OLI - eBike Systems

D900

User Manual

To read and keep.

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1. GENERAL INFORMATION

1.1 Purpose of the manual

This technical book is an integral part of the drive unit and has been prepared by the manufacturer in its original language (Italian) to provide all the necessary information for the proper and safe use of the system throughout its entire lifecycle (from transport, delivery, installation, use, and maintenance to disposal).

Before performing any operation, users and technicians must carefully read the instructions and strictly follow them. If in doubt about their correct interpretation, contact the manufacturer for the necessary clarifications. Only by adhering to the guidelines below can the proper functioning of the drive unit over time be ensured and dangerous situations for people and property be avoided.
The technical book provides warnings and guidelines related to safety regulations for injury prevention. Operators must always adhere to the safety regulations stipulated by the applicable laws. Any changes to safety regulations that may occur over time must be adopted and implemented.

WARNING: It is recommended to read this manual carefully before installing and starting the drive unit.
OLI eBike Systems, with a view to continuous improvement, may modify certain characteristics of the components used without prior notice. This does not affect the validity of the information contained in this document.
If any discrepancies are found between the manual and the actual use of the system, please inform the manufacturer.

IMPORTANT: The updated version of this manual can be found on the website www.oli-eBike.com.

1.2 Storage of the manual

The manual must accompany the product throughout its lifecycle and must be available to all operators and technicians who may need it. The manual must follow the product if it is transferred to a new user or owner.

1.3 Manufacturer

OLI eBike Systems is available for any issues or information.
Communications and requests can be sent to:

OLI eBike Systems srl
Via delle Pesche, 821 - 47522 Cesena - (FC) -ITALY
+39 / 0547 318322
info@oli-ebike.com
www.oli-ebike.com

For any needs regarding use, maintenance, or requests for spare parts, please specify the identification details of the drive unit listed on the manufacturer's nameplate.

1.4 Warranty and Returns

The product is covered by a warranty according to legal terms and commercial agreements.
The buyer loses the warranty rights in case of incorrect installation, misuse, or if modifications or repairs are made to the product without the manufacturer's authorization. Upon receipt of the product, the recipient must verify that there are no defects, transport damages, or shortages in the delivery. Any claims must be immediately reported to the manufacturer with written communication, countersigned by the carrier. Labor services, such as sending a technician, are excluded from the warranty. Under no circumstances can compensation for damages be claimed.
In case of product return, the original packaging must be reused for shipping, protecting it as best as possible from transport impacts.

1.5 Customer Support and Technical Assistance

For any questions regarding the eBike and its components, please contact a specialized workshop, which can rely on the support of OLI eBike Systems technicians through the dedicated OLI eBike Systems Help Center portal.

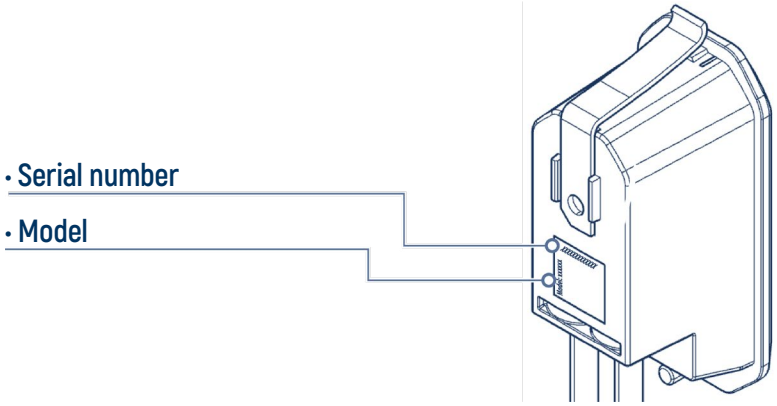
1.6 Transport, Packaging, and Storage

The product is provided with dedicated packaging that prevents transport damage.
Upon receipt of the goods, the customer must check if the model and quantity match the details on the order confirmation.
Components should be stored indoors in dry environments, protected from weather conditions, and at temperatures above -10°C.

IMPORTANT: It is the installer's responsibility to dispose of the packaging appropriately in compliance with applicable laws.

1.7 Identification

The identification of the product is made via the manufacturer's nameplate. The nameplate displays the following data:



IMPORTANT: The identification nameplate must never be removed.

1.8 Safety

Read all safety warnings and instructions. Failure to observe safety warnings and instructions can cause electric shocks, fires, and/or serious injuries.
Do not modify the drive unit to increase speed. Such modifications make the vehicle illegal and may violate traffic regulations. Modifications may also affect the motor's lifespan and integrity.
Any unauthorized modifications will void the warranty. Additionally, a modified eBike could lead to accidents, resulting in significant compensation claims.

Accidental activation of the vehicle may cause injury (even when assisting with pushing).
Assisting with pushing can cause pedal rotation, so maintain a distance that avoids interference with them.

To minimize the risks of creating dangerous situations for users and others, we encourage the adoption of good practices. In particular, when using the eBike, it is advisable to follow these points:

- Consult your doctor before starting a training program;
- Adhere to all applicable regulations in the country where the eBike is used;
- Do not distract yourself by looking at the display while riding the bike;
- Do not use the display as a handle;
- Use only the HMI drive unit and the control button provided.

The drive unit does not require internal revision; therefore, it should not be opened, except by authorized personnel in the presence of defects. Unauthorized opening will void the warranty.

Components mounted on the motor may be replaced with identical or homologated materials.
It is necessary to remove the battery:
- Before any intervention on the eBike
- During transport by car/airplane
- In case of storage

IMPORTANT: The manufacturer declines any responsibility for damage to people or property resulting from improper use of the equipment, installation errors, misuse, or lack of skill, care, and negligence with respect to the instructions in this technical book.

IMPORTANT: The manufacturer declines any responsibility for damage to people or property, as well as for defective functioning of the drive unit, if non-original spare parts and non-recommended products for cleaning and maintenance are used.

1.9 Incorporation Declaration

Object of declaration:

Description	Code	Commercial name
Human–Machine Interface (HMI)	**8A1010029000**	D900

The object of the declaration described above is in conformity with the following relevant Union harmonization legislation:

DIRECTIVE 2006/42/EC of 17 May 2006 on machinery.

DIRECTIVE 2014/30/EU of 26 February 2014 on electromagnetic compatibility.

DIRECTIVE 2011/65/EU of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS), as amended and/or supplemented.

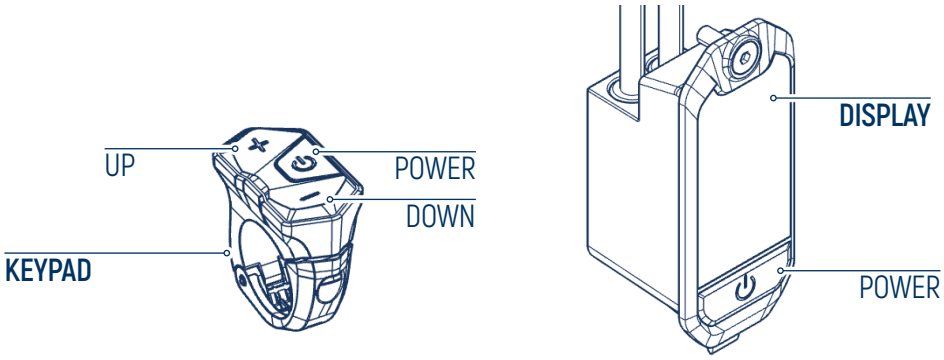
The object of the above declaration is a partly completed machine within the meaning of Article 2(g) of Directive 2006/42/EC. It is intended solely to be incorporated into or assembled with other machines, partly completed machines, or equipment.

Additional information:

The product must be installed in accordance with the provided user instructions.

1.10 General description

The HMI unit allows analysis and visualisation of data relating to the eBike and the current training session and consists of an TFT display and an integrated keypad containing the buttons that allow control and navigation.



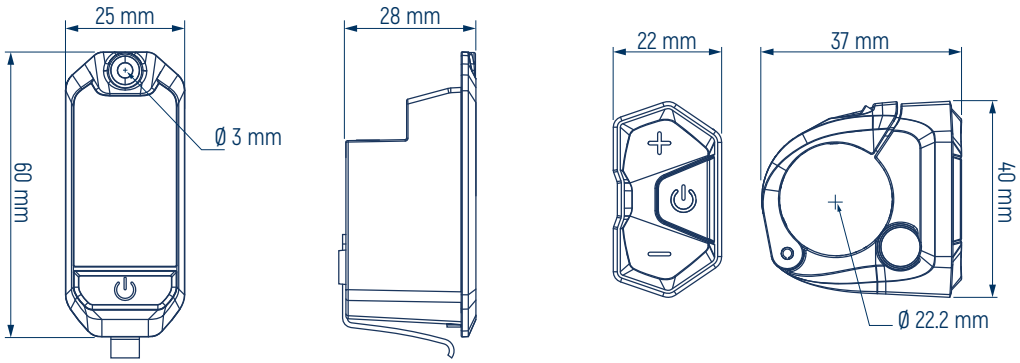
IMPORTANT: The HMI unit is intended exclusively for use on eBikes. Uses other than those intended for this product and not compliant with what is described in this manual, in addition to being considered improper and prohibited, may create hazardous conditions for people and property.

IMPORTANT: The manufacturer declines all responsibility for improper use of the product.

1.11 Technical table

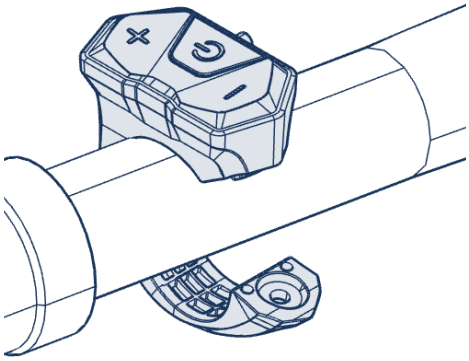
Screen size	1.14"
Handlebar bracket	22.2 mm
Protection rating	IP66
Operating temperature	-5° / 40° C
Storage temperature	-20° / 60° C
Nominal Voltage	36V

1.12 Dimensions



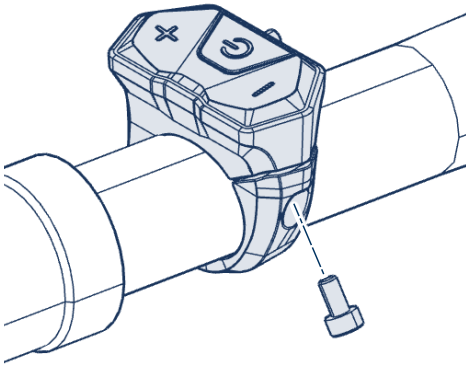
2.1 Keypad and display Installation

1 Open the mount and position it on the handlebar.

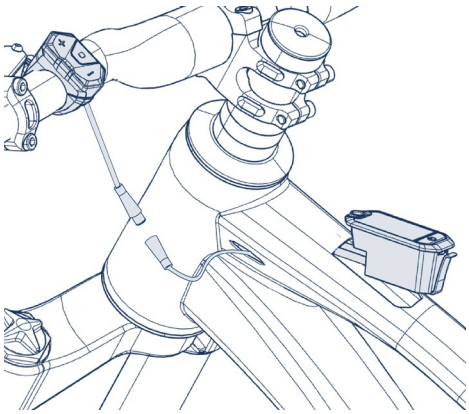


2 Close the mount and tighten the M4 screw.

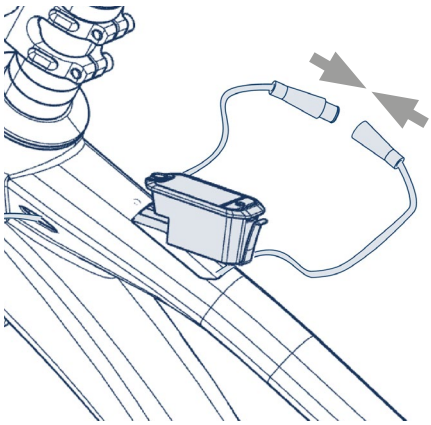
3 - 4 Nm



3 Insert the 5-pin female cable into the display housing, route it out and connect it to the control unit cable.

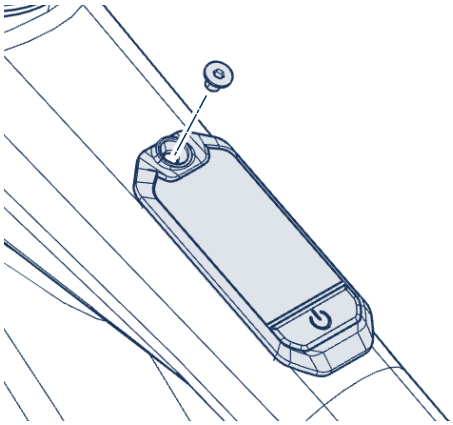


4 Route the motor cable out of the display housing and connect it to the 6-pin male display cable.



5 Install the display into the designated housing on the frame and tighten the screw.

3 - 4 Nm



3.1 Controls

To navigate within the software there are 3 buttons that can be used with a short press or with a press longer than 2 seconds. To switch from one main screen to another, press the "Power" button.

3.1.1 Switching on and off

It is possible to switch the display on/off in the following ways:
- Press and hold the Power button for an extended time (2s).
- Press the battery on/off button.

If the eBike is not used for a period of time that varies depending on the type of battery, the system will switch off automatically.

3.1.2 Assistance levels

From any screen it is possible to change the assistance level:
- Press the "UP" (+) button to increase the assistance level.
- Press the "DOWN" (-) button to decrease the assistance level.

The table shows the multiplication factor for each assistance level.

Level*	Multiplication factor*
OFF	0%
ECO	70%
TOUR	140%
NORM	210%
SPORT	300%
TURBO	400%

*the number of levels and the relative multiplication factors are indicative values as they can be customised by the eBike manufacturer

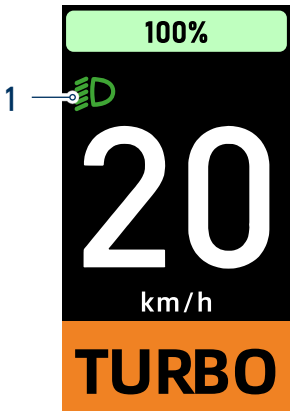
3.1.3 Walk mode

The system is equipped with a walk assistance function, which allows activation of the drive unit up to a maximum speed of 6 km/h, to make it easier to cover short sections while pushing the eBike.

- Press and hold the "DOWN" (-) button to start walk mode, release the "DOWN" (-) button to exit walk mode.
- Once walk mode has started, icon (**1**) will appear on the display.

3.1.4 Lights

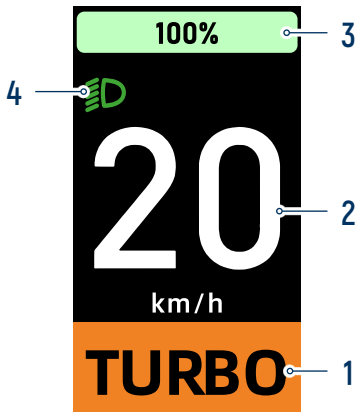
Press and hold the "UP" (+) button for an extended time (1.5s). When the lights are on, icon (1) appears on the display and the screen brightness is automatically reduced.



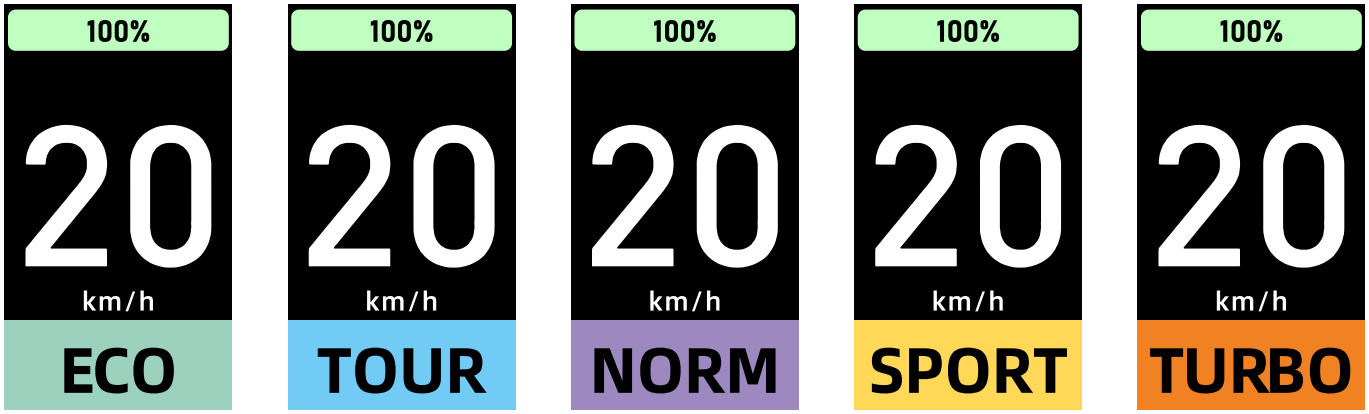
3.2 Screens

3.2.1 Main screen

1. Assistance level
2. Speed (km/h)
3. Battery range
4. Lights



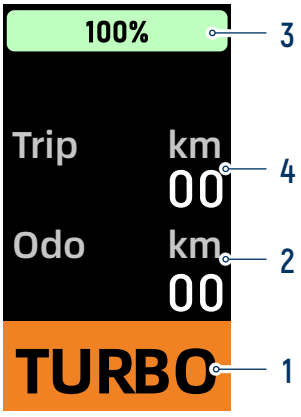
The Homepage screen changes according to the assistance level as shown below.



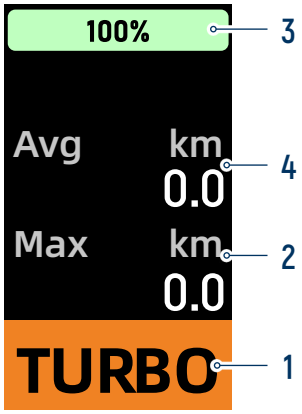
3.2.2 Data screens

The data screen consists of 3 different screens. To switch from one screen to another, press the "Power" button.

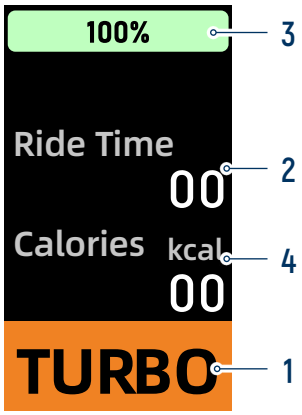
1. Assistance level
2. **Total distance:** total distance travelled by the eBike in kilometres (km). Non-resettable value.
3. Battery range
4. **Trip:** distance travelled in kilometres (km) of the journey since the last reset.



1. Assistance level
2. **Average speed:** indicates the average speed in kilometres per hour (km/h) recorded since the last reset.
3. **Battery range:** indicates the remaining battery charge.
4. **Maximum speed:** indicates the maximum speed in kilometres per hour (km/h) recorded since the last reset.



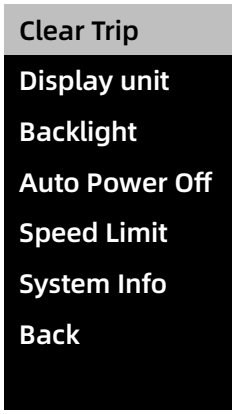
1. Assistance level
2. **Ride time:** travel time elapsed since the last reset
3. **Battery range:** indicates the remaining battery charge.
4. **Calories:** indicates the energy consumed by the cyclist in kilocalories (kcal) since the last reset.



3.3 Menu

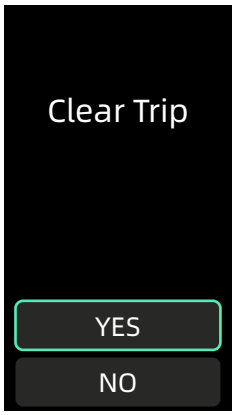
To access the Menu, press and hold the "UP" (+) and "DOWN" (-) buttons simultaneously for an extended time (1.5s). Once inside, use the "+" or "–" buttons to scroll through the Menu. Press the "Power" button to access one of the following desired settings:

- Clear trip
- Display unit
- Backlight
- Auto power off
- Speed limit
- System info
- Back



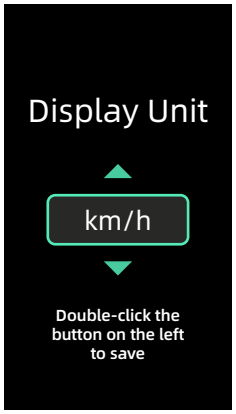
3.3.1 Clear trip

Allows resetting all recorded trip data, returning the counter to zero (0).



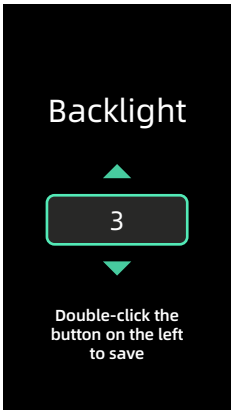
3.3.2 Display unit

Allows changing the unit system (metric or imperial).



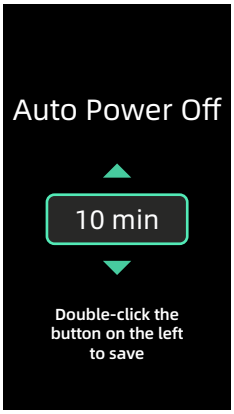
3.3.3 Backlight

Allows selection of the screen brightness level or setting automatic brightness.



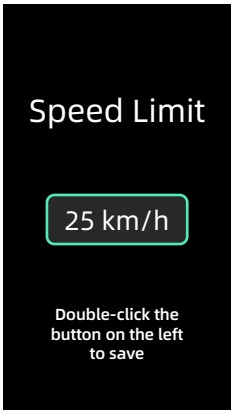
3.3.4 Auto power off

Automatic system shutdown when the eBike is stationary.



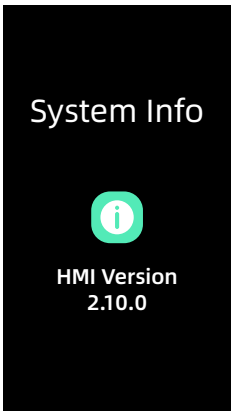
3.3.5 Speed limit

Indicates the maximum assisted pedaling speed limit. Parameter cannot be modified.



3.3.6 System info

Indicates the current firmware version of the display.



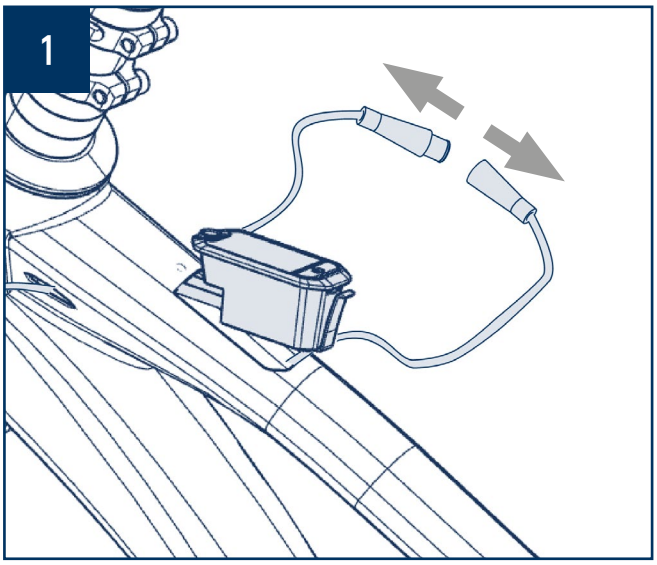
4.1 Connection and communication

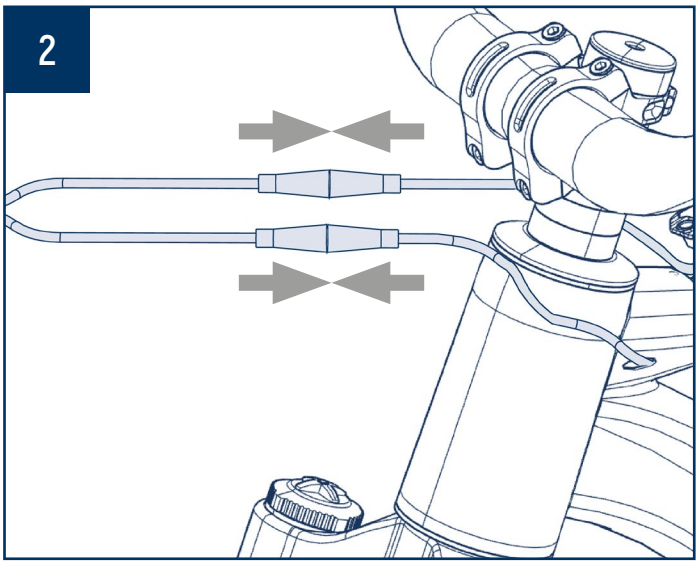
To perform modifications, diagnostics and firmware updates, it is necessary to use the proprietary OLI Service Hub software, available to all OEMs and dealers. The software may be updated at any time to address errors and/or defects during use.

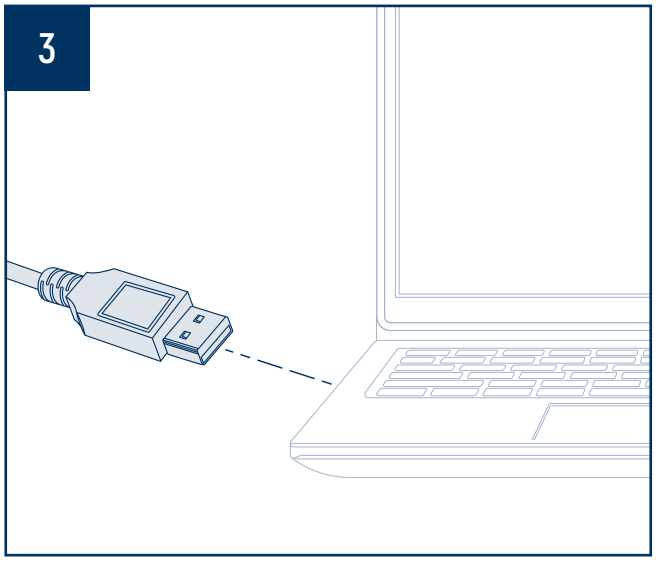
CONNECTING THE eBike TO THE PC

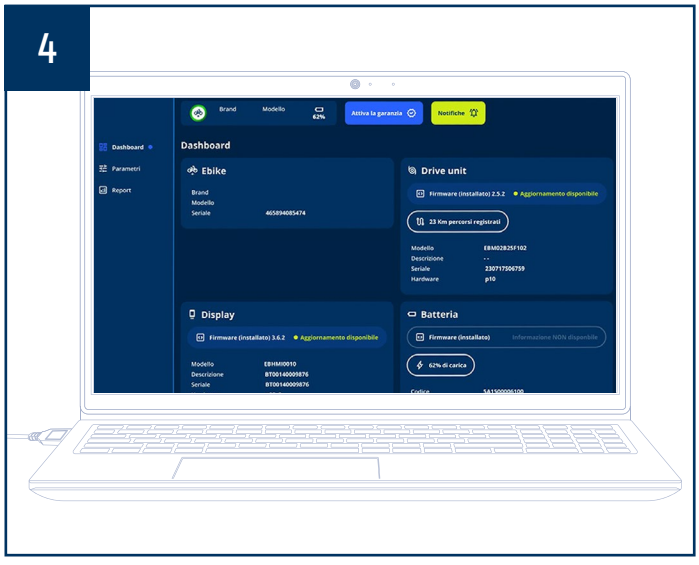
To interface the drive unit with the PC, use the OLI eBike Systems CAN programming cable.

1. Disconnect the display cable
2. Connect the Y-end of the CAN programming cable to the eBike
3. Connect the USB end to the PC
4. Access the OLI Service Hub software from the PC









5. MANAGEMENT

5.1 Use

The drive unit is designed to be used exclusively on the eBike on which it is installed. For its operation and control, please refer to the OLI eBike Systems manuals of the compatible displays.
The drive unit assists pedaling as long as the pedals are engaged; if the pedals are not being used, assistance is inactive.
The drive unit automatically disengages at speeds above 25 km/h and reactivates when the speed drops below 25 km/h.

5.2 Range

It is not possible to predict the exact mileage achievable on a single battery charge as there are several factors affecting range. The main ones are: Assist level used, speed, cadence, type and pressure of the tyres, age and maintenance status of the battery, elevation gain and road conditions, presence of headwind, ambient temperature, weight of the eBike, and weight of the rider.
It is therefore recommended to:

- Use the gears to choose the best gear for the route, minimizing pedal force to increase the distance covered.
- When possible, use a lower assist level to extend the system's range.

5.3 Maintenance

It is recommended to periodically check the drive unit to assess the integrity of the components and firmware. Before installing lights on the eBike, ensure they are compatible and can be powered by 12V. Respect the operating and storage temperatures of the drive unit.
It is important to protect the unit from temperatures outside the recommended ranges, such as sources of heat and non-ventilated areas with strong solar radiation. For assistance or repairs, contact an authorised dealer.

5.4 Cleaning

Cleaning does not require specific products or tools. None of the components, including the drive unit, should be submerged in water or cleaned with a high-pressure jet. Use only a damp cloth with water to clean the drive unit and HMI unit.

CAUTION: Do not use aggressive products. Absolutely avoid abrasive products or basic or acidic chemical cleaners.

IMPORTANT: The manufacturer disclaims any responsibility for damages caused by incorrect cleaning or the use of unsuitable products.

5.5 Disposal and Recycling

The HMI unit, display, switch, accessories, and packaging must be disposed of in accordance with current environmental regulations. Do not dispose of these components in household waste bins. Do not throw this product into fire.

ONLY FOR EU COUNTRIES:
In accordance with European Directive 2012/19/EU, electrical devices that are no longer functional, and in accordance with European Directive 2006/66/EC, rechargeable or defective/consumed batteries must be separately collected and sent for ecological reuse.
Return the non-functioning HMI unit to an authorised eBike dealer.

5.6 Warning codes

The Warning codes described in the table may appear on the display to indicate detected anomalies that are not considered harmful to the safety of the system. The firmware will automatically resolve them.
If the condition persists for an extended period, it is necessary to contact authorized service personnel.

Code	Description
200	**LOST COMMUNICATION WITH THE BATTERY BMS** Some battery-related values may no longer be reliable. Press any key; the firmware will automatically correct the issue. If necessary, switch the motor off and on again to check if the error is resolved.
201	**MAGNET NOT DETECTED** Check that the magnet is positioned correctly. Press any key; the firmware will automatically correct the issue. If necessary, switch the motor off and on again to check if the error is resolved.
202	**ABNORMAL TORQUE SENSOR SIGNAL** Rotate the crank arms and the rear wheel backward by a few degrees. Press any key; the firmware will automatically correct the issue. If necessary, switch the motor off and on again to check if the error is resolved.
203	**CRITICAL DRIVE UNIT TEMPERATURE** The Drive Unit stops providing power until the temperature returns to normal operating range. We recommend stopping and waiting for the Drive Unit to cool down.
204 205	**PARAMETER READING ERROR** Press any key; the firmware will automatically correct the issue. If necessary, switch the motor off and on again to check if the error is resolved.

5.7 Error codes

The error codes described in the table may appear on the display to indicate detected anomalies in the system.
If the condition persists for an extended period, it is necessary to contact authorized service personnel.

Code	Description
111	**COMMUNICATION PROBLEM BETWEEN HMI** The display is not receiving signals from the motor. Check that all cables are properly connected and undamaged.
112	**POWER BUTTON STUCK IN PRESSED POSITION** The system detects that the power button is stuck or remains pressed. Try moving the buttons on the control pad or apply a contact cleaner.
113	**MAXIMUM LEVEL NOT RECEIVED** The system is not receiving the maximum level signal. Check that the wiring is properly connected and undamaged. Switch the motor off and on again to verify if the error is resolved.

Code	Description
803	**DISPLAY OR LIGHTS POWER SUPPLY ERROR** Issue related to the power supply of external devices or the electronic board.
804 811	**MOTOR SELF-PROTECTION WARNING** It may occur while pedaling with an excessively high current demand: the electronic controller has detected an overcurrent condition.
806	**PERIPHERAL POWER SUPPLY ISSUE** Try disconnecting the BMS cable or any smart devices if present. Check that the wiring is intact and not subject to any kind of pinching or damage.
807	**UNDERVOLTAGE ERROR** Battery or cable connection or electronic board issue. Check proper operation of the battery cables and the battery itself.
809	**OVERVOLTAGE ERROR** Battery or cable connection or electronic board issue. Check proper operation of the battery cables and the battery itself.
80A 80B	**OVERHEATING** Motor overheating error. Allow the motor to cool down and restart.
810	**CURRENT OFFSET ERROR** Board error during startup. Switch the motor off and on again to verify if the error is resolved.
813 815 830	**SOFTWARE ERROR** Perform a firmware update.
805 | 80C 80D | 80E 80F | 814 816 | 818 820	**HARDWARE BOARD ERROR** Try resetting the bike by switching it off and removing the battery.
817	**CAN COMMUNICATION ERROR** Check the integrity of the display and BMS cables, if present.
812 | 819 81A	**CONFIGURATION PARAMETER ERROR.** Try reprogramming the motor with the correct configuration and restart the bike.

OLI - eBike Systems

OLI eBike Systems srl
Via delle Pesche n. 821, 47522 Cesena (FC) - Italy

Tel. +39 0547 318 322

info@oli-ebike.com
customerservice@oli-ebike.com

www.oli-ebike.com