



ENTITY

E-BIKE SYSTEM

USER MANUAL



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USER MANUAL

E100
SERIES



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IMPORTANT NOTICE

Be sure to read this user's manual thoroughly before use, and follow the instructions for correct use. Keep it a safe place for later reference



DANGER - HANDLING THE BATTERY

Only use the specified ENTITY battery for the bike – the battery contains Samsung cells as well as the sophisticated Entity battery management system that controls the many of the e-bike functions. Using non-standard batteries, even if they look the same, can seriously damage the e-bike system, can result in battery fire or explosions, and will void warranty.

Be sure to observe the following in order to avoid burns or other injury from fluid leakages, overheating, fire or explosions.

- Do not deform, modify, disassemble or apply solder directly to the battery.
- Do not leave the battery near sources of heat. Do not heat the battery or throw it into a fire.
- Do not subject the battery to strong shocks or drop it.
- Avoid contact with metal objects (paper clips, coins, keys, nails, screws, or other small metal objects, as this may short-circuit the battery. Shorts caused in this way will invalidate any warranty claims.

- Do not place the battery into fresh water or sea water, and do not allow the battery terminals to get wet.
- If any liquid leaking from the battery gets into your eyes or skin, immediately wash the affected area thoroughly with clean water, and seek medical advice immediately.
- Do not use the battery if it has any noticeable scratches or other external damage.
- Do not use the battery in temperatures outside these ranges. During discharge: $-10\text{ }^{\circ}\text{C}$ to $50\text{ }^{\circ}\text{C}$. During charging: $0\text{ }^{\circ}\text{C}$ to $40\text{ }^{\circ}\text{C}$.
- During storage keep the battery at a charge level of at least 40%
- Follow local regulations when disposing of used batteries. If you are not sure, consult the place of purchase or a bicycle dealer.



CAUTION CHARGING THE BATTERY

- Only use the ENTITY specified charger and observe the specified charging conditions when charging the specified battery.
- When charging, make sure there is no water on the charging port or the charger plug.
- Do not allow children to play near the product whilst charging
- Close the charging port cap when not charging.
- Be careful of the following whilst charging the battery when it is mounted to the bicycle:
 - Ensure that the battery is locked into the battery mount before charging.
 - Do not remove the battery from the battery mount while charging.
 - Stabilize the bicycle to ensure that it does not collapse during charging.
 - Do not move or ride the bicycle, whilst the battery is being charged.





CAUTION WHILST RIDING

- Do not give too much of your attention to the cycle computer display while riding, otherwise accidents may result.
- If riding a power-assisted bicycle, make sure that you are fully familiar with the starting-off characteristics of the bicycle before riding it on roads or bike paths. The bicycle can start suddenly, and accidents may result.
- Check that the bicycle lights illuminate before riding at night.
- This e-bike system is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.



CAUTION USING THE E-BIKE SYSTEM SAFELY

- For installation and adjustment of the product, consult a dealer.
- The e-bike system is designed to withstand wet weather riding conditions. However, do not deliberately place into, or submerge in water.
- Do not clean the e-bike system in a high-pressure hose.
- Do not turn the bicycle upside down. The display or shifters may get damaged.
- Handle the e-bike system carefully, and avoid subjecting it to any strong shocks. Do not jump or do tricks on the bicycle
- Although the bicycle still functions as a normal bicycle even when the battery is removed, the lights will not function without the battery. Be aware that using the bicycle under these conditions will be considered non-observance of the road traffic laws in Germany and other jurisdictions.
- Always transport the bicycle with the battery connected to the bike

E100 SYSTEM FEATURES

Commute easily with the ENTITY E100 series system. The powerful 250W System assists you whilst you pedal - up to 25km/hr and with a range of up to 50km, all on a single charge.

The Entity E100 series is an EPAC (Electric Pedal Assistance Bicycle) system where the motor in the rear hub, provides assistance as the rider pedals. There is no throttle, the rider must pedal for the power assistance to begin.

It features the latest in e-bike technology including a Samsung powered 281Wh smart battery, and a sine-wave controller which adds durability and also ensures a smooth, quiet and efficient ride.

The premium LCD display shows you all the important information required, including the battery capacity, speed and trip meter. From the display you can select one of the 5 levels of pedal assistance and there is also a switch for the front and rear lights. Should you need it, there is a handy walk assist function - useful whilst walking the bike up hills.

RANGE

The e-bike can provide up to 50km of assisted riding. This will depend on many factors including the level of assistance selected, but also:

The weight of the rider and luggage
Tyre pressure
Wind resistance
Temperature
Age of the battery

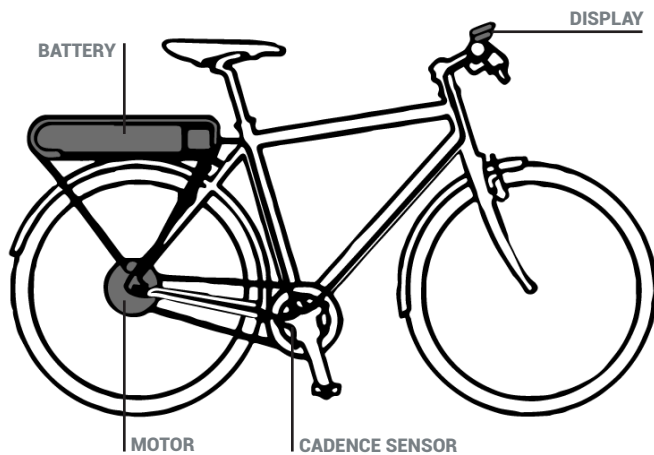
Topography
Maintenance of the bike
Tyre of trail
Amount of traffic
Riding speed.

For maximum efficiency, use the lowest level of assistance and ensure you select the appropriate gear for your speed.

SPECIFICATIONS

Charging voltage - 100V to 240VAC
 Charging time - approx. 5 hours
 Battery type - Lithium ion battery
 Capacity - 281Wh
 Nominal voltage - 36VDC
 Max Speed - 25km/hr
 Motor type - Rear-wheel drive
 Motor type - Brushless DC Motor
 Nominal motor power - 250W
 Maximum motor power - 400W
 Torque - 40NM

E100 SYSTEM COMPONENTS



BATTERY



For safety this high energy density lithium ion battery contains a sophisticated battery management system (BMS). The BMS ensures safe charging and discharge, continuously monitoring each of the cells in the battery individually. If the current drawn gets too high or the temperature of the battery is elevated, the BMS will shut the battery down for safety.

SPECIFICATIONS

Capacity - 281Wh
 Automatic Discharge Cut-off - 30V
 Charging voltage - 42V
 Maximum Discharge Current - 15A
 Weight - 1.95kg

VIEWING THE REMAINING CAPACITY



To view the remaining capacity of the battery, you can use either LCD display or the LED panel on the battery – press the button to activate the LED's.

- Red - 0 to 25%
- 1 Green - 25 to 50%
- 2 Green - 50 to 75%
- 3 Green - 75 to 100%

TURNING THE BATTERY ON

The battery has its own switch, located on the rear left hand corner of the battery. It must be switched on for the system to operate.



CHARGING THE BATTERY

The battery can be charged whilst attached to the bike or removed from the bike and charged separately.

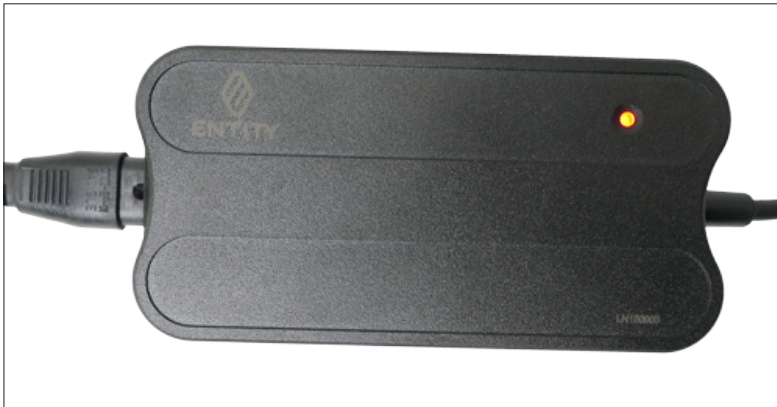
To charge the battery,

- Make sure that the system and battery are turned off.
- Do not make or break connections with the battery, whilst the 240V power is connected to the charger. Connect the charger to the battery first, then the charger to the wall socket





- The light on the charger will illuminate red whilst charging. When the charging is finished, it will turn green.



- Close the port after charging.
- If the battery hasn't fully charged after 6 hours. Then stop charging and contact your dealer.

ATTACHING OR REMOVING THE BATTERY

- Make sure the battery is turned off, and push the battery full into the case



- Turn the key clockwise to lock the battery, to unlock turn anti clockwise



CAUTION

- Always make sure that the battery is locked in place before riding. Do not ride the bike with the key in the barrel.
- In the event that keys are lost, take note of the number of the barrel of the lock and contact your detailer.



DISPLAY



SPECIFICATIONS

- Display - LCD
- Levels of Assistance - 5
- Voltage - 5V
- Configurable - Adjust the parameters for the system
- Supports - 36v system
- Certification - CE / ROHS

DISPLAY EXPLANATION

The speed, trip and odometer readings are as displayed. The other display information is below

Pedal Assistance Level



Walk Assist Activated



Lights Activated



Battery Status



OPERATING THE SYSTEM VIA DISPLAY

Turning the System On/Off

Hold the M button will turn the e-bike system on. Hold the M button to turn the display off. When powered off, the unit uses very minimal power.

Changing the Level of Pedal Assistance

The default setting for the display is 1. You can vary the level of assistance by using the + and - buttons from 0 (no pedal assistance) to 5 (maximum pedal assistance). The level of assistance is indicated at the top of the display.

Walk Assist Mode

To engage walk assist mode, hold down the – button. The bike will begin moving at 6km/hr – useful for when walking the bike up hills. Releasing the button will stop the walk assistance.

Turn on lights

Hold the + button down until the light led is illuminated. The display is dimmed whilst the lights are activated so as not to blind the rider whilst in low light conditions

Changing Modes

To change between modes, press the M button. Pressing the M button toggles between average speed and current speed and also between trip meter and Odometer. You can see which you have selected on the left hand side of the display.

Battery Capacity

There is a battery capacity indicator at the bottom of the display measured in 5 increments

Error Code

When there is a fault with the system, the E light will be displayed, along with the corresponding code.

BATTERY CHARGER

- Only use the charger provided with the kit
- The LED light on the charger indicates the function of charger.
- When the light is flashing, it is charging the battery. When it is complete it turns green.

SPECIFICATIONS

Efficiency - Over 80%

Temperature – low operating temperature

Input – 220-240 VAC 50-60Hz 90W

DC Output – 36V 2A

MOTOR

- The motor is a brushless sealed (geared) drive unit that does not require maintenance.



SPECIFICATIONS

Efficiency - Over 80%
 Noise - Under 50Db
 Voltage - 36v
 Rated Power - 250W
 Torque - 40Nm
 Weight - 2.78kg
 Hub – Freewheel

PEDAL ASSISTANCE LEVELS

There are 5 levels of pedal assistance. Assistance will only begin once you start pedalling. Make sure you are familiar with the power delivery, and always start with the default level, level 1.

All levels of power delivery are limited to 25km/hr, however they vary in how much pedal assistance is given

- 0 - No pedal assistance
- 1 - 30% of maximum power
- 2 - 45% of maximum power
- 3 - 60% of maximum power
- 4 - 80% of maximum power
- 5 - 100% of maximum power



CAUTION

For bicycles with multiple gears, make sure that you select the appropriate gear for the terrain

WALK ASSIST

The walk assist function helps you walk the bike out of car parks and up steep hills without needing to push the bike. Walk assist is limited to walking pace, 6km/hr

CONNECTION AND COMMUNICATION WITH PC

A PC linkage device can be used to connect a PC to the bicycle (system or components). The BMS (battery management system) can be used to carry out tasks such as customizing single components or the whole system and updating firmware. This is designed to be completed by authorized dealers only.

Contact the place of purchase for updates of the product software. The most up-to-date information is available on the Entity Cycling website.



CAUTION - CLEANING

- Do not use thinner or other solvents to clean any of the products. As such substances may damage the surfaces.
- Use a damp cloth, with the water well wrung out, when cleaning the battery and plastic cover.
- For any questions regarding handling and maintenance, contact the place of purchase.

- Products are not guaranteed against natural wear and deterioration from normal use and aging.
- For maximum performance we highly recommend ENTITY lubricants and maintenance products.

CONFIGURATION SETTINGS

It is possible to change the configuration settings on the display. Contact your dealer for more information. This has been set for your region by your dealer or manufacturer.

TROUBLESHOOTING

If the suggested remedy does not solve the problem, please contact your dealer.

SYMPTOM	POSSIBLE CAUSE	REMEDY
Assistance not being provided	Is the battery / system turned on	Use the switch on the battery to turn it on. Then hold the M button on the display to turn the entire system on
	Is the battery charged	Charge the battery
	Battery maybe over heating	If you are riding in hot weather, up inclines or with a heavy load. Wait until the battery cools down
	Over Speeding	The assistance will stop after reaching 25km/hr
	Not pedaling	The bicycle is not a motor bike, and pedalling is required
	The assist level set 0	Set the assistance from 1-5
Assistance range is too short	Low battery capacity	Charge battery
	Low tyre pressures	Increase tyre pressures to correct settings
	Poor gear change	Change gears according to the terrain
	Lower the assistance level	Lower assistance levels will increase range
	Lights using power	Don't use lights during the day
	Over time battery performance will degrade	Replace the battery

SYMPTOM	POSSIBLE CAUSE	REMEDY
Pedaling is difficult	Low tyre pressure	Increase tyre pressure to correct pressures
	Low battery	Charge the battery
Battery cannot be charged	Check the power plug and charger connections	Disconnect and reconnect charger and battery
	Dirty Connections	With the charger disconnected from the bike and the power outlet, check the connections and clean if required
Battery and / or charger are hot	The temperature maybe exceeding operating temperature range	Disconnect, and wait for both to cool and recharge.
The LED on the charger does not illuminate	Poor connection	Check the connection of the battery, charger and power
Fluid, odor or smoke is coming out of the battery		Stop using immediately and contact your dealer

The display does not light up	The battery is not sufficiently charged	Recharge the battery
	Is the power on	Turn on the power at the battery and hold the M button for 2 seconds on the display
	Poor connections	Check the connections for the display, and make sure the battery is securely inserted into the case
	Cold weather	In very cold weather the computer will not turn on, wait for it to warm up and try again.

Please note: specifications are subject to change for improvement without notice.

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