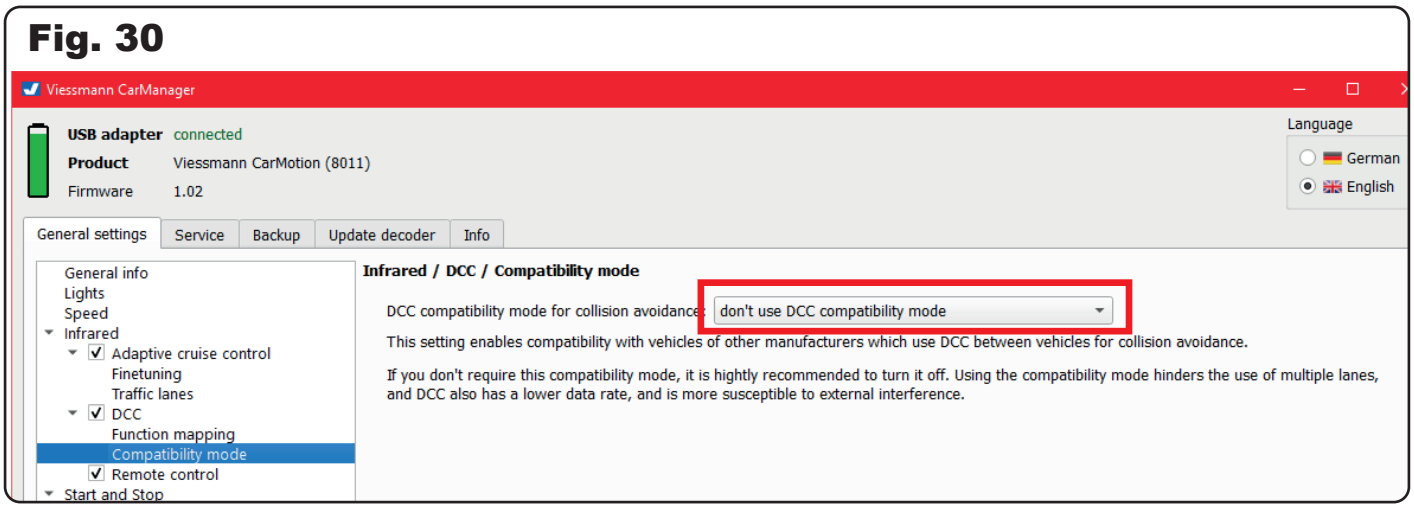


4.4.4.2 Compatibility mode

With the compatibility mode, you have the possibility to make the CarMotion vehicles compatible with vehicles that use the DCCar or OpenCar format for distance control (fig. 30).

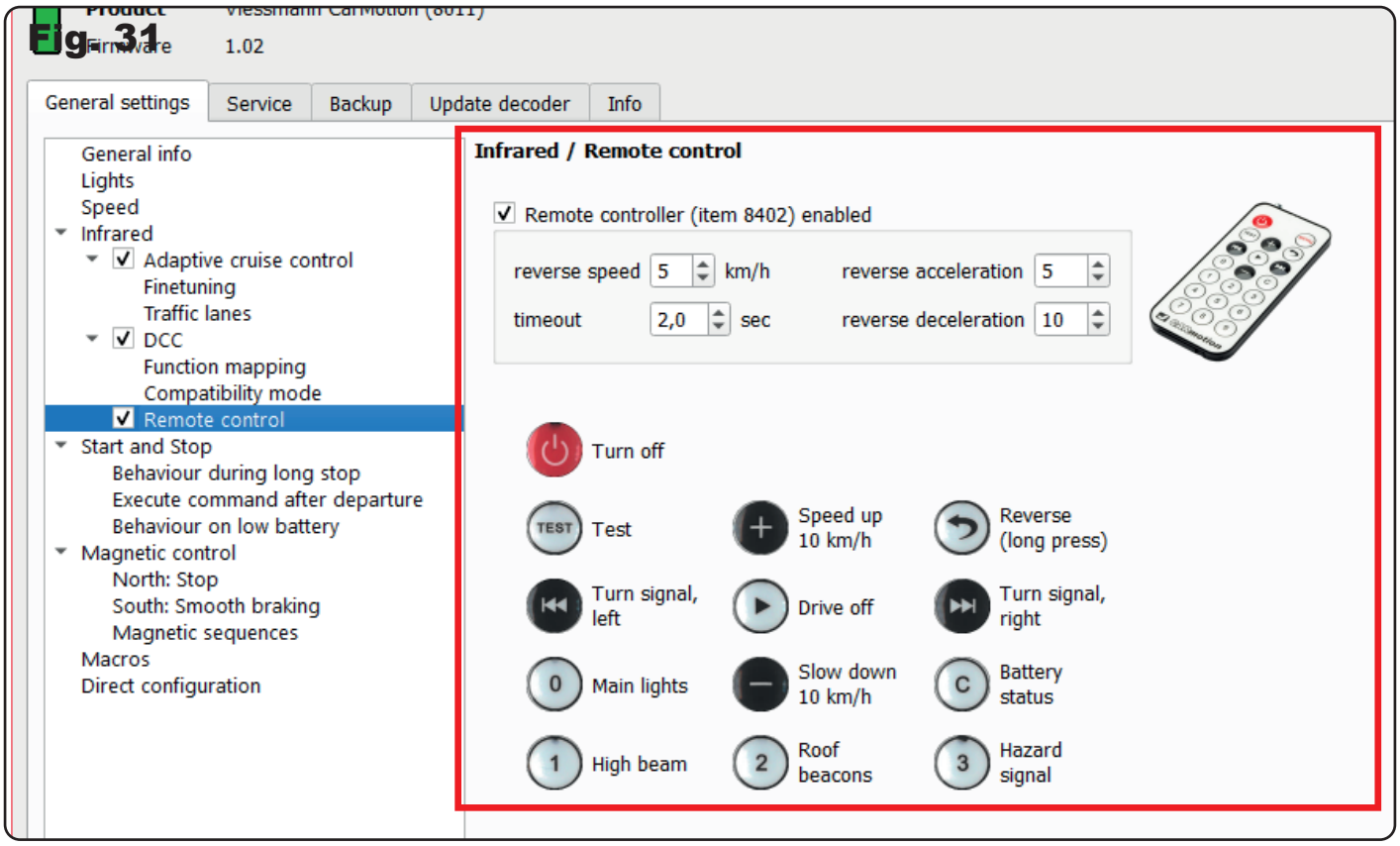
Note: However, you cannot fully exploit the full potential of the CarMotion distance control. It can lead to impairments of the functioning of the distance control, and the cooperation with DCCar and OpenCar vehicles is limited to start and stop operation.

Fig. 30

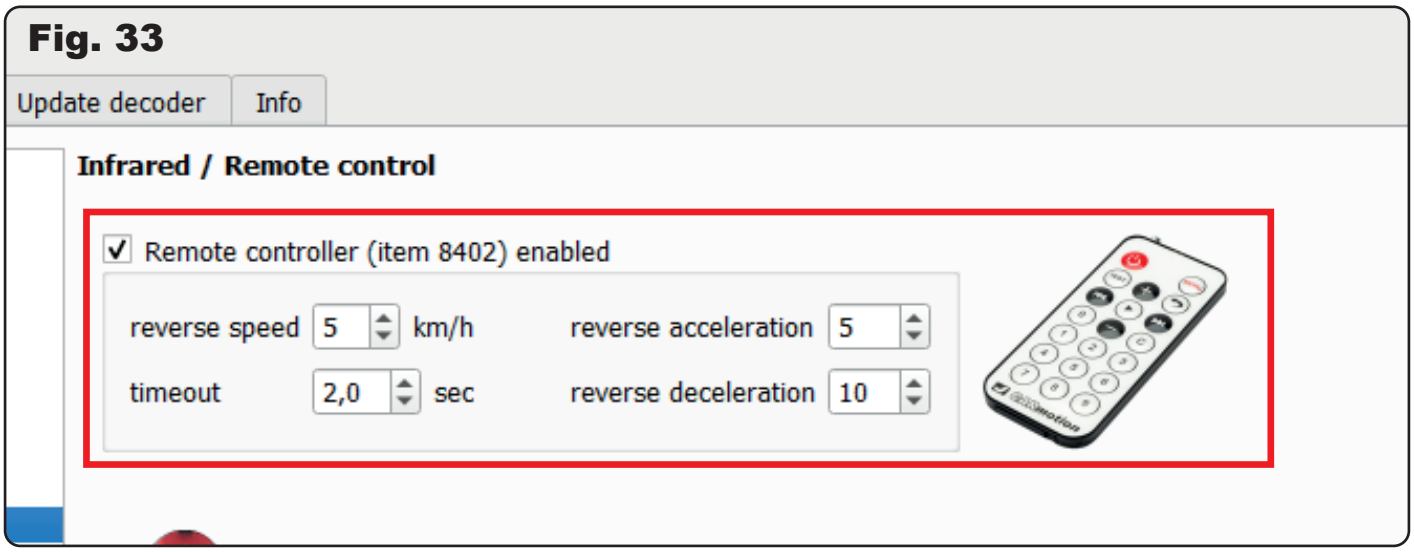


4.4.4.3 Remote control

n this chapter, you will find an overview of the currently switchable functions with the Viessmann CarMotion remote control Art. 8401 (fig. 31).



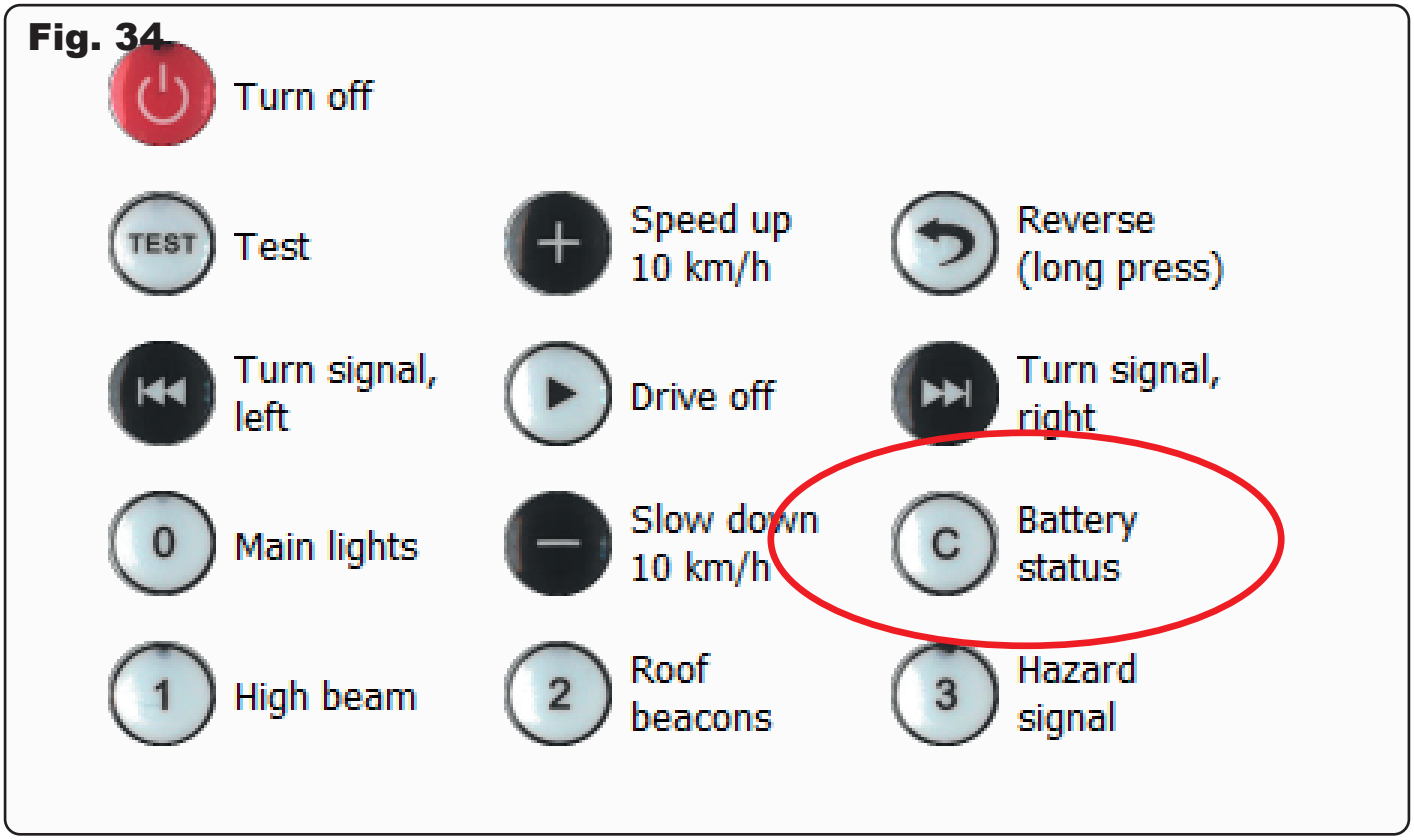
Note: For reversing the vehicle, press and hold the button and aim at the front of the vehicle. The reversing lights of the vehicle turn on after about 2 seconds and the vehicle moves in reverse (fig. 32). To individually adjust the reverse drive of each CarMotion vehicle, you can set additional parameters such as reverse speed and acceleration rate (fig. 33).



Note: To display the current battery charge level of a vehicle, press the „C“ button (fig. 34). Depending on the battery charge level, the cabin interior lighting blinks once, twice, three or four times:

- One short blink: the battery is empty or almost empty (0% - 25%).
- Two blinks: below-average battery charge (25% - 50%).
- Three blinks: above-average battery charge (50% - 75%).
- Four blinks: the battery is full or almost fully charged (75% - 100%).

Fig. 34

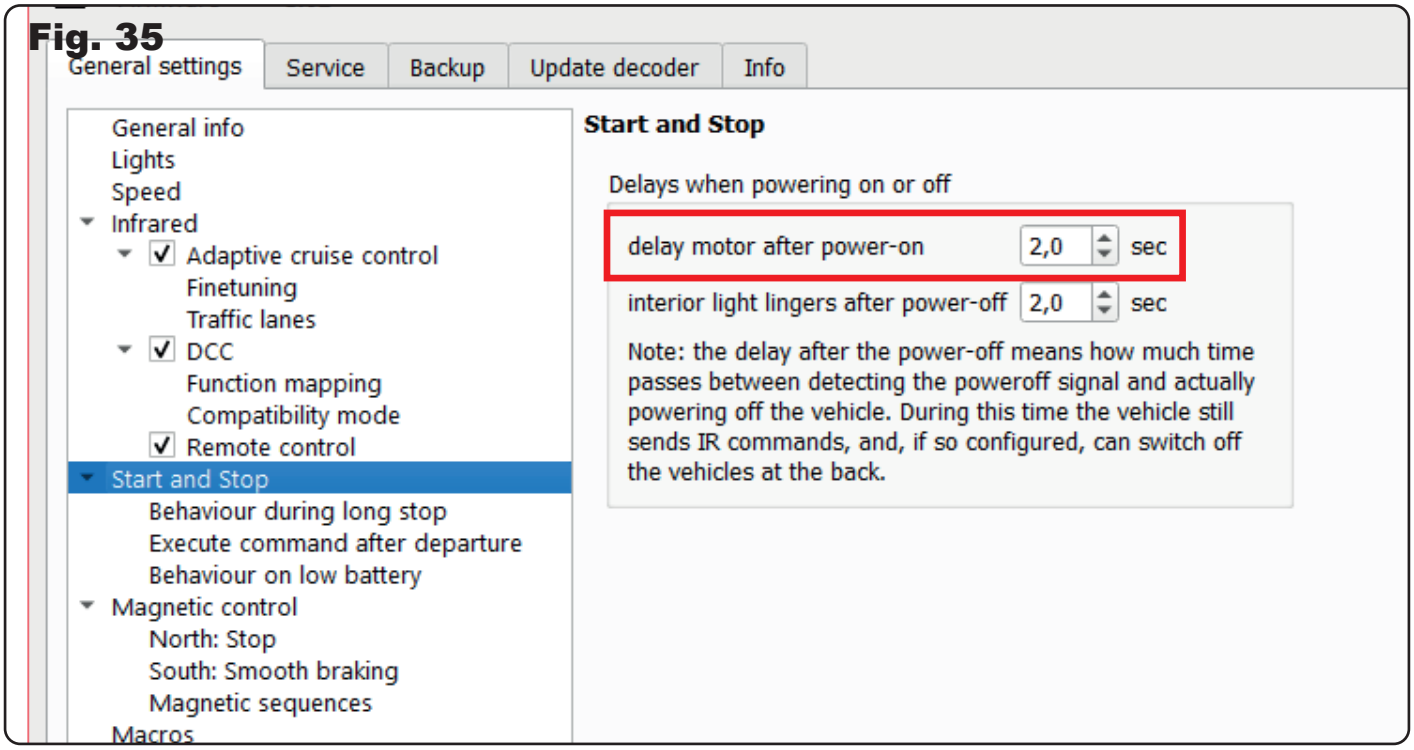


4.5 Start und Stopp

In this menu item, you can adjust the behavior of CarMotion vehicles when turning on and off.

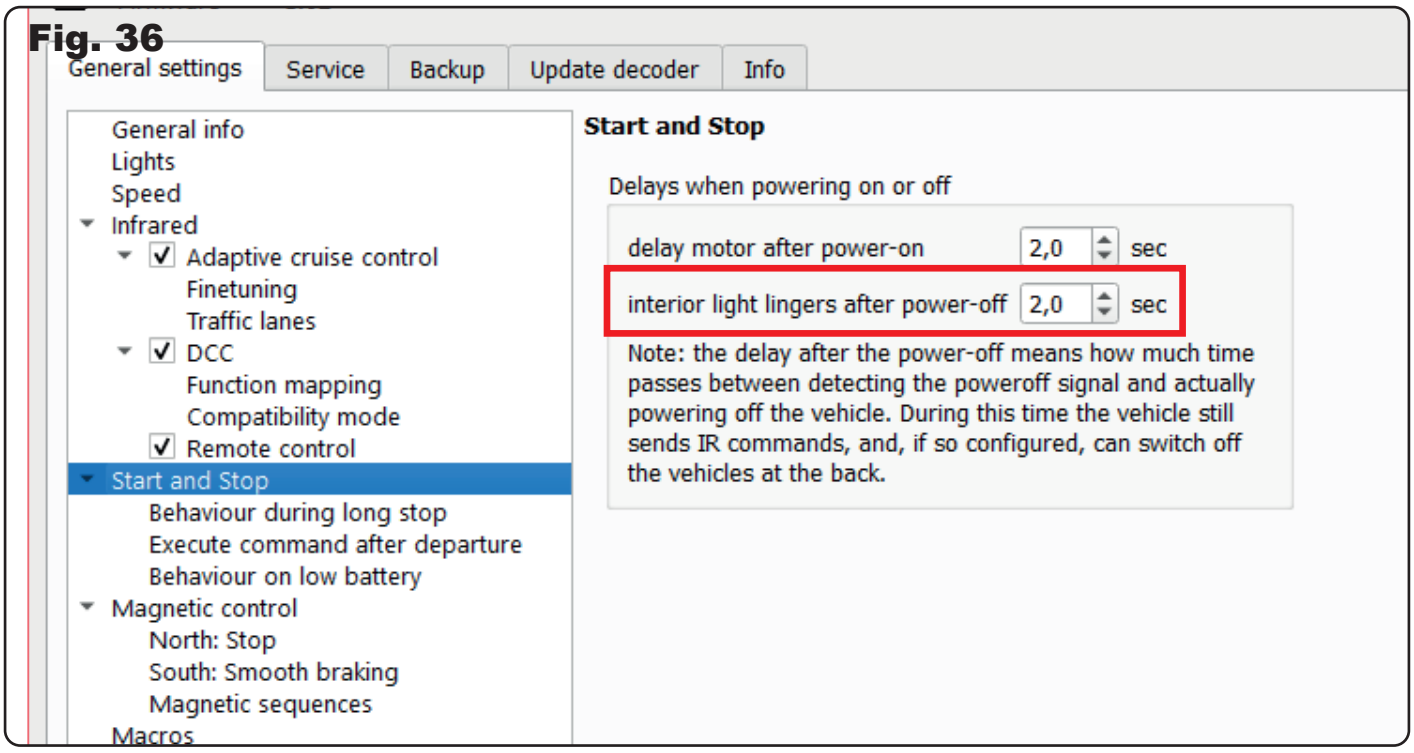
„Engine delay after turning on“: Specifies the time after which the engine is turned on after the vehicle is switched on (fig. 35).

Fig. 35



„Interior lighting remains on after switching off“: Specifies the time for which the cabin interior lighting remains illuminated after the switch-off command (fig. 36). This simulates the opening of the driver‘s door and the driver getting out. During the switch-off command, infrared information is transmitted to the rear, and, if set, vehicles behind can be switched off simultaneously.

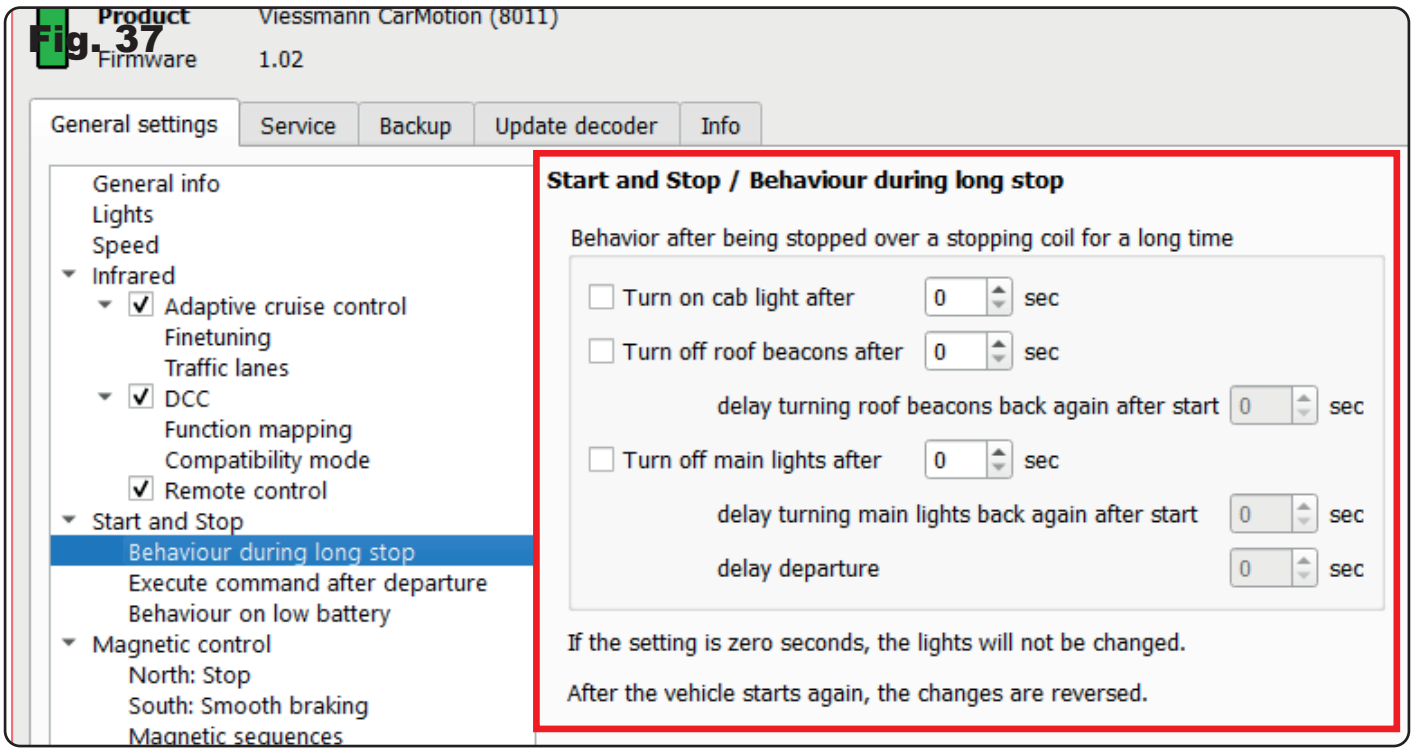
Fig. 36



4.5.1 Behaviour during extended stops

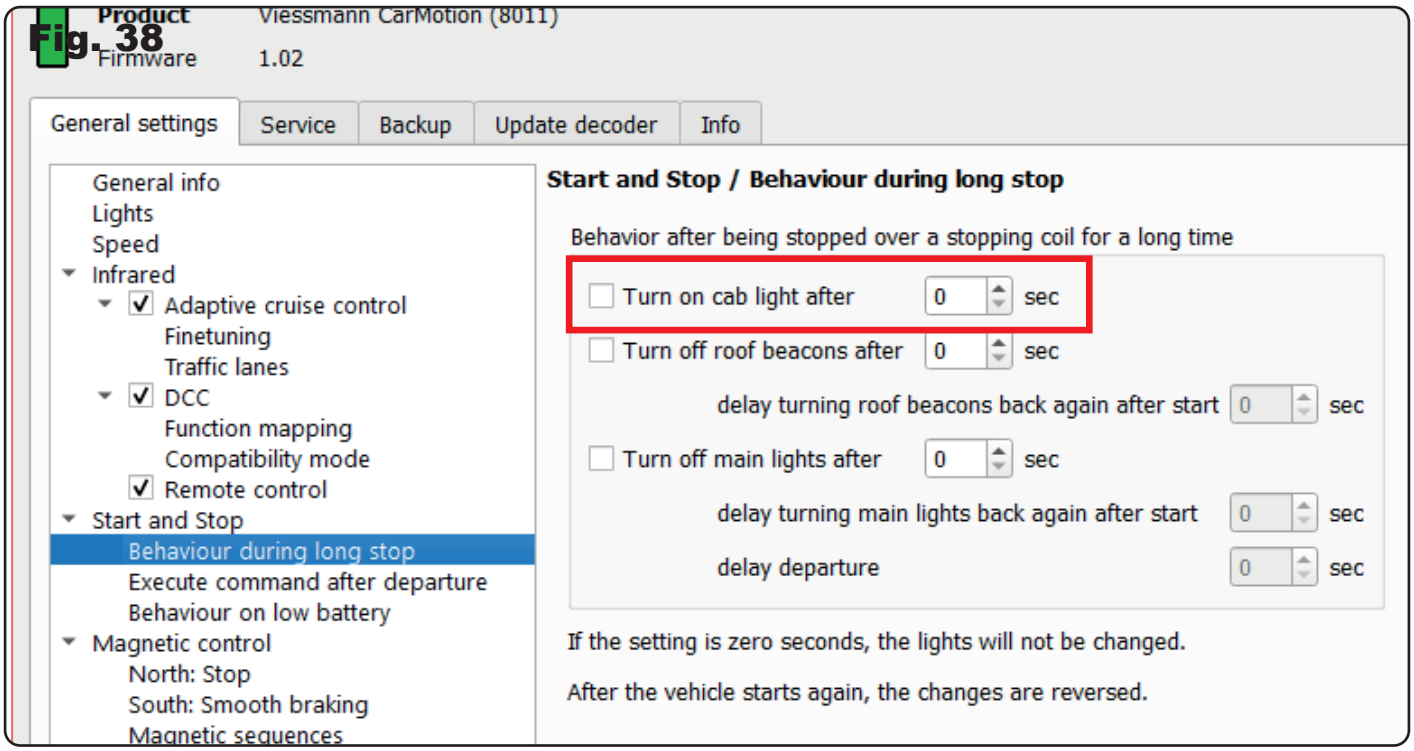
Here, you have the option to make settings on how the CarMotion vehicle should react during a longer stop at a stop sign (fig. 37). The cabin lighting of the vehicle can be turned on, and the roof beacons and main lights of the vehicle can be turned off after a certain standing time. With a programmable time delay, you can, just like the original, realize turning on the lights on the vehicle with a time lag!

Fig. 37



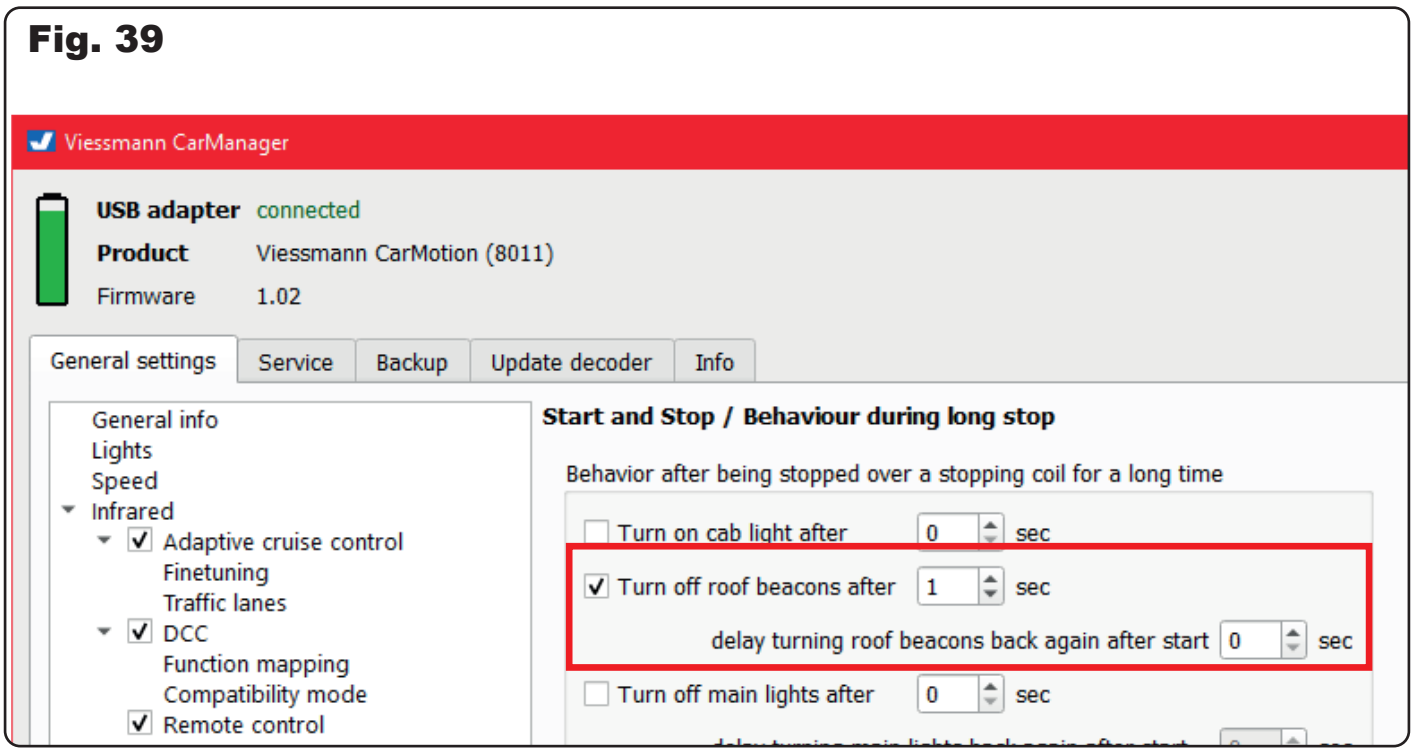
By checking the „Turn on cabin lighting after...“ checkbox, you have the option to simulate the driver getting out of the vehicle, with the cabin lighting automatically turning on after the set time (fig. 38).

Fig. 38



The rotating flashing lights on the vehicle can be turned off in the same way with the „Turn off round lights after...“ option. Just like in reality, you also have the option for them to automatically turn on again when you continue driving (fig. 39).

Fig. 39



The same settings can also be made for the vehicle‘s main lights under „Turn off main lights after...“ (fig. 40). A small particularity here is the start delay after the lights are turned on again, so that the vehicle only continues to drive after the lights have been turned on again

4.5.2 Execute command after starting

In this menu item, you can assign a control command to the vehicle after restarting at a stop. This is dependent on the lane being driven on (fig. 41).

Fig. 40

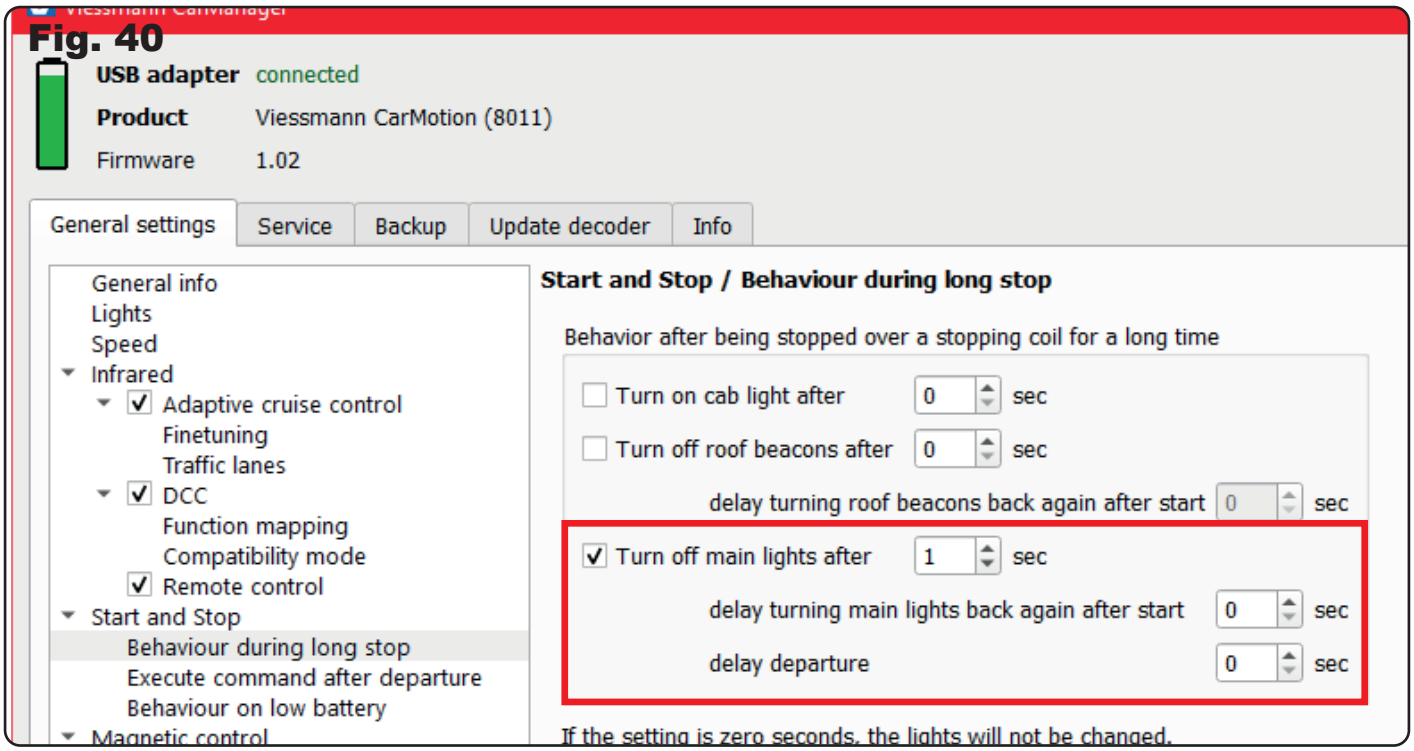


Fig. 41

4.5.3 Low battery behaviour

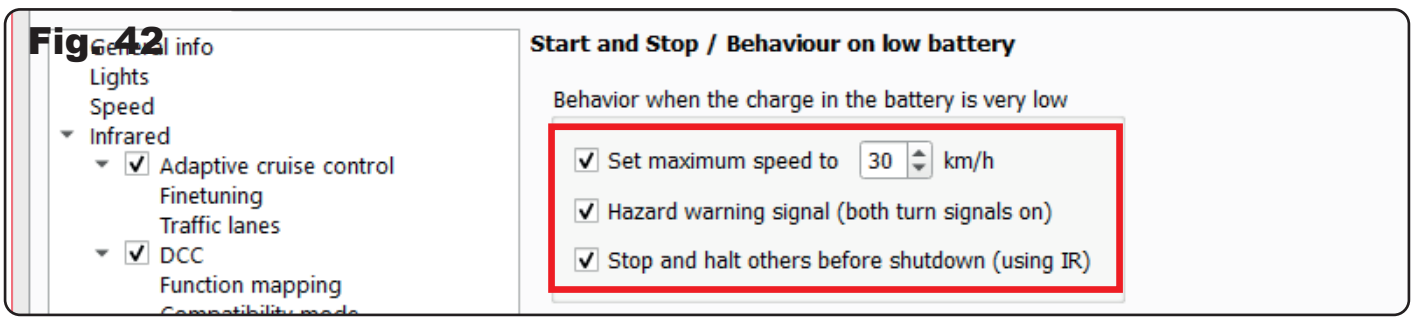
If the vehicle has a very low battery level, you can set how the vehicle should react here.

In this menu, you can assign the vehicle three different behaviors when the battery level is low. You can command the vehicle to reduce speed to, for example, 30 km/h and turn on the hazard lights.

In addition, you can execute the command to stop and send this stop command to vehicles behind (fig. 42).

Note: Vehicles that are forced to stop due to a preceding or already standing vehicle with a low battery level will only start again when they are moved to continue driving via the remote control (Play button) or when turned off and on again. Another option is to place a ready-to-drive vehicle in front of it and let it drive away. The previously executed stop command is then cancelled.

Fig. 42



4.6 Magnet control

The CarMotion vehicles are equipped with a Hall sensor on the right side of the vehicle, which detects electro-magnetic stop coils, permanent magnets or other components that generate a magnetic field.

In this menu, you can adjust the sensitivity of the Hall sensor. The range of the detection radius of, for example, permanent magnets, can be influenced (fig. 43).

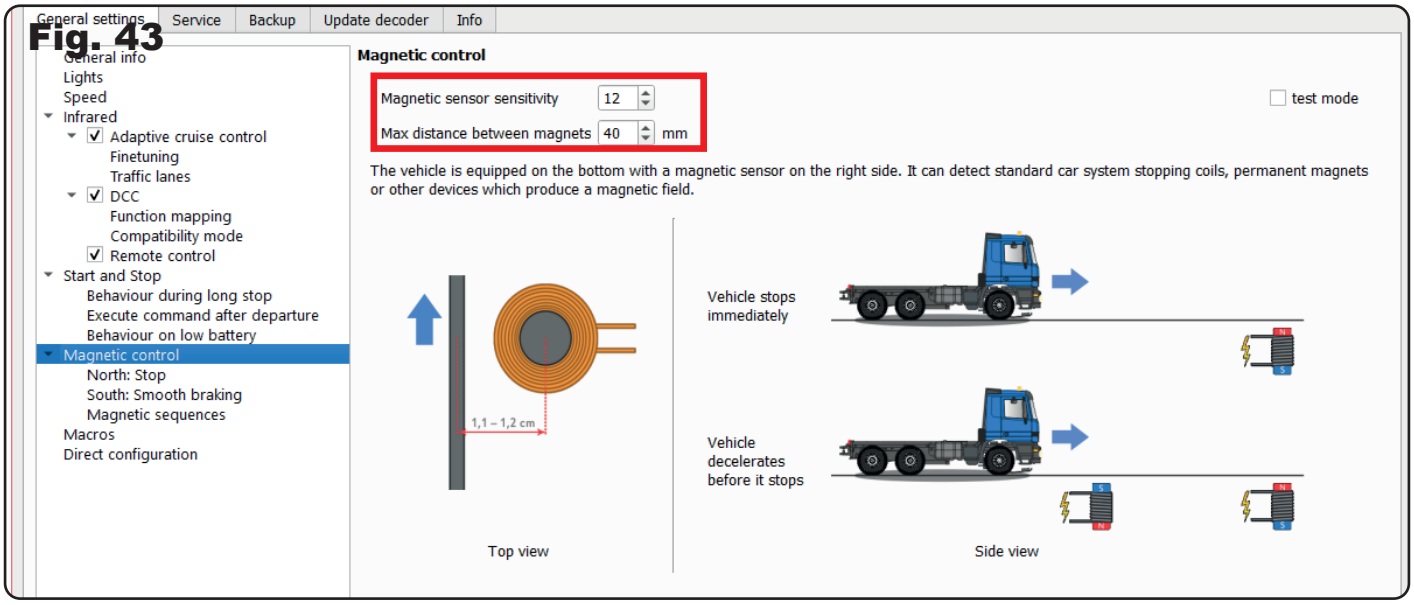


Fig. 43

In addition, information about the maximum distances of installed permanent magnets can be given to the magnetic sensor. This information is particularly important for magnetic control.

Note: The more sensitive the Hall sensor is set, the more susceptible it is to external magnetic fields.

You can also use the „test mode“ to check if the vehicle detects magnets while driving (fig. 44).

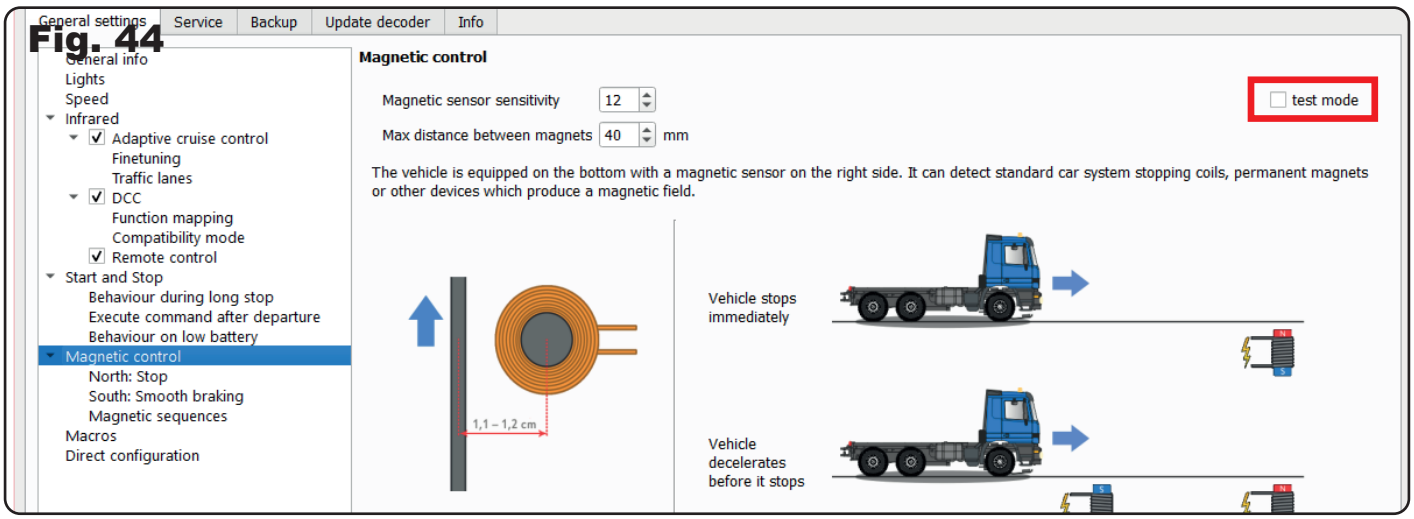


Fig. 44

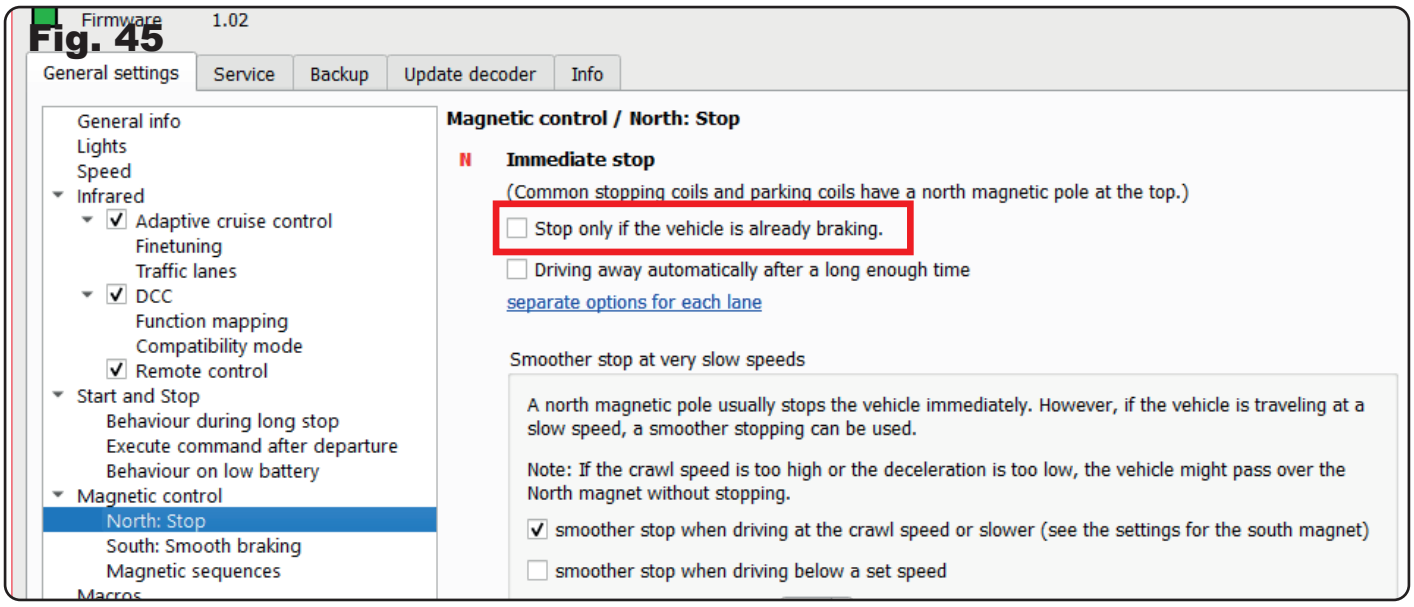
4.6.1 North: Stop

In this menu item, you can adjust the stopping behavior of the vehicle when it is at a stop or a north pole (stop command) is detected on the road using the magnetic sensor.

When the checkbox is activated, you have the option to only stop the vehicle if it is already performing a braking maneuver (fig. 45). Otherwise, the vehicle ignores the north pole (stop command) and continues at normal speed. This option is particularly useful at intersections with traffic lights, for example, to allow the vehicle to cross a yellow light.

For this, two electromagnetic stop coils are necessary, which are coupled together. One coil acts as a trigger for the slow driving section (south pole directed towards the road surface) and the other stop coil (north pole directed upwards) serves as a normal stop location in front of the traffic light. Once the traffic light turns red, but the vehicle has already crossed the south pole, the vehicle ignores the stop command and drives over the yellow light.

Fig. 45

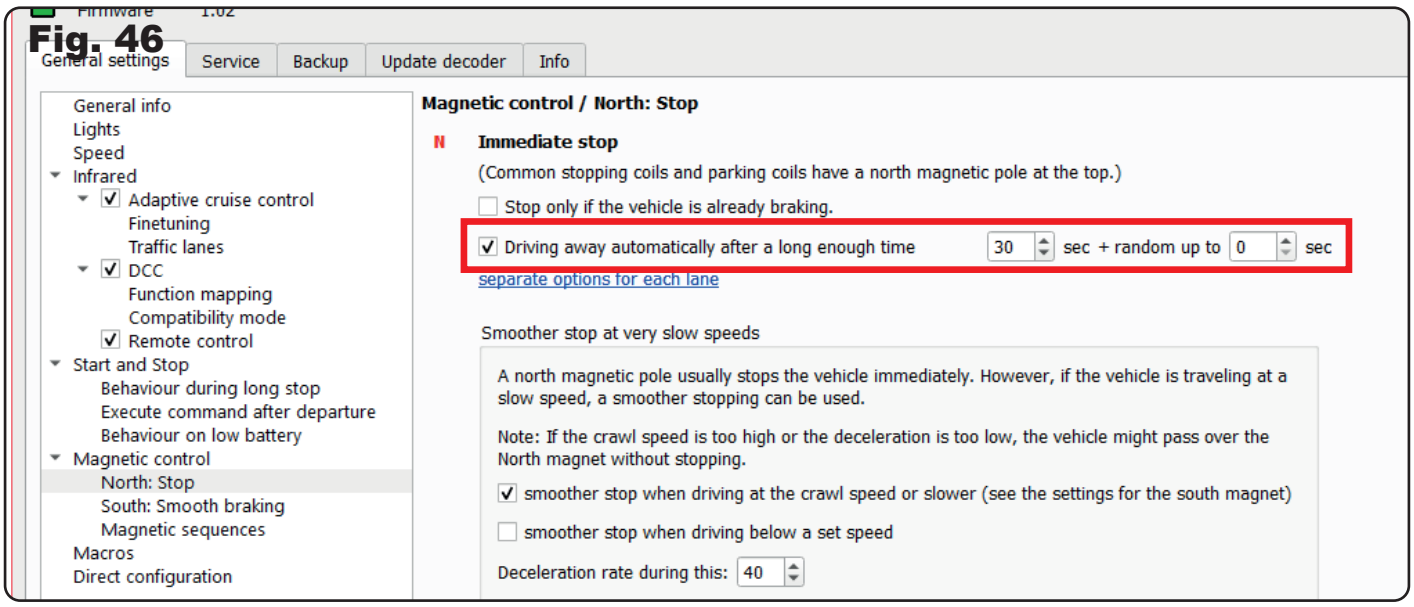


A very useful setting is the automatic continuation after a certain period of time. To make the driving operation as varied as possible, a period of time can even be selected at random here. The vehicle then drives independently and randomly within this limited time period at each stop location. The time period can be chosen between 1-255 seconds (fig. 46)

Hinweis: The option for automatic continuation at stop locations is deactivated from the factory.

In addition, you can choose to let the vehicle continue randomly depending on the lane (fig. 47).

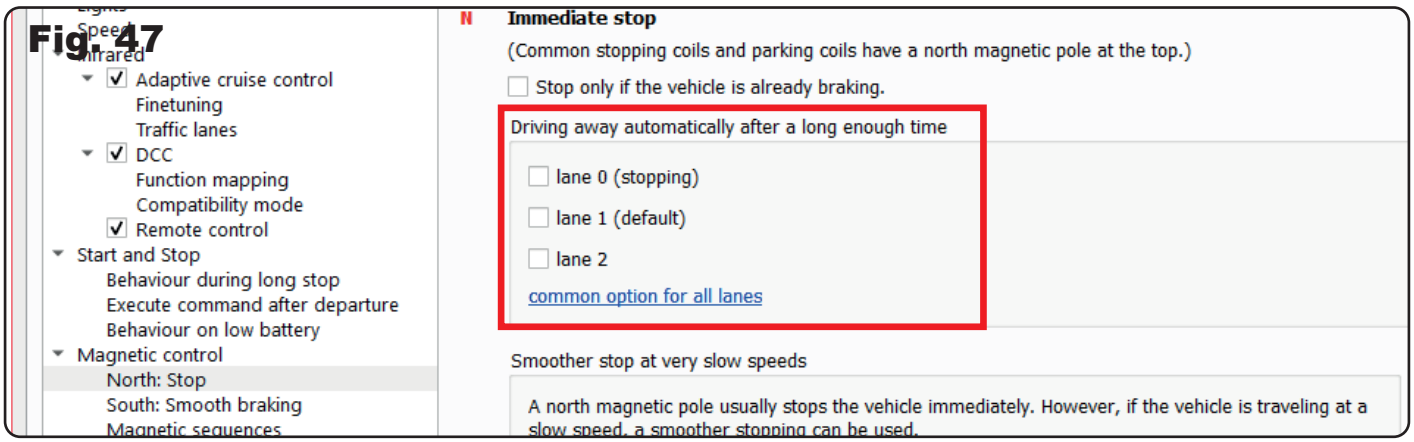
Fig. 46



So, you have a lot of options to simulate specific scenarios on your CarMotion system!

In the submenu for gentle stopping at low driving speeds, you have the option to let the vehicle brake gently at a stop location (fig. 48). Only a very short braking ramp can be driven, as the magnet must not be crossed,

Fig. 47



but the impression of an abrupt stop is avoided. This option is already activated from the factory. Additionally, you can activate gentle stopping when the speed falls below a certain limit. Here, you can set the speed from 1km/h up to a maximum of 30 km/h.

In both cases, you can also adjust the braking rate to your needs

Hint: We recommend placing a south pole before stop locations so that the vehicle does not stop abruptly at a stop location but comes to a gentle and uniform stop.

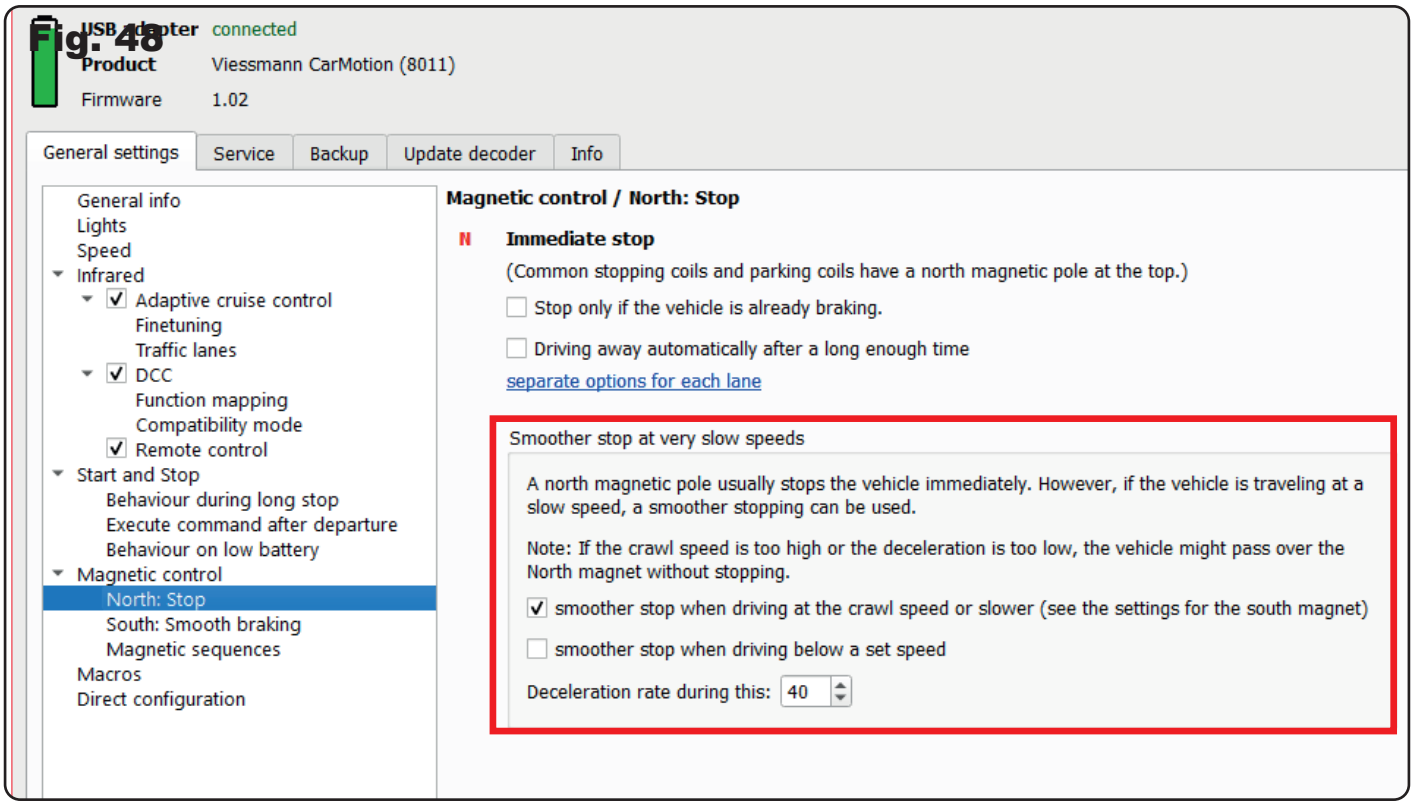


Fig. 48

4.6.2 South pole: Gentle braking

With the help of a south pole magnet, you can initiate a gentle braking process for your vehicle. The vehicle will be decelerated to the set crawling speed, regardless of its initial speed, over the chosen braking distance. Once the crawling speed is reached, the vehicle will maintain this speed until it reaches a stopping point or a chosen time or distance limit. If the time or distance limit is exceeded and the vehicle has not reached a stopping point within the limit, it will resume its normal driving operation. The time span during which the vehicle will drive at crawling speed can be limited to between 1-255 seconds (fig. 49).

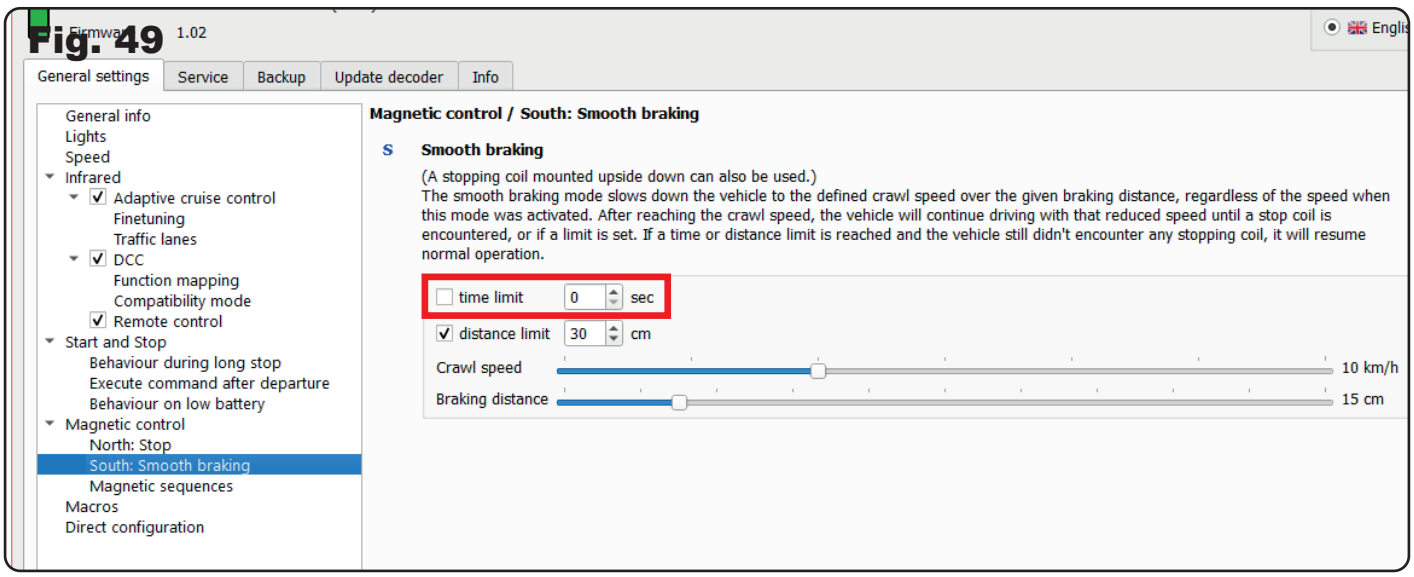
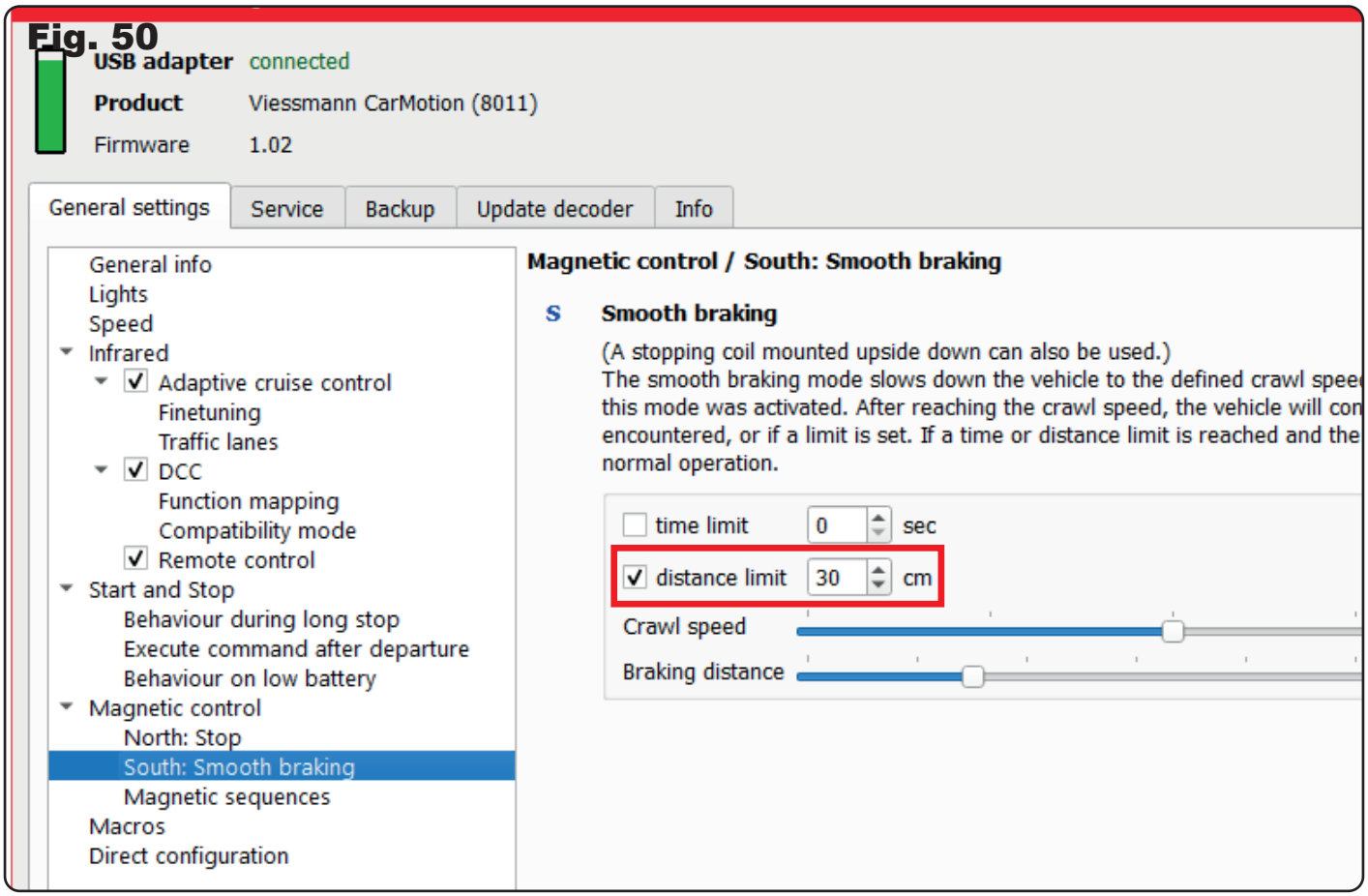


Fig. 49

The driving distance at crawling speed can be set to a maximum of 255 cm (fig. 50).

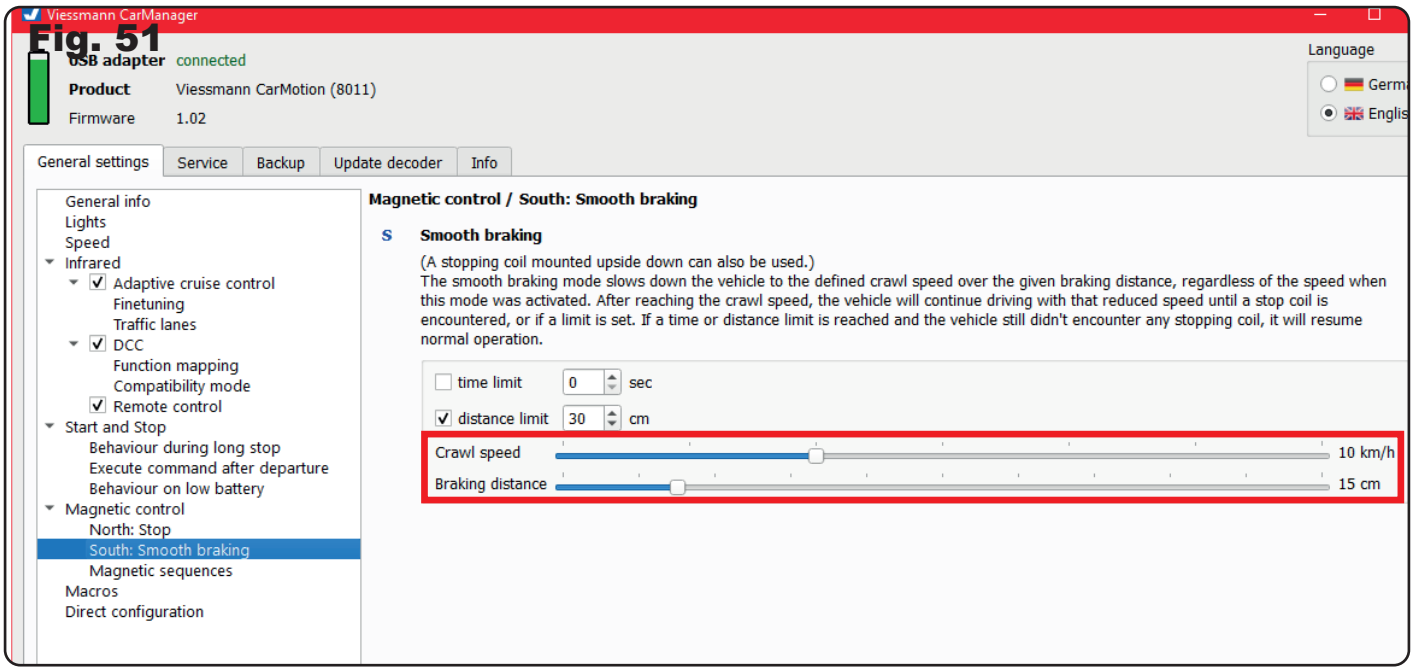
Fig. 50



The crawling speed can be limited to a maximum of 30 km/h (see Fig. 51).

The adjustable braking distance can be a maximum of 100 cm (fig. 51)..

Fig. 51



Hint: You can extend the distance for driving at reduced speed by placing several south pole magnets within the set limits. This is particularly useful for CarMotion systems where different driving distances at crawling speed are required without changing the vehicle settings.

Note: The magnets should be placed at least 5 cm apart to avoid being interpreted as a double south pole by the vehicle.

4.6.3 Magnet sequences

To ensure compatibility with other car systems, the following functions are assigned to these magnet sequences from the factory:

N: Immediate stop

S: Uniform deceleration

S N: Cancels existing magnet commands: turn signals are turned off, old speed is resumed, and the lane is reset to the base lane. .

S S: Informs vehicles of a lane change to the stopping lane for distance control.

S N N: Blinks right for 30 cm, while speed is limited to 30 km/h.

S N S: Blinks left for 30 cm, while speed is limited to 30 km/h.

S S N: Limits speed to 30 km/h

S S S: Turn on high beam

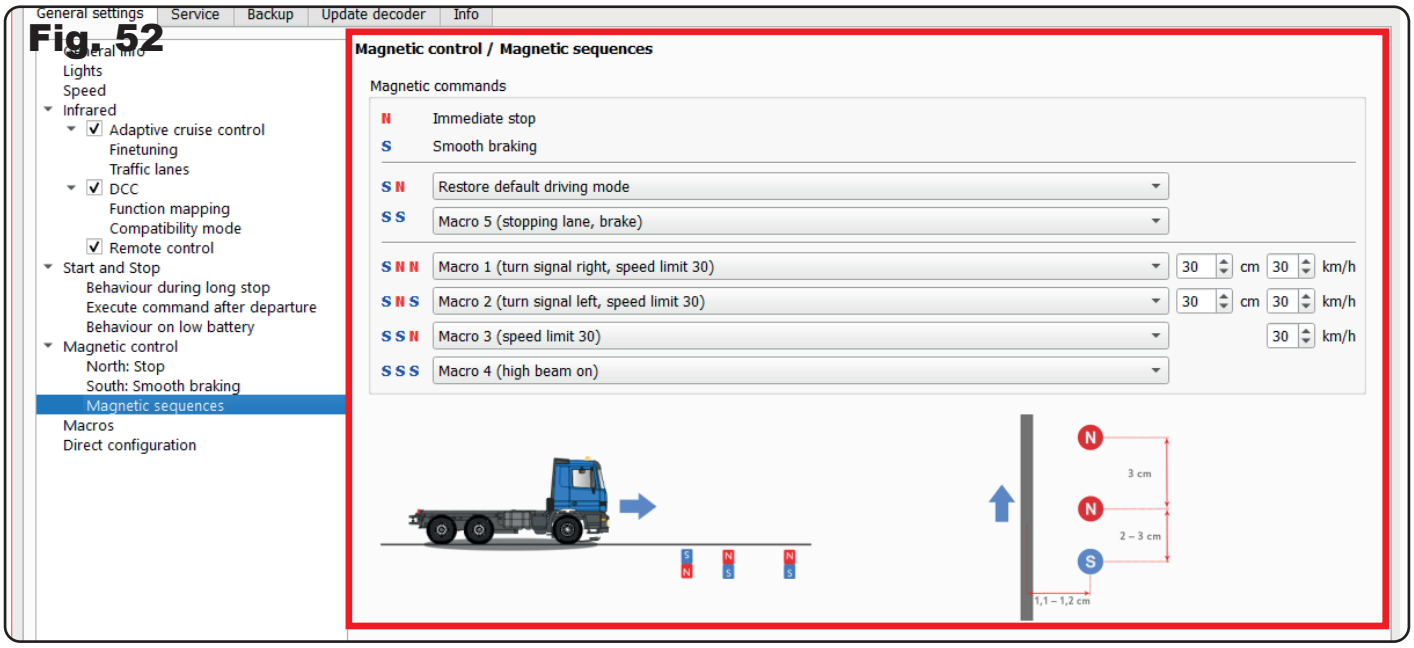


Fig. 52

Note: Individual north and south poles are immutable and always represent a stop (north pole) or uniform deceleration (south pole) for the CarMotion vehicles.

Note: The arrangement of individual magnets in a magnet sequence must always be viewed in the direction of the vehicle‘s travel. This is also recognized by the vehicle‘s magnetic sensor (Hall sensor) and the stored command is executed. The sensor has a relatively large detection range. For optimal function, we recommend placing the permanent magnets just below the road surface, with their centre located 1.1-1.2 cm to the right of the guide wire or the centre of the magnetic tape. A disctance of 3 cm is recommended between the magnets, but for two unequal-polarity magnets, the distance can be reduced to 2 cm for space reasons. (fig. 53).

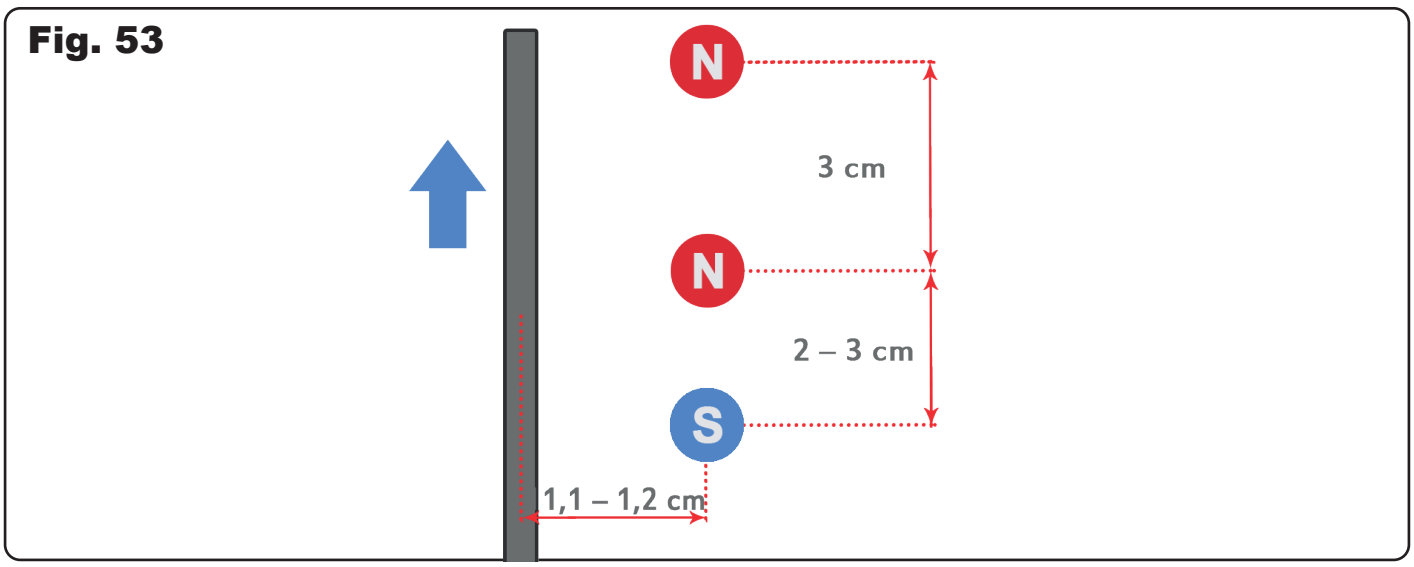


Fig. 53

The individual control commands can be customized to your needs. Control commands are available that can be configured individually for each vehicle via the „Macros“ menu (fig. 54). You have the option to assign an individual control command to each vehicle for the same magnet sequence!

Pure variety for your individual driving operation with our CarMotion vehicles!

For further details on configuring individual control commands, please refer to the following chapter 4.7.0 „Macros“.

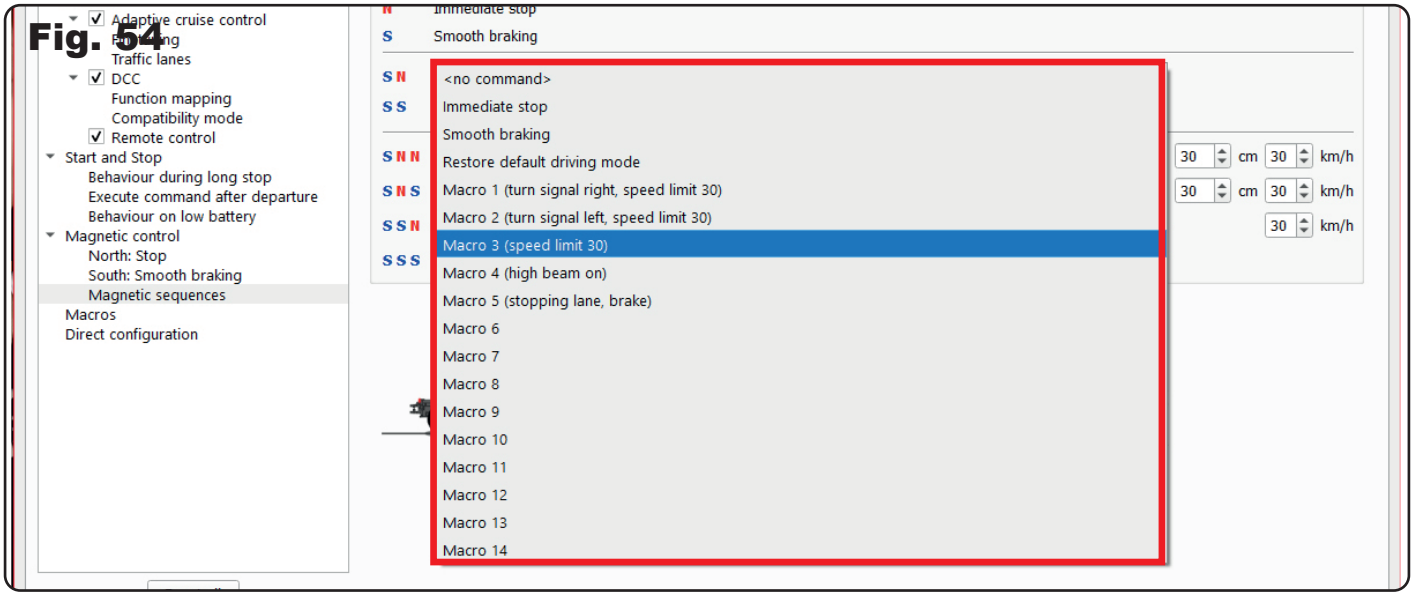


Fig. 54

4.7 Macros

In this menu, you will find the possibility to make your layout operation with CarMotion vehicles even more individual and varied.

Macros are advanced commands that can be triggered by crossing magnetic sequences, infrared transmitters, or by certain conditions being met.

In the top tab bar, you can switch between 14 different macros and customzie them to suit your driving needs (fig. 55).

Behind each macro is a control command that can be further configured. The first 5 macros are pre-configured with control commands. Macros 3-5 can be customized at any time.

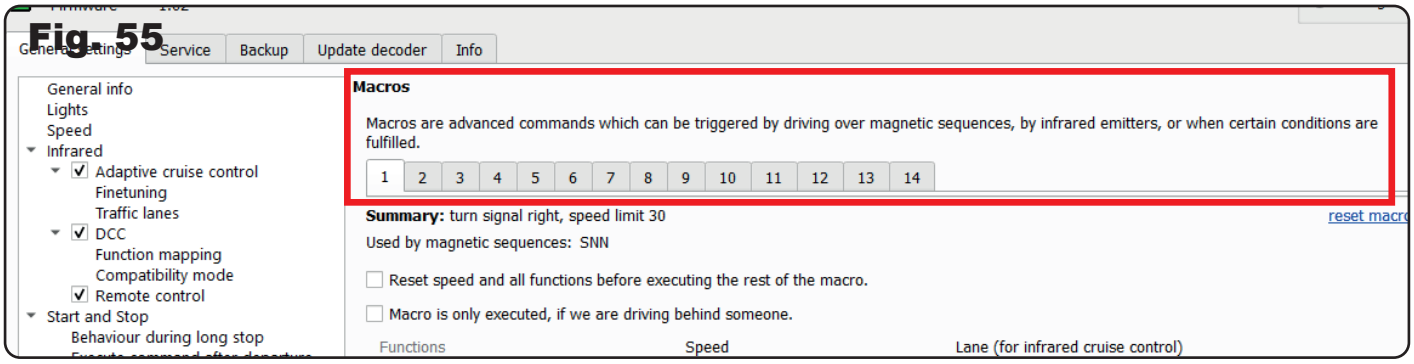


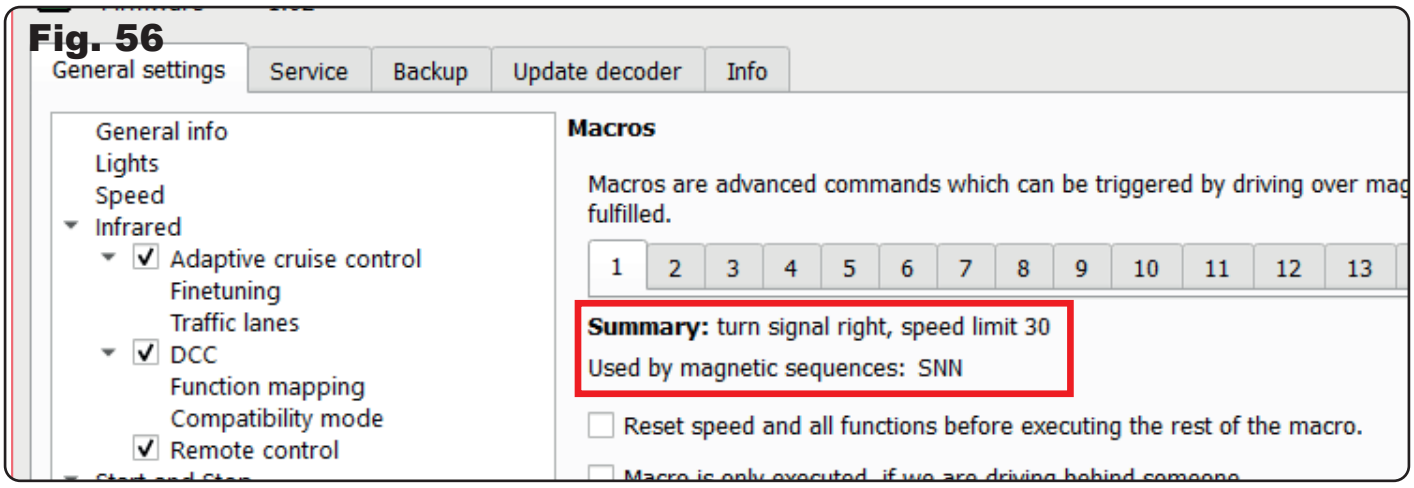
Fig. 55

In the „Overview“ section, you can see which control command is being executed and which magnetic sequence is triggering it. fig. 56).

You can set the command to be executed in the „Magnetic sequences“ submenu in the CarManager (see section 4.6.3).

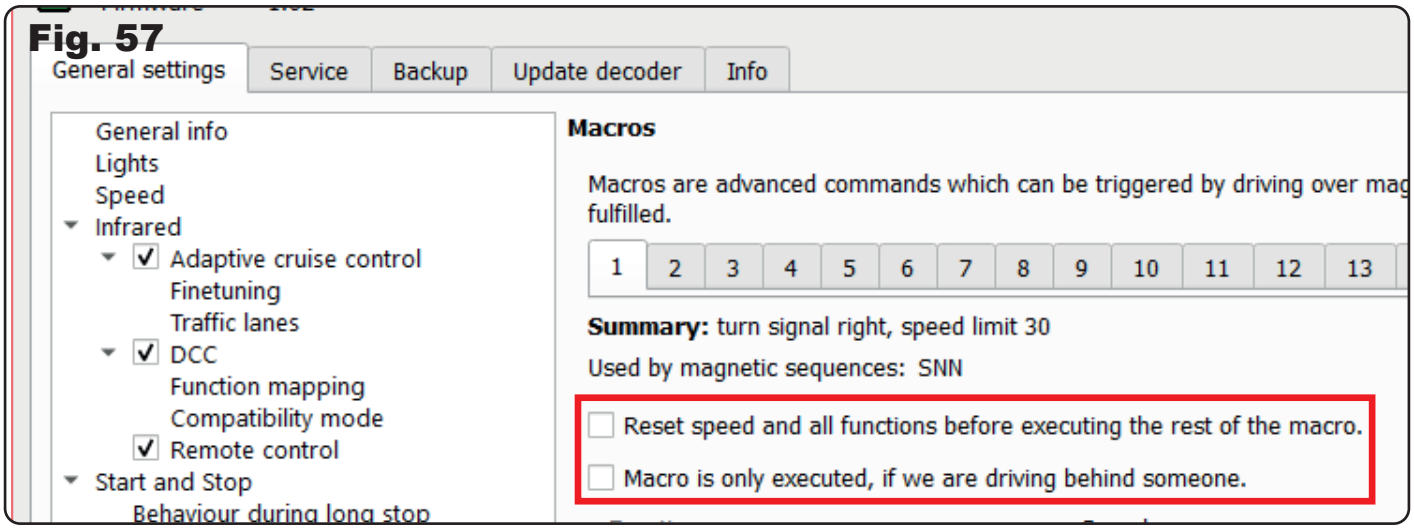
Example: The magnetic sequence SNN is assigned to Macro 1. When the vehicle crosses this magnetic sequence, it will blink right and the speed will be limited to a maximum of 30 km/h. The control command will be executed over a distance of 30 cm. Another macro can be assigned to this macro at this point (fig. 54) or a speed and distance limit can be imposed. If this control command needs to be further customized, select Macro 1 in the „Macros“ settings. As you can see, the summary describes exactly how this control command works (fig. 56).

Fig. 56



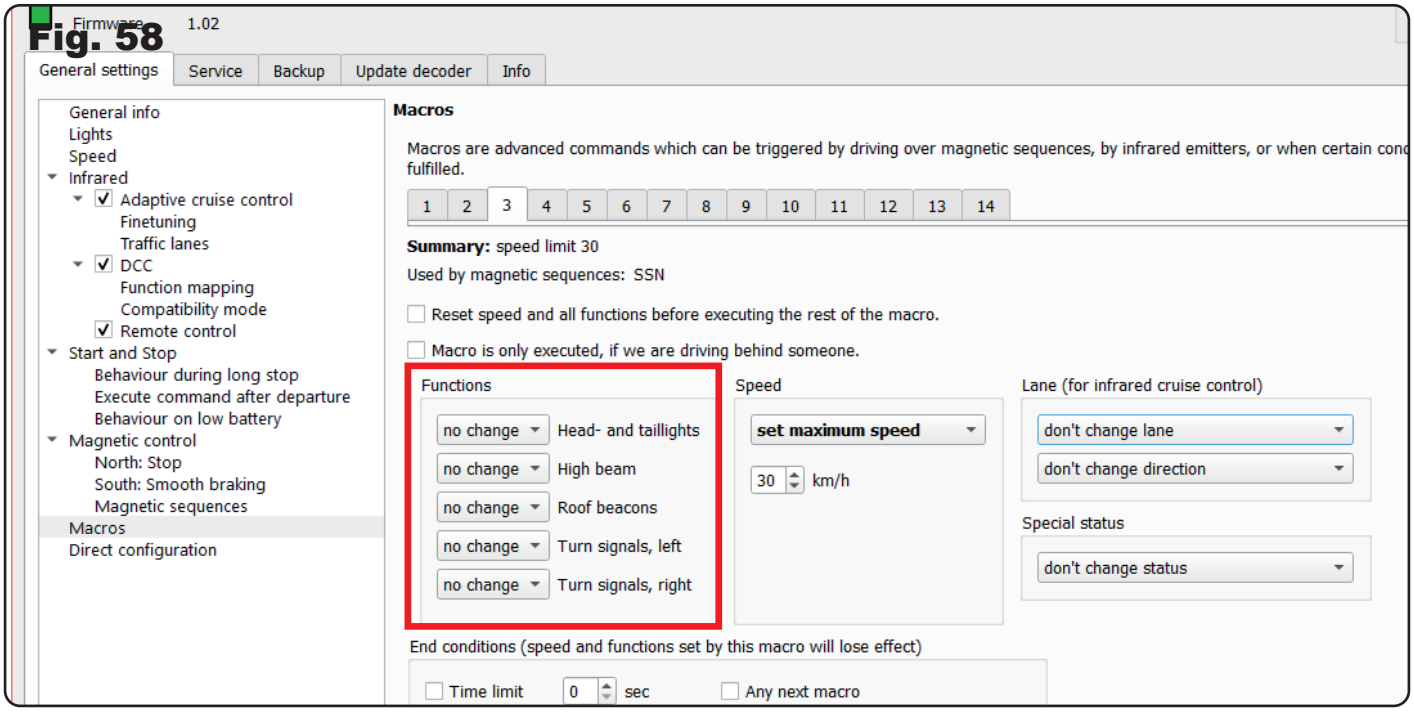
With the two checkboxes, you have the option to set the vehicle to its basic speed and to clear all temporary driving information that was caused by other external control commands before executing the commands assigned to this macro (fig. 57). Alternatively, you can also execute a macro only when the vehicle is behind another preceding vehicle.

Fig. 57



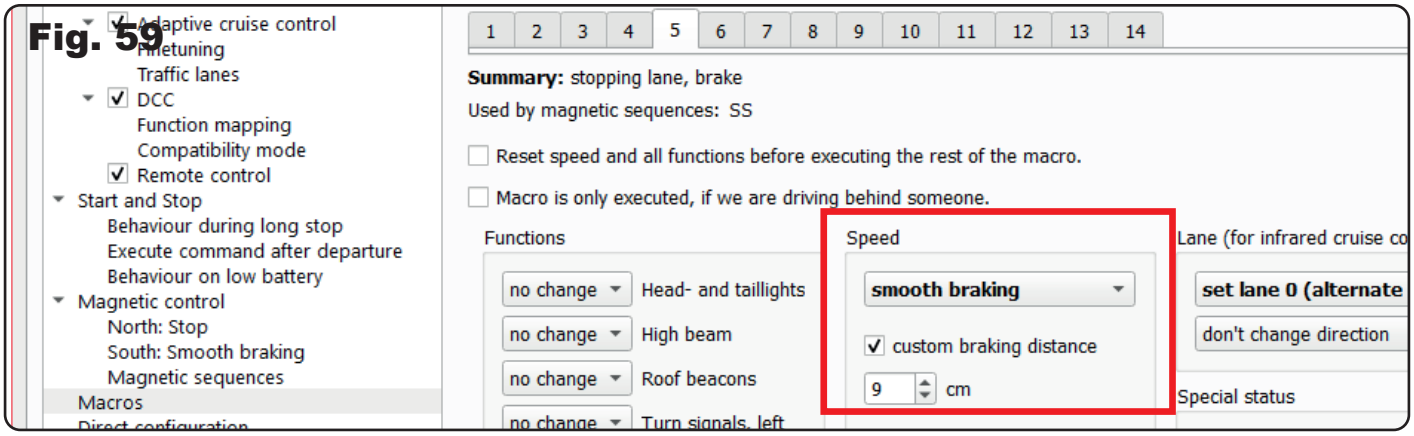
You can also activate additional „light functions“ on the vehicle for certain driving commands (fig. 58).

Fig. 58



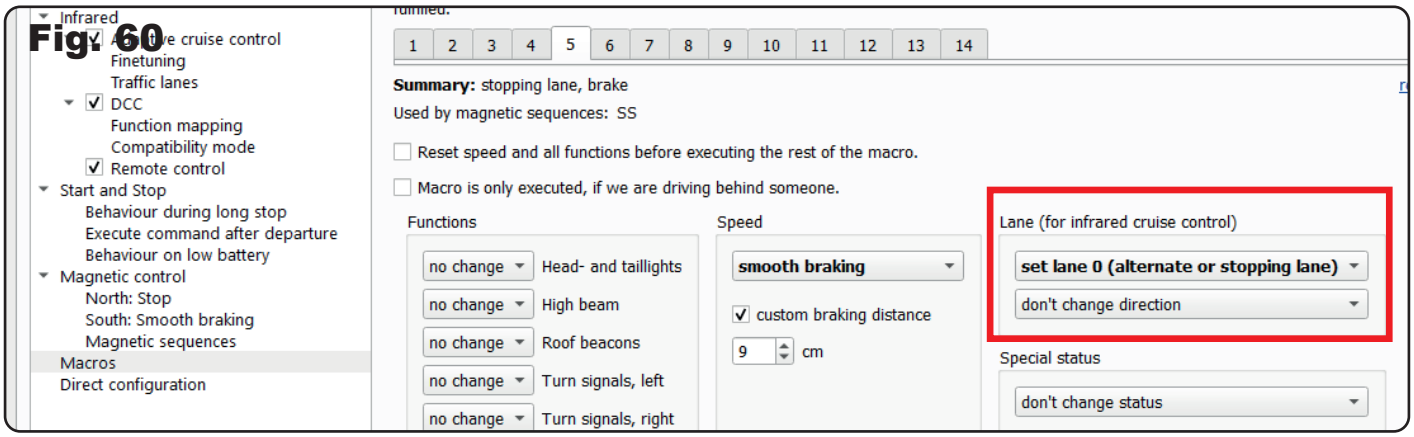
In the „Speed“ section you can influence the vehicle‘s driving behaviour. For example, you can set a maximum speed limit or instruct the vehicle to gently brake at a particular magnetic sequence. You can also provide the vehicle with a custom braking distance as an additional option (fig. 59).

Fig. 59



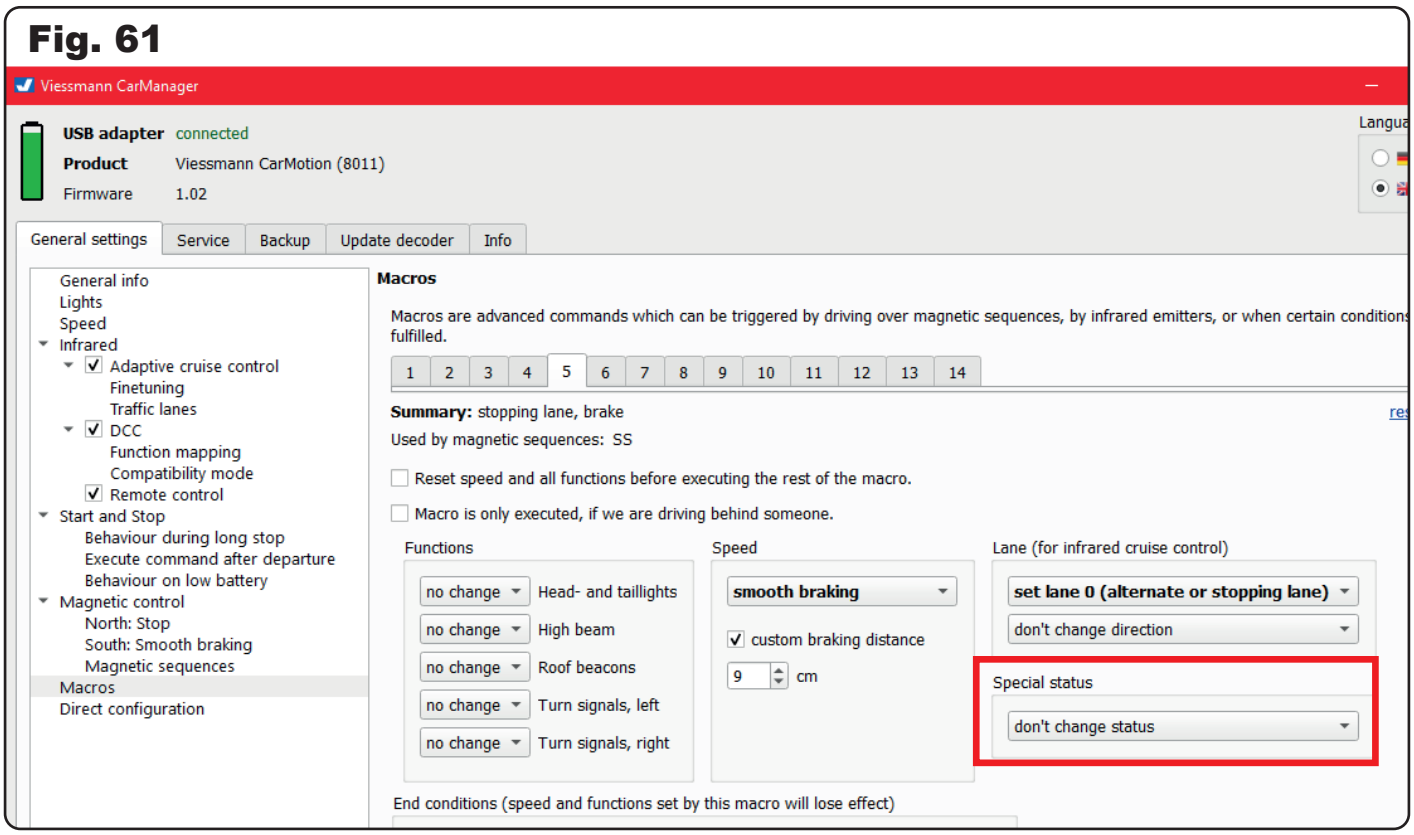
Additionally, you can give the vehicle a „lane or direction information“ while it is executing the control command (fig. 60).

Fig. 60



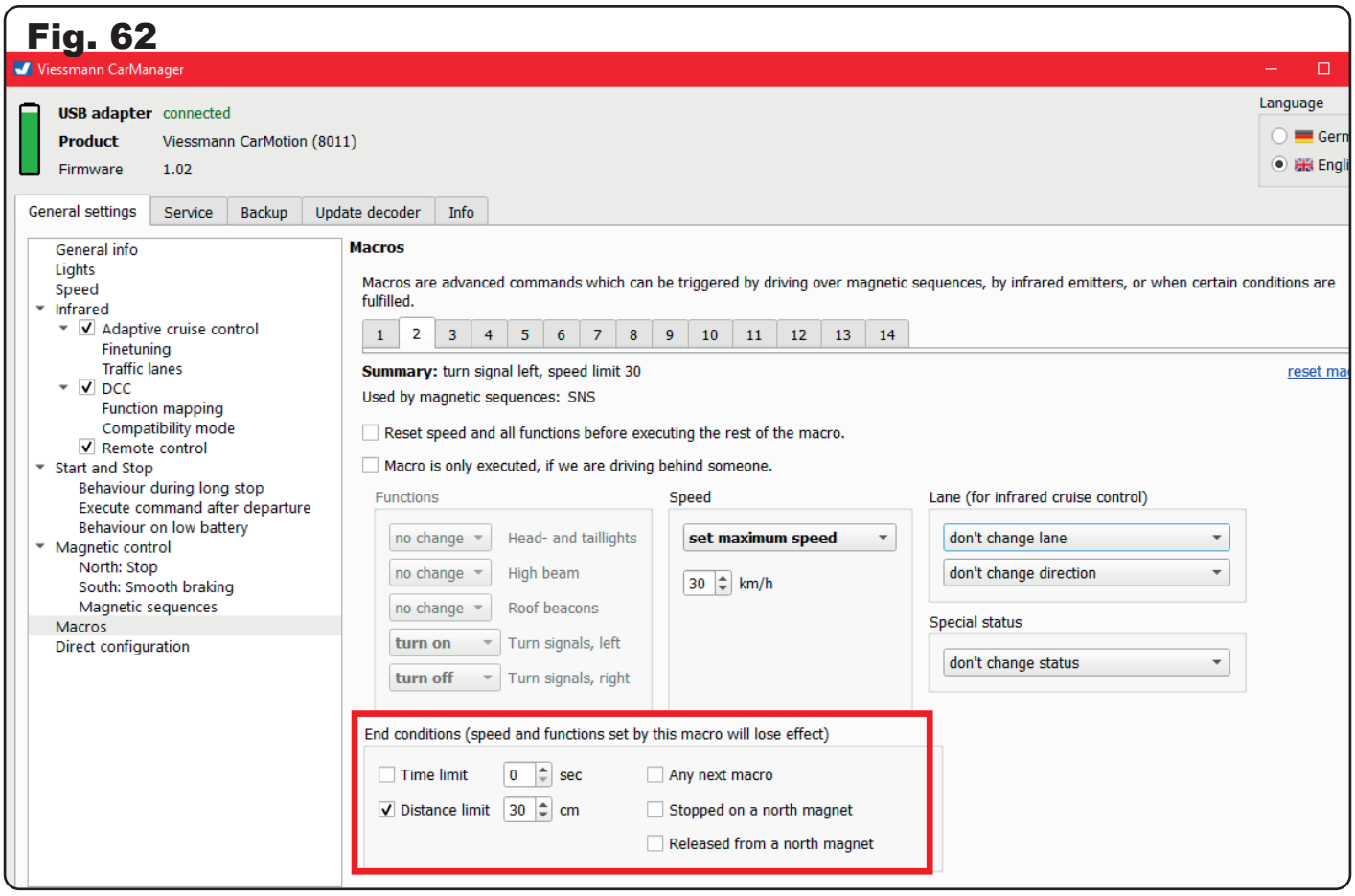
Another option is to enable or disable the vehicle‘s „identification“ during a control command (fig. 61).

Fig. 61



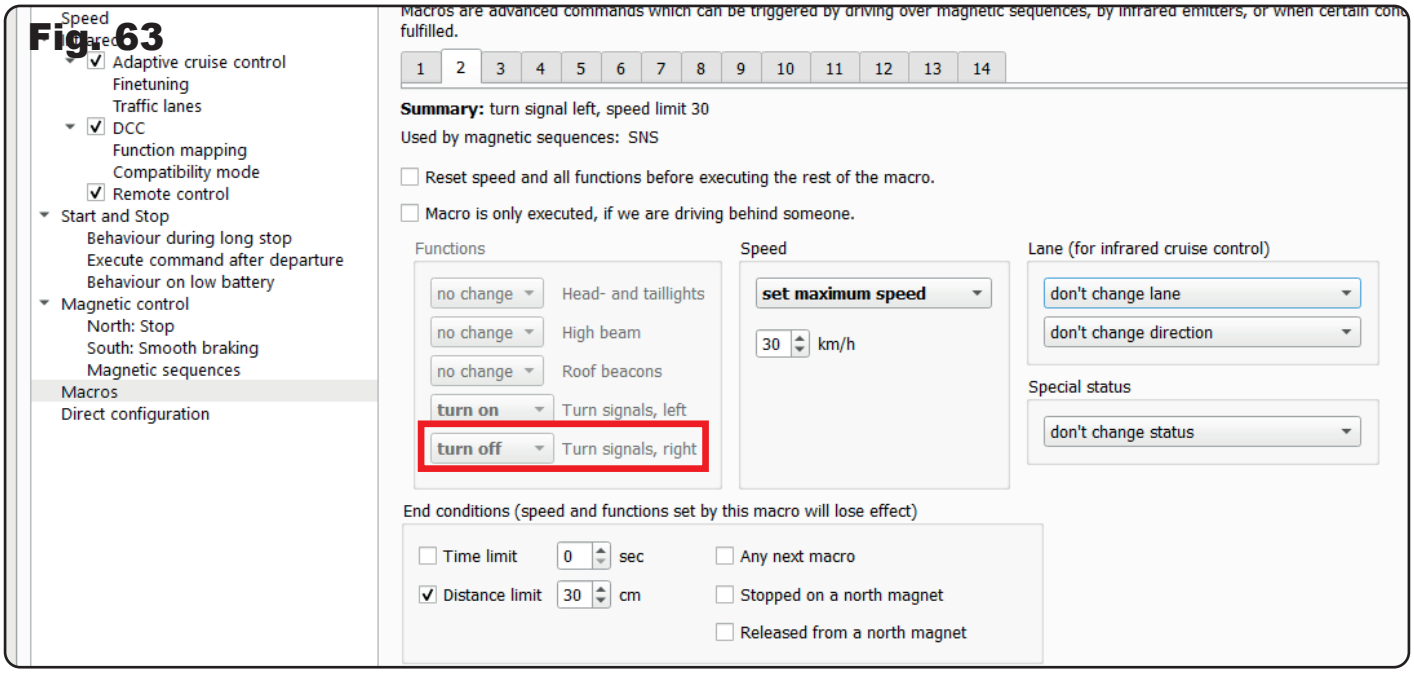
You can also terminate the execution of the control command associated with the macro according to self-selected criteria. For example, with the control command „left blinker“ you can choose to end the command after a certain period of time or distance. The default setting for this is 30 cm. You can also choose to end the command by crossing over another magnetic sequence or by depending on a north pole (stopping or restarting at a stop location) (fig. 62).

Fig. 62



Note: Depending on the control command assigned to a magnetic sequence, some options may be mutually exclusive. In this case, the fields will be grayed out and cannot be selected. For example, with macros 1 and 2, you cannot activate both direction indicators simultaneously (fig. 63).

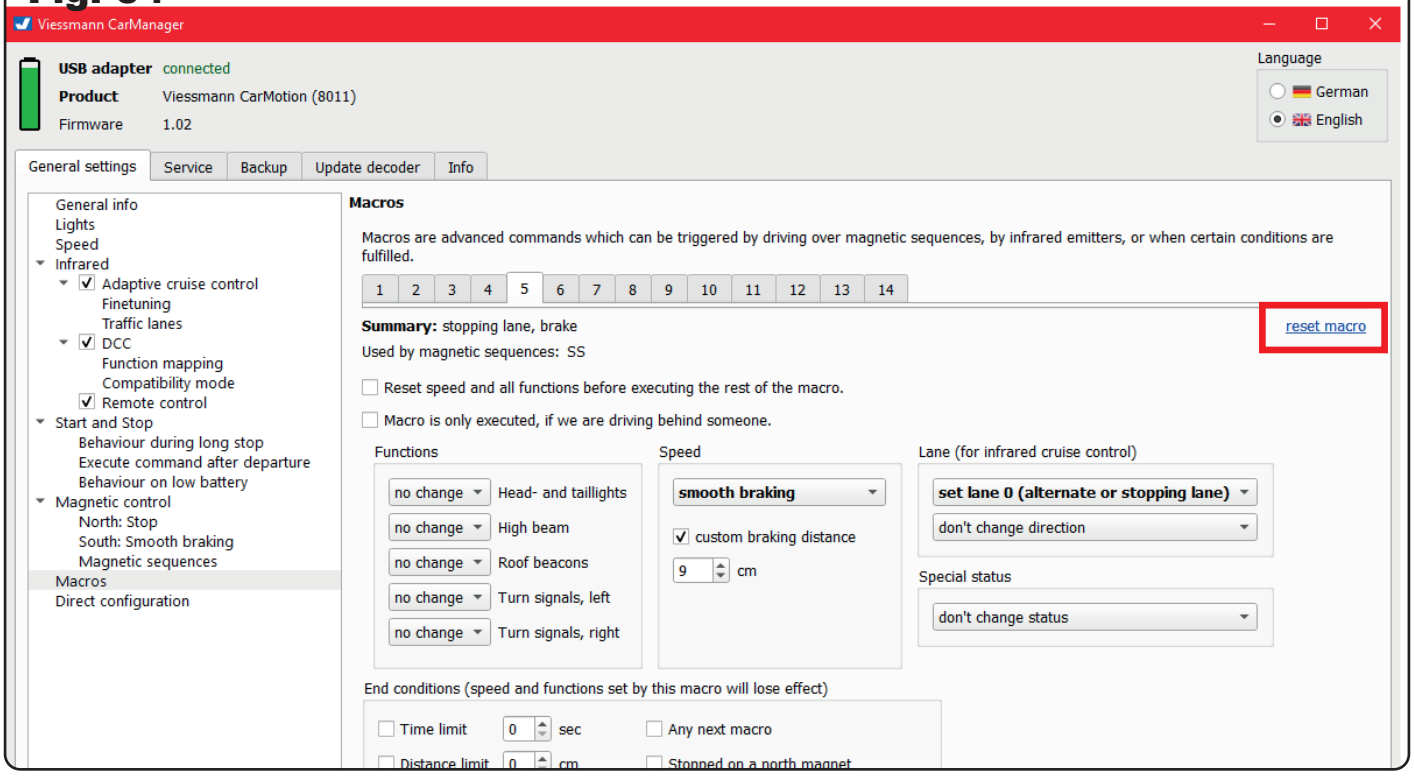
Fig. 63



Note: If you make any settings that you do not like, you can perform a reset at any time that only applies to the selected macro (fig. 64).

As you can see, with the advanced control commands (macros), we offer you diverse possibilities to make your driving operations even more varied, like few other car systems!

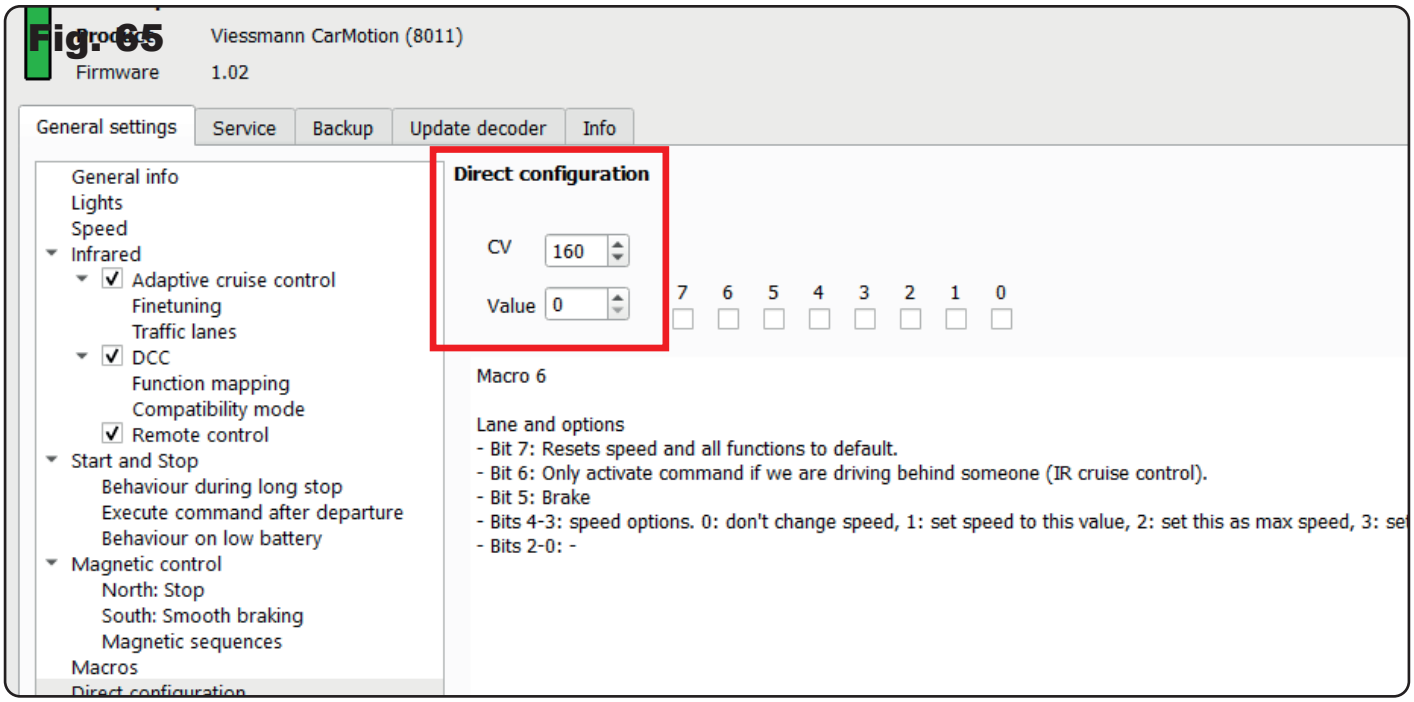
Fig. 64



4.8 Direct settings

All the editors (settings) mentioned above, which are clearly and thematically presented in their respective chapters, are numbered as CVs here. Similar to programming a digital locomotive, you can directly select the desired configuration variable (CV) and assign it a value. Each CV is accompanied by a brief description text (fig. 65).

Fig. 65



There are CVs in which individual bits can be activated with a checkmark. Here, you have the freedom to choose which bits should be active or not. (fig. 66).

You have the option to read values of a configuration variable using the „Read“ button. Alternatively, you can transfer values into the selected CV using the „Write“ button. Changed values for the CVs are only adopted after clicking the „Write“ button (fig. 67).

Fig. 66

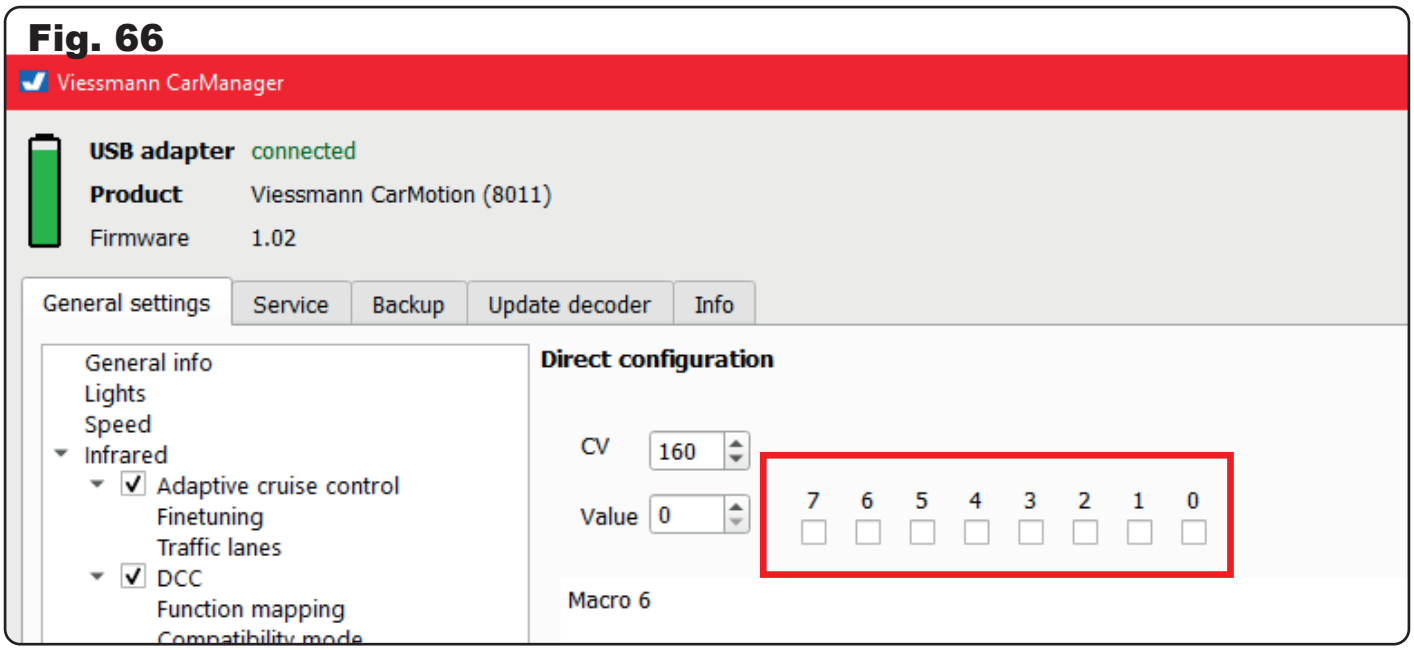
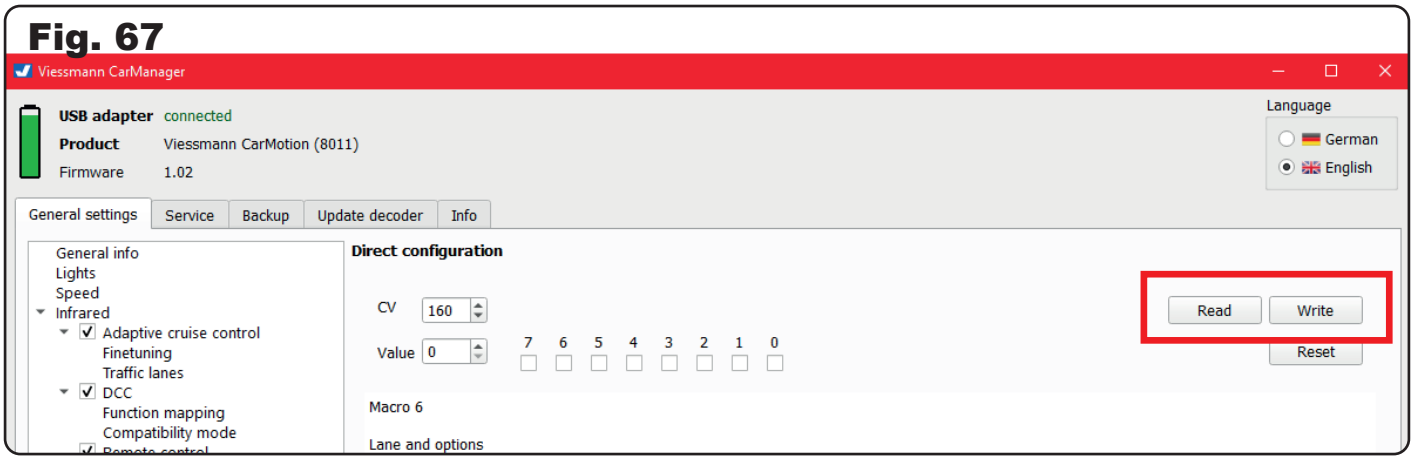


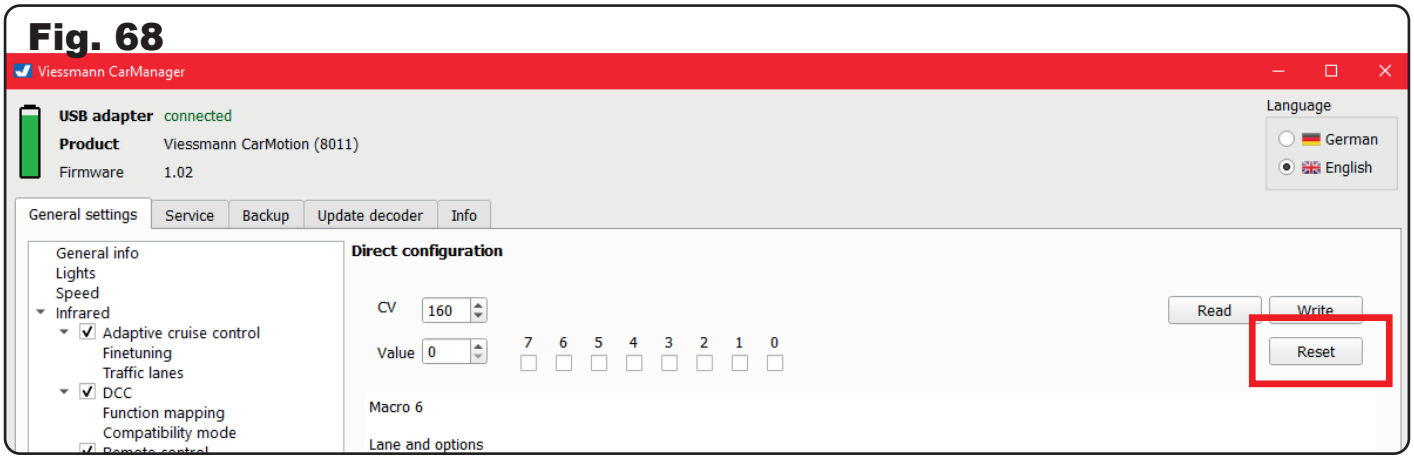
Fig. 67



Note: Before making significant changes, it is recommended to create a backup file in the „Backup“ tab. This will allow you to easily restore the previous operating state at any time.

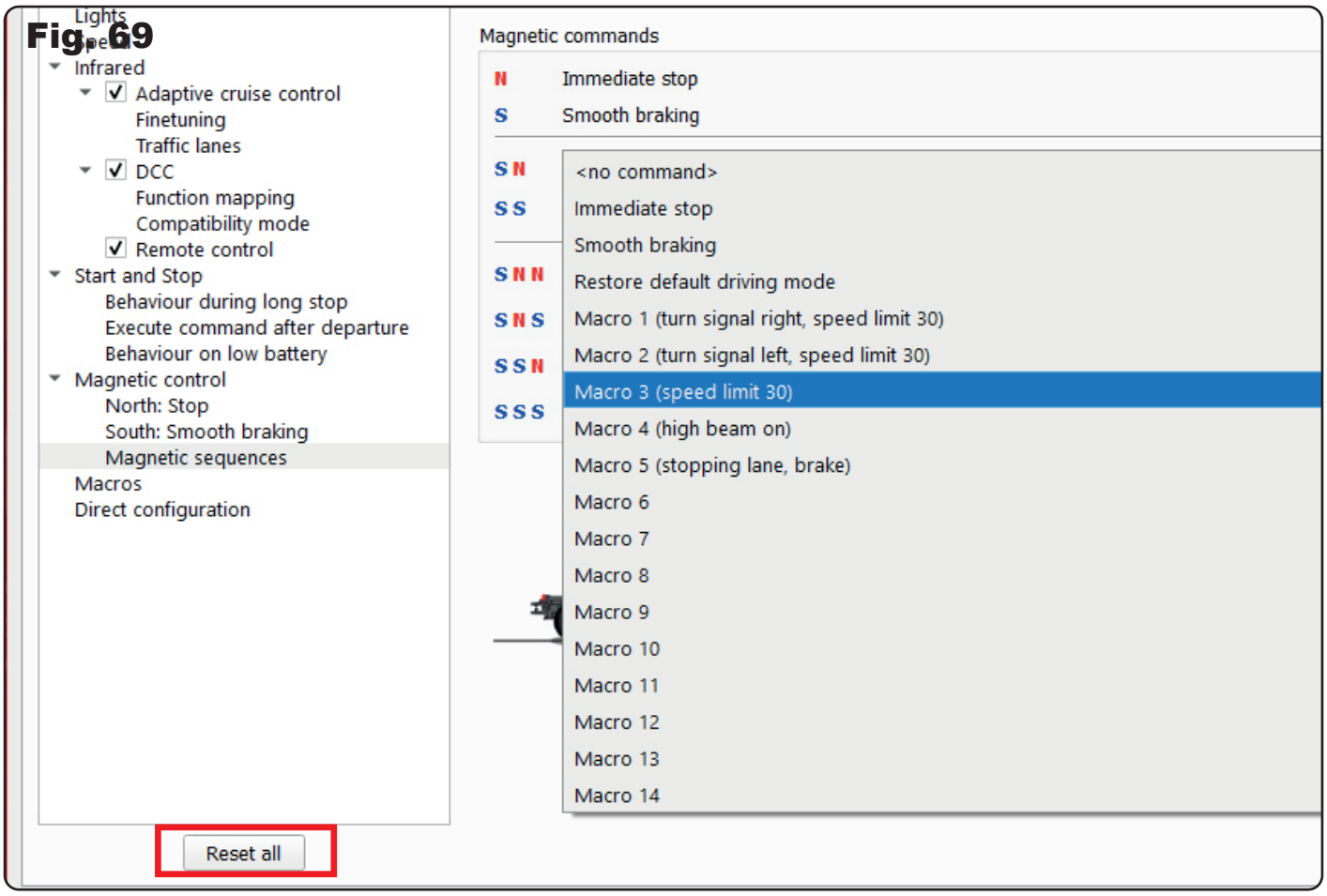
Note: If you make any settings that you do not like, you can always perform a reset that applies only to the configuration variable (CV) (fig. 68).

Fig. 68



To reset the vehicle to factory settings, use the „Reset to factory settings“ button (fig. 69).

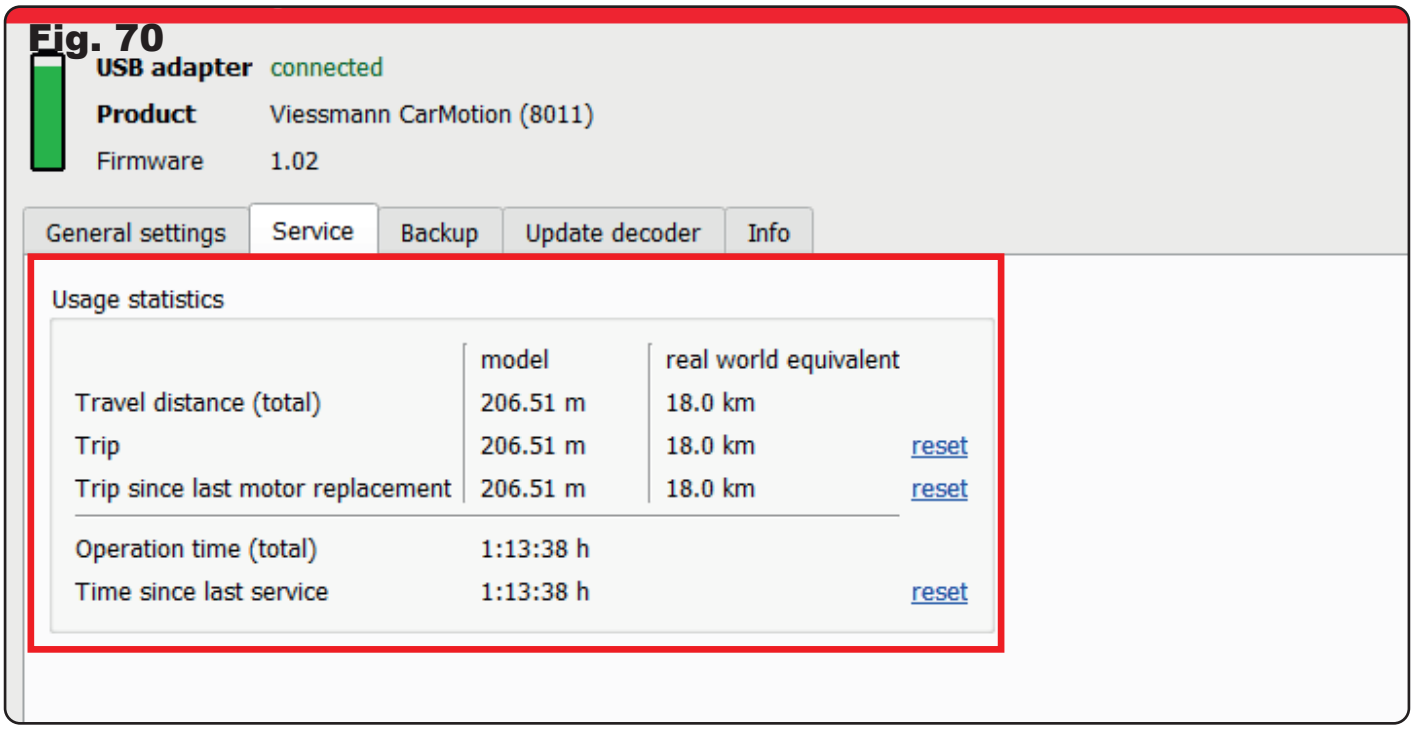
Fig. 69



5. Service

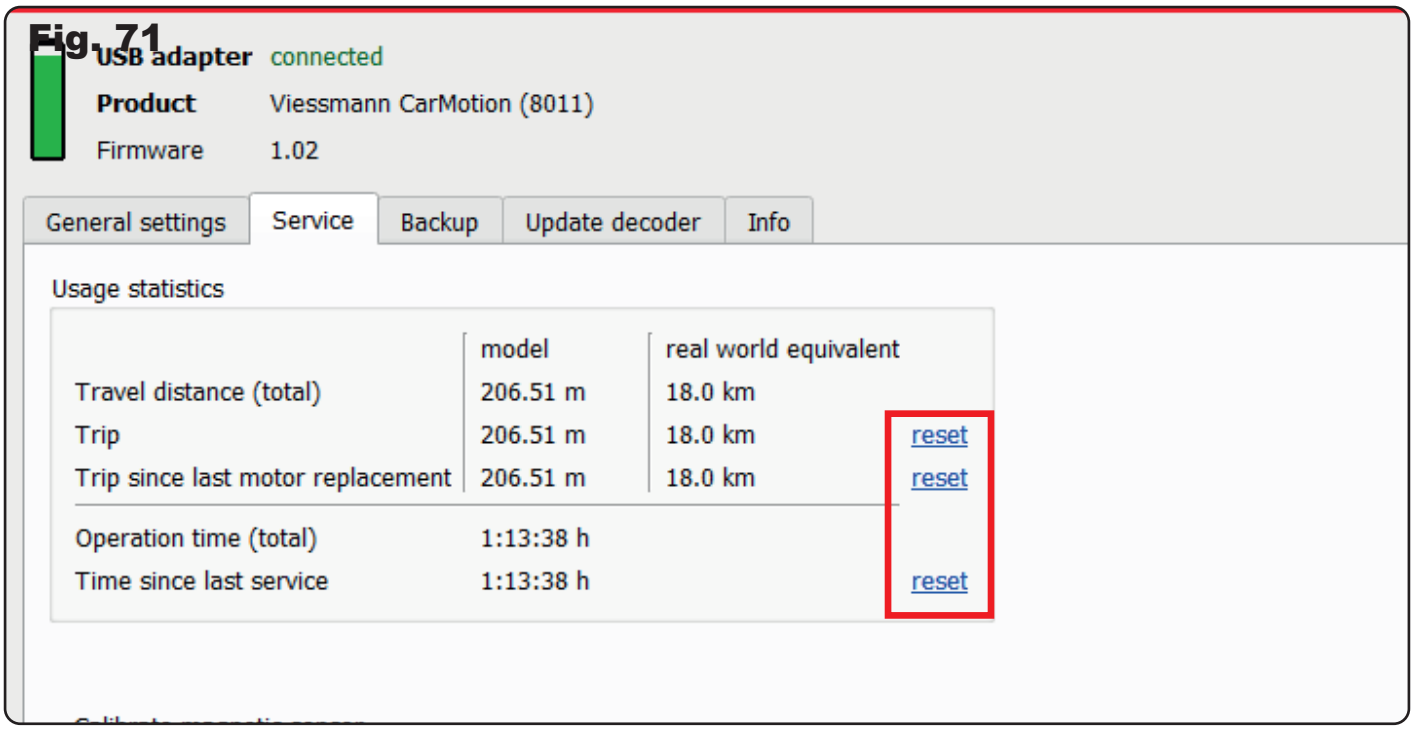
In the „Service“ tab you will find user statistics as well as the option to recalibrate the vehicle‘s magnetic sensor. User statistics include the distance traveled as well as the total operating time (fig. 70). The model‘s traveled distance is converted to kilometres to scale.

Fig. 70



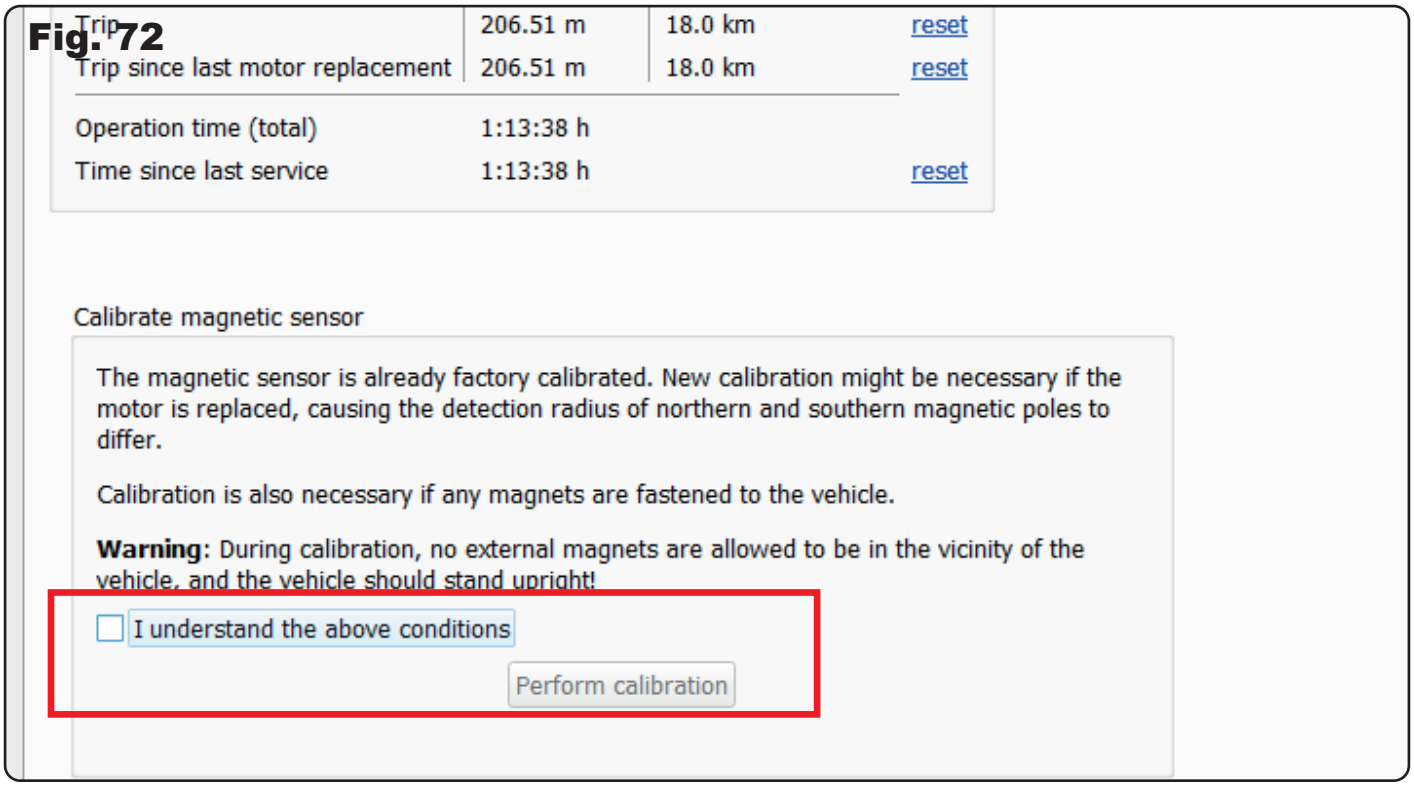
A very helpful indication is the „distance traveled since last service“. This can be reset, for example, after changing tyres (fig. 71). This way, you always have an overview of your maintenance activities on the vehicle.

Fig. 71



Recalibrating the magnetic sensor can be useful if, for example, yo have replaced the vehicle‘s motor. To do so, you only need to activate the „I understand the conditions mentioned above“ checkbox to perform the calibration (fig. 72).

Fig. 72



6. Backup

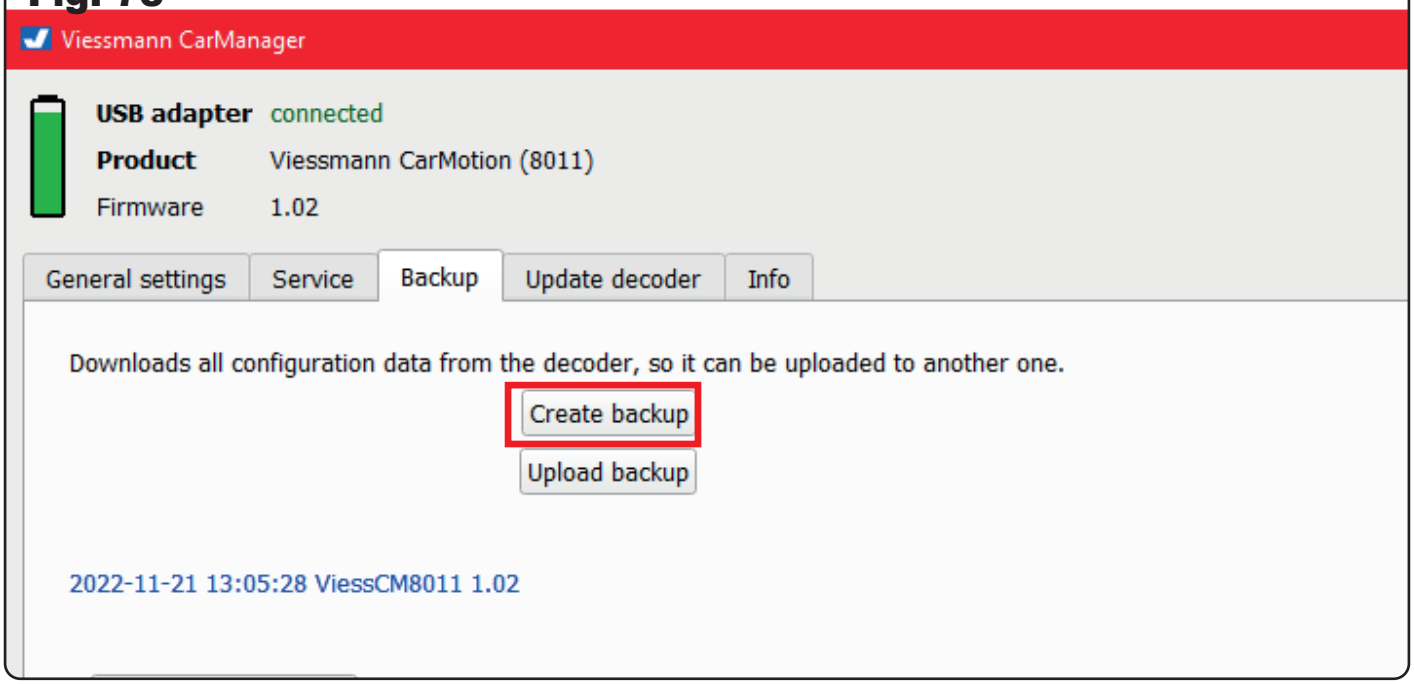
To create backup files for your individually configured vehicle, use the option to create a backup file in the „Backups“ tab.

Backing up data is especially useful when making major changes to the vehicle settings. If you are not satisfied with the changes, you can easily revert back to the backup file.

Backups can also be used to transfer your settings to other vehicles easily without having to configure each vehicle individually.

To create a backup, click on the „Create Backup“ button. A backup file will be automatically generated and displayed in the menu field in blue text. (fig. 73).

Fig. 73



To save the backup file on your device, use the „Save data to File“ button and save the file to your desired location (fig. 74). You can also easily load an existing backup file into the CarManager by clicking the „Open Data from File“ button (fig. 75). Once the desired backup file has been uploaded, you can transfer it to the vehicle by clicking the „Upload Backup“ button (fig. 76).

Fig. 74

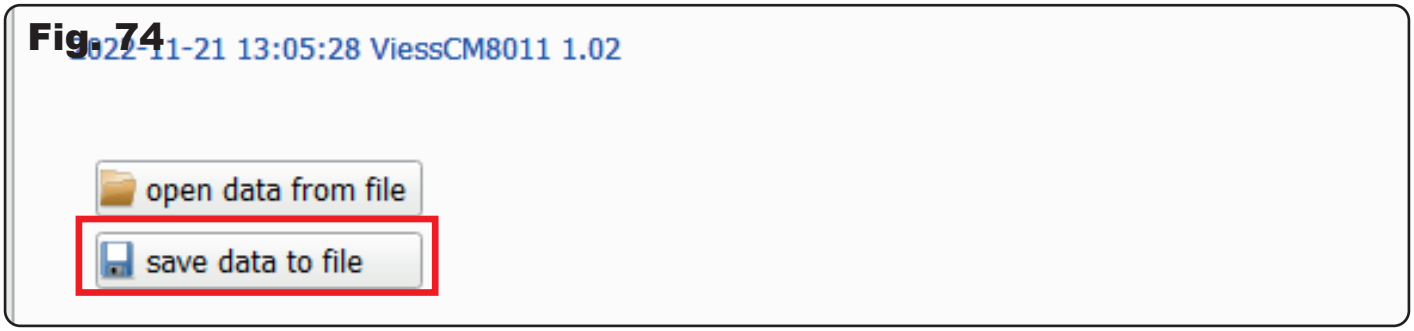


Fig. 75

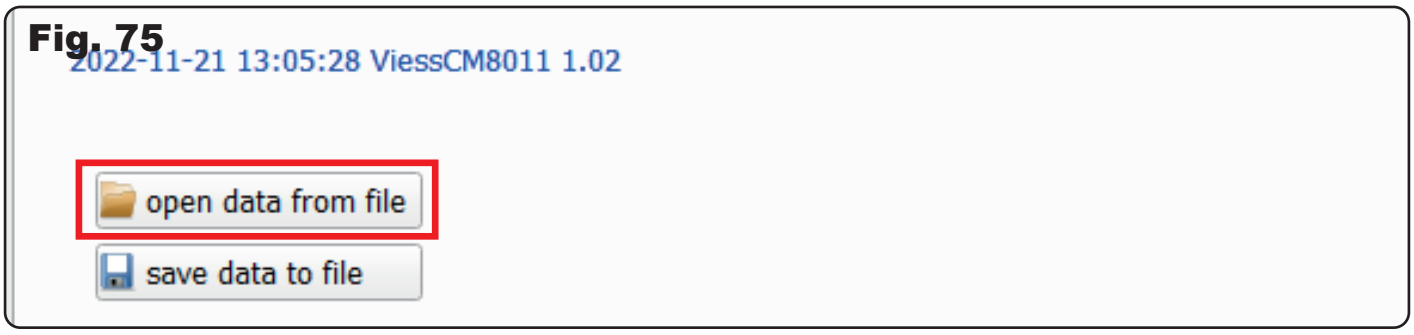
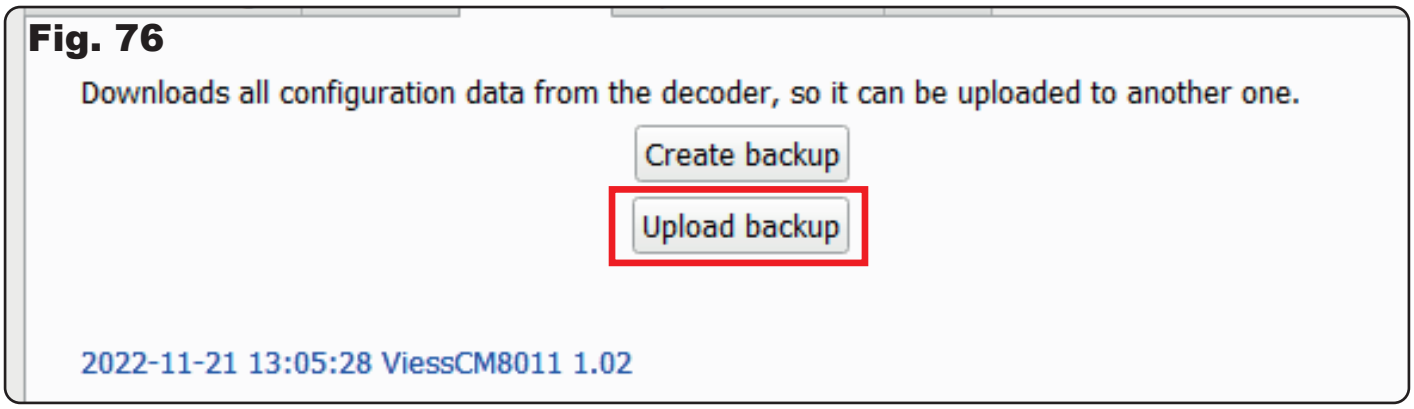


Fig. 76



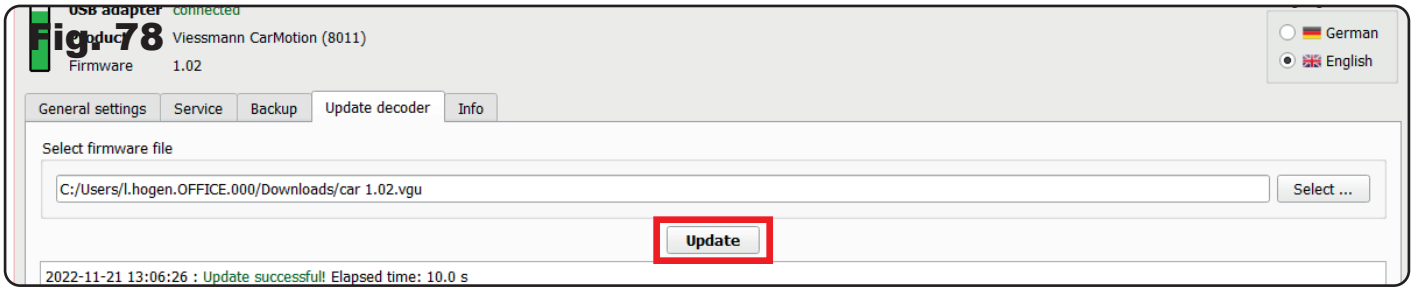
7. Decoder-Update

In this menu you can bring your CarMotion vehicles up to date with the vehicle updates we provide. .

To do this, download the latest vehicle firmware from our website (https://viessmann-modell.com/carmotion/software-firmware/) and then select it by clicking „Select…“ (fig. 77). After that, you can transfer the software to your vehicle using the „Update“ button (fig. 78). The process may take a few seconds.

Fig. 77

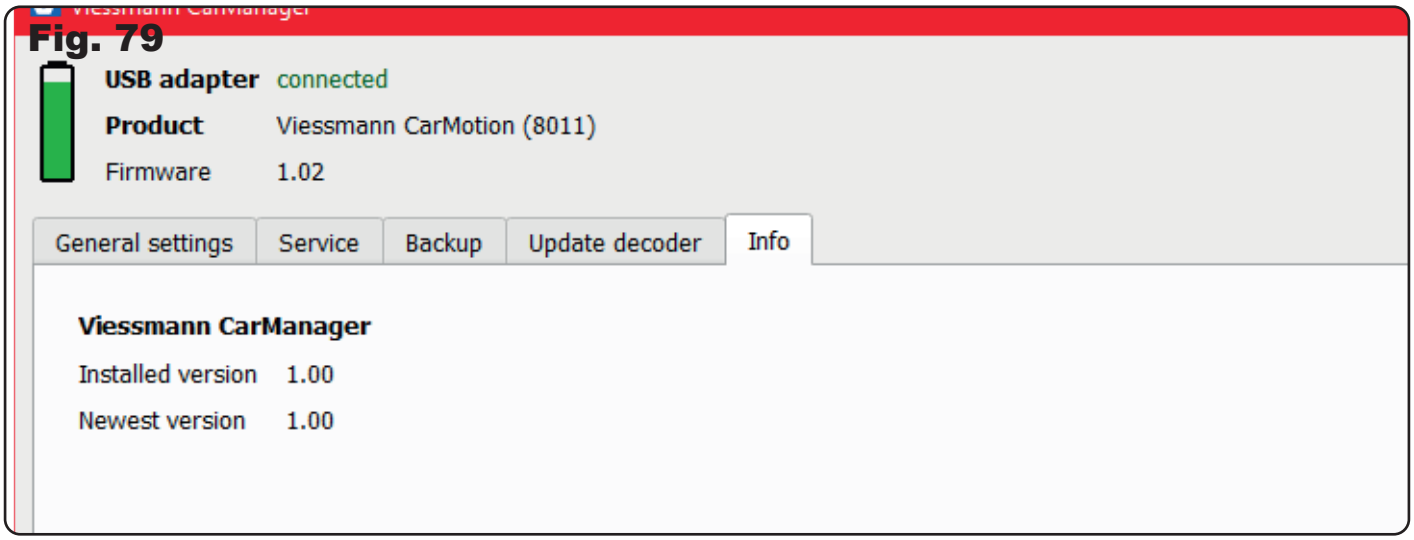
Fig. 78



8. Info

In the „Info“ menu field, the software version installed by you will be displayed, as well as the latest version available for free download on our website (fig. 79).

Fig. 79



We hope you enjoy our CarMotion vehicles!

CAR motion

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