



ez-Config[®]

Series 150 & 160 Version D.2

Instruction manual [EN]

Revision 01/01/2022

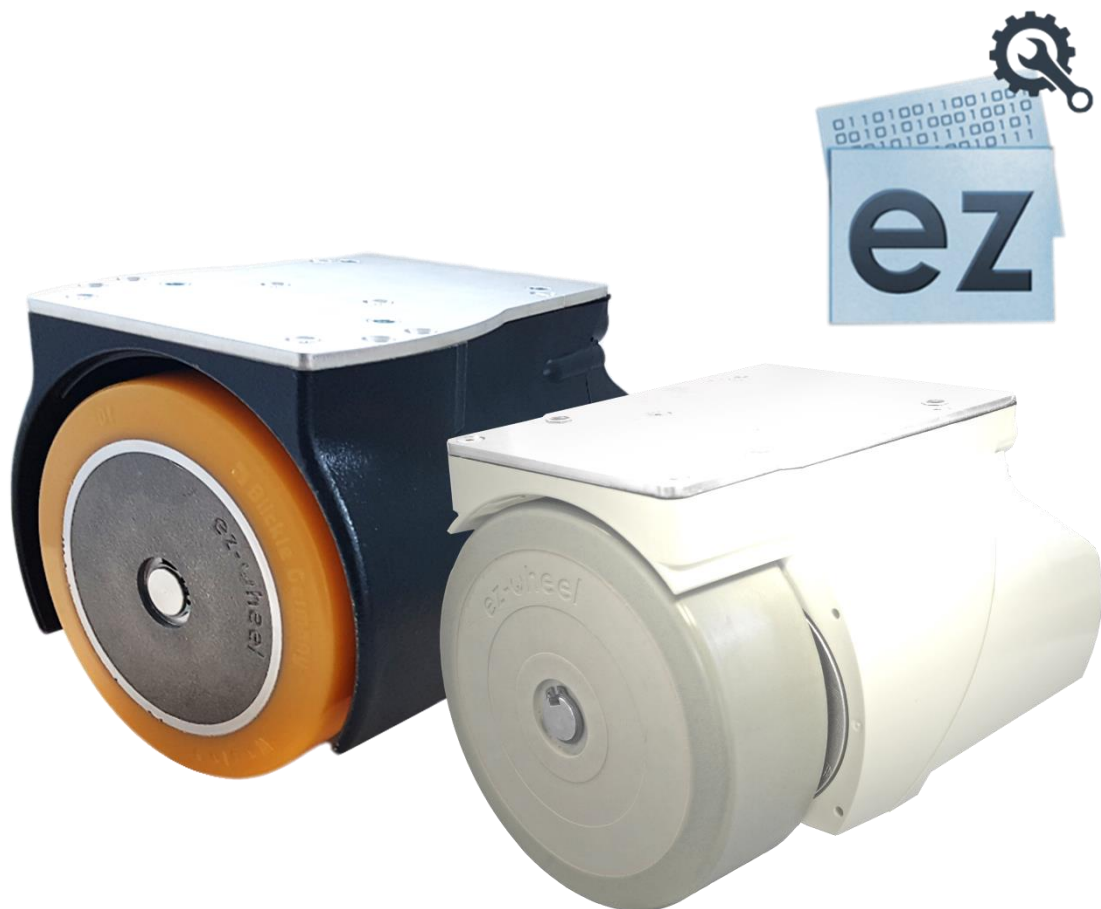


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1. Preamble

1.1 Important information about the manual

	Important information – Read carefully
	Additional information

1.2 Compatibility information

Using the ez-Config software and ez-Wheel devices requires the following configuration:

- A Windows based computer, with Windows 7 or later, 32-bit or 64-bit (computer not included)
- The Microsoft .NET framework version 4 or later installed
- A USB port
- A USB cable, USB type A / USB type B (cable not included)


1.3 Download and install

 Software can be downloaded from <http://www.ez-wheel.com> under downloads and resources.

Download the **ez-Config Series 150 & 160 version D.2** software.

Before connecting the ez-Wheel device to USB, the **Virtual COM Port Driver V1.4.0** must be installed.

Unzip and install the driver executable file.

 The ez-Config/150-160 user manual Ver. D.2 is dedicated to Series 150 / 160 wheels programmed with the ez-Config tool Version D.2.

Make sure that you update the wheel's firmware.

The wheel should be programmed with the firmware Version B.0, the update can be done with the update tool

Update to version 7.0

1.4 License and password

A nominative password is required to use the ez-Config software, provided after acceptance of the software License.



Please download the License following this link:

<https://www.ez-wheel.com/storage/upload/pdf/ez-config-licence-en.pdf>


Print, read, sign and send a scanned copy to your reseller.

Your login and password will be returned by email.

1.5 Important notice regarding modification of parameters

 	<p>Parameters modifications may lead to hazardous situations. By using the ez-Config software you understand that you can modify the behavior of the electric drive installed on your machine, and you take the entire responsibility of any changes performed with ez-Config and their consequences on the machine operation.</p> <p>CE Marking: within the European Economic Area, the machine equipped with an ez-Wheel electric drive shall be and remain compliant with the Machinery Directive 2006/42/EC. New settings made with ez-Config may differ from parameters recommended by the machine manufacturer or integrator and may void the CE marking of the machine. Do not perform any change if you are not allowed by the manufacturer or integrator.</p> <p>Your Login and Password are unique and nominative and attest your identity. When programming new parameters on your ez-Wheel device, your identity will be stored in the device.</p>
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2. Safety Instructions - Precautions for the use of ez-Wheel products

	<p>Do not use ez-Wheel products for other purposes or in other conditions than those mentioned in the technical documentation.</p> <p>Read and make sure you have understood the manual before using ez-Wheel products. Observe all the warnings and usage instructions in this manual.</p> <p>Keep this manual for reference throughout the life of the product.</p> <p>In the event of loss, you can obtain a copy of this manual from your dealer or from the ez-Wheel Service Department.</p> <p>If the product is transferred to another owner, make sure that the manual is transferred as well.</p> <p>The characteristics, descriptions, and illustrations in this document are applicable at the date of publication.</p> <p>ez-Wheel reserves the right to make any modifications and revisions to this document.</p> <p>Product users obtain their own information on these modifications.</p>
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3. Before the first use

3.1 Installation of the driver

Before using the application for the first time, install the driver.



Two possibilities:

1	If the PC is connected to the Internet
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Plug the wheel on a USB port and the installation will run by itself (Windows Update must be activated).

2	If the PC is not connected to the Internet and if the Windows Update application is not activated
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Install the driver from the USB key.

-  The driver functions at its best with Windows 7.
-  In case you encounter any difficulties while installing the driver, please contact your retailer.

3.2 Connecting the wheel to the computer with the USB-A/USB-B cable.



*Figure 1 - Plug the USB-B cable to the back port of the wheel
Connect the USB-A cable to the wheel*

4. First use

4.1 Identification

Launch the application

An identification window **Log** pops up.

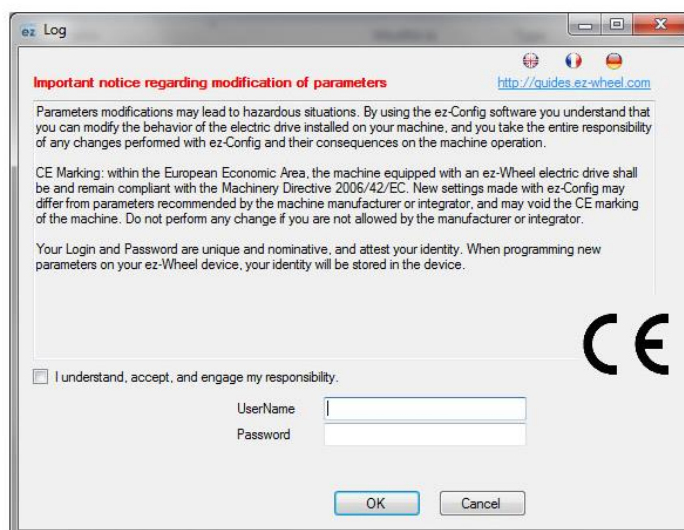


Figure 2 - Identification window

Fill in the two fields with the information provided by ez-Wheel.

- ⚠ The password supplied is strictly confidential and personal.
- ⚠ It can't be shared at any time. This password is valid for one year. Contact your retailer after expiration.

Click on **OK** to open the ez-Config application. The **Identity** page pops up [Figure 2]

4.2 "Identity" tab

Click on the **Connect** button.

Wait until the program finds the wheel as plugged in.

The serial number will appear, which means the wheel has been found by the system.

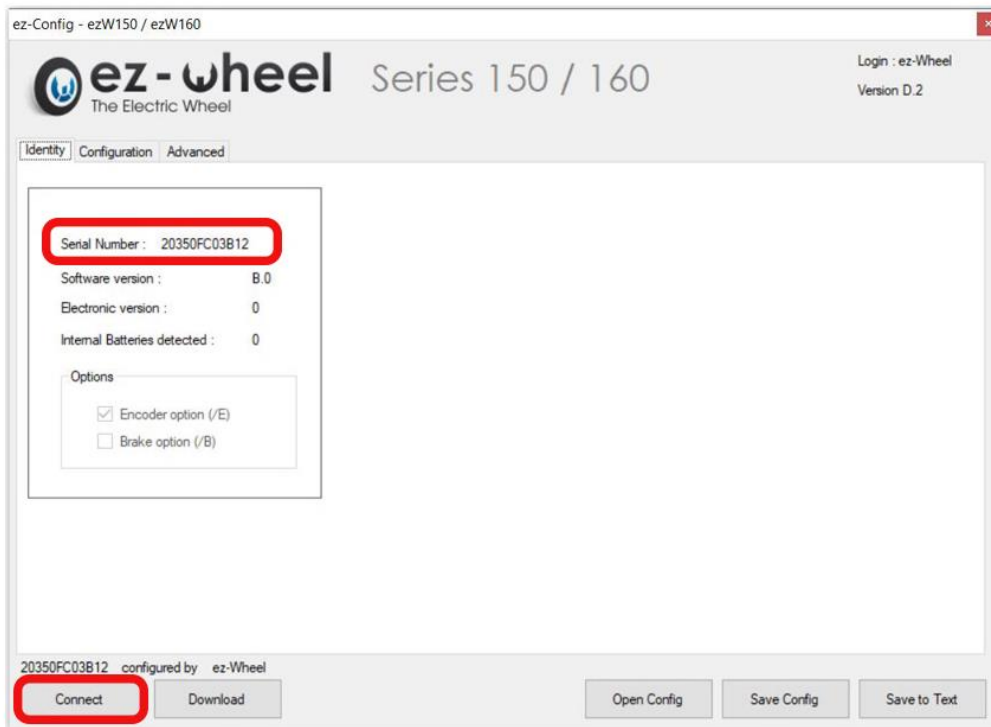


Figure 3 - Identification Window / Serial number display

The following information are available: [Figure 3]

Serial number	Serial number of the wheel
Software version	Software version of the wheel
Internal batteries detected	Number of internal batteries detected

The options available on the product are automatically detected and appear in the **Options** frame.
[Figure 4]

The Encoder option /E	Allows to control the speed wheel.
The Brake option /B	Allows the wheel to brake.

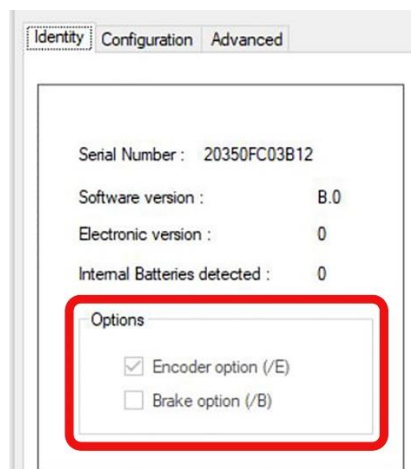


Figure 4 - Options

5. General buttons

General buttons are located at the bottom of the window ez-config/150-160.

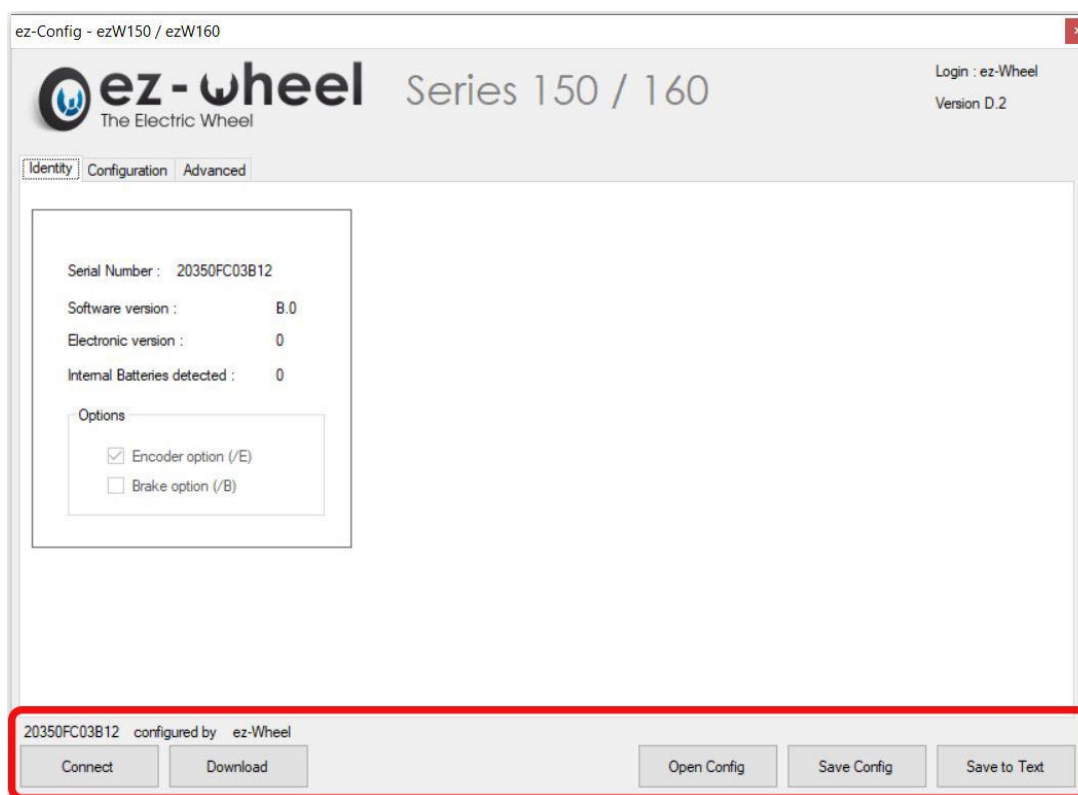


Figure 5 - General buttons

5.1 "Connect" button

This button enables to create a connection between the software *ez-Config* and the wheel ezW160M / ezW150I when plugged to a USB port.

Click on the *Connect* button.

The connection to the wheel is set and the fields in the ez-Config windows are filled in with the data read from the wheel's memory.

If the wheel isn't properly connected to the PC, a window indicates it couldn't be found on the USB ports.

Connect the wheel to a USB port.

Click on *OK*.

Click again on the *Connect* button.

5.2 "Download" button

This button enables to upload the typed setting on the wheel.

5.3 "Open Config" button

This button enables to upload a pre-existing configuration.

A window pops up so that you can choose a configuration file.

Choose a file and then click on *Open*.

5.4 "Save Config" button

Settings can be saved for a future use.

Click on the *Save Config* button.

Type in the file name.

Choose the saving location.

6. Configuration tab

The tab allows to set the configuration parameters. [Figure 6]

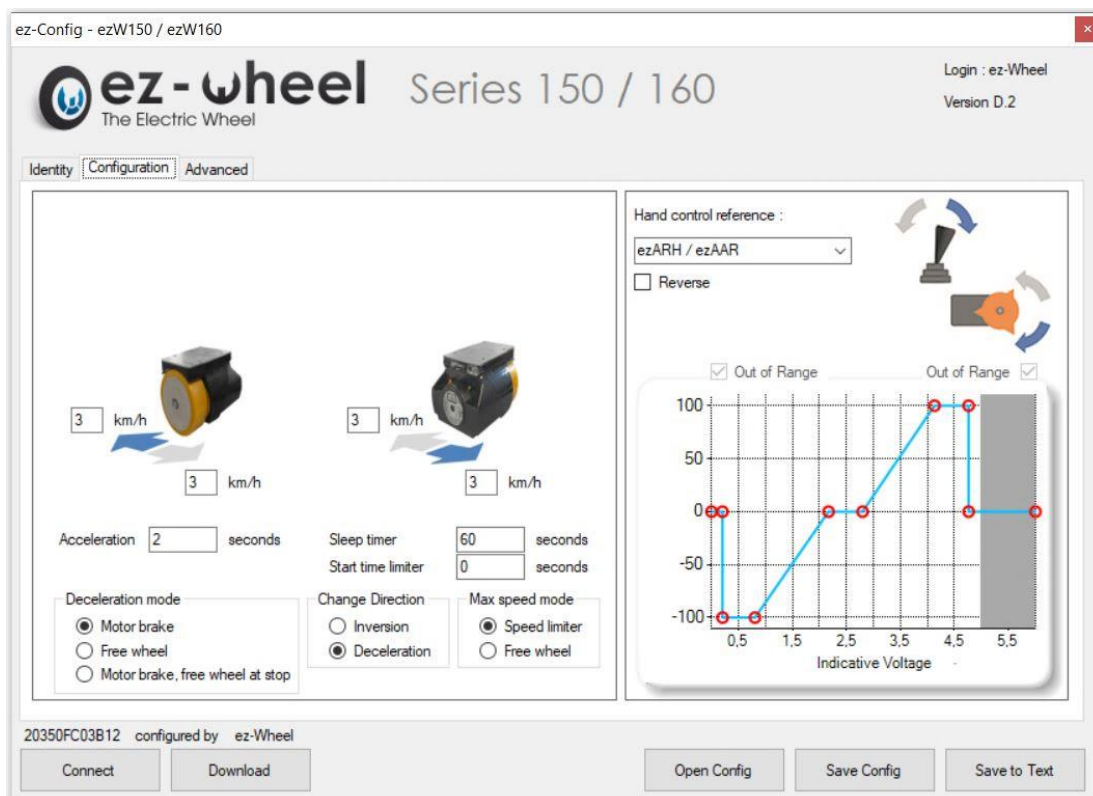


Figure 6 - User parameters panel

Different settings are possible:

- Forward speed
- Reverse speed
- Deceleration mode
- Acceleration
- Direction change
- Start time limiter
- Time to auto-sleep mode
- Maximum speed mode

6.1 Reading the configuration tab

First case	The top arrow in the frame is blue
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Interpretation:

The blue arrow indicates the way the hand control rotates and this corresponds to the blue arrows **1** near the wheels.

- ⚠ Depending on the side the wheel was first installed, this blue arrow may be the forward indicator or the reverse indicator.

Please refer to the visual sign on the wheel, showing how it should be installed.

Second case	The bottom arrow in the frame is blue
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Interpretation:

The blue arrow **2** indicates the way the hand control rotates and this corresponds to the blue arrows near the wheels.

6.2 Deceleration mode

The **Deceleration Mode** mode box enables the user to choose how the wheel behaves when it is not controlled – wheel switched on and setting nil.

The “Free wheel” mode	Enables the wheel to continue to rotate without resistance from the motor
The “Motor brake” mode	Enables the wheel to reduce its speed by motor braking
The mode “Motor brake, free wheel at stop”	Allows using the “Motor brake” to help decelerating during the rolling phase, and then to swap to “Free wheel” mode one second after the complete stop of the wheel rotation

- ⚠ If the wheel is not equipped with an encoder, the parameters will exclusively use the **“Motor brake”** mode.

6.3 Acceleration

The wheel's acceleration can be set by entering a value in seconds in the field **Acceleration**.

The acceleration will be quick if a lower value is entered (0.5 second).

The acceleration will be slow if a higher value is entered (10 seconds).

The maximum value is 10 seconds.

The minimum value is 0.5 seconds.

If a value is wrong, an **Errors in the form** red message appears.

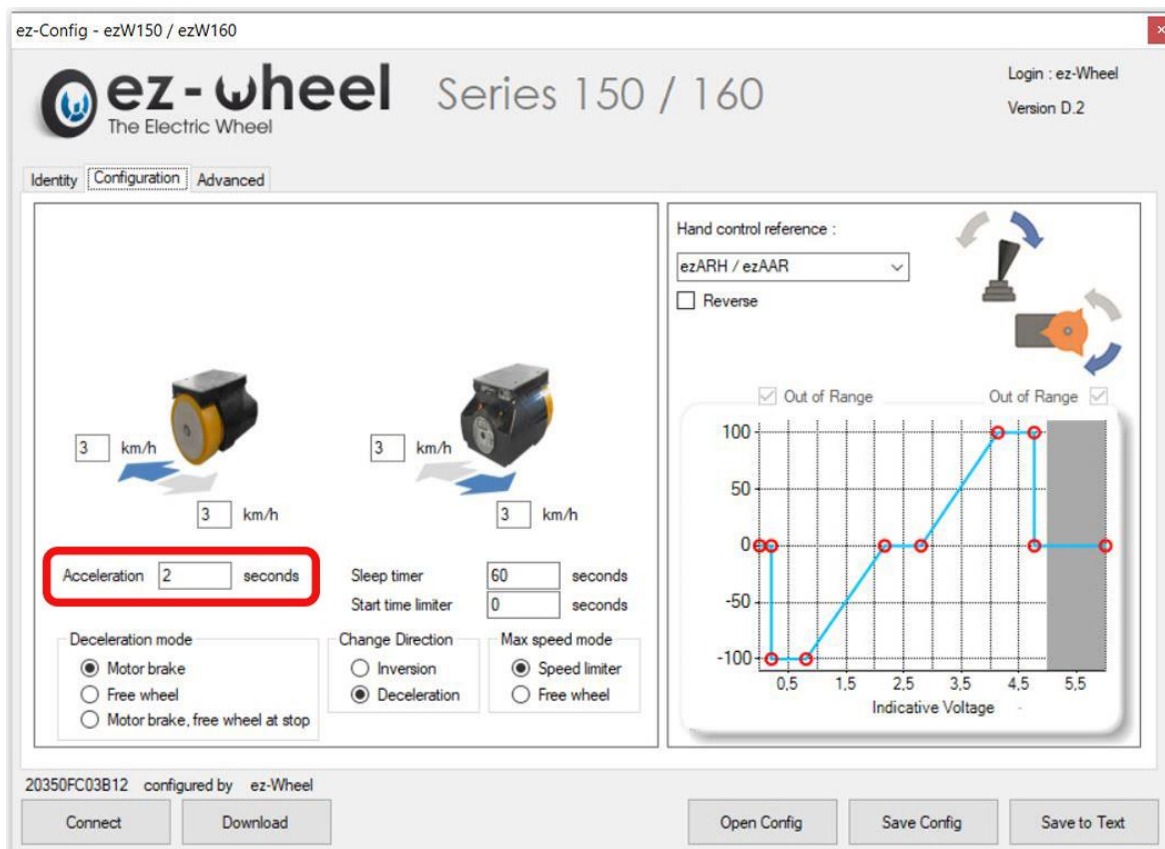


Figure 7 - Acceleration

6.4 Direction change

The **Direction change** box enables the user to adjust the behavior of the wheel during a change in the set direction; 2 modes are available:

« Deceleration » mode	The wheel decelerates to a total stop and re-accelerates in the opposite direction
« Inversion » mode	The wheel provides a force in the opposite direction.

- ⚠ If the wheel is not equipped with an encoder, the parameters will exclusively use the **Speed limiter** mode.
- ⚠ BE CAREFUL about possible jerks!

6.5 Maximum speed mode

The field box **Max Speed Mode** can be used to set up the behavior of the wheel when the rolling speed exceeds the maximum speed value entered in ez-Config; two settings are available:

« Speed limiter » mode	Limits the rolling speed by applying a resisting torque from the motor
« Free wheel » mode	Tolerates the wheel to freely exceed the maximum speed without applying a resistance

⚠ If the wheel is not equipped with an encoder, the parameters will exclusively use the **Speed limiter** mode.

6.6 Start time limiter

The **Start time limiter** field enables the operator to set the assistance time during starting. If the actuator is activated beyond this time range, the wheel goes into the defined deceleration mode (free wheel or motor brake).

6.7 Time to sleep mode

In the **Sleep Timer** field it is possible to enter a value in seconds corresponding to the waiting time between the absence of activity on the actuator and switching of the interface to the sleep mode.

Enter the value "0" to prevent the interface going into the sleep mode.

- ⚠ Changes to the system configuration settings should be made with due regard to safety rules.
- ⚠ The user will be held responsible for any configurations site using his/her password.

7. Actuator settings

This field box allows to adjust the operating parameters of the actuator that will be used to command the wheel. [Figure 8]

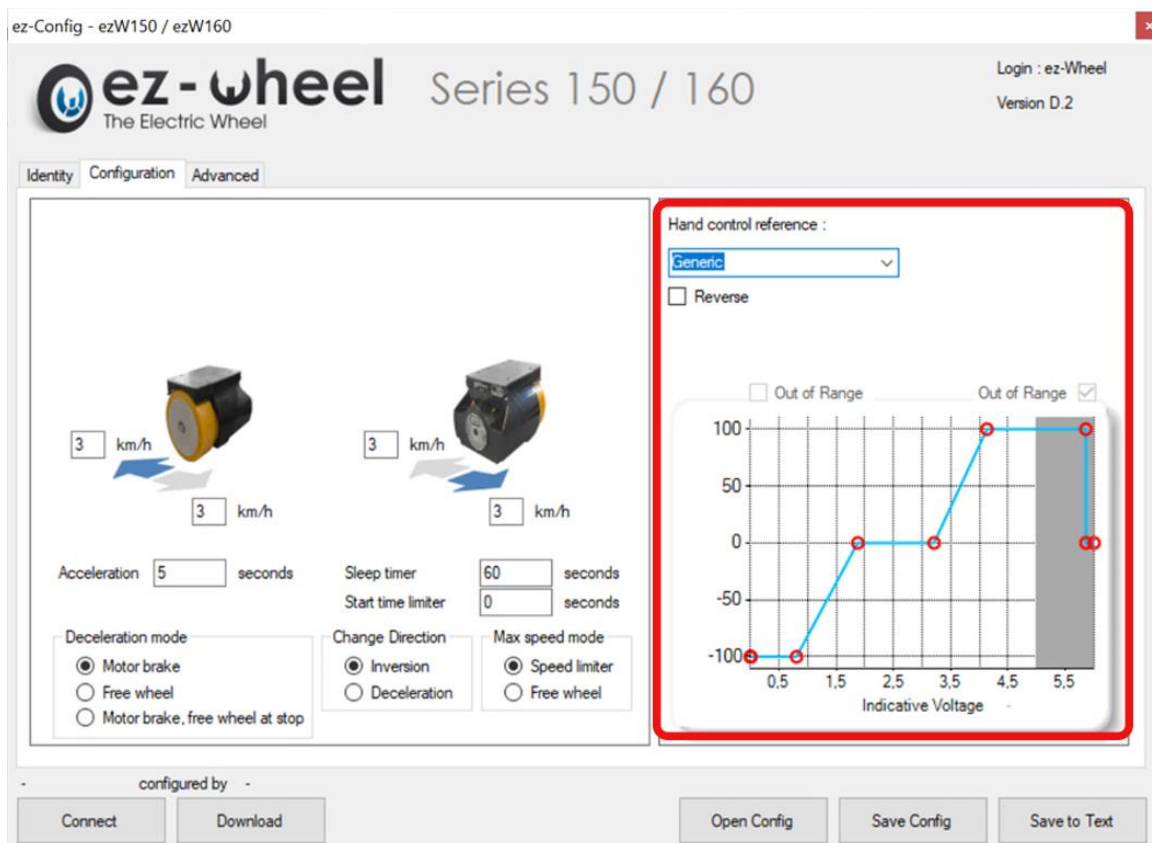


Figure 8 - Actuator settings

7.1 Choice of actuator

The field **Hand controls reference** enables the operator to select an ez-Wheel actuator reference, so that its pre-entered control curve is displayed. [Figure 9]

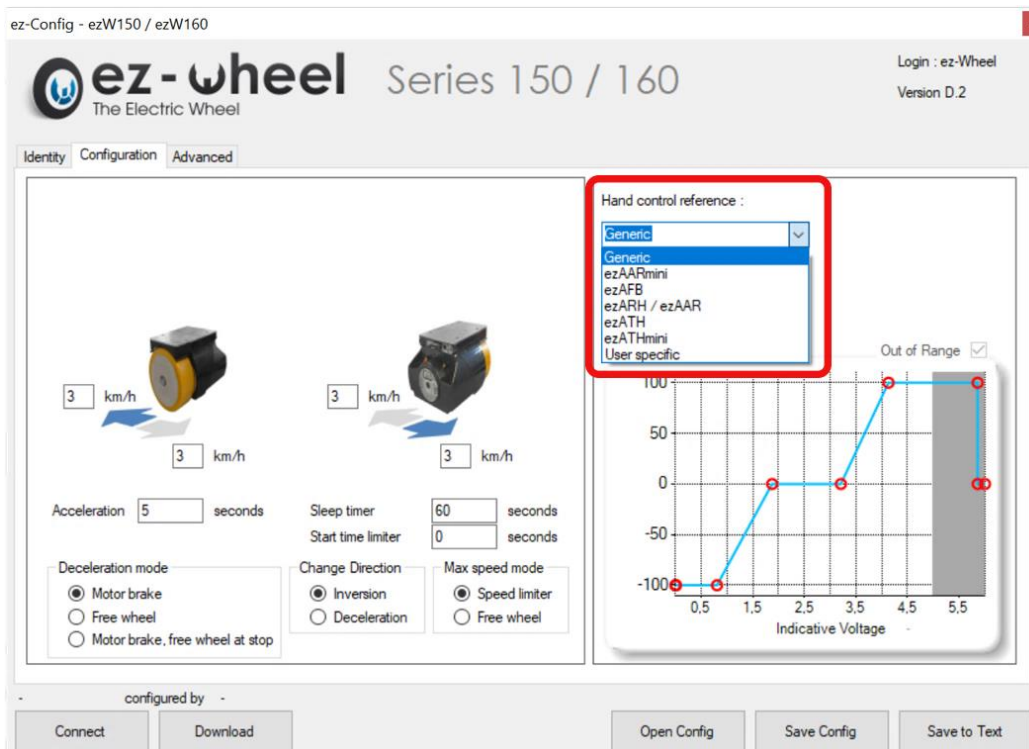


Figure 9 - Choice of actuator

- i** We recommend keeping the default values suggested for each actuator supplied by ez-Wheel.
- i** However, it is possible to change the actuator operating ranges directly on the curve.

It is possible to use two types of actuators:

Unidirectional actuator	The wheel can only be driven in one direction
Bidirectional actuator	The wheel can be driven forward or reverse

7.2 Unidirectional choice

Select « User Specific » in the field *Hand controls reference*.
Move the cursor to position the control curve according to the box 1.

The wheel can turn only in one direction, the control ranges will be configurable between 0 and 5V though the following control Field 2 [Figure 10].

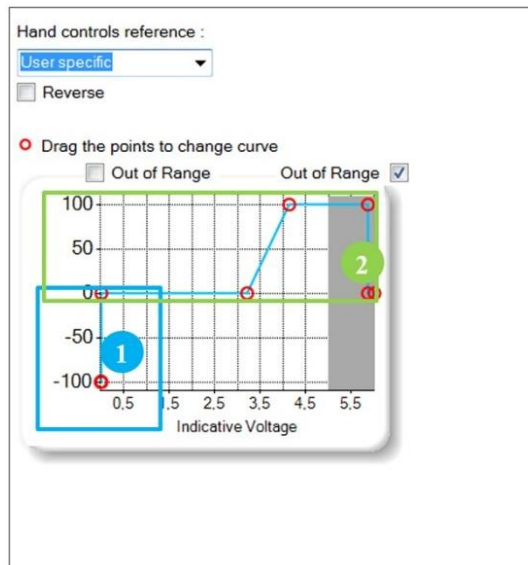
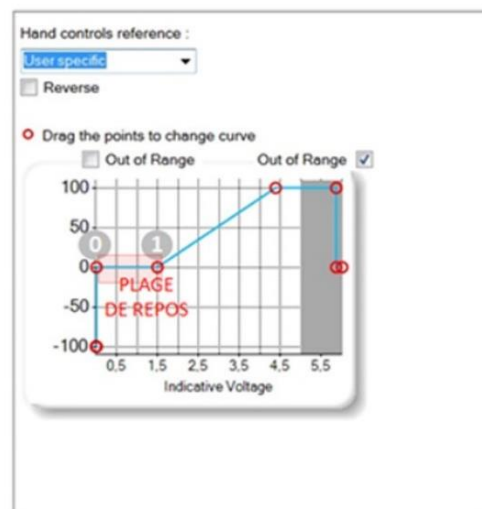


Figure 10 - Unidirectional control actuator

3 ranges can be adjusted/set:

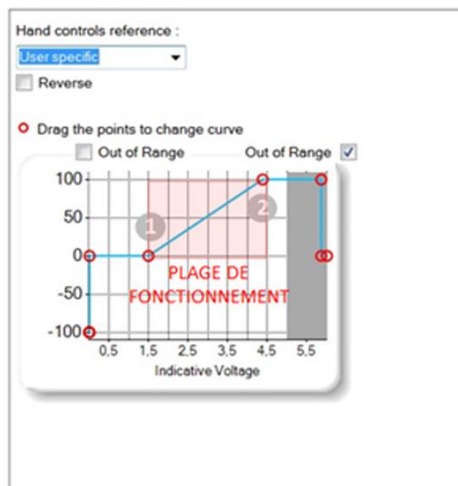
The rest (or "safety") range

Defined between the cursors 0 and 1.
The command must exceed this value (defined by cursor 1) to actuator the wheel.



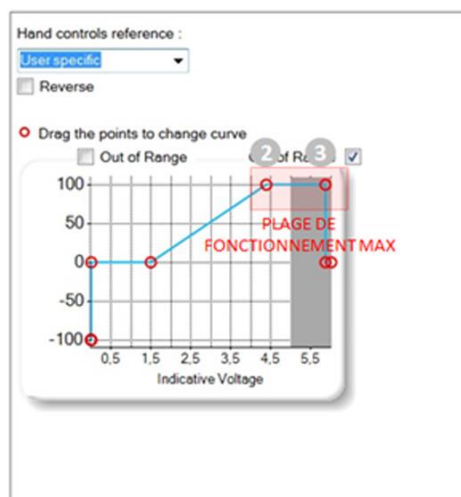
The control operating range

Defined between cursors 1 and 2.



The "max. Operation" range

Defined between cursors 2 and 3.



Cursor **2** defines the maximum actuator command value.

- ⚠ It is impossible to connect a bi-directional actuator using the settings of a uni-directional actuator even in a single direction because the signals used on the interface connector are different.

7.3 Bi-directional choice

The wheel can rotate in both directions; the control tab will be the following:

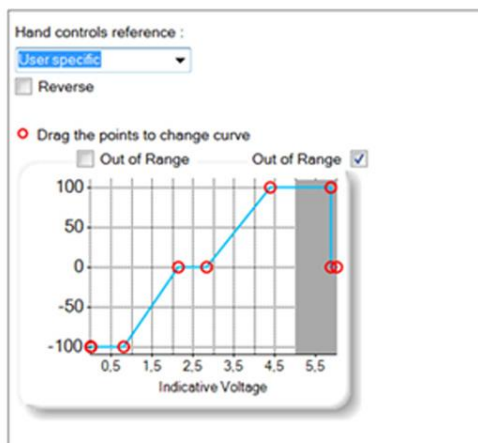


Figure 11 - Bi-directional choice

The adjustment principle is the same as for a uni-directional actuator, with in addition, the possibility of adjusting the control in both wheel rotation directions independently.

The command is always at 0-5V, with a safety position value at approximately 2.5V (wheel stopped).

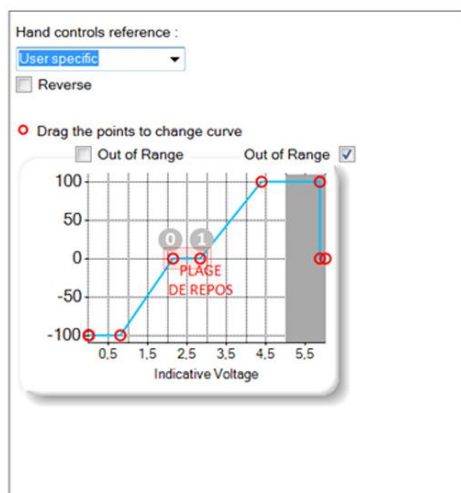


Figure 12 - Rest of safety range

⚠ For proper operation, it is important to ensure that the actuator safety voltage (central position) is within the set voltage range.

7.4 Out of range

The "Out of range" field enables the operator to set a limit to the actuator voltage.

When the applied voltage reaches this limit, the actuator gives a "no order" command to the wheel. [figure 13]

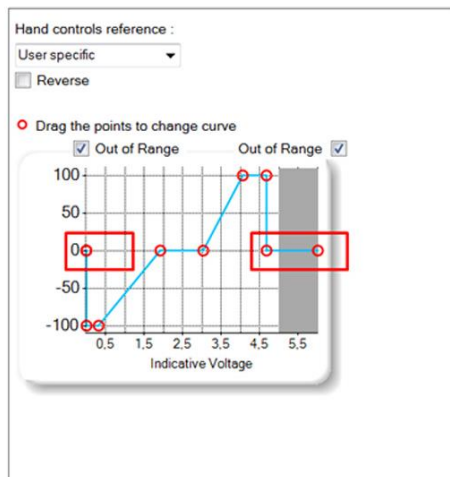


Figure 13 - Out of range

This function can be used, for example:

1. With special actuators which have a voltage range different from 0-5V.
⚠ The voltage must nevertheless remain in the range of 0-5V.
 2. To detect a potential control cable open circuit (zero voltage applied).
- i** If the "Out of range" boxes are unchecked the actuator will continue to give a maximum value to the wheel [figure 14] in both directions of operation.

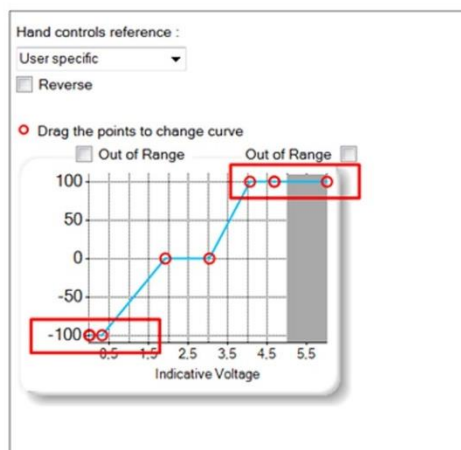


Figure 14 - Absence of the function Out of range

7.5 Reverse

The box **Reverse** allows to switch the way the wheel functions and thus to set the maximal speed both ways.

⚠ It all depends on which side the wheel was installed at first.

8. Advance tab

The **Advance** tab provides access to the advanced functions for the definition of 3 parameters:

- **Option connector** behavior
- **Button** type and the remote **display** on the machine
- The behavior of the wheel when the **charger** is connected

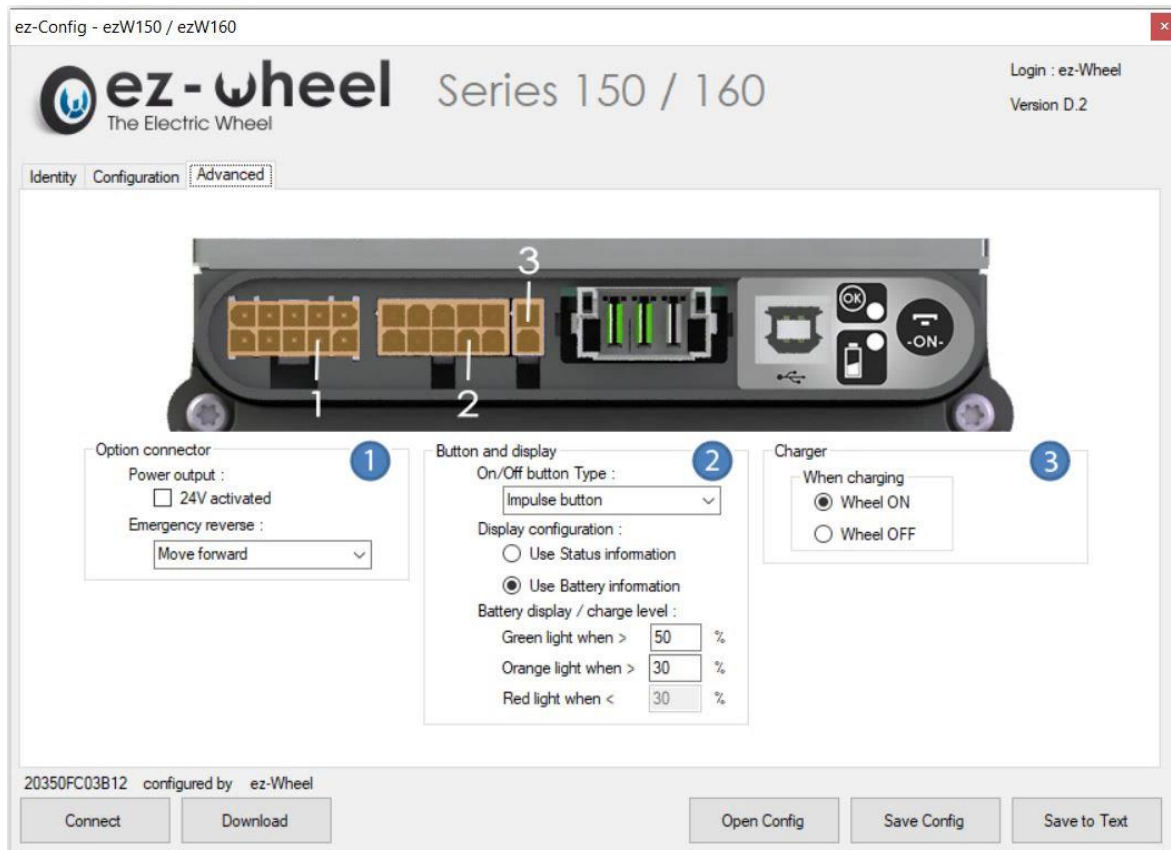


Figure 15 - « Advanced » tab

8.1 Option Connector

The **Option connector** tab allows to activate a 24 V discharge path with pin 1.
Contact your retailer to get the electrical details of the interface.

8.2 Buttons and display

This field allows to choose the button type and the remote display on the machine.

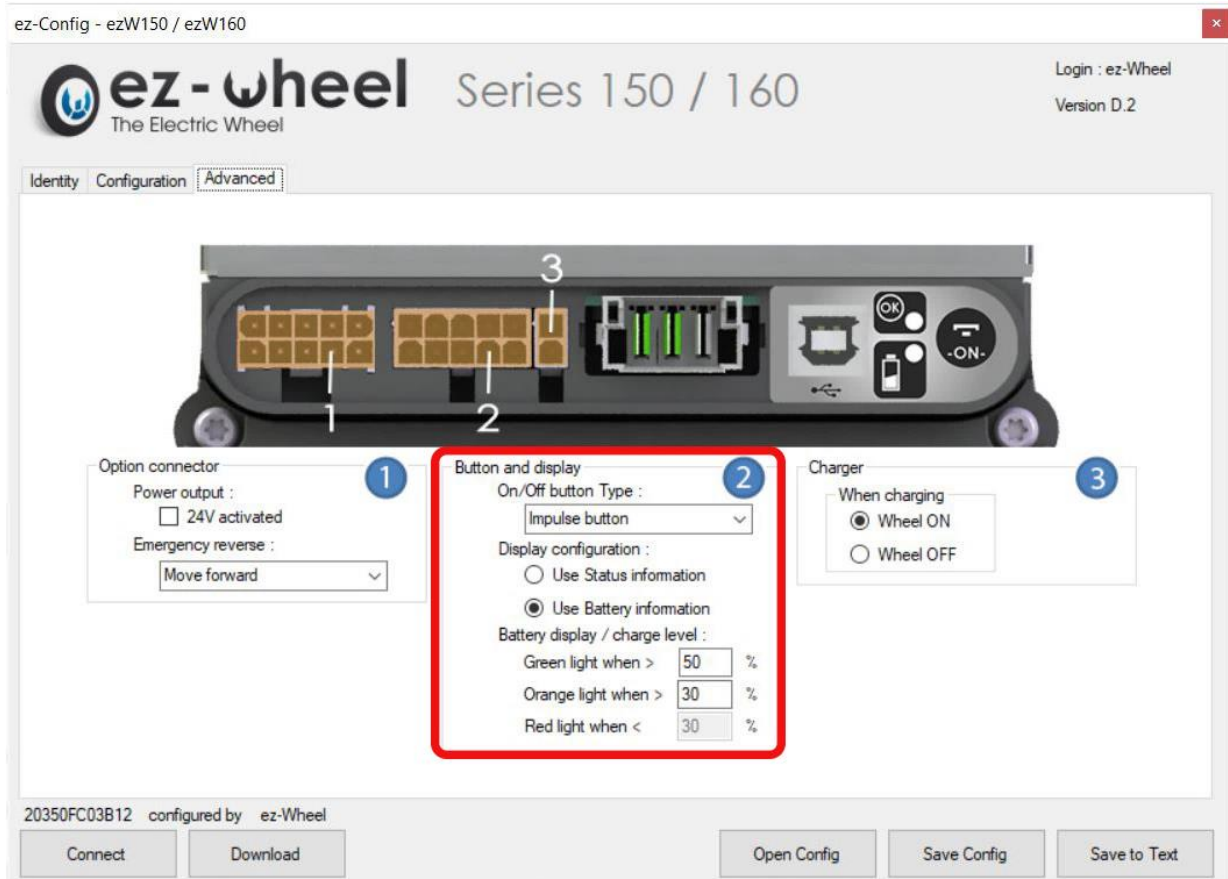


Figure 16 - Button choice

« Impulsional button »

It functions with mono-stable buttons.

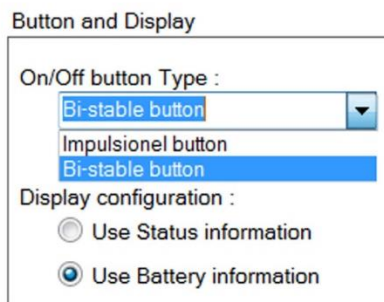


Figure 17 - Type of Button affiliated to the command

« Bi-stable button »

It functions with the 2 position-button.

« Remote Display »

If case of a display remoted on the device, choose the required LED: « status » or « battery ».

- i** By default, the display shown is the battery.
- i** If you choose to remote the display of the wheel “status”, the IHM label will be also displayed differently: the 2 leds (battery and status) will display the status.

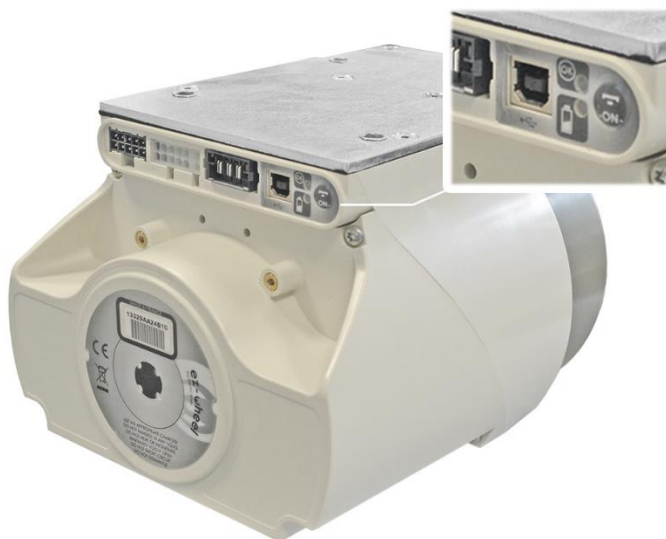


Figure 18 - Back of the Wheel ezw160M / ezw150I and IHM label

Battery level display

The field **Battery display** allows to define the LED color according to the battery level. Three levels are configurable, green, orange and red:

Battery display / charge level :

Green light when >	<input type="text" value="70"/>	%
Orange light when >	<input type="text" value="10"/>	%
Red light when <	<input type="text" value="10"/>	%

- i** The field “Orange light” must be between 10 and 30%
- i** The field “Green light” must be between 30 and 70%
- i** A gap of 10% have to be respected between the field “green light” and “orange light”.

Charge plugged

The field **Charge plugged** enables to define the engine behavior of the wheel when the charger is plugged to the wheel and powered, defines the behavior of the engine of the wheel, two modes are available:

- Wheel ON: Engine of the wheel is activated
- Wheel OFF: Engine of the wheel is deactivated