

# VERMEIREN

## LiNX 400

USER MANUAL





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## Preface

### **Important note**

This manual reflects the latest product developments. Vermeiren has the right to implement changes to this type of product without being imposed to any obligation to adapt or replace similar products previously delivered.

Pictures are used to clarify the instructions in this manual. Details of the depicted product may deviate from your product.

### **Information available**

On our website <http://www.vermeiren.com/> you will always find the most recent version of the information in this manual. Please consult this website regularly for possible updates.

Visually impaired people can download the electronic version of this manual and have it read out by means of a text-to-speech software application.



This user manual of applied operating console  
For user and specialist dealer



User manual of wheelchair  
For user and specialist dealer



Installation manual of wheelchair  
For specialist dealer



User manual of battery and charger  
For user and specialist dealer

# 1 Description

The operating console built into your electric wheelchair enables you to control all the driving, steering, braking and operating processes, as well as other adjusting motors (lifting column, seat and back adjuster). The wheelchair's electrical unit and electronics are constantly being monitored internally.

The following pictures show all parts that are relevant to the user.



1. ON / OFF button with status indicator
2. Navigation button main menu
3. Navigation button submenu
4. Touch screen
5. Joystick
6. Connection point of power cable
7. Connection point for service purposes
8. Console base
9. Connection point of power charger



Figure 1 *Important parts*

## 2 Before use

**WARNING**

Risk of injuries and damage

- Do NOT install, maintain or use this product unless you have read and fully understood all instructions in this manual and all relevant manuals regarding the wheelchair equipped with this product.
- Do not try to open or disassemble the console in any case - there are no user-serviceable parts inside.
- In case of doubts or questions, do not hesitate to contact your local specialist dealer, your care provider, or your technical adviser to help you with this.

**i** Vermeiren is responsible for software updates/repairs. For adaptations in the software, contact Vermeiren, see our website <http://www.vermeiren.com/>

### 2.1 General safety instructions

Keep the following general warnings in mind during use:

- The operating consoles have been tested for electromagnetic compatibility on typical, representative vehicles and comply with the appropriate EMC standards:  
EN 12184: 2014, ISO7176-21: 2009.
- Nevertheless, sources of electromagnetic field may influence the driving performance of your wheelchair, like the fields of mobile phones, power generators or high-power energy sources. On the other hand, the electronics of your wheelchair can affect other electronic appliances too, like alarm systems of shops and automatic doors. We therefore advise you to check your operating console / wheelchair regularly for damage and wear, since these may enlarge the interference.
- Be aware that the surface of the operating console may get very hot due to solar radiation or heating devices. Be careful when touching.
- Make sure that the controller does not become colder or hotter than the allowed minimum and maximum temperature, see the wheelchair user manual.
- Before switching the wheelchair on, be aware of your environment/situation. Adjust your speed accordingly before driving off. We advise you to use the slowest speed setting to drive indoors. For outdoor driving you can adjust the speed to a suitable speed at which you feel comfortable and safe.
- Do not touch the connector pins. If you touch the pins, they can become dirty, or they can be damaged by electrostatic discharge.
- If the wheelchair has not been fitted with a hand guard for the operating console, be aware that your hand will not be protected from crushing, for example while manoeuvring towards a table.
- The XLR connector on the controller is to be used exclusively for the intended purpose of charging the battery. The warranty will lapse if any unauthorized device is connected to this port.
- Make sure that the battery charger that is used with the vehicle has a drive-inhibited function that is correctly connected for use with the controller. This drive-inhibited feature is intended to prevent the chair from driving while the battery is being charged. If you are not sure, ask your dealer.
- Immediately turn the controller off and consult your service agent if the vehicle:
  - is damaged;
  - does not behave the same every time;
  - does not respond normally, the way you expect it to;

- becomes hotter than normal;
- smokes;
- does not change its speed when you adjust the speed dial;
- displays a fault on its fault indicator and the controller does not perform normally.
- Turn the controller off:
  - when you do not use it;
  - before you get in or out of the wheelchair;
  - if your vehicle drives by itself or against your will. When you turn the controller off, the vehicle will halt.

### 3 Driving

1. Press the ON/OFF button.
2. If the LED on the ON/OFF button is green, the wheelchair is powered and ready to go.
3. Check the battery status indicator. Charge the battery if necessary (see § 4.3).
4. Select the driving program and set the speed range by sliding the arrow (S), see driving functions in § 4.9.
5. Start moving the wheelchair by operating the joystick slowly forwards/backwards.
6. The speed will increase when you push the joystick further out of the centre.
7. To turn left or right, push the joystick to the left or right. Use your direction indicators when driving outdoors, see § 4.11.
8. To brake, move the joystick to neutral position.
9. After arrival, check the battery status and press the ON/OFF button.
10. Charge the battery if necessary.

## 4 Operating console functions

The operating console enables you to control all driving components as well as the motors to adjust your body position. For your own safety, and to prevent that the wheelchair gets damaged, movements are monitored by the electronics. This may result in block of movement, speed decrease or complete stop.

### 4.1 Switching ON / OFF

- i** Put the joystick in the neutral (central) position before pressing the ON/OFF button.

If the console is switched on with the joystick out of the neutral position, the wheelchair will not drive. Release the joystick (return to neutral) within 5 seconds to unlock the drive. If the joystick is not released within 5 seconds, the fault turns into a Module fault which is indicated by the red blinking LED in the ON/OFF button. The wheelchair will not drive. To clear the Module fault, release the joystick and switch the operating console OFF and then ON again.

- To switch the operating console ON, press the ON/OFF button once.

*The start screen is displayed for a few seconds, after which the operating screen appears. The LED (status indicator) in the ON/OFF button goes on. When it turns green, the operating console is ready for operation. When the LED starts blinking in red, there is a failure, see §4.2 and §5.*

- To switch the operating console OFF when it is ON: press the button once.

*The operating console will power down and the status indicator goes out.*



Figure 2 Switching ON/OFF

#### 4.1.1 Emergency stop

If you need to stop a driving or body-positioning movement quickly, press the ON/OFF button to perform an EMERGENCY STOP. The wheelchair will come to a halt quickly.

#### 4.1.2 Sleep mode

The operating console will go into sleep mode after a period of inactivity (default 5 minutes). When the system sleeps, it is partially turned off to reduce energy consumption. To reactivate the operating console, press a button or move the joystick.



## 4.2 Failures and blocks

When the operating console is powered and a failure appears, the indicator of the ON/OFF button starts blinking in red, see picture. The number of blinks indicates the fault code. For a few seconds, a triangle with fault code (A) is displayed. The ON/OFF button will keep blinking.

In case of a failure, one or all functions of the operating console are blocked. This is indicated by the “forbidden”-symbol and the yellow warning bars (B).

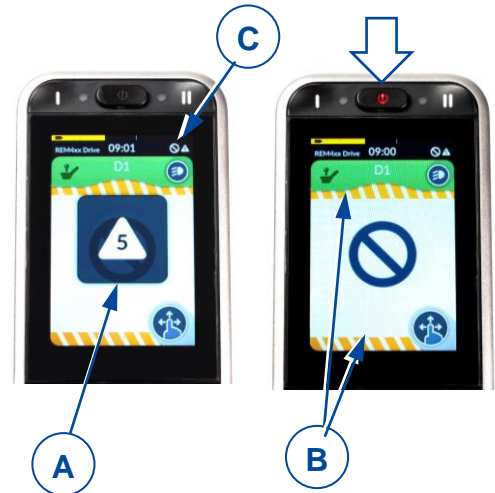


Figure 3 *Failure indication and drive inhibited*

**i** The status is indicated by a small symbol (C) in the top corner of each screen.

For more information, see §5.

## 4.3 Battery status and charging

 **WARNING** Risk of injuries and damage

Follow the charging instructions in the wheelchair instruction manual and the suppliers' manual of the battery charger.



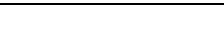

The battery charge indicator (located at the top of the touchscreen) provides an estimation of the remaining battery capacity.

In the following table all battery indications and their meanings are collected.



Figure 4 *Battery status indication*

Table 1: Battery status description

Display	Description	Meaning	Remarks
	Most blocks are green	Battery capacity: more than 50% of full capacity.	
	Blocks turn yellow	Battery capacity level is decreasing: less than 50% of full capacity	Consider recharging the battery soon.
	Blocks turn red	Battery almost empty	Stop and recharge now.
	Yellow or green blocks with charging symbol	Battery is charging. Battery capacity level is indicated by colour.	Wait until battery is completely charged.

### 4.3.1 Charging

- i**
  - Driving is prevented (inhibited) while the system is being charged.
  - Charging is possible without switching the operating console ON. To see the battery status indicator, switch it ON.

Plug the battery charger into the remote's XLR socket (9), see Figure 1.

The battery status indication now turns into a charge indication, see figure 5. The battery charging state is shown by the yellow or green blocks.

After a few seconds, the operating console turns to power-save mode and the screen illumination decreases. Tapping on the screen turns normal illumination on.



Figure 5 *Battery-charging indication*

## 4.4 Navigation

There are 2 main menus to view on the touchscreen:

- S-menu for adjusting the body position, see §4.8.
- D-menu for changing the drive functions, see §4.9.

Each main menu has separate submenus.

Once the operating console has been switched ON, you can navigate through the screens/menu in two ways:

1. by pressing navigations buttons (see Figure 1, 2+3).
  - Press navigation button I (2) shortly, to select a main menu (S, D...)
  - Press navigation button II (3) shortly, to select a submenu (S1, S2...)
2. by swiping with your finger on the touch screen
  - Swipe up/down to select a main menu (S, D...) and tap to view it.
  - Swipe left/right to select a submenu (S1, S2...) and tap to view it.

- i** Use the set key to get an overview on the navigation structure.

## 4.5 Settings button

The settings button (K) is displayed in each menu screen. With this button, the screen view can be changed, a popup screen can be opened, and settings can be changed.

- To toggle between full screen view and menu-scroll view, tap the settings button shortly.
- To open the pop-up screen, hold your finger on the settings button for 4 seconds.

- i** This pop-up screen can also be opened/closed by pressing menu button I (2) for 4 seconds.



Figure 6 Settings button and pop-up screen

- To navigate to one of the items in the pop-up screen, tap on the item.
- To navigate to the previous screen, tap the return arrow.
- To close the pop-up screen, tap on the cross key (M) at the bottom of the screen.
- When a selection key is active, the indicator of the key turns green.

#### 4.5.1 Time setting

- Tap on the time indication (H in previous figure) and set hour and minutes by tapping the arrows (I).
- To switch from 12-hour dial to 24-hour dial, tap in the area of the 12/24-hour button (J).

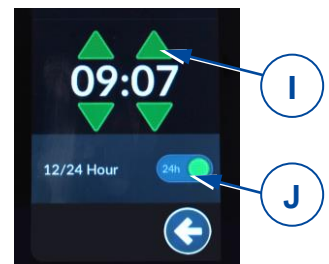


Figure 7 Time setting

#### 4.5.2 Screen lock

The Screen lock key (L) (see Figure 6) is primarily intended to restrict the authorisation of the screen operation to the occupant, but also prevents unintentional use of screen controls.

**i** The screen lock does not influence the driving functions or body-positioning functions. When the screen is locked, the maximum drive speed is set according to submenu D1. This pop-up screen can also be opened/closed by pressing submenu button II (3) for 2 seconds.

- To **lock** the screen:
  - Tap and hold your finger on the settings button (K) for 7 seconds (see Figure 6).
  - To switch the lock ON, tap the selection key of the “screen lock” section. The indicator turns green.

*When the screen is locked, all operating keys are greyed out and become inoperable. The symbol of the settings button (K) turns into a padlock.*

- To **unlock** the screen:
  - Switch off the operating console with the ON/OFF button to lift the lock.

*The keys on the screen become operable again.*

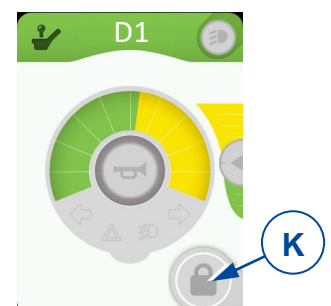


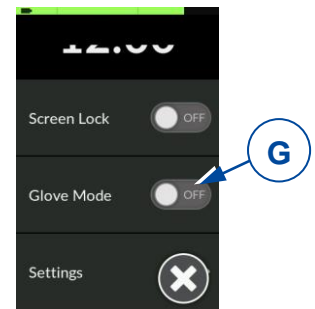
Figure 8 Screen locked

### 4.5.3 Glove mode

The touchscreen is programmed to a particular degree of touch sensitivity. For this reason, the screen does not respond when you wear gloves. With this function, you can increase the touch sensitivity so you can operate the console while wearing gloves.

- To switch the glove mode ON, tap the selection key (G). The indicator turns green.
- To switch this mode off, tap the selection key again. It is now greyed out.

Figure 9 *Glove mode key*



### 4.5.4 Settings

- Tap on your chosen setting to enter the setting menu and submenus.

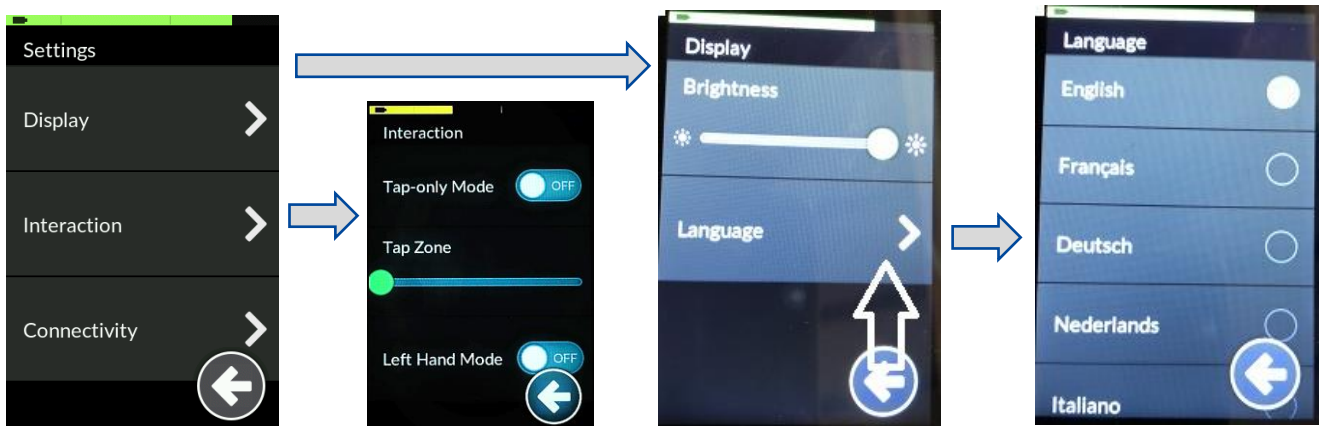


Figure 10 *Settings menu*

#### *Display*

1. Brightness
  - Move the green slider to the left/right to decrease/increase the brightness of the screen.
2. Language
  - Your operating console is set to English by default. your preferred language can be selected from the list under the “Language” setting.

#### *Interaction*

1. Tap only mode
  - Tap this selection key to switch this mode OFF or ON. After switching on this function, sliding and wiping do not operate. The screen can only be operated by tapping the arrow keys and +/- keys that replace these functions.
2. Tap zone
  - Move the slider to the left/right to decrease/increase the sensitivity zone of the tap field.
3. Left hand mode
  - Tap this selection key to switch this mode OFF or ON. By switching on, the location of the operating keys switches from the right to the left side of the screen.

### 4.5.5 Odometer

The menu screen shows the speed indication as well as an indication of the travelled trip distance (N).

To reset the trip distance back to zero:

- Enter the setting menu by tapping the settings button (K).
- Tap on the submenu “Odometer”.
- To reset the trip distance (P) to zero, tap the button (R).
- The total traveled distance (O) cannot be reset.
- To switch between distance indication in kilometers or miles, tap (Q).

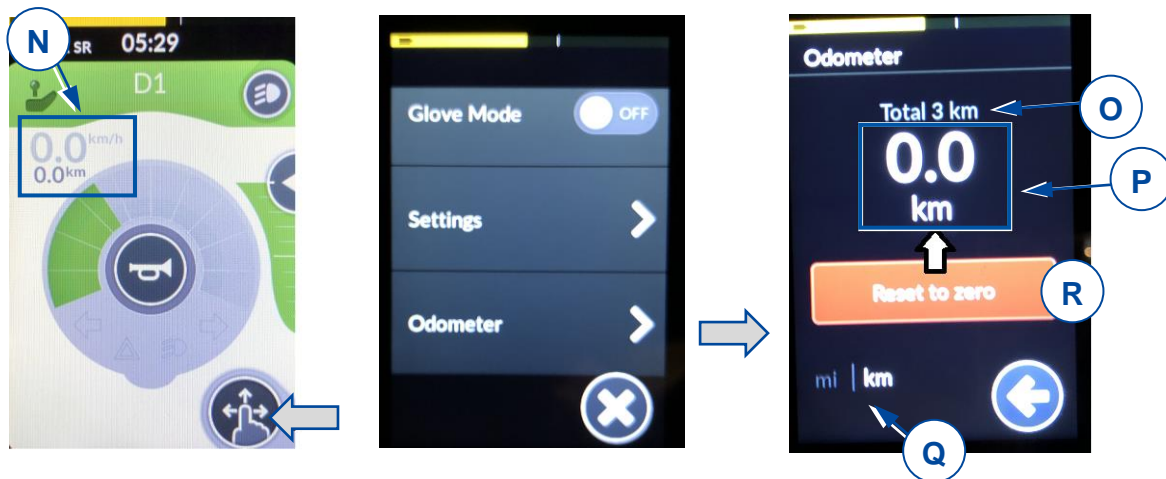


Figure 11 Joystick movements

## 4.6 Joystick operation (driving and braking)

Operating the joystick in a specific direction will move the electric wheelchair in that direction. The speed of movement depends on the displacement of the joystick. If the joystick is pushed/pulled to maximum displacement, the speed will be maximal (within the selected drive mode).

By moving the joystick to its central position (neutral) during driving, the brakes will start working until the wheelchair stops:

- For gradual braking, move the joystick slowly
- For a quick stop, release the joystick; the wheelchair will stop as quickly as possible.



Figure 12 Joystick movements

**i** Make sure that the joystick is in neutral (central) position when pressing the on/off button, otherwise the electronics will be locked.

After switching the operating console ON by the ON/OFF button, the joystick stays in the central position for at least five seconds. The console has been programmed this way for technical and safety reasons. If joystick and ON/OFF button are activated at the same time, the steering unit is locked and will only unlock after switching completely OFF.

**i** Make sure that the free-wheel lever is in braking position BEFORE switching the wheelchair ON. Electromagnetic brakes do NOT function if the wheelchair is in free-wheel mode. This is indicated on the operating console. Driving is not possible.

**i** To prevent unintended changes of the settings, the operating keys disappear during operation of the joystick. As soon as the joystick is in neutral position, the keys appear again.

## 4.7 Operating console lock

It is also possible to lock the operating console, to prevent unauthorized use of the wheelchair.

- To **lock** the console: Press the ON/OFF button until the lock symbol appears and the screen goes black.
- To **unlock** the console: hold your finger on the screen. The lock symbol appears again, together with a white loading bar around the screen. Wait until the bar is fully loaded, the console now becomes operable again.

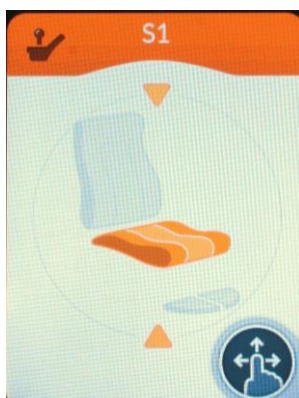
## 4.8 Adjusting your body position

 CAUTION Risk of injuries or damage

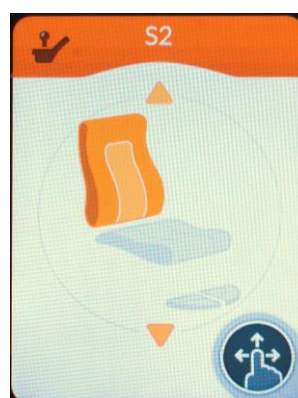
- Be aware that the stability decreases when the wheelchair is moved from sitting straight to inclined position.
- Make sure there is enough space around the wheelchair to operate the backrest and seat.

The wheelchair's adjusting functions can be operated from the S-menu. Depending on your type of wheelchair, there can be up to 6 submenus.

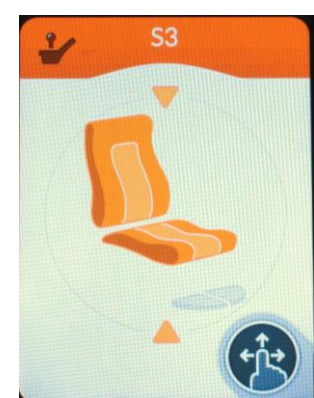
- To adjust your body position, move the joystick to the front or back, according to the arrows on the screen.
- To return to the basic sitting position, move the joystick to the back for each adjusting movement.



Seat height (lift)



Backrest inclination



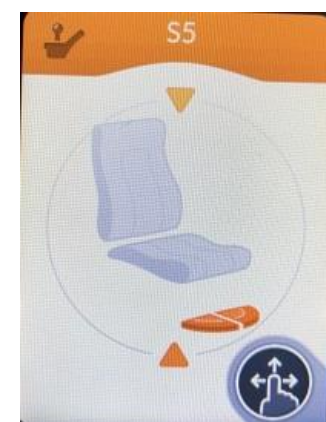
Seat & backrest inclination



Left foot support



Right foot support



Both foot supports/central footplate

Figure 13 Possible submenus

## 4.9 Changing drive function

The wheelchair's speed functions can be operated from the D1, D2, or D3 submenu. These submenus allow the user to select the maximum speed limit of the wheelchair (that is the speed when the joystick is fully deflected) to their preference and environment.

The maximum driving speed by maximal deflection of the joystick depends on the selected drive submenu (D1, D2 or D3) and the manual speed setting in this submenu.

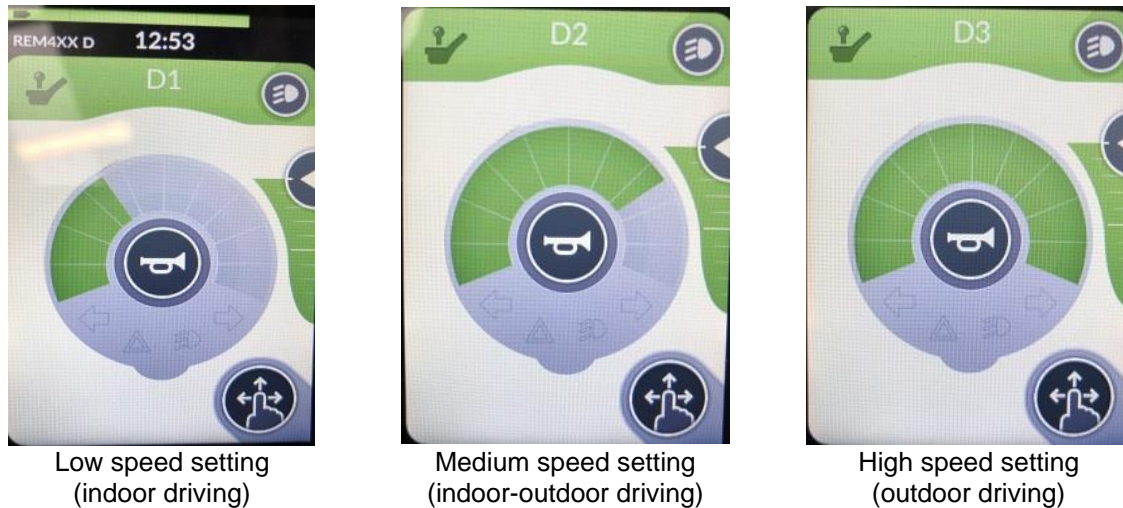


Figure 14 *Submenu D1, D2, D3*

In each drive submenu, the speed can be changed in 10 discrete steps between lowest and highest speed. The available speed range for joystick operation is displayed in green. The yellow part is the remaining speed range, not in use.

The speed range can be changed by sliding the arrow key (S):

- UP, to increase speed range (more green)
- DOWN, to decrease speed range (more yellow)

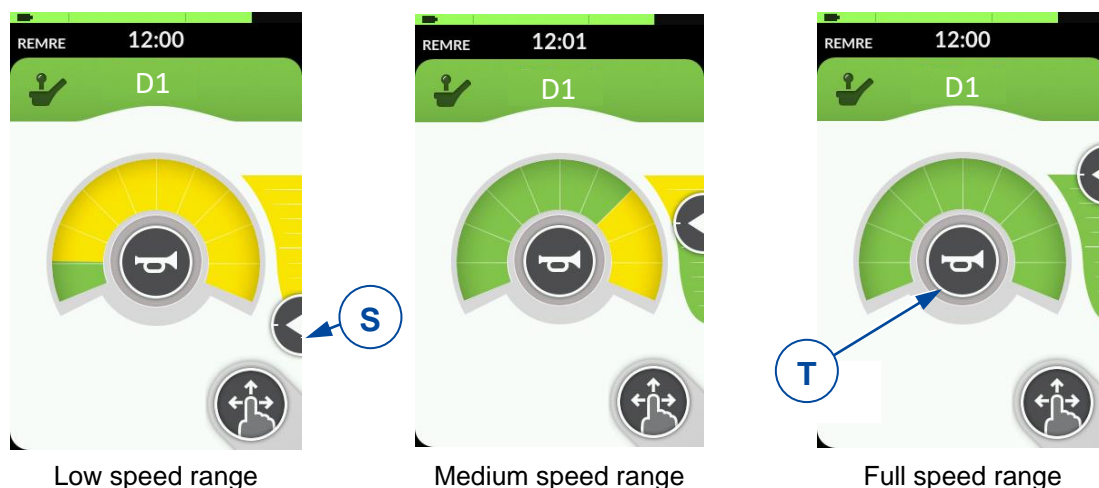


Figure 15 *Adjusting speed range*

### 4.9.1 Limited driving speed

For your safety, the driving speed of your wheelchair will be automatically reduced when certain body position alterations have been made. The drive of the wheelchair is then limited to the lowest speed setting D1, or even becomes completely blocked.

Driving and speed limitations occur when:

- the lift has been adjusted to a higher position. Only speed setting D1 is available.
- the backrest inclination exceeds a certain angle (see figure 15):

1. All functions of your wheelchair are available.
2. Only speed setting D1 is available.
3. Driving your wheelchair is no longer possible. Raise the backrest until the block is lifted.

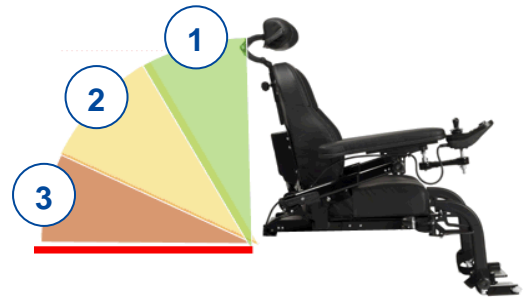


Figure 16 **Backrest inclination**

To lift the speed/driving limitations, lower the lift to standard (lowest) position, and adjust your seat and backrest to upright sitting position.

### 4.10 Horn

Press the horn key (T) to warn bystanders, see figure 14. The horn will sound as long as the button is pressed.

### 4.11 Lighting

To operate the lights:

1. Go to submenu D1, D2 or D3.
2. Tap key (U) to open the pop-up screen.
3. Tap one of the keys once to switch the light ON, tap again to switch the light OFF:
  - o key (V), left indicator
  - o key (Y), right indicator
  - o key (W), hazard warning lights
  - o key (Z), front and back lights

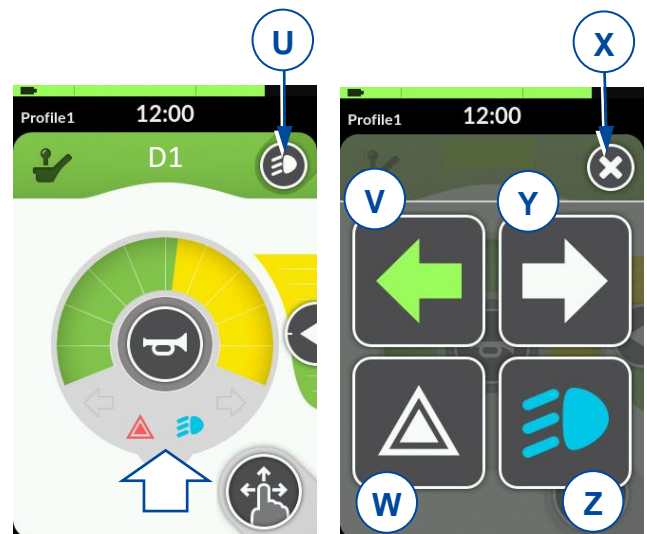


Figure 17 **Operation of the lights**

When the key is activated, the light symbol is coloured, and a light symbol is shown on the speed indication circle.

To close the pop-up screen, tap the cross key (X).

- i** After operating keys (V) or (Y), the direction light blinks 8 times before it stops.
- The hazard warning lights and main lights must be turned OFF manually by tapping key (W) and/or (Z) again.
- When the hazard warning lights are on, they stay on, even when the operating console is switched off by the ON/OFF button.
- The main lights go out when the operating console is switched off.



## 5 Troubleshooting


**WARNING**

Risk of injuries and damage to the operating console or wheelchair

- NEVER attempt to repair the operating console yourself.
- For failures of the operating console, you need to contact your specialist dealer. He/She decides if the console needs to be reprogrammed.

In case of failure, a fault code is displayed by the blinking LED in the ON-OFF button or by a triangle on the touch screen, see Figure 3.

The following table summarises the possible fault codes. Some problems can be solved by yourself. For all problems marked in grey, consult your specialist dealer.

Table 2: Troubleshooting

Code	Problem	Meaning
1	Remote / joystick error	Verify that the joystick is in the neutral position when switching ON the operating console. Check the joystick: not damaged and working properly.
2	Network or configuration error	1. Check all connection points and cables. 2. Verify the correct working of the software. If you cannot find any fault, contact your specialist dealer.
3	Left motor (or its connection) is defective.	1. Verify whether the plugs of both motors have been inserted properly. 2. Check the plug contacts of both motors for corrosion or damage.  <b>i</b> This fault also appears when the motors are disconnected. Connect again and restart the system.
4	Right motor (or its connection) is defective.	As described above.
5	Left parking brake (or its connection) is defective or neutral active.	1. Verify whether the motors' plugs have been inserted properly. 2. Check the plugs for corrosion or damage.
6	Right parking brake (or its connection) is defective.	As described above.
7	Module error (other than Remote)	One of the wheelchair parts may be damaged except the operator control.







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### **Instructions for specialist dealer**

This instruction manual is part and parcel of the product and must accompany every product sold.

Version: B, 2021-09

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