

ICTRL MANUAL

Create a connection that makes your life easier

FACEBOOK • TWITTER • EMAIL • HOME BANKING • WHEEL CHAIR CONTROL



User Manual

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Revision 2.2

1 INTRODUCTION

1.1 About this manual

This manual will introduce you to your new ICtrl system, or to the ICtrl system of the person you are assisting, and give you the information needed to use the system safely. Please read this manual carefully before using ICtrl. When reading the manual, pay special attention to the statements labelled **WARNING**. They indicate a situation where you or another person may be in danger of serious injury, or a situation in which the ICtrl equipment may be damaged.

1.2 About ICtrl

The ICtrl control system allows you to control a range of electronic devices using your finger. By moving your finger over the touch sensitive surface of the ICtrl smart device, you can control Windows-based computers and tablets, as well as your electric-controlled wheelchair. The signals from the smart device are sent to the ICtrl control unit and from there to the device being controlled.

1.3 Symbols

Below, it is explained the meaning of the symbols used on your T03 ICtrl and its packaging.




	Refer to documentation
	Device emits non-ionizing radiation
	Do not dispose in household waste

Table 1: Symbols used on the T03 ICtrl

1.4 Contact and support

Support for your ICtrl system is provided by your local dealer. See www.tks-technology.dk for the contact information of your local dealer. Having access to your ICtrl system and an internet connection when you call will speed up the support process.

The ICtrl is manufactured by:

TKS A/S
Niels Jernes Vej 10
9200 Aalborg Øst
Denmark

1.5 Warranty

The warranty follow EU standard which gives a total period of 2 years from invoice date. Furthermore it's only valid if the unit is used according to this User Manual and no visible sign of unintended use.

Use of the ICtrl that falls outside the intended use described above is not covered by the warranty.

2 SETTING UP

2.1 System overview

The ICtrl consists of the following parts:

- Control Unit (CU).
- Power supply.
 - 230Vdc power supply (optional)
- CU to OMNI (IOM) Cable
 - IOM – Input/Output Module (optional)
- TKSAApp. Download latest version here:
 - <http://www.tks-technology.dk/support> (Android)
 - AppStore (IOS)

The Control Unit (CU) allows you to operate a computer interface or control a wheelchair. The control unit has a touch screen that can be used to adjust settings and change modes without using the smart device. The control unit has a power supply connector, as well as a connector for cabled connection to a wheelchair. The CU power supply is used when the CU is in use with a computer or tablet. When the CU is connected to a wheelchair, the wheelchair power adapter cable is connected to the power supply connection on the CU.

WARNING: DO NOT USE THE ICTRL WITH OTHER POWER ADAPTERS THAN THOSE SUPPLIED WITH THE SYSTEM. IF YOU REQUIRE A REPLACEMENT POWER ADAPTER, CONTACT YOUR SERVICE REPRESENTATIVE.

2.2 Before using the ICtrl for the first time

The ICtrl should only be used by persons who are able use a phone with the fingers. Do not use ICtrl systems that are not configured to you personally.



Figure 1 : ICtrl set up in a Smartphone on a wheelchair.

Make sure the ICtrl smart device is fully charged before using it for the first time. If you are not using the ICtrl with a wheelchair, connect the Control Unit to the power supply cable and plug the power supply into a standard power outlet (230V). When you are done using the ICtrl, you can leave the Control Unit plugged in, or switch it off by disconnecting the power supply cable from the Control Unit. Setup of ICtrl for wheelchair use should be performed by an authorized service and installation technician.

2.2.1 Bluetooth setup

Navigate the CU menu to Bluetooth Settings by “Options”→”Settings”→”Bluetooth Settings”→”BT-1 TKS-HID”. Press “Find” and “Select” the device to connect. When selected, the device is highlighted with red, press “Conn”. The CU tries to make a connection to the selected device. Wait for a pairing message on the selected device and allow this when. With a successful pairing press again “Conn” for a permanent connection. Confirm this by a visible “~” sign beside the device. If not, try same step once again.

3 USING ICTRL

In order for the ICtrl to function properly, the control unit must be placed no more than 3 meters from the smart device.

3.1 Before using the ICtrl:

Before each use of the ICtrl, please observe the following precautions.

1. If there is visible damage to the control unit, for example cracks in the display, do not use the ICtrl. Contact your service representative.
2. Don't use ICtrl, if problems are encountered with the activation of the touch screen on the smart device.

3.2 Modes

ICtrl® have 5 different modes. Every mode represents a state, where ICtrl® solves a specific task.

- **Menu:** Is used to control the control unit and select mode.
- **Wheelchair:** The control unit works as a Joystick to wheelchair.
- **Keyboard:** The control unit works as a Bluetooth keyboard.
- **Mouse:** The control unit works as a Bluetooth mouse.
- **Standby:** turn temporarily the display of control unit off.

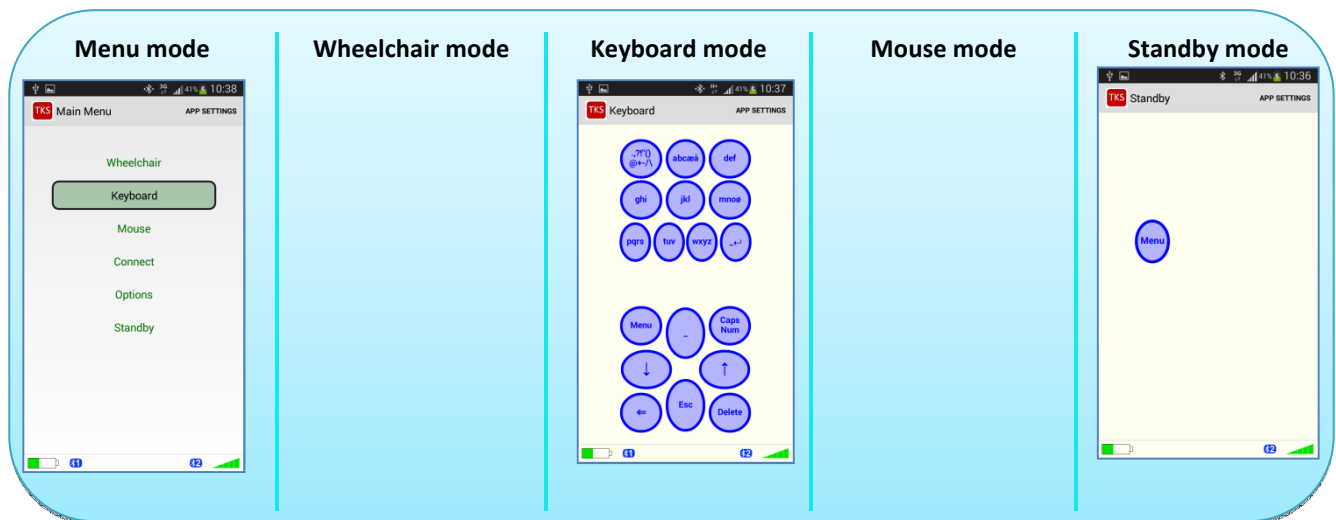


Figure 3: Screen layout of the TKSApp in different modes.

You can shift mode by using TKSApp on the smart device or by navigating in the menus by using the control unit touch screen.

The screen on the control unit shows, which mode the system is in:

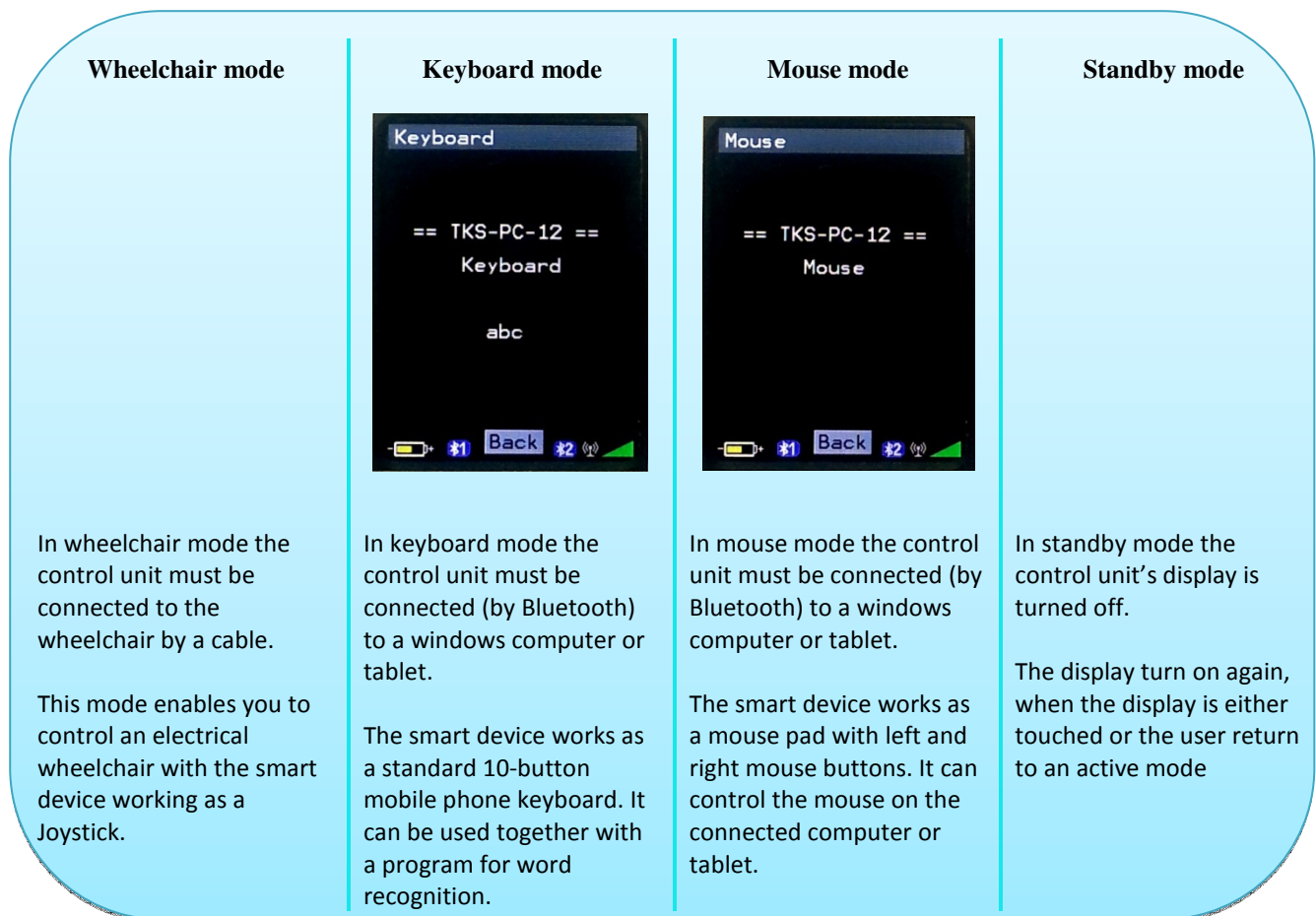


Figure 4: The display of the control unit in different modes.

The modes can be selected from the main menu from pressing touch screen on the control unit or pressing the touch screen in the smart device. You can change the parameter the system is using under the menu item "Settings". This is described in more detail under chapter 4 Settings.

All screens have a battery symbol to the left and a radio symbol to the right on the button of the screen.

A green battery symbol indicates the smart device is fully charged. If the battery symbol changes to yellow or red, it is time to recharge the smart device.

3.3 Navigating the CU menu

3.3.1 Wheelchair mode

In Wheelchair mode, ICtrl is connected with a wire to the wheelchair making a safe connection. This mode gives you the opportunity to drive the wheelchair in whatever direction chosen on the mouse area of the smart device.

3.3.2 Keyboard mode

In Keyboard mode, ICtrl is connected via Bluetooth to a computer, see section 2.3 for Bluetooth setup. The keyboard is operated as a 10 key mobile keyboard and is able to use word recognition programs.



Figure 2: Keyboard mode.

The keyboard and the mouse have a fast link which enables you to switch modes rapidly.

3.3.3 Mouse mode

In Mouse mode, ICtrl is connected via Bluetooth to a computer, see section 2.3 for Bluetooth setup. The mouse is operated with a mouse pad and enables you to move the mouse on the connected computer.

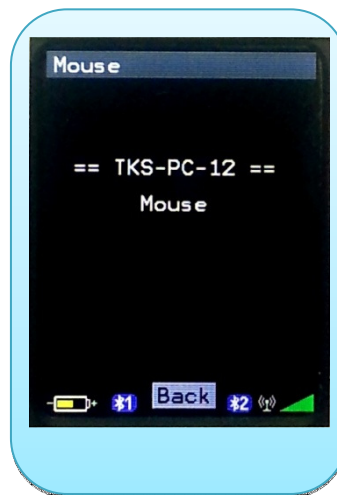


Figure 3: Mouse mode.

The keyboard and the mouse have a fast link which enables you to switch modes rapidly.

3.4 Getting started with your wheelchair.

The ICtrl is compatible with the several control interfaces for wheelchairs.

WARNING: DO NOT ATTEMPT TO CONNECT THE ICTRL WHEELCHAIR CABLE TO OTHER WHEELCHAIRS OR CONNECTIONS. OTHER WHEELCHAIRS MAY NOT BE ABLE TO SAFELY INTERPRET ICTRL SIGNALS. CONNECTING THE WHEELCHAIR CABLE TO OTHER OUTLETS THAN THE WHEELCHAIR CONTROL INTERFACE MAY DAMAGE YOUR ICTRL.

When using ICtrl with a wheelchair for the first time, please observe the following precautions:

1. Practice using the ICtrl by playing games that trains mobility and coordination.
2. Ask your wheelchair service technician to reduce the speed settings of your wheelchair.
3. Practice using the ICtrl to control the wheelchair indoors and with others present.

3.4.1 The colored area in Wheelchair mode.

When you are in Wheelchair mode the control unit shows a colored area on the screen. The colors have the following meaning:

Red: The control unit have no connection to the wheelchair, or the wheelchair is turned off.

Yellow: The control unit have connection to the wheelchair, but it is inactive.

Green: The control unit is active and works as a joystick on the wheelchair.

3.4.2 Controlling the Wheelchair

1. Make a connection from the control unit to the wheelchair by connecting them with the Wheelchair cable.
2. Select wheelchair mode in the menu on the control unit - or in the menu on the touch screen on the smart device.
3. If the wheelchair shows (Red), it must be turned on.
4. Confirm you want to go to the active state (Green) by activating the on/off sensor for a second.
5. ICtrl is now in the active state. This state enables you to control the wheelchair with the smart device working as a wheelchair joystick with an on/off and function-buttons.
6. If a safety stop is triggered (shift back to Yellow, inactive state), you must activate the on/off sensor for a second to return to active state again.
7. If the wheelchair is not used for 3 minutes, the state changes to inactive (Yellow).
8. Remember to leave active state (Green) when the wheelchair is not used. This can be accomplished by activating the on/off sensor, activating the menu sensor, pressing the back button on the screen of the control unit or pressing the back button on the smart device .
9. When the wheelchair is turned off, the state shift to (Red).

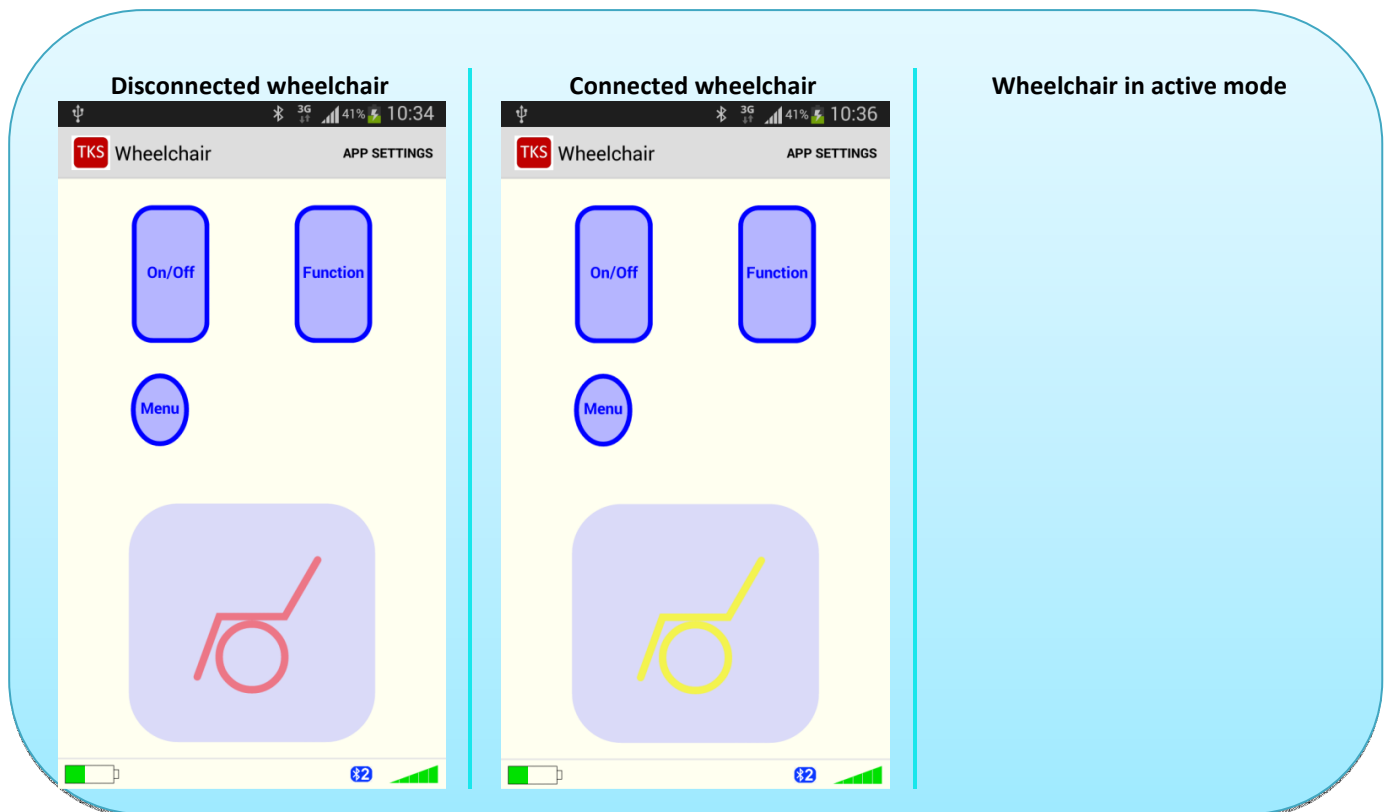


Figure 10: TKS App in Wheelchair mode: Red, Yellow, Green

3.4.3 Error messages in wheelchair mode.

When in wheelchair mode the Control Unit can display the following error messages in red coloured text:

- **“No Wheelchair”**: A connection from the Control Unit to the wheelchair is not established. Check if the cable is connected to the wheelchair and the wheelchair is powered on.
- **“InputPiece missing!”**: No radio connection from the Control Unit to the smart device is established. The smart device is not present, not working or outside radio range.
- **“No input”**: Weak or no Bluetooth connection from the Control Unit to the smart device
- **“Input down”**: Weak or no Bluetooth connection from the Control Unit to the smart device.
- **“ICtrl 1 to 2”**: Safety stop: supervisor processor does not receive necessary control data from the application processor.
- **“No Radio 1”**: Radio connection from the application processor to the smart device is lost. Signal is weak, noisy or has temporary been interrupted by another device transmitting on the same radio frequency.
- **“No Radio 2”**: Radio connection from the supervisor processor to the smart device is lost. Signal is weak, noisy or has temporary been interrupted by another device transmitting on the same radio frequency.
- **“Data missing”**: Bad radio connection to the smart device.
- **“Data error”**: Safety stop; calculated Joystick XY-coordinates from the application processor and supervisor processor does not match. Some of those messages are to be expected in situations having several “No Radio 1” and “No Radio 2” dropouts - that is quite normal. But if this message is persistent and dominates in occurrence over other messages, a faulty hardware is most likely the problem.
- **“Duplicate 1” and “Duplicate 2”**: Can occur from radio interference by other ICtrl systems.
- **“Data quality”**: Safety stop, the received data from the hand piece does not have a sufficient quality.
- **“Key+Mouse”**: Safety stop, simultaneous activation of the keyboard and mouse-area of the smart device
- **“Fuzzy error”**: Safety stop, internal error in the system.
- **“Wheelchair ERROR”**: Due to an error in the wheelchair, the Control Unit is unable to establish a connection. This error can arise when the cable is connected to the Control Unit. Try removing the cable and connect it again. If the error continues, contact your wheelchair vendor.

3.5 Daily use of Ictrl

The ICtrl is intended for prolonged daily use.

3.5.1 Cleaning the smart device

FOR CLEANING THE SMART DEVICE FOLLOW THE INSTRUCTION FROM THE MANUFACTURER.

3.5.2 Cleaning the control unit

The control unit can be cleaned by wiping with a damp cloth, as necessary. The display of the control unit should only be cleaned using a dry cloth.

WARNING: CLEANING USING ACID/BASE CONTAINING LIQUIDS, BOILING OR HOT WATER OR ABRASIVE MATERIALS AND CLEANING AGENTS MAY DAMAGE THE CONTROL UNIT.

3.5.3 Suitable areas of use for the ICtrl

The ICtrl is intended to be used indoors and outdoors in dry weather. In rainy conditions, the Control Unit should be placed in a waterproof bag or cover.

The ICtrl is not intended to be used at more than 90% humidity (non-condensing).

WARNING: DO NOT USE THE ICTRL UNCOVERED IN RAINY CONDITIONS. THIS MAY DAMAGE THE SYSTEM AND IMPAIR ITS ABILITY TO CONTROL A WHEELCHAIR.

The ICtrl control unit and charger is classified as IP22 which means that it is protected against the ingress of particles larger than 1 mm, such as fingers and similar objects, and protected against dripping water.

WARNING: OTHER RADIO FREQUENCY EQUIPMENT, SUCH AS MOBILE PHONES, MAY TEMPORARILY DISRUPT THE FUNCTIONING OF ICTRL.

WARNING: THE ICTRL MUST BE COMPLETELY SWITCHED OFF DURING AIR TRANSPORT.

3.6 Storage

WARNING: THE ICTRL SHOULD NOT BE STORED AT HIGH TEMPERATURES. PLACING THE SMART DEVICE IN FOR EXAMPLE A HOT CAR OR IN DIRECT SUNLIGHT MAY DAMAGE THE SCREEN.

3.7 Faults or damage observed in the ICtrl system

If a system fault is observed or if the ICtrl® system is damaged you need to call for a service technician to make a system check and evaluate what have to be done.

3.8 Disposing of the ICtrl

Deliver the ICtrl to an electronic waste disposal site or return it to your dealer for proper disposal.

WARNING: DISPOSING OF ICTRL IN HOUSEHOLD WASTE MAY RELEASE DANGEROUS SUBSTANCES INTO THE ENVIRONMENT.

4 SETTINGS

The Configuration window on the control unit allows you to adjust the behaviour of the smart device in keyboard and mouse mode to suit your needs. Wheelchair settings cannot be changed through the ICtrl.

Save all changes: This button saves all your current settings.

Cancel all changes: This button cancels all changes you have made to your settings since they were last saved. This allows you to return to your previous saved settings, if you are unhappy with setting changes you have made.

4.1 Keyboard settings






To change the settings for the ICtrl keyboard, go to the Settings window and then the Keyboard Settings window in the control unit menu. All the settings are adjusted by tapping the slider on the control unit screen to increase or decrease. If you are using the smart device, it can also be used to increase or decrease the value. The buttons on the control unit display changes colour, when they are active. The following keyboard settings can be adjusted:

Dwell time: The time a sensor has to be active for the character associated with the sensor to be written. When a sensor is activated, the associated character will appear. If the sensor is deactivated before the dwell time has passed, the character will disappear again without being written. Activating the sensor longer than the dwell time will result in the character being written. The higher the dwell time, the longer you will have to hold the finger over a sensor to write the character. *TKS recommends a higher dwell time for beginners.*

Repeat time: The time a character is displayed before the next character appears. When the repeat time is high, each character is shown for a longer interval, giving you more time to decide whether it was the right one. *TKS recommends a higher repeat time for beginners.*

Goto Mouse time: Required activation time of the mode sensor for a direct jump between keyboard and mouse mode. Value should be less than mode time (system settings screen).

Caps/Num time: Required activation time of the caps/num sensor for shifting between lowercase char, uppercase char and numbers.

Keyboard settings	Dwell time	Repeat time	Goto Mouse Time	Caps/Num Time
				
Access to keyboard settings.	The time a sensor has to be active for the character associated with the sensor to be written	The time a character is displayed before the next character appears	Activation time of the mode sensor for a direct jump from keyboard mode to mouse mode	Required activation time of the caps/num for shifting between lowercase char, uppercase char and numbers.

4.2 Mouse settings

To change the settings for the ICtrl mouse, go to Settings, then Mouse Settings in the control unit menu. The following settings can be adjusted here:




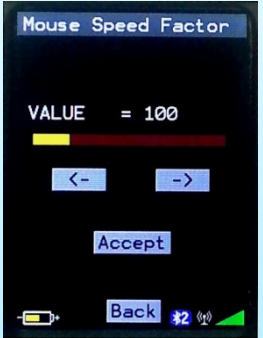
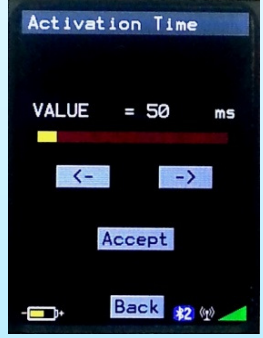
Invert XY: Reverses left and right or up and down on the cursor area. Invert XY is only possible for mouse control.

Release time: This setting determines how quickly the system responds to the finger moving away from a sensor. If this time is low, the system will quickly interpret a movement away from a sensor as that sensor no longer being active. *TKS recommends a higher sensor release time for beginners.*

Sticky time: This setting determines the time the mouse button sensor must be activated to select an item for drag and drop. *TKS recommends a higher sticky time for beginners.*

Mouse speed factor: The speed of the cursor on the screen. A higher value means a higher cursor speed. *TKS recommends a lower mouse speed factor for beginners.*

Activation time: Hold time before a mouse button is activated.

Mouse Settings	Release Time	Sticky Time	Mouse Speed Factor	Activation Time
				
Menu for Mouse Settings.	Determines how quickly the system responds to the finger moving away from a sensor	The time the mouse button sensor must be activated to select an item for drag and drop	The speed of the mouse cursor on the screen	Hold time before button activates.

4.3 Bluetooth settings

The Bluetooth settings menu is accessed from Settings, then Bluetooth Settings. Through this menu, you can initiate and end Bluetooth connections to computers or tablets. BT-1 TKS-HID controls the mouse and keyboard connection to your PC or tablet, while BT-2 TKS-SPP controls the connection to the smart device. Each of the Bluetooth connections has the following options:

Find: This searches for Bluetooth devices in the area to connect to. Next to the button, a list of nearby Bluetooth devices is shown. If your desired device is not displayed, check that the device is broadcasting its Bluetooth connection according to the instructions of the manufacturer.

Select: This allows you to select the device you wish to connect to from the list above. The name of the selected device is coloured red.

Conn.: This allows you to connect to the selected device. A successful connection is added to the list of paired devices.

Disc.: This allows you to disconnect from the selected device.

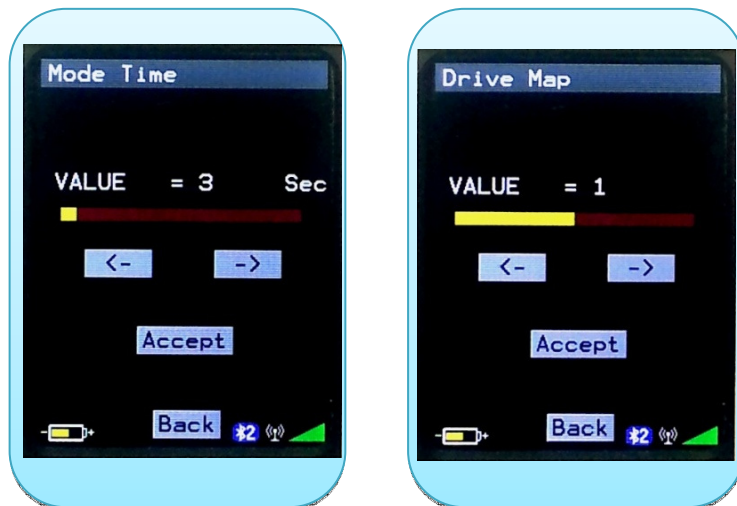
Unpair: This removes a device from the list of paired devices.

4.4 System Settings

Mode Time: The time you need to activate the Menu sensor to exit a mode and shift to the previous menu.

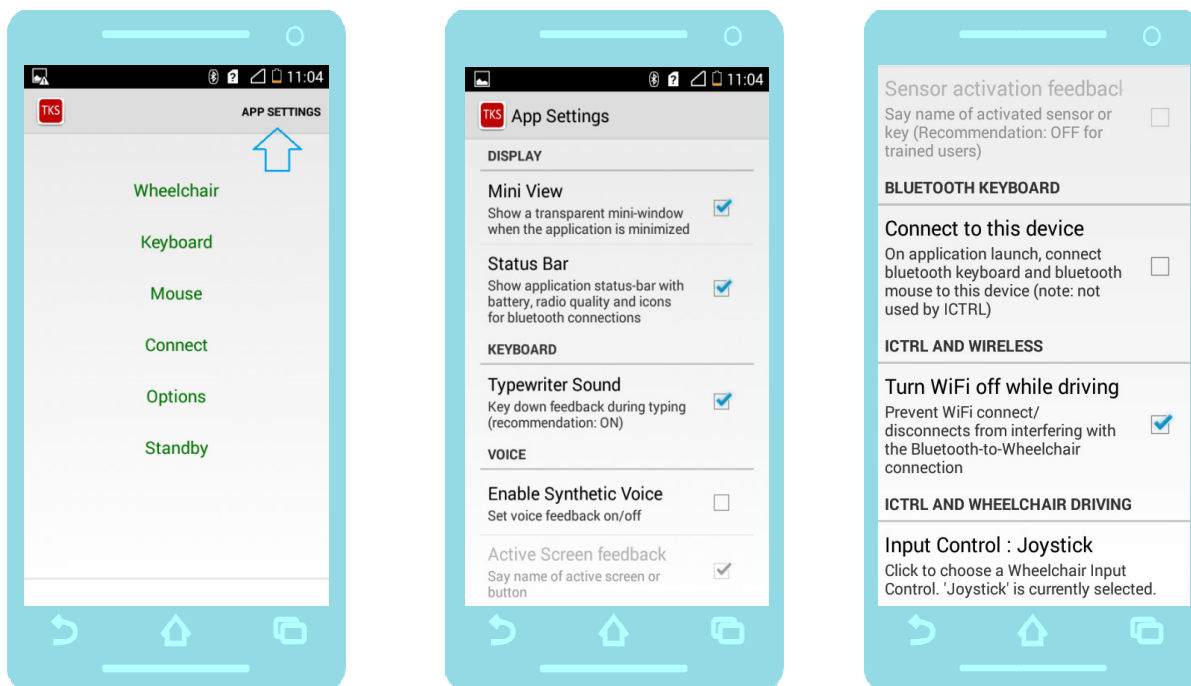


Drive Map: Setting of how the control signals from the wheelchair 'pad' of the input device is mapped to the wheelchair. The best result is usually achieved by using the default value of 1 (recommended).



4.5 App Settings

By pressing the app settings several following add-ons can be made.



Mini View

Enable transparent min-window when ICtrl application is not in focus.

Status Bar

Enables status bar with battery, icons and radio signal information in the bottom of the screen.

Keyboard (only for keyboard mode)

Enables typewriter sound when typing letters or numbers.

Voice

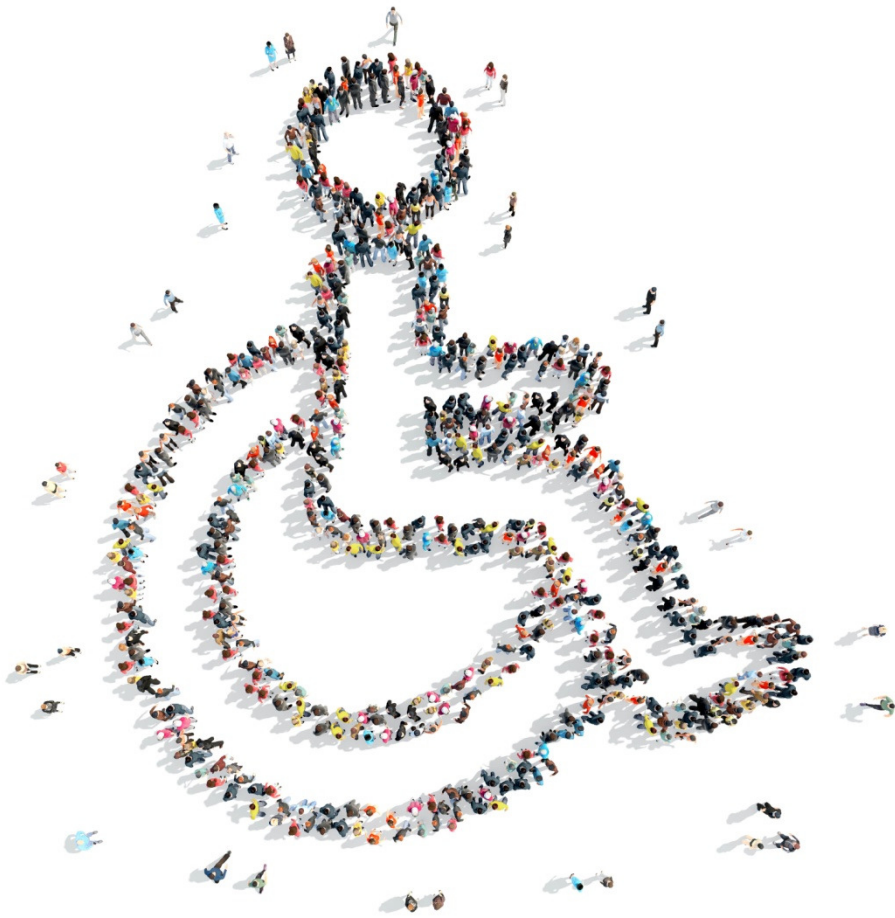
Enables voice feedback when navigating the menu and changing mode.

Turn Wifi off while driving (Recommended on)

Mostly all smartdevices have one module to handle both bluetooth and wifi. In some cases wifi signal can interfere the Bluetooth connection. This is unexpected when driving with ICtrl which can result in slowly speed behavior.

Input Control

The joystick layout in wheelchair mode can be changed with several layouts. From 4 bottoms (without proportionality), to 3d visual joystick.



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ICtrl is CE approved