



WHEELCHAIR
BETTER
SAFER
SMARTER

USER GUIDE

W E L C O M E

THANK YOU FOR CHOOSING LUCI®, AND WELCOME TO OUR COMMUNITY - WE'RE HERE FOR YOU!

We created LUCI to make this beautiful, dangerous world more accessible for my daughter, Katherine. And we know every LUCI user is as precious to someone as Katherine is to us. That's why our Customer Experience Team wants to make sure you have all the answers you need. And why we worked to make this guide as easy and helpful as possible.

Before using **LUCI** – please read and understand the instructions in this guide.

If you have questions or concerns about these instructions, or general safety and operation of LUCI, you can:

Call us at
800-621-LUCI

Email us at
info@LUCI.com

Visit **LUCI.com**, which is
full of info and FAQ's.

Lastly, I hope you'll check out our various social media channels to stay up to date on all things LUCI. Thank you again. We're excited to help you #WheelchairSmarter.

All the best,

A handwritten signature in white ink, appearing to read 'B. Dean', with a stylized flourish at the end.

Barry Dean
CEO & Co-Founder

MODEL INFORMATION

This User Guide is for:
LUCI Model Numbers 100 – 110.

WARRANTY

Terms of Use and Warranty information are
available at: luci.com/legal

CONTACT

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CUSTOMER EXPERIENCE TEAM

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WHO WE ARE

LUCI started with a little girl in a power wheelchair, a mom who chose fight over flight, and two brothers who dared to take matters into their own hands.

Driven by impatience with a world where people in wheelchairs are asked to wait when it comes to innovative technology – we created LUCI to change that. A company founded to build to the need, not just the code. We sought out riders, therapists, ATPs and experts...we listened and got to work.

LUCI is made for people who don't believe in the word no. The girl with a wild streak and music in her blood. The mom who'd never let anything stifle her son's independent spirit. The grandfather who still hasn't seen enough of the world and is ready for another spin. The disabled vet who never lost the need for speed.

**These people drive our hardware, our software and our core philosophy.
We are re-imagining mobility at every turn.**

LOVE TOUGH.

This is personal for us. We got tired of waiting for someone else to make life better for the people we love, so we've done the hard things required to bring innovation to everyone.

We value the subtle, but precious, focus that keeps the person at the center of our technology. Autonomy is not our goal – independence is.

HUMAN ENGINEERED.

BUILD TO THE NEED,
NOT THE CODE.

Billing codes should never define what wheelchair riders need or have access to. So, we focus on the wishes and the needs, the what-ifs and the dreams, rather than codes.

We know we don't have all the answers, but we are seeking out and listening to riders, caregivers and other experts. We want to work with anyone who wants to innovate mobility.

FUELED BY
COLLABORATION.

LUCI OVERVIEW

AWARD - WINNING SMART
WHEELCHAIR TECHNOLOGY
RE - IMAGINING MOBILITY
AT EVERY TURN.

LUCI is the first and only smart technology accessory for power wheelchairs, designed to give riders a safer and more inclusive experience.

LUCI prevents power wheelchair tips, collisions and falls before they happen, thanks to a platform which helps the wheelchair “see” its environment and respond to steering input from the user. The result is safe, confident independence - not autonomy.

INTENDED USE



LUCI is an accessory for a power wheelchair. LUCI interfaces with the existing power wheelchair and uses existing bolts on the wheelchair base. LUCI is intended for use in home healthcare environments. LUCI consists of wheelchair mounted hardware (SmartFrame, Scout, Dashboard, and LuciLink Hub), LuciLink Wheelchair Key, and the MyLUCI App. LUCI is intended to be installed on your power wheelchair by an authorized technician. After proper installation, LUCI begins working as soon as you turn on your wheelchair. It connects to the wheelchair’s power system and helps you maneuver in your environment safely. LUCI is suitable for continuous operation while you are using your wheelchair. LUCI is also able to send alerts to contacts and caregivers at your discretion, if you choose to take advantage of these features.



Collision
Avoidance



Drop-off and
Tip Protection



Cloud-based
Communication
and Alerts



Enhanced
Mobility Platform



Home Assistant
Compatibility

LUCI OFFERS POWER WHEELCHAIR RIDERS :



COLLISION AVOIDANCE

Dynamic obstacle detection
Mitigates interference sources
Protects users, caregivers, pets
and others

Collision avoidance: LUCI is tuned for the unique environment of a wheelchair. Its dynamic obstacle detection works in extremely tight environments. If LUCI determines you are driving toward a collision situation, the system will gradually slow you down, allowing you time to navigate safely around the obstacle. LUCI will slow and then stop the wheelchair if you attempt to run directly into a detected object.



DROP - OFF AND TIP PROTECTION

Edge detection
Unsafe slope warnings

Drop-off and tip protection: LUCI provides edge detection with an audible alert system for unsafe ground slopes. LUCI's advanced FusionSensors will allow you to drive on flat and sloped surfaces. LUCI manages the stability of your wheelchair in two ways.

- » **Drop-off avoidance:** LUCI will attempt to prevent you from going off a curb, stairs, or other drop-offs that would cause the wheelchair to tip over.
- » **Tip warnings:** LUCI will notify you with an audible warning beep and a flashing yellow light if you drive onto ground or ramps that could cause your wheelchair to tip over. The beep becomes more insistent as the slope becomes steeper. LUCI includes a tip-over alarm, which will sound a loud, high-pitched audible alarm in the event the wheelchair tips over, to alert others to help you.



CLOUD - BASED COMMUNICATION AND ALERTS

HIPAA secure text and email alerts
iOS, Android and Web-App
Standards based on integration of external data



ENHANCED MOBILITY PLATFORM

Individualized, not average
Independence, not autonomy
Foundation for future development



HOME ASSISTANT COMPATIBILITY

Linked to MyLuci account
User guide level support
Compatible with Amazon Alexa and
Google Home Assistant

Cloud-based communication and alerts: LUCI collision avoidance, drop-off avoidance and tip protection will operate without any network connection. LUCI is designed to connect to Wi-Fi when possible, and will use a cellular connection for critical alerts when Wi-Fi is unavailable. The connection is used to send data to your personal profile on MyLUCI. It is also used to send secure alerts to any authorized contacts and caregivers you have designated. All information is de-identified and encrypted before it is sent, ensuring your data is safe and secure.

Enhanced mobility platform: The goal of LUCI is to provide power wheelchair users enhanced mobility that is tuned to them and increases their independence.

Home assistant compatibility: LUCI is compatible with Alexa and Google voice assistants, which can be used to get status updates on everything from intervention statistics and battery level to setup, troubleshooting, and frequently asked questions.

LUCI HARDWARE

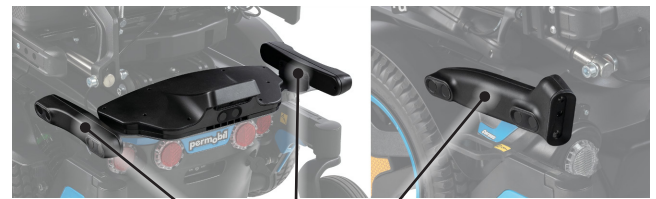
We define a smart power wheelchair as having integrated or retrofitted technology that provides enhanced, independent mobility to a wheelchair user, user health and wellness data collection capabilities, and/or connectivity to integrate with the connected world. With LUCI hardware, you can turn your existing chair into a smart wheelchair.

LUCI consists of the SmartFrame™, LuciLink Hub, Dashboard and Scout which are all mounted to your wheelchair. Additionally, your LuciLink Wheelchair Key connects wirelessly to LUCI.

The SmartFrame is a metal frame that attaches between the seat and the base and positions multiple FusionSensors™. We call them FusionSensors because they include multiple sensor types (radar, ultrasonic, cameras) around the SmartFrame to give overlapping coverage. There isn't one type of sensor that can catch all the potential dangers that a wheelchair rider might encounter - from curbs to walls to couches, a single type of sensor just isn't enough.

The FusionSensors provide situational awareness by constantly monitoring your surroundings for hazardous situations, including collision and drop-off dangers. You'll need to keep these sensors clear, so that LUCI can see.

The Scout, a forward-facing FusionSensor attached to your footplate, provides the front line of defense in this beautiful, dangerous world. Don't point it at the ground, but otherwise don't worry too much about the Scout. It's tough.



FusionSensors™



Scout

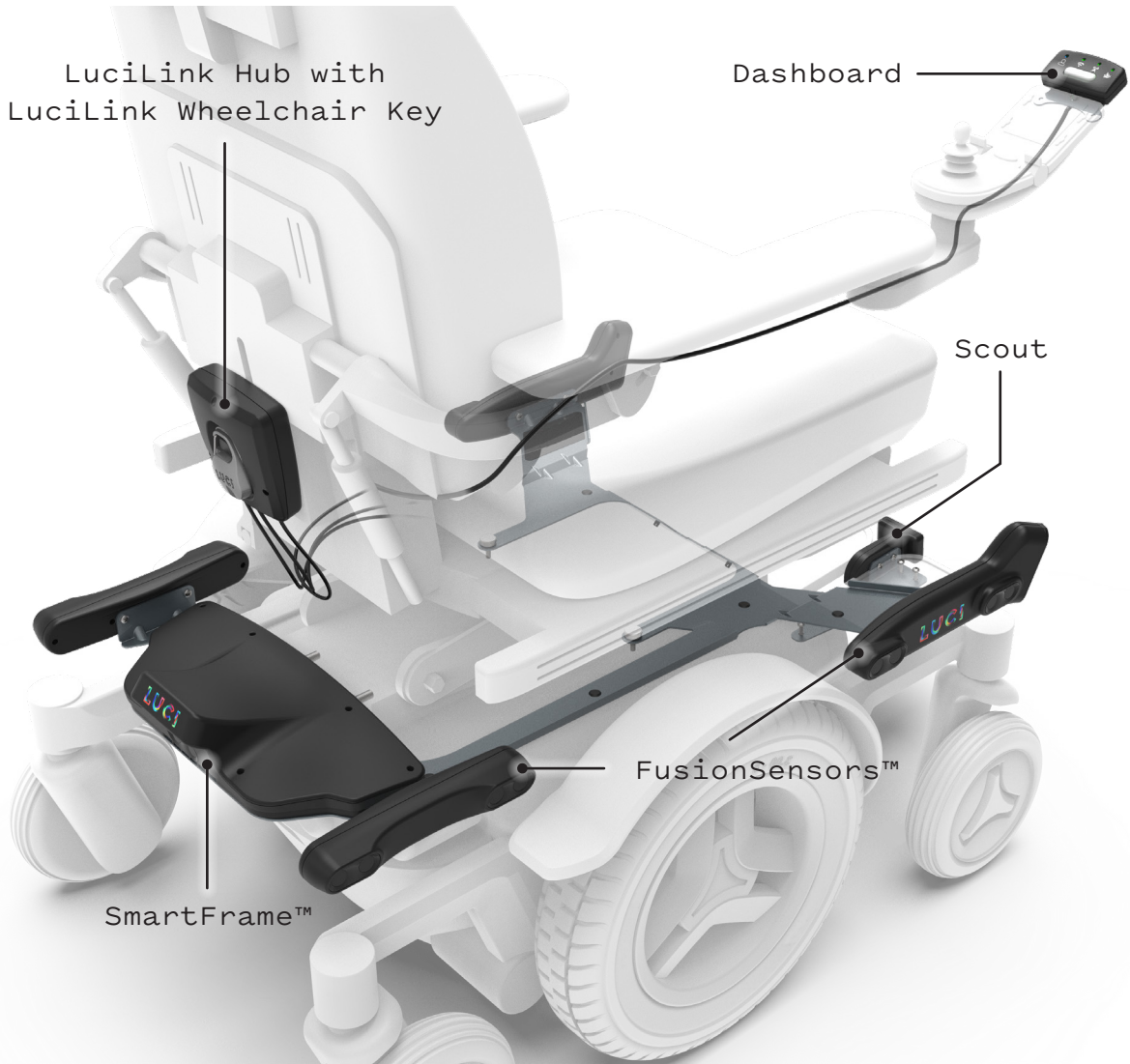
LuciLink Hub with
LuciLink Wheelchair Key

Dashboard

Scout

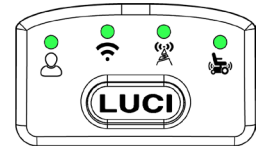
FusionSensors™





SmartFrame™



DASHBOARD

The Dashboard is your main interface for LUCI. The Dashboard is located on your wheelchair's control panel and has four indicator lights. Each light has a symbol below it, indicating its meaning. These meanings are detailed in the table below.



BUTTON	DESCRIPTION	INDICATION
	Personalized Status	<p>Solid Green – LuciLink Wheelchair Key detected, LUCI is configured for you and able to send data to MyLUCI</p> <p>Flashing Green – LuciLink Wheelchair Key has low battery</p> <p>No Light – No LuciLink Wheelchair Key detected or your LUCI unit is not set up for you. LUCI cannot communicate with MyLUCI</p>
	Wi-Fi Connection Status	<p>Solid Green – LUCI is connected to Wi-Fi network</p> <p>Flashing Green – Software update in progress</p> <p>No Light – No Wi-Fi connection</p>
	Cellular Connection Status	<p>Solid Green – Cellular connection detected</p> <p>Flashing Green – Software update in progress</p> <p>No Light – No cellular connection</p>
	LUCI Status	<p>Solid Green – All sensors operating as intended</p> <p>Solid Yellow – In Standard Mode, this is the caution light. It means something is close to your chair. If the light is on when not expected, you may have a blocked sensor (check for hanging bags or clothes) or you may have a dirty camera lens.</p> <p>Flashing Yellow – In Standard Mode, this means you are on steep ground and should be careful. This light is accompanied by a beeping sound, which becomes more insistent as the slope gets steeper.</p> <p>Dim Yellow – In Demo Mode, a dim yellow LUCI Status light means LUCI is off, but ready to be activated if the LUCI Button is pushed.</p> <p>Solid or Flashing Red – Error, chair should be turned off and back on if the red light stays on or flashes for more than a few seconds.</p>

LUCI BUTTON FUNCTIONS

The LUCI Button on your Dashboard can perform many functions, from Override, to launching the LUCI Setup Tool, silencing sounds, and even sending information to our team.



Short Button Press

- Override ON and OFF

Three Short Button Presses

- Silence LUCI sounds for 1 hour or until another triple click

Five Short Button Presses

- Sends LUCI challenge info to the design team. Press this if LUCI stops you when it shouldn't.

Long Button Press

- Enables LUCI Setup Tool
- Wheelchair controls are disabled in Setup Mode

The LUCI Button has a few possible states:

- » **Solid Blue Light** – LUCI is on and working
- » **Flashing Blue** – Override has been engaged
- » **Fast Flashing Blue** – LUCI Setup Tool has been engaged
- » **No Light** – LUCI is off and not operational

i Note: A momentary switch plugged into the auxiliary jack on top of the Dashboard will mirror the LUCI Button functionality.

LUCILINK HUB AND WHEELCHAIR KEY

The LuciLink™ Hub is the data highway of the LUCI system. The LuciLink Hub is located on the back of your wheelchair. Only LUCI-compatible devices should be plugged in, and the LuciLink Hub should be securely closed while the wheelchair is in use, to keep dust and water out.

LUCI is designed to work with you. When LUCI is installed and configured on your wheelchair, your individual capabilities and preferences are linked with your LuciLink Wheelchair Key. LUCI will be tuned to you, and anytime your LuciLink Wheelchair Key is near LUCI, your information will be sent to MyLUCI.

Keep this key with you anytime you are using your wheelchair – this is how LUCI knows it's you in the chair. Your LuciLink Wheelchair Key connects to LUCI through Bluetooth Low Energy (BLE). The LuciLink Wheelchair Key must be within 6 feet (2 meters) of the wheelchair to connect, so we recommend you keep your LuciLink Wheelchair Key on your person or attach it directly to the wheelchair.

Your LuciLink Wheelchair Key contains a magnet so it can securely attach to the LuciLink Hub on the back of the wheelchair, if you so choose. Alternatively, you can use the clip and/or magnets to attach it to other belongings you keep with you. If you typically use backpacks or hang other bags off your wheelchair, you should clip the LuciLink Wheelchair Key to a different location on the wheelchair to avoid knocking it out of its magnetized place on the LuciLink Hub.



The Personalized Status light on the Dashboard will be illuminated a solid green when the LuciLink Wheelchair Key is connected to the wheelchair. This means LUCI is tuned to your personalized settings and can communicate with MyLUCI. When the Personalized Status light blinks green, you should replace the LuciLink Wheelchair Key battery as soon as possible. The battery is designed to last two years or more. When it needs to be replaced, please use a type CR2450 battery.



Of course, LUCI's collision avoidance and tip protection will still work without a LuciLink Wheelchair Key present. However, your contacts and caregivers will not receive alerts without the LuciLink Wheelchair Key present. If you lose your LuciLink Wheelchair Key, don't worry. The LuciLink Wheelchair Key does not store personal information. As soon as possible, contact the LUCI Customer Experience Team to get a new LuciLink Wheelchair Key.

WHAT LUCI SEES

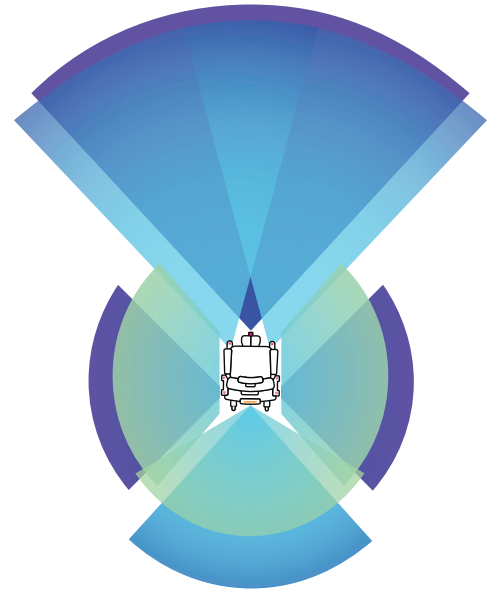
Our patented system combines data from sensor fusion - cameras, ultrasonics and radar - into a single view of the world, enabling never-before-seen possibilities for power wheelchair riders.

COLLISION AVOIDANCE: 360°

This process is best illustrated from a bird's-eye view. Here, you can easily see: LUCI has you covered.

LUCI is here to help and is constantly getting better. But as a driver, stay alert for:

- » Overhangs, like countertops, shelves and tables
- » Obstacles shorter than 3-4 inches (8-12 cm) off the ground
- » Single step-ups or obstacles (e.g., parking blocks) that may be within your chair's published curb climbing ability/limits
- » Uneven terrain outdoors



Essential Performance

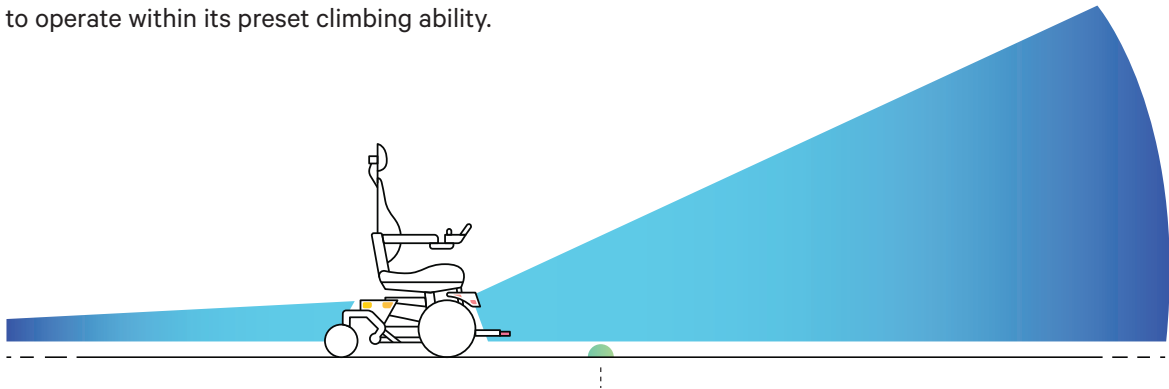


The function of the system is defined as obstacle avoidance and audio/visual tip alert on the wheelchair. A wheelchair without LUCI has a high likelihood of the hazards LUCI mitigates. The essential performance of the system requires that LUCI not create unintended motion of the wheelchair and that LUCI alert the user to detected unsafe conditions. No user maintenance is required to maintain basic safety or essential performance.

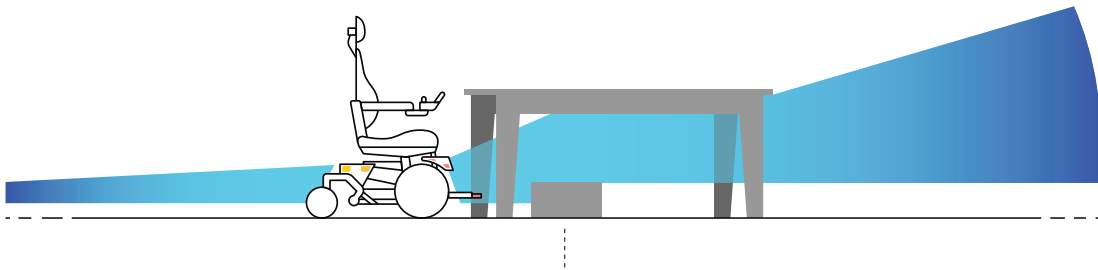
COLLISION AVOIDANCE: FRONT & BACK

LUCI sees forward and backward as shown below. LUCI won't limit your chair's capability to climb smaller curbs and slopes. This means that LUCI ignores items below your ground clearance because we don't want to limit you!

Each chair manufacturer specifies a certain safe curb height. LUCI allows your chair to operate within its preset climbing ability.

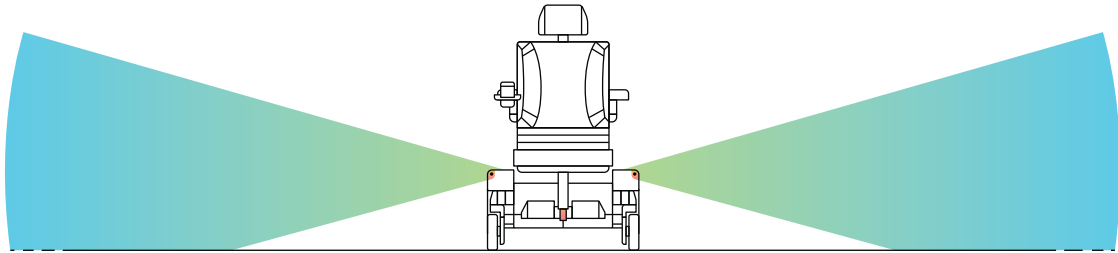


LUCI won't see the tops of tables, or overhangs, especially in the back. If you have a table or location that you pull up to regularly, you can put something down low, that LUCI can see so that you can pull into the same depth every time!

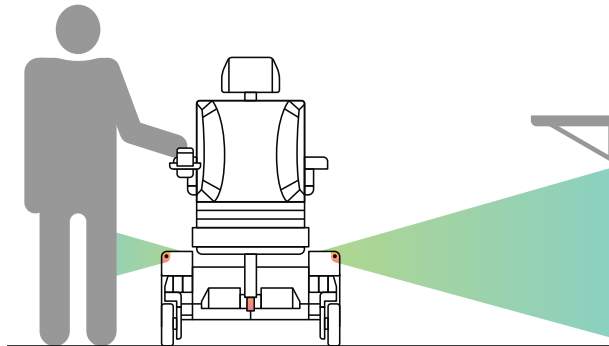


COLLISION AVOIDANCE: SIDE TO SIDE

On the sides, LUCI sees like this:



For scale, this is what LUCI sees next to a person. In this situation, LUCI could see your legs, but not your toes. The same story applies to overhangs on the sides - here, LUCI sees the wall but not the wall shelf, because it is above the area LUCI monitors.

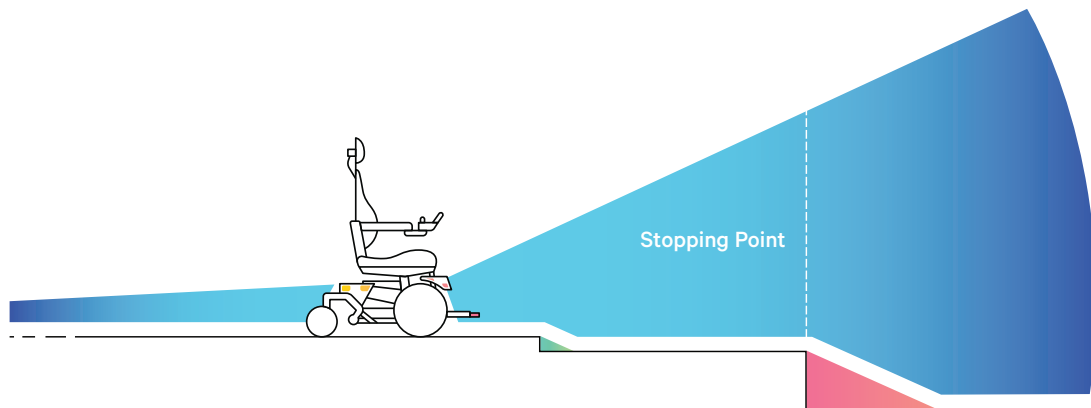


DROP - OFF PROTECTION

LUCI monitors ground features for drop-offs such as curbs and steps.

LUCI is here to help and is constantly getting better. But as a driver, keep in mind:

- » Drop-off protection is similar to anti-lock braking or airbags on a car. Please don't test it on purpose. It is there to add an extra layer of protection and it has limitations due to the wide variety of surfaces and environments a wheelchair rider may encounter.
- » LUCI will only detect and stop you on steps with a height greater than your wheelchair's published step threshold. Without LUCI, your wheelchair may be designed to allow you to climb up and down small curbs and drop-offs, up to 3-4 inches (8 cm). LUCI will not stop you when the curb or drop-off is within your chair's specified capability. See your wheelchair user manual for the published step threshold.
- » If you drive at high speed settings toward an unsafe drop-off, LUCI may not be able to overcome your momentum to stop you in time.

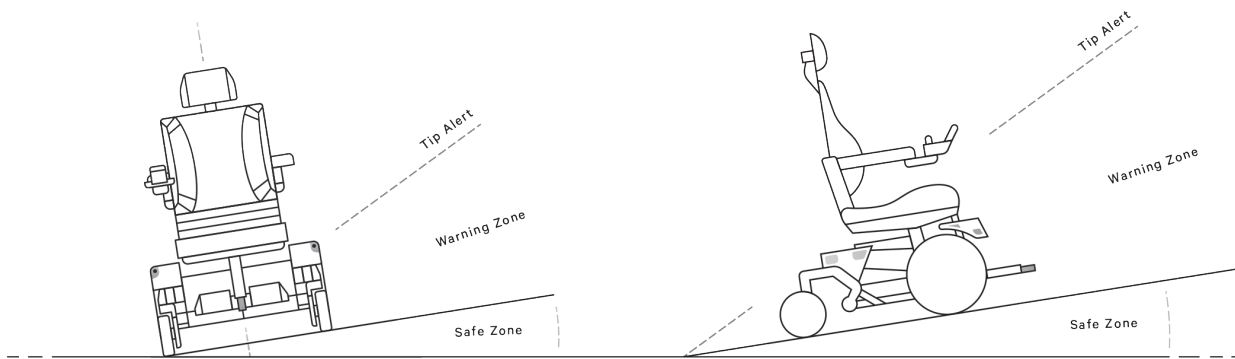


TIP PROTECTION

LUCI tip protection tracks the orientation of your wheelchair as you drive and alerts you to unsafe slopes with an audible beep and a flashing yellow light on the dashboard.

Every wheelchair has a maximum allowable pitch and roll which causes the wheelchair to tip over. Every wheelchair manufacturer publishes maximum allowable angles for safely driving up and down a steep ramp (pitch) or driving across side slopes (roll). As you exceed these thresholds LUCI will beep and flash more insistently.

If your wheelchair does tip over, LUCI will sound an audible alarm, the LUCI Status light will flash red and LUCI will stop all motion. You can also use MyLUCI to have a Tip Alert sent to another person.



DRIVING WITH LUCI

Driving with LUCI is different than driving without LUCI. For experienced users and experienced clinicians/technicians, it can take a little time to get used to it. LUCI allows for some interesting “life hacks” in your home or work. Here are some new thoughts about driving with LUCI to try to help everyone succeed.

LET LUCI WATCH YOUR SPEED

LUCI offers a new way of working with the speed settings on your wheelchair. In the past a lot of time was spent figuring out what speed settings make the most sense for a user in a specific environment. For example, users were trained that home driving might be best at “Indoor 3” speed but driving down a sidewalk was best at “Outdoor 2”. LUCI regulates your speed for you, making these decisions a lot easier. Most LUCI drivers will pick their fastest preferred speed (say Outdoor 3) and then leave their speed at that setting all the time. LUCI is tuned to your reaction time instead of an arbitrary speed setting.

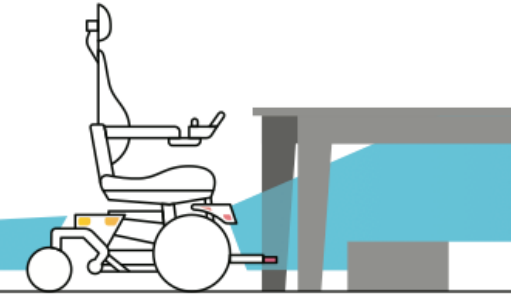
NOTE: The one place that this changes is if you are going to use the override feature of LUCI. In that case, make sure to turn your speed down in tight or difficult settings.

CROWD MODE

You can use LUCI to follow another person’s lead. Try it out by having someone stand in front of your wheelchair and press full forward on your joystick. When the person starts walking, your wheelchair will follow at their pace, no matter what speed they walk, even as they speed up or slow down. LUCI’s collision avoidance capabilities can also be used to match the pace of a crowd without changing your speed manually.

IT'S OKAY TO OVERRIDE SOMETIMES

Sometimes you'll need to push things open with your footplate. Sometimes you'll need to pull in and touch the dashboard when you get in your van, sometimes you'll want to jam the chair up against something for transfer. In all these situations LUCI is going to stop you short and it's ok to use override. The Dashboard, located just above the joystick on the wheelchair control panel includes a LUCI Button, which can be used to temporarily override LUCI. This button should only be pressed in situations when LUCI sees a danger that you know to be false, allowing you time to navigate the situation without LUCI's assistance. When this button is pressed, the blue light will blink for 20 seconds, or until the button is pressed again. During this time, LUCI is temporarily disengaged, and you should take extra precautions to ensure your personal safety.



LET LUCI HELP YOU PARK RELIABLY

Since LUCI will stop you from colliding with objects, you can purposely put objects (boxes, trash cans, you name it) in locations to have LUCI stop you at a repeatable location. As an example, if you want to use LUCI to make sure you pull in to the same depth under your table, carefully pull under the table until you are where you want to be and then place a box or other obstacle just past the end of your toes under the table. Check the placement by pulling in and letting LUCI stop you. You can adjust the placement of the box as you like to fine-tune the behavior, and let LUCI do the work of judging distance to your perfect under-table depth.



USE THE BLOCKED SENSOR INDICATOR TO HELP YOU DRIVE

When the LUCI Status light on your Dashboard turns yellow, that means something is very close in the direction you are trying to drive. If you're not moving, it might be a blocked sensor. Check to see if there are clothes, bags, or other items hanging in front of a sensor. If you're driving and the light turns yellow, there might be something in your way that you can't see. The indicator is intended to help you know what LUCI is thinking.

WITH YOUR HELP LUCI WILL GET BETTER

Unlike your current wheelchair, LUCI will get better with time. LUCI is wicked smart, but the world is a complex place. We're continuing to make LUCI better every week and as long as your LUCI unit is connected to Wi-Fi you will get the latest software updates and improvements automatically. But we need to know what to improve, so please press the LUCI button five-times when you find an issue or challenging situation, to send the data to our development team.

UPDATING YOUR SETTINGS

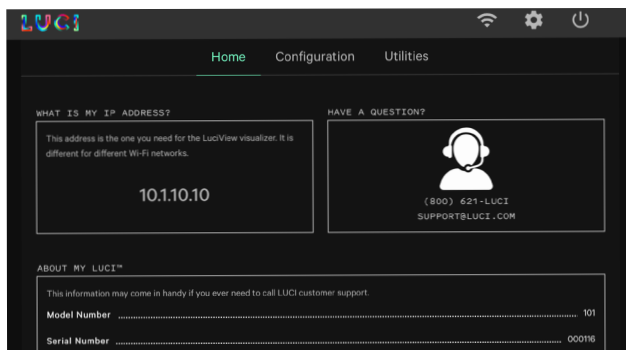
If at any time you would like to change LUCI settings, simply follow these steps to get into the LUCI Setup Tool:

1. Press and hold the LUCI button on your Dashboard until it beeps and begins to flash quickly.
2. Use your laptop, tablet or smartphone to search Available Networks and connect to the **LuciSetup-MMM-SSSSS** Wi-Fi network, where MMM-SSSSS is the three digit model and six digit serial number of your LUCI unit. The network password is: **LuciSetup**.
3. Go to your web browser and type in **lucisetup.com**. You will be brought to the LUCI Setup Tool page. Enter the pin: **update** and hit enter.

Note: If you have trouble using the LUCI Setup Tool page, we recommend using a private or incognito browser tab.

In the LUCI Setup Tool, you can find your chair's IP address and:


- » Add a Wi-Fi network
- » Update sound settings
- » Change operating mode
- » Change driving mode
- » Update boundaries
- » Enable or disable features





CONNECTING TO WI-FI

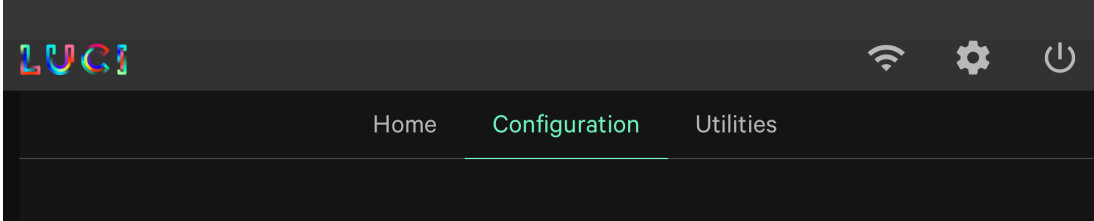
LUCI works without an internet connection, but connecting LUCI to Wi-Fi has many benefits. A Wi-Fi connection ensures that you will always have the latest and greatest software. Over-the-air software updates can only be pushed to LUCI units that are connected to Wi-Fi. With a Wi-Fi connection, LUCI is also able to save your data to MyLUCI and send alerts to contacts and caregivers at your discretion.

To set up a Wi-Fi connection, use the LUCI Setup Tool (following the instructions on page 22). Then click on the Wi-Fi icon  near the top right of the window. Locate your Wi-Fi network, enter the Wi-Fi password if prompted, and click “Connect.” You will know you are connected to Wi-Fi when the Wi-Fi indicator light on the Dashboard is illuminated a solid green.

You can add Wi-Fi networks that aren’t available locally (for example, setting up a home network while installing LUCI at a clinic) with this interface too. Just scroll to the bottom of the list of Wi-Fi networks and select “Add Other Network”.

SOFTWARE UPDATES

In order to stay up to date with the latest and greatest software, LUCI receives over-the-air software updates. To complete these updates, LUCI must be connected to Wi-Fi. Updates are scheduled to occur while your wheelchair is off to minimize disruptions to your personal use. Every night, LUCI wakes up quietly without turning on your wheelchair. LUCI checks in with the Cloud to see if there are any software updates available. If not, LUCI goes back to sleep. If there is an update available, LUCI checks that your wheelchair battery has enough charge, your wheelchair is off, and LUCI is connected to Wi-Fi. If all three of these are true, then LUCI will begin the update. While LUCI is updating, the Wi-Fi and Cellular indicator lights will flash on the Dashboard until the update completes.



ADJUSTING YOUR CONFIGURATION

In the LUCI Setup Tool, when you click on the Configuration tab at the top, you have access to adjust the configuration of your LUCI unit. The following sections explain each of these configuration options; explanations are also detailed within the LUCI Setup Tool.

Operating Mode - LUCI can be used in Standard Mode or Demo Mode.

STANDARD MODE	This is LUCI's recommended mode of operation for users. When you turn your chair on, LUCI is on by default. If you disagree with LUCI you always have the option to push the LUCI Button on the Dashboard to turn LUCI off for 20 seconds. After 20 seconds, LUCI will automatically turn back on.
DEMO MODE	Demo Mode is designed for demonstration units and clinics. When you turn your chair on, LUCI is OFF by default. The yellow LUCI Status light on the Dashboard indicates that LUCI is turned off and is in Demo Mode. If you want to turn LUCI on, you can push the LUCI Button on the Dashboard, which will turn on all the lights and engage the appropriate settings. LUCI will stay on until you push the LUCI Button again. There is no override function in Demo Mode; pushing the LUCI button simply turns LUCI on and off.

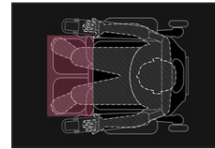
LUCI Features - This menu allows you to selectively enable or disable the Collision Avoidance, Drop-off Protection and Tip Protection features of LUCI. Choose any specific features you wish to enable or disable. Once you have selected the features you wish to enable or disable, click the power button at the top right of your window to disconnect from the Setup Tool. You will need to turn your wheelchair off to save any changes that were made. When you turn your chair back on, any features you disabled will no longer be running on LUCI. To re-enable any features, go through the same process, and remember to turn your chair off and back on to save any changes that are made.

Override Tuning - In Standard Operating Mode, pressing the LUCI Button one time engages override and allows you to turn LUCI off and move without restriction in any direction for 20 seconds or until you press the LUCI Button again. You can use the slider to adjust LUCI's override behavior as a percentage of the current speed setting (for example if you choose 50, the chair will drive at half of whatever speed the wheelchair is set to. When in override, LUCI will not stop or slow down your wheelchair for obstacles or drop-offs.

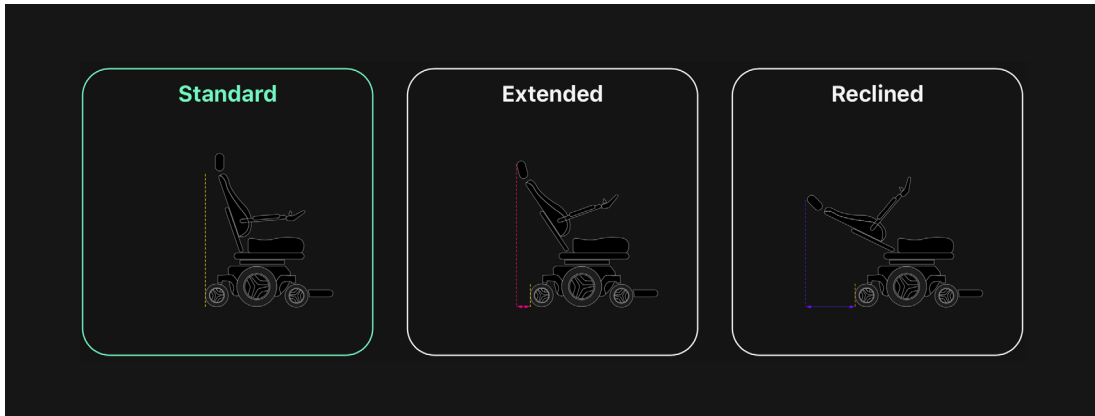
LUCI Drive Mode - There are two drive modes available when it comes to collision intervention: Stop Mode and Bump Mode.

STOP MODE	Stop Mode is recommended for most drivers. LUCI will slow you down and stop short of hitting objects. LUCI will play a sound to let you know that you cannot travel any further in that direction. In this mode, LUCI will stop you before drop-offs as well.
BUMP MODE	Bump Mode is great for drivers who like to get in close. In this mode, LUCI will slow you down as you approach an obstacle and play a sound, but will continue to let you drive in the direction of the object at a very slow speed. LUCI will not stop you completely. Note that bump mode applies to collision avoidance only and will not change drop-off protection behavior - LUCI will still stop you before drop-offs as long as the Drop-off Protection feature is enabled.

Foot Zone Settings - LUCI's sensors ignore an area of the world around your legs and feet called the foot zone. If LUCI is seeing your feet or footplate and showing you a yellow light, you can increase the foot zone size.



STANDARD FOOT ZONE	For the majority of LUCI users, the standard foot zone size is the right choice. If you aren't having any problems with LUCI seeing your feet or footplate, you'll want to stick with the standard foot zone.
EXTENDED FOOT ZONE	For users with custom footplate assemblies that are significantly wider or stick out farther than stock footplates you may want to choose the extended foot zone option. Note that choosing this option may limit LUCI's view of obstacles in front of the chair and may make it difficult to maneuver, especially in tight spaces or through doorways.



Back Clearance - By default, LUCI is set to stop you when backing up right before your rear casters run into something. This default setting works for most LUCI users. If you carry an oxygen tank or use a custom seating solution which extends past your rear casters, you may want to extend your back clearance. If you drive in a reclined position you may want to choose the Reclined back clearance. Note that choosing the extended or reclined options may make it difficult to maneuver, especially in tight spaces or through doorways.

Seating Measurements - LUCI can keep a record of your seating data so that your seating information travels with you. LUCI does not currently use these values, but in the future LUCI may use these settings to adjust drive behavior.

Reaction Calibration - Your reaction time is used to determine how far from obstacles LUCI begins to slow you down. Your reaction time should have been measured when LUCI was set up. If you feel that your reaction time has changed since LUCI was set up, you can always recalibrate in the LUCI Setup Tool.

WARNING: These utilities should only be used by experienced LUCI Users. If in doubt call (800) 621-LUCI for assistance!

1. Disable LUCI™

2. Backup My Settings

3. Remove My Settings

4. Replace My Key

DISABLE LUCI™ COMPLETELY

If you choose to disable LUCI completely, LUCI will no longer attempt to protect you or provide any functionality to you. Once disabled, LUCI will only turn on again after you reset the main breaker on your power wheelchair or LUCI receives an over-the-air update.


Disable

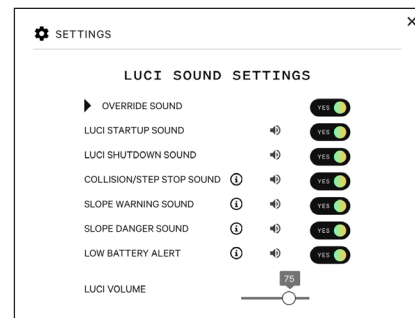
UTILITIES

In the event that you should ever want to completely disable LUCI, that option is available in the LUCI Setup Tool, under the Utilities tab at the top. Note that if you choose to disable LUCI completely, LUCI will no longer attempt to protect you or provide any MyLUCI functionality to you. If you disable LUCI, you will be prompted to disconnect from the Setup Tool and restart your chair. Once disabled, LUCI will only turn back on again after you reset the main breaker on your power wheelchair.

The Utilities tab also allows you to backup or remove your settings, as well as replace a lost LUCI Wheelchair Key. Please note that these utilities should only be used if directed to do so by your LUCI Customer Experience Team. If in doubt, please call (800) 621-LUCI for assistance.

CHANGING YOUR SOUND SETTINGS

To change your sound settings, launch the LUCI Setup Tool (following the instructions on page 22). Then click on the Settings icon  near the top right of the window. Here, you can toggle on/off the alert sounds for override, low battery, pending collision and stability interventions, as well as adjust overall system volume. LUCI will remain operational regardless of your choice on alerts.



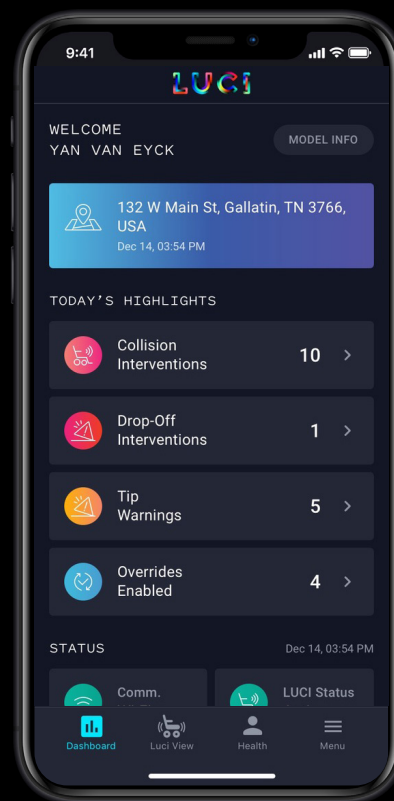
MYLUCI

MyLUCI is an app that gives you access to your data and allows you to securely share data with your support team. Please note that LUCI must be connected to Wi-Fi in order to take full advantage of MyLUCI. LUCI can be connected to your home Wi-Fi network or a mobile hotspot through the LUCI Setup Tool (see page 23 for instructions on adding a Wi-Fi network). To setup your MyLUCI profile, simply follow the instructions that were emailed to you when LUCI was first installed and set up on your wheelchair. You can access the MyLUCI app at **myLUCI.com** or by downloading the MyLUCI app on the Apple App Store or Google Play Store. In the MyLUCI app, you will be able to:

- Access all the information that LUCI is tracking.
- Access the information from LUCI-compatible devices.
- Share data and information with your contacts and caregivers.
- Connect to Alexa and Google voice assistants.
- Personalize LUCI text and email alerts.
- And more!

DATA PRIVACY

We take data security very seriously. To this end, we've taken many steps to ensure data privacy. No personally identifiable information is stored on LUCI units locally. All information is deidentified. The MyLUCI portal is HIPAA-secure and kept up-to-date by our team. Even though day-to-day communications between LUCI and the Cloud don't include personally identifiable information, we transmit deidentified and encrypted data via a secure connection to MyLUCI. Your LUCI unit will not send data to MyLUCI unless your personal Wheelchair Key is present.



SUPPORT TEAM

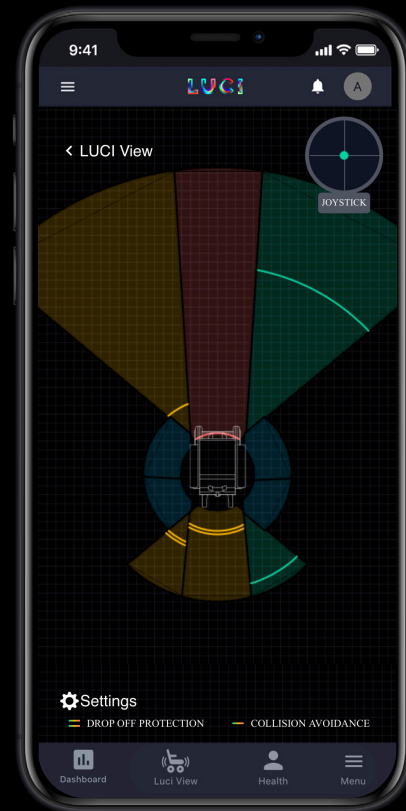
Within the MyLUCI app, you are able to add contact information for your Support Team. Add caregivers and loved ones, enter their contact information, and choose what data you would like to share with each individual. These contacts will be sent an email, asking them to confirm that they would like to be added to your Support Team.

LUCI VIEW

Within the MyLUCI app, you have access to a visualizer tool that allows you to see what LUCI sees. Tap on LUCI View in the menu.

To use LUCI View, LUCI and your smart device need to be connected to the same Wi-Fi network (see instructions on page 23 for connecting LUCI to Wi-Fi). The first time you use LUCI View, you will need to manually enter your wheelchair's IP address, which can be found on the Home screen of the LUCI Setup Tool (see instructions on page 22 for launching the LUCI Setup Tool). Notice that LUCI's IP address will be different on each Wi-Fi network, and may even change over time.

The LUCI View visualizer will show you where the nearest drop off (double line) and collision (single line) obstacles are located, relative to your chair. It will also color zones in red if motion is stopped because of an obstacle at the wheelchair boundary, yellow for zones where an obstacle is approaching, and green for zones in which motion is unobstructed.



LUCI PLUS VOICE

We are founded and led by committed members of the community of people living with disabilities and their caregivers. Three years and 17 patents ago, our team set out to make this beautiful, dangerous world more accessible for our precious Katherine, and for all people using power wheelchairs. Along the way, we have created a culture of intentional partnership, because technology is another area where inclusion matters.

As you explore LUCI's many capabilities, we are happy to offer integration with some of the most common voice assistants - Amazon Alexa and Google Assistant. When these capabilities are enabled, voice assistants can answer questions about the status of your wheelchair, help you access troubleshooting tips, and so much more!



USING ALEXA WITH LUCI

To connect your Alexa-supported device with LUCI on your computer, follow these steps:

1. Log in to your Amazon account using a web browser and navigate to Alexa Skills.
2. Search for LUCI in Alexa Skills.
3. Select the LUCI skill and then select Enable on the skill.
4. You will be prompted to enter your MyLUCI account name and password. Follow the instructions.

To connect your Alexa-supported device with LUCI on your smartphone, follow these steps:

1. If you haven't already done so, download the Amazon Alexa app on your smart device.
2. Open the Alexa app on your phone or mobile device.
3. Select Skills & Games within More menu in the app.
4. Search for MyLUCI and select the MyLUCI skill.
5. Select Enable Skill on the skill page.
6. You will be prompted to enter your MyLUCI account name and password. Follow the instructions.

You can now interact with LUCI on any Alexa-supported device that is linked to your Amazon account! LUCI supports nearly 100 different phrases and commands that Alexa can help with. When referring to LUCI, be sure to use the phrase "my LUCI" rather than just the name "LUCI". A few examples of phrases you can use include:

Get started with:

"Alexa, ask my LUCI what kind of questions I can ask."

- "Alexa, ask my LUCI if I need to charge my chair."
- "Alexa, ask my LUCI what she's been up to today."
- "Alexa, ask my LUCI what that sound means."



USING GOOGLE ASSISTANT WITH LUCI

To connect your Google Assistant supported device with LUCI on your computer, follow these steps:

1. Log in to your Google account online.
2. Navigate to Explore All Actions on assistant.google.com
3. Search for the MyLuci skill
4. Select Link.
5. You will be prompted to enter your MyLUCI account name and password. Follow the instructions.

To connect your Google Assistant supported device with LUCI on your smartphone, follow these steps:

1. Open the Google Assistant app on your phone or mobile device.
2. Search Actions for MyLuci.
3. Select the MyLuci action.
4. Select Link.
5. You will be prompted to enter your MyLUCI account name and password. Follow the instructions.

You can now interact with LUCI on any Google Assistant supported device that is linked to your Google account! LUCI supports nearly 100 different phrases and commands that Google Assistant can help with. When referring to LUCI, be sure to use the phrase “LUCI chair” rather than just “LUCI” or “my LUCI”.

Get started with:

- “Hey Google, ask my LUCI chair what kind of questions I can ask”

A few examples of phrases you can use include:

- “Hey Google, ask my LUCI chair if I need to charge my battery.”
- “Hey Google, ask my LUCI chair what she’s been up to today.”
- “Hey Google, ask my LUCI chair what that sound means.”

Visit luci.com/alexa or luci.com/googleassistant for the full list of phrases and commands, troubleshooting and more.

LUCI PLUS HEALTH MONITORING

The MyLUCI iOS and Android apps can connect to some health devices and allow you to monitor and share your heart rate data.

Tracking heart rate first became a goal of LUCI due to Katherine. She won't admit pain, and is tough as nails, so in an effort to better understand when she was in pain we measured heart rate. Health tracking devices were available and when heart rate spiked, it was a good indicator that something was hurting Katherine. Since that time, we've learned how heart rate can be useful for other LUCI users and their teams.

Obviously heart rate can be used to track exercise and fitness goals. But, here are a few things about heart rate we've learned:

- Heart rate spikes can happen for lots of reasons. In fact, your heart rate and respiratory rate can often signal fever, anger, stress, pain, and many other conditions.
- Heart Rate Variability (HRV) or how much your heart rate changes off of a baseline over time is a topic of much research for general health, and particularly for those fighting ALS or other degenerative diseases.

You can log continuous or session heart rate data from a wearable to MyLUCI in order to share the data with others on your team. MyLUCI makes sharing your heart rate data from Apple Health or Google Fit with others easy and gives you full control of who can see your information.



An Important Note on MyLUCI Health Data

We've chosen to integrate with Apple Health and Google Fit in an effort to work with as many consumer health devices as possible, in the simplest-to-use way possible. This means health tracking data through MyLUCI isn't real-time. There may be delays as the data travels through Apple Health/Google Fit and into MyLUCI.

We want this information to be useful to you but it is important to understand that any alert or data sharing functions on MyLUCI are for convenience, not a replacement or alternative to continuous medical monitoring and real-time medical alarm systems.

For information about which health monitoring devices work best and how to connect them to MyLUCI, visit luci.com/health.



CARE AND MAINTENANCE

CLEANING

When needed, use a soft, clean, damp cloth to clean LUCI. Mild, nonabrasive household cleaners may be used. Do not use scouring powders or harsh cleaners as these can damage the finish on the system. Lenses may be cleaned with a soft, damp cloth.

Although LUCI will alert you if your sensors need immediate attention, it is a good idea to periodically check your camera lenses to make sure they are clean. Two lenses are located on the front left and front right of your wheelchair, just below your seat. A third lens is located on the back.

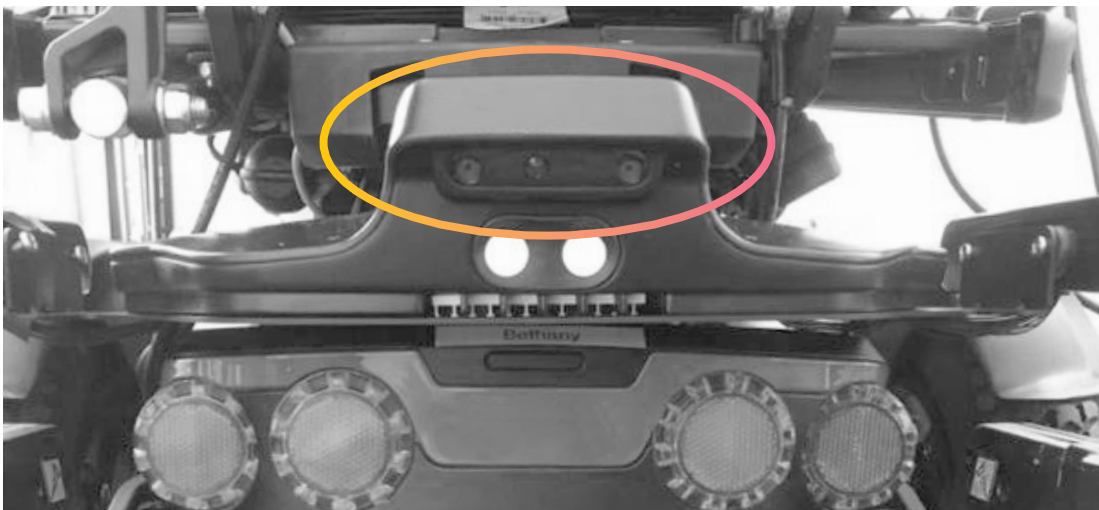
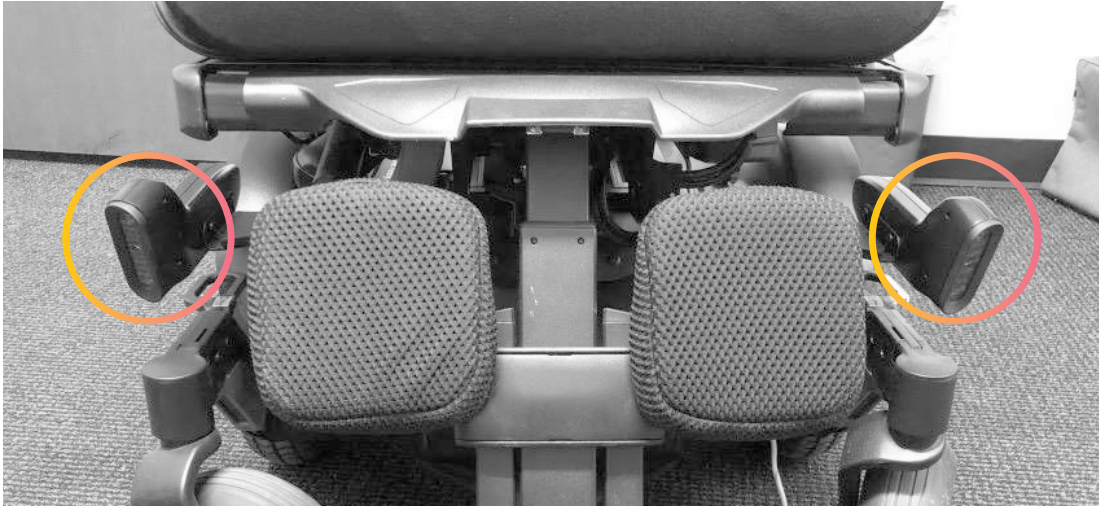
SERVICE

LUCI is designed to withstand normal wear and tear. Although we strive to ensure that you never have any problems with LUCI, it is possible that your system may need service. In the event of system damage, please contact your LUCI Customer Experience Team immediately for assistance.

Situations that warrant a call for immediate service may include:

- Damaged, pinched or frayed cables
- Broken or open plastic housings
- Bent or twisted frame
- Solid, persistent red light on Dashboard LUCI Status, indicating sensor error
- Lost LuciLink Wheelchair Key
- Damage to FusionSensors, Scout or Dashboard





If you encounter these or other issues, please contact the LUCI Customer Experience Team immediately.






TROUBLESHOOTING

Generally, LUCI works like most other electronic devices: if you run into an issue, a good first step of troubleshooting is turning your wheelchair off and back on to restart LUCI. After that, use the Dashboard and list of common problems below to troubleshoot.

THE LUCI DASHBOARD

BUTTON	PROBLEM	MEANING	RESOLUTION
	Solid or blinking red light on LUCI Status	System Error	If the light stays on or blinks for more than a few seconds, turn your wheelchair off and back on. Check if there are any loose, unplugged, damaged or frayed cables.
	Solid yellow light on LUCI Status while LUCI is on	Blocked sensor or sensor needs to be cleaned	Check for loose clothing blocking sensors on the front, sides or back of the wheelchair. If LUCI will allow you to drive some directions but not others, there may be a blocked sensor in the direction in which you can't move. Check that the camera lenses on the front left, front right and back of LUCI are clean.
	Blinking yellow light on LUCI Status	Wheelchair is on steep ground	Proceed with caution to avoid tipping. The light will be accompanied by a beeping sound. The light and sound will become more insistent as the ground gets steeper. If this happens when you are on level ground, try turning your chair off and back on to make LUCI's onboard orientation sensors recalibrate.
	Dim yellow light on LUCI Status while LUCI is off	LUCI is off and in Demo Mode	To turn LUCI back on, hit the LUCI Button.

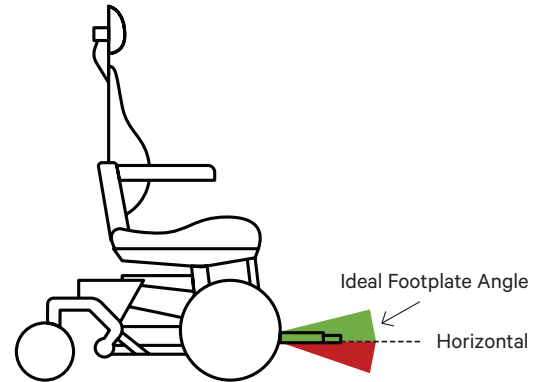
BUTTON	PROBLEM	MEANING	RESOLUTION
	Flashing green light on Personalized Status	LuciLink Wheelchair Key has low battery	Use a small Phillips screwdriver to open the LuciLink Wheelchair Key and replace battery with a CR2450 battery.
	Green Cellular and Wi-Fi lights on or flashing while wheelchair is OFF	LUCI is checking for (solid lights) or installing (flashing lights) a software update	Wait for the lights to go off before using LUCI.
	Flashing blue light on LUCI Button	System override has been activated	Proceed with caution. LUCI will re-engage in 20 seconds or when the button is pressed again.
	No lights on Dashboard when wheelchair is turned on	Dashboard is not connected to power	Turn the main power breaker on the wheelchair off and back on to clear any disable commands sent to LUCI. Check that all USB cables are plugged into the LuciLink Hub. If the problem persists, contact the LUCI Customer Experience Team for service.

If problems persist or if you encounter problems that aren't covered in this troubleshooting guide, call the LUCI Customer Experience Team at 800-621-LUCI.

COMMON PROBLEMS

LUCI stops me sometimes at door thresholds or in parking lots.

Depending on how far your footplate is from the ground, the Scout radar may pick up metal thresholds and small pot holes as potential problems. To address this issue, make sure you are driving with your footplate/Scout pointed in the ideal footplate angle zone as shown in the image. Keeping the footplate/Scout parallel or slightly angled up from the ground drastically reduces these false points. Scout can be adjusted independently of the footplate to keep it at the ideal angle.



LUCI stops me randomly on a shiny floor.

Shiny floors with glare or shine on them (you can see the glare when you look at the floor) are a challenge for LUCI. We're getting better and better at training LUCI to ignore glare, but the cameras see a hole in the floor at the point of glare and don't want you to drive into the hole.

Three approaches to getting past this problem:

1. If you turn a little the glare will be at a different angle and you should be able to drive forward.
2. You can use override to get past the shiny area.
3. If you are in a facility where the floor is shiny everywhere and there aren't steps or ramps you are concerned with you can disable just the Drop-Off feature through the LUCI Setup Tool (see page 22 and 24 for instructions).

LUCI stops me from driving up a ramp when I'm aligned.

Depending on how far your footplate is from the ground, the Scout radar may pick up a ramp as an obstacle (see the image below). To avoid this (and to avoid dragging your footplate on ramps) slightly tilt your seating assembly back, extend your legrests away from the seat, or raise your seat, as shown in the image below.



DRAGGING FOOTPLATE



RAISED FOOTPLATE

If you encounter problems that aren't covered in this troubleshooting guide, check the searchable online troubleshooting guide at luci.com, or call the LUCI Customer Experience Team.



WARNINGS & NOTIFICATIONS

1. LUCI should not be serviced while the wheelchair is in use. Service should only be performed when the wheelchair is powered off.
2. LUCI is intended to be mounted on a power wheelchair. Use of this equipment adjacent to or stacked with other equipment should be avoided because it could result in improper operation. If such use is necessary, this equipment and the other equipment should be observed to verify that they are operating normally.
3. All FusionSensors must have a clear line of sight to operate as intended. Avoid covering sensors with loose clothing, blankets, or other obstructions.
4. The LuciLink Hub on the back of the wheelchair should be attached with the cables exiting from the bottom, to avoid potential water damage inside the hub.
5. Only LUCI compatible devices should be plugged into the LuciLink Hub on the back of the wheelchair. No other devices should be plugged into the USB ports. Plugging in other devices may void the warranty and create unsafe operation of LUCI.
6. The auxiliary jack on the Dashboard is intended for connecting an alternative drive momentary switch to be used as a LUCI button. No other devices (headphones, etc.) should be plugged into the auxiliary jack.
7. LUCI is temporarily disengaged when in Override mode. Please only press the LUCI button to override LUCI when you are certain you can safely proceed in the direction you wish to travel. LUCI includes a tip-over alarm even when override mode is engaged, which will sound an audible alarm in the event that the wheelchair tips over.
8. LUCI is powered by the wheelchair battery. If the wheelchair isn't functional or the battery is out of power, LUCI will not be operational.
9. The LUCI SmartFrame™ is not intended to support any weight, including hanging bags, sitting, or standing. Hanging anything on or supporting any weight can damage the system and create unsafe operation of LUCI.
10. LUCI can handle any temperatures you can. The system is rated to withstand operating temperatures between -5°C and 40°C (23°F and 104°F) and storage temperatures between -40°C and 65°C (-40°F and 219°F). Storing or operating your LUCI-equipped wheelchair outside of these temperature ranges could damage the system and may void the warranty.
11. LUCI contains Class 1 lasers, very similar to the facial recognition lasers some phones use. These allow LUCI to maintain situational awareness even in dark environments. Don't look into the front sensors when LUCI is powered on.

12. LUCI contains acoustic sensors that operate between the frequencies of 40 kHz and 60 kHz.
13. Use of accessories, transducers and cables other than those specified or provided by the manufacturer of this equipment could result in increased electromagnetic emissions or decreased electromagnetic immunity of this equipment and result in improper operation.
14. The LuciLink Wheelchair Key and LuciLink Hub on this product contain magnets.
15. Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of LUCI including cables specified by the manufacturer. Otherwise, degradation of the performance of this equipment could result.
16. All cables should be installed, bundled and routed to avoid damage to the cables through pinching, dragging, etc. and to avoid excess cable length that could lead to entanglement or strangulation. Please contact the LUCI Customer Experience Team immediately to schedule service if you notice loose, pinched or damaged cables.
17. Contact LUCI for any accessories or cables. Damaged, pinched, frayed or loose cables should be immediately addressed by a LUCI authorized technician. Frayed or damaged cables should be replaced to ensure proper function of LUCI. Do NOT attempt to replace or fix damaged cables.
18. Damaged, bent, or cracked plastic housings or metal brackets should be immediately replaced to ensure proper function of LUCI. Please contact the LUCI Customer Experience Team immediately to schedule service if you notice damaged, bent or cracked plastic housings or metal brackets.
19. Do not modify LUCI without the authorization of the manufacturer. Modifying your LUCI equipment will void your warranty and could create unsafe operation of LUCI.
20. LUCI should only be installed by an authorized technician and should not be transferred from one wheelchair to another. The service life for LUCI is equivalent to the service life of the wheelchair.
21. LUCI should be properly disposed of and recycled according to your local disposal regulations for electronic devices. Please contact your LUCI Customer Experience Team if you have any questions about proper disposal and recycling of LUCI at the end of its service life.
22. Please refer to your wheelchair manufacturer user guide for instructions on where your wheelchair is designed to operate. LUCI is designed to detect solid surfaces and may not be able to prevent your wheelchair from getting stuck or detecting all potential unsafe situations if operating in rain, snow, mud, puddles, sand or other non-solid surfaces your wheelchair manufacturer instructs you to avoid. Please avoid using LUCI in these conditions as it may create unsafe operation of LUCI.

TECHNICAL SPECIFICATIONS

LUCI uses multiple types of sensors and transceivers to function. This section provides background information on the technology of LUCI.

OBSTACLE DETECTION

LUCI uses multiple types of sensors to identify and cross-check potential obstacles. The data from these sources is fused and analyzed to ensure the safety of your surroundings. LUCI obstacle detection has the following capabilities.

MINIMUM DETECTION RANGE	Objects closer than 3 cm (1.2 in) to the wheelchair may not be registered accurately	Measured from the edge of the wheelchair
MAXIMUM DETECTION RANGE	Forward: up to 3.5 m (11.5 ft) Backward: up to 1 m (3.3 ft) Sides: up to 2 m (6.6 ft)	Measured from the edge of the wheelchair
MINIMUM OBJECT DETECTION	Hard objects: 3 cm (1.2 in) Soft objects: 6 cm (2.4 in)	Measured as the cross section of the object facing the wheelchair
LIMITATIONS	Fast moving objects traveling across your path or directly at you may not be detected in time to be avoided. Objects smaller than the above minimums, such as cables, may not be detected by LUCI.	

GROUND FEATURE DETECTION

LUCI manages the stability of your wheelchair by monitoring ground features, including the slope of the ground and ramps as well as drop-offs such as curbs and steps.

MINIMUM DETECTION RANGE	Objects closer than 3 cm (1.2 in) to the wheelchair may not be registered accurately	Measured from the edge of the wheelchair
MAXIMUM DETECTION RANGE	Forward: up to 3.5 m (11.5 ft) Backward: up to 1 m (3.3 ft) Sides: up to 2 m (6.6 ft)	Measured from the edge of the wheelchair
STEP DETECTION	LUCI will detect steps with a height greater than your wheelchair's published step threshold	See your wheelchair user manual for the published step threshold
SLOPE DETECTION	LUCI will detect slopes with an angle greater than your wheelchair's published slope threshold	See your wheelchair user manual for the published slope threshold
LIMITATIONS	Conditions that may challenge the sensors are sudden changes in light level and extremely rough terrain. Mud, snow, water, sand and other soft surfaces may be incorrectly detected as rigid and/or safe surfaces.	

POWER

LUCI does not have its own power source. Instead, LUCI uses your wheelchair battery for power. This means you do not have a separate device to charge; charging your wheelchair per its manufacturer's specifications will suffice. LUCI has been designed so that the power usage to run LUCI is minimal and should not significantly affect the battery life of your wheelchair.

POWER
24 VDC \pm 4 VDC, 1.5 ADC MAX

SENSOR TRANSMISSION

LUCI produces acoustic emissions in the 40-60 kHz frequency range.

LUCI produces RF emissions in the 77-81 GHz frequency range. The maximum effective radiated power is less than 90 mW.

LUCI is classified as a Class 1 Laser Product under the EN/IEC 60825-1, Edition 3 (2014) internationally and IEC60825-1, Edition 2 (2007) in the US.

LUCI complies with US FDA performance standards under 21 CFR 1040.10 for laser products, except for deviations pursuant to Laser Notice No. 50 dated June 24, 2007.

COMMUNICATION

In addition to the sensors listed above, LUCI also uses cellular, Bluetooth, Wi-Fi and GPS.

CELLULAR	4G LTE CAT M1
BLUETOOTH	Bluetooth 5.0
WI - FI	802.11a/b/g/n Wi-Fi
GPS	GNSS Receiver



CELLULAR CONNECTIVITY

When not connected to a known Wi-Fi network that you set up, LUCI will automatically connect to the cellular network, where service is available. In this situation, the green cellular connection indicator light will illuminate.

The cellular radio operates in transmit and receive in the following bands with a max EIRP of 27.9dBm

LTE BAND	TRANSMIT BAND MIN (MHz)	TRANSMIT BAND MAX (MHz)	RECEIVE BAND MIN (MHz)	RECEIVE BAND MAX (MHz)
B2	1850	1910	1930	1990
B4	1710	1755	2110	2155
B12	699	716	729	746

BLUETOOTH AND WI - FI

The WiFi communications operates in transmit and receive mode in the following bands.

BAND	FREQUENCY RANGE MIN (MHz)	FREQUENCY RANGE MAX (MHz)	MAX EIRP (DBM)
2.4 GHz Wi-Fi	2400	2483	18.1
5 GHz Wi-Fi	4900	5925	17.5
Bluetooth	2400	2435	14.1

GPS

LUCI includes global positioning hardware which allows it to include your current location in text alerts. You can choose whether or not to share your location with others in text alerts via the LUCI web portal at myLUCI.com or in the MyLUCI app. The GNSS positioning system operates in receive mode only in the following bands.

BAND	RECEIVE BAND MIN (MHz)	RECEIVE BAND MAX (MHz)
GPS	1575	N/A
GLONASS	1597	1606
BeiDou	1559	1591

RADAR

The radar sensors in LUCI operate in transmit and receive mode in the following bands.

BAND	FREQUENCY RANGE MIN (MHz)	FREQUENCY RANGE MAX (MHz)	MAX EIRP (DBM)
mmWave Radar	77000	81000	15.7

EMISSIONS AND IMMUNITY STANDARDS COMPLIANCE

TEST STANDARD	TEST LEVEL	POWER INPUT
Radiated Emission CISPR11 ed5.0 (with A1:2010)	Class B	Configuration: 24 VDC
Electro-Static Discharge Immunity Test IEC 61000-4-2 ed2.0 (2008-12)	± 8 kV contact ± 2 kV, ± 4 kV, ± 8 kV, ± 15 kV air	Configuration: 24 VDC
Radiated, Radio-Frequency, Electromagnetic Immunity IEC 61000-4-3 ed3.0 (with A1:2007+A2:2010)	10 V/m (Home Health Care) 80 MHz – 2.7 GHz 80% AM at 1 KHz	Configuration: 24 VDC
Conducted, Radio-Frequency, Electromagnetic Immunity Test IEC 61000-4-6 ed2.0 (with A1:2004+A2:2006)	DC Mains: (Home Health care) 3 V, 0.15 MHz – 80 MHz 6 V in ISM and Amateur band between 15 MHz and 80 MHz 80% AM at 1 KHz [see table 6 of IEC 60601-1-2]	Configuration: 24 VDC
Power Frequency Magnetic Field Immunity Test IEC 61000-4-8 ed2.0 (2009-09)	30 A/m, 50 Hz or 60 Hz	Configuration: 24 VDC
Proximity fields from RF wireless communications equipment Clause 8.10. The frequencies and services listed in Table 9 are representative examples that are based on RF communications equipment in use at the time of publication of this collateral standard. The test specification does not attempt to cover every frequency and service used in every country.	Per Table 9	Configuration: 24 VDC

FCC CERTIFIED TRANSMITTER MODULES

LUCI contains the following FCC Certified transmitter modules:

FCC ID: N7NHL78M

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. Questions about this module should be directed to Sierra Wireless at 1-877-687-7795.

FCC ID: T7B-9026

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Questions about this module should be directed to Panasonic at 1-800-344-2112.

FCC ID: 2ASQOP003110

This equipment has been tested and found to comply with the limits for a mobile device with respect to RF exposure, pursuant to Part 95M of the FCC Rules. The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter, except as in accordance with FCC multi-transmitter product guidelines. Questions about this module should be directed to Patroness LLC at 615-813-5824.

NOTES



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