





DRIVE UNIT AND DISPLAY



CODE: OLIMOVEOEMOO1EN | REV:1 | DATE:10/2018



TECHNICAL CATALOGUE

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TECHNICAL CATALOGUE





MOVE / MOVE PLUS

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All the products described in this manual have been manufactured in accordance with the operating procedures defined by the Quality System of OLI eBike System division of OLI®spa.

The company's Quality System, certified in accordance with UNI EN ISO 9001 Standards, ensures that the entire production process, from order placing through to technical support after delivery, is carried out in a controlled, appropriate way to guarantee the quality standard of the product.

General information

Reproduction in whole or in part without permission is prohibited.

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SYMBOLS



This symbol indicates extremely dangerous situations that, if neglected, can seriously put people's health and safety at risk.

1.1 - INSTRUCTION MANUAL PURPOSE AND IMPORTANCE

This manual, drawn up by the manufacturer, is an integral part of the drive unit and display unit kit. As such, it must strictly follow the product up to dismantling and be easily available for quick consultation by the operators. In the event of a change of ownership, the manual must be handed over to the new owner. Before performing any operation with or on the drive/display unit, the personnel concerned must carefully read this manual. If the manual is lost, creased or no longer fully readable, download a new copy from the OLI eBike System website and check the date of the latest update. To prevent accidents at work, this manual provides safety warnings and instructions. Anyway, and in any case, the various operators are required to carefully comply with the safety requirements laid down by current regulations.

Any changes that may be made to safety standards over time will have to be adopted and implemented.

The latest version of this catalogue is available at www.olieds.com



1.2 - DESCRIPTION



The drive unit and display are designed and built in accordance with the following directives and regulations:

- UNI EN 15194:2018 - IEC EN 61000-4-2:2011-04 - IEC EN 55012:2009-03 - IEC EN 55012/A1:2010-05 - ISO 11451-1:2015 The general features of the M01 series drive unit are:

- Insulation class F
- IP54 protection rating.
- Operating temperature from -5°C to +40°C

The general features of the display are:

- IP54 protection rating.
- Operating temperature from -5°C to +40°C

1.3 - NOMENCLATURE



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▲ 1.4 - OPERATING INSTRUCTIONS ▲

The drive unit is designed exclusively for use on e-bikes as the driving engine. Uses other than those intended and not in accordance with the contents of this manual, besides being considered improper and forbidden, shall relieve the manufacturer from any direct and/ or indirect liability.

🕂 1.5 – WARNINGS 🖄

Before going ahead with the installation of the drive unit, the installer must make sure that the ordered model matches the model owned (values are specified on the sticker), that it has not been damaged during transport or has any faults.

The drive unit must be installed in accordance with the instructions in this manual; the installer shall provide the following: operating test, adjustment and proper positioning check. Installation must be performed by skilled, qualified personnel. The instructions for installing and dismantling some of the drive unit parts can be found in the "installation, use and maintenance" section of this manual.

For any operation to be carried on the drive unit (maintenance/installation), operators must use the designated personal protective equipment (PPE).

Before carrying out any operation on the electric motor vibrator, make sure it has been made safe.

IMPORTANT: Later in this manual we will use the instruction "ensure the drive unit is safe" to refer to the following operations:

- Remove the battery to prevent the system from being accidentally started.

1.6 - WARRANTY

OLI eBike System grants a 36 month warranty on the products it manufactures. The period starts from the date specified on the transport document. The warranty shall not apply to failures and/or defects caused by incorrect installation or use, or by improper maintenance or any changes made without the manufacturer's authorisation.

Namely, the warranty and compliance with regulations shall become null and void if the drive or display unit:

- Is tampered with or modified.
- Is used incorrectly.
- Is used by not following the limits specified in this manual and/or is subjected to excessive mechanical stress.
- Has not been service as required or maintenance has been carried out only in part and/or incorrectly or by improperly trained personnel
- Has been damaged due to carelessness during transport, installation and use.
- Non-original spare parts have been installed.

Upon receipt of the product, the recipient must ensure it does not have any faults or damage due to transport and/or incompleteness of the supply. Any defects, damage or incompleteness shall be immediately reported to the manufacturer in writing with a countersignature of the carrier.

Products returned for repairs under the warranty must be sent FOB to our plant.

1.7 - STORAGE

1) STORAGE BEFORE INSTALLATION

- Avoid damp and brackish environments wherever possible.
- Avoid storage conditions below -10°C.

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2.1 - IDENTIFICATION

PRODUCT IDENTIFICATION

To make sure the drive unit is identified correctly, refer to the serial number and model printed on the identification sticker. (Fig.2) This data must always be specified for any requests for spare parts and technical support.



1.2 - TRANSPORT AND PACKAGING 🧥

SAFETY RECOMMENDATIONS FOR TRANSPORT AND HANDLING

The drive and display units are supplied in a special packaging to avoid damage during transport.

Upon receipt of the goods, check whether the type and quantity match the information in the order confirmation.

Any damage must be immediately reported in writing in the designated area of the consignment note. The driver is required to accept this complaint and leave a copy of it with you. If the supply is FOB, send your complaint to the manufacturer or, otherwise, directly to the shipping agent.

If you do not claim damages immediately upon arrival of the goods, your request might be rejected.

The installer is responsible for suitably disposing of the packaging in accordance with applicable laws in force.

2.3 - TECHNICAL DATA

DRIVE UNIT		
Continuous nominal power	250 W	
Maximum torque	80 Nm	
Rated voltage	36 V	
Operating temperature	-5°C / 40°C	
Storage temperature	-10°C / 50°C	
Protection rating	IP 54 protection against dust and water splashes	
Weight	4 Kg	



2.4 - INSTALLATION

HMI UNIT INSTALLATION

Display

Push the display support clamps (A) onto the handlebars, as shown in the figure.



Place the display on the support clamps and tighten screws (B) with two nuts (C).



Hex male key: 2.5



Tightening torque: 1.5 - 3 Nm



2



Control panel

Place the control panel at an angle so that the user can comfortably operate it while in motion.



Tighten the fastening screws (A).



Hex male key: 3



Tightening torque: 1.5 - 3 Nm



Insert the display cable (B) into the frame so that it can be connected to the drive unit.



2



2

SPEED SENSOR INSTALLATION

- A speed sensor
- B magnet
- C wheel radius
- D bicycle frame
- E magnet-speed sensor distance



Fasten the speed sensor (A) to the frame with an M5x12 screw.



Phillips screwdriver no. 2





Tighten the magnet (B). Distance must be ≤ 25 mm.



Flat-head screwdriver



Tightening torque: 1.5 - 2 Nm



Insert the speed sensor cable into the frame interface so that it can be connected to the drive unit.



DRIVE UNIT INSTALLATION

Put the drive unit on the frame interface (A). Insert the M8x63 screw (B) and make sure no cable is clamped.



Connect the following cables:

- speed sensor (1)
- display (2)
- lights system (3), if required by the installation



Pull the cables (4) and (5) through the hole on the frame interface to connect the battery.



2



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CONNECTION DIAGRAM



Lift the drive unit into its final position and make sure no cable is clamped.

Insert the M8x63 screws (C) and (D).

Tighten the 3 regulators (E), lightly greasing the threads.

2 x 12 mm flat-head insert

Tightening torque: 3 Nm

Tighten the 3 self-locking nuts (F).

10 mm open end spanner

Tightening torque: 10 Nm

SPIDER AND CRANK ARM INSTALLATION

Insert the crank arm (left side) and tighten.

Hex male key: 8

Tightening torque: crank arms on the spindle of the bottom bracket (Allen screw 8, M15x1): according to manufacturer's specifications

Chain ring installation

The chain ring (2) can either be installed on the inside or on the outside of the spider (1), depending on the rear triangle frame: type A standard chain line type B boost chain line

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Insert the spider (G) (right side) Use a 30 KM spanner to tighten the ring nut (H). Lubricate both the spider coupling and the ring nut thread.

30KM ring nut spanner

Tightening torque: 25 Nm

Insert the crank arm (right side) and tighten.

Hex male key: 8

Tightening torque: crank arms on the spindle of the bottom bracket (Allen screw 8, M15x1): according to manufacturer's specifications

2.5 - RESIDUAL RISKS

The installer must inform the operators about the following residual risks by means of designated signs:

1.Mechanical hazards

When performing maintenance work, the operator must always use personal protective equipment.

2.6 - MACHINE SCRAPPING

The operators in charge of disposal must wear suitable personal protective equipment.

The drive unit or display must be demolished so that it can no longer be reused as a complete unit, or one or several of its parts cannot be reused. It is mandatory to comply with the legislation in force in the country where you operate. In the event of scrapping at the end of the machine service life, ensure you disassemble the various plastic parts (gaskets) and send them to the designated collection centres. The remaining parts must be used for the recovery of ferrous materials.

With reference to the WEEE directive, electrical and electronic components marked with the corresponding symbol must be disposed of in dedicated authorised collection centres.

The illegal disposal of "Waste Electrical and Electronic Equipment" (WEEE) is punishable with sanctions regulated by applicable laws in force.

2.7 - MACHINE RETURN

In case of return of the product, place it back into the packaging if retained or back into a box, trying to protect it as best as possible from any shocks due to transport.

2.8 - DECLARATION OF CONFORMITY

The equipment comes with a declaration of conformity with current directives. Any improper use of the drive unit or display without following the instructions in this manual shall relieve OLI eBike System from any liability related to malfunctions of the products themselves. As this is an area undergoing strong technical and regulatory development, OLI eBike System reserves the right to update, as guickly as possible, its product with all the technological knowledge and applicable official standards (EN, UNI) that might become available as and when.

complies with the directives listed in the following declarations

EC DECLARATION OF CONFORMITY

with the requirements of the EU directives and subsequent amendments.

Compliance has been verified based on the requirements of the standards or regulatory documents below:

- UNI EN 15194:2012-01 - IEC EN 61000-4-2:2011-04 - IEC EN 55012:2009-03 - IEC EN 55012/A1:2010-05 - ISO 11451-1:2015

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EN

USE AND MAINTENANCE

MOVE / MOVE PLUS

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1-SAFETYINSTRUCTIONS

1.1 - GENERAL INFORMATION

Carefully read and keep the following instructions and technical features.

Pay attention to the operating and storage temperatures for e-bike components.

Do not make any changes to the propulsion system components. These changes may entail risks to the user, damage to the system, and result in the warranty becoming null and void.

1.2 - WARNINGS

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Do not get distracted by looking at the display when riding the bicycle. Consult your doctor before starting a workout program. Do not use the display as a handhold. Only use the on-board computer with the HMI unit and the control panel provided. Observe the traffic regulations relating to e-bikes. Remove the battery before carrying out any kind of operation

2 - INTRODUCTION

2.1 - CONVENTIONS

This manual uses the following conventions: Long press >2s Short press <1s

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3 - TECHNICAL DATA

3.1 MOTOR UNIT

Model	M01-M01CX
Rated voltage	36V
Nominal power	250W
Maximum torque	≥80Nm
Storage temperature	[-5°/40°]
Operating temperature	[-10°/50°]
IP protection rating	IP54

3.1 HMI UNIT

Product code	EBHMI000
Type of display	Dot matrix LCD
Storage temperature and humidity	[-5°/40°]
Operating temperature and humidity	[-10°/50°]
IP protection rating	IP54

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4 - APPEARANCE AND DIMENSIONS

MOTOR UNIT

- 1- Display
- 2 Control panel
 - 2.1 UP key (🔺)
 - 2.2 DOWN key (🔻)
 - 2.3 MODE key (M)

5 - FIRST STEPS

5.1 - SWITCHING THE SYSTEM ON/OFF

Start the system by briefly pressing the (M) key on the control panel.

In any operating mode, a long press of the (M) key will switch the system off.

If the e-bike is not used for over 5 minutes, the system automatically switches off.

5.2 - ACTIVATING ASSIST

The motor will start up and immediately shut down if you stop pedalling. The motor power depends on the force applied to the pedals, based on the multiplication factor according to the assist level selected. See paragraph 5.3 for more information on setting the assist level.

5.3 - SETTING THE ASSIST LEVEL

To change the assist level, go on to any display screen and briefly press the (\blacktriangle) key to increase the level by 1, or the (\blacktriangledown) key to decrease the level by 1.

The table below shows the multiplication factor for each assist level.

Level	Multiplication factor*
0	0% (motor off)
1	50%
2	100%
3	200%
4	300%
5	400%

* the value may differ to the one shown, depending on the set-up

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6 - ON-BOARD COMPUTER MODES

The on-board computer can be adapted to different scenarios of use, from commuting to sports. Briefly press the (M) key to scroll through the display modes available.

6.1 - "CITY" MODE

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In this mode, the on-board computer displays information aimed at daily mobility.

(1) Environmental temperature

Indicates the environmental temperature detected by the sensor built into the HMI.

(2) Lights indicator

There are three modes for activating the display backlight and the e-bike lights (depending on the setting):

Automatic switch-on:

switch-on is automatic when the twilight sensor built into the HMI detects an insufficient level of brightness. This icon is displayed:

Always on

the display backlight and e-bike lights are always on. This icon is displayed:

Always off:

the display backlight and e-bike lights are always off. No icon is displayed.

To change the lights operating mode, go on to any screen displaying data and press and hold down the (\blacktriangle) key.

(3) Clock

Displays the current time. See paragraph 8.1 on how to set the clock.

(4) Remaining charge indicator

Shows the charging status of the battery.

Depending on the set-up, the text indicator shows the battery charging status (%) or the voltage.

(5) Assist level

Indicates the assist level selected. See paragraph 5.3

(6) Instantaneous speed for more information on the assist levels.

Displays the current speed of the e-bike in km/h.

(7) Motor power indicator

Displays the power delivered by the motor, with a bar.

(8) Dynamic indicator

The dynamic indicator is a field that displays various types of information. Briefly press the (M) key to change the data displayed. The following information is available:

Trip distance

Indicates the distance travelled since the last data reset.

Trip time

Indicates the time spent moving since the last data reset.

Cadence

Indicates the instantaneous cadence (pedal rotation speed).

Cyclist energy

Indicates the energy consumed by the cyclist since the last data reset.

6.2 - "RACE" MODE

This operating mode is suitable for experienced users and a sports riding style.

(1) Assist level

Indicates the assist level selected. See paragraph 5.3 for more information on the assist levels.

(2) Instantaneous speed

Displays the current speed of the e-bike in km/h.

(3) Cyclist's power

Indicates the cyclist's power output in Watt.

(4) Motor power

Indicates the power delivered by the motor in Watt.

(5) Power indicator

Graphic display of the cyclist's power (top bar) and motor power (bottom bar).

(6) Average consumption

Indicates the average consumption in Wh/km since the beginning of the trip.

(7) Cadence

Indicates the pedal rotation speed in rpm.

(8) Remaining charge indicator

Shows the charging status of the battery.

Depending on the set-up, the text indicator shows the battery charging status (%) or the voltage.

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6.3 - SUMMARY

In the Summary display mode you can find a collection of the main trip statistics, collected since the last reset, in addition to the total distance travelled by the e-bike (cannot be reset).

(1) Trip distance

Distance travelled from the beginning of the trip.

(2) Trip time

Time spent moving since the beginning of the trip.

(3) Average speed

Average speed from the beginning of the trip.

(4) Average consumption

Average consumption in Wh/km since the beginning of the trip.

(5) Cyclist energy

Estimate of the energy burned by the cyclist in kcal. (6) Total distance Total distance travelled by the e-bike in km.

NOTE: The Summary mode is only available when the e-bike is stationary.

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7 - WALK ASSIST

The system has a walk assist function which enables the motor to be powered up to a maximum speed of 6 km/h so that short distances can be covered more easily pushing the e-bike.

To activate the walk assist function, press and hold down the (\checkmark) key. The motor will switch on and the warning shown in figure 4 will be displayed.

The motor switches off in the following cases:

 \bullet The (ullet) key is released

 (\mathbf{I})

OL

- Speed faster than 6km/h
- The e-bike wheel is locked

NOTE: If the "O" assist level is selected, the motor is completely disabled and the walk assist function cannot be used.

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8 - MENU SYSTEM

This menu can be accessed from any screen displaying data with a long press of the (\blacktriangle) and (\lor) keys simultaneously. Briefly press the (\blacktriangle) or (\lor) key to browse through the items on the menu. Briefly press the (M) key to select the option highlighted.

To close or cancel a value entered, press and hold down the (**A**) and (**V**) keys simultaneously, or wait for a few seconds without pressing any key.

To return to the previous screen, select "Back" (where available).

8.1 - MAIN MENU

The main menu contains the following options:

Trip reset (fig. 7)

Resets all trip data. To confirm that the operation is successful, the "Trip reset..." message is displayed for a few seconds.

Clock setting (fig. 8)

Set the hour using the (\blacktriangle) key to increase the value by 1 or the (\blacktriangledown) key to decrease it by 1.

Press the (M) key to confirm the hour set. The black selection box will then show the minutes.

Set the minutes using the (\blacktriangle) key to increase the value by 1 or the (\blacktriangledown) key to decrease it by 1.

Press the (M) key to confirm and save the time set.

NOTE: Press and hold down the (\blacktriangle) or (\blacktriangledown) key to activate the automatic quick increase/decrease mode for the value selected.

Advanced (fig. 9)

Used to access the advanced settings menu. See chapter 9 for more details.

System info (fig. 10)

Displays the firmware version for the HMI and motor unit.

Battery info (fig. 11)

Displays detailed information on the battery status. Depending on the setting, some information may not be available.

9 - ADVANCED SETTINGS MENU

The advanced settings menu contains the following entries.

Cancel errors (fig. 12)

Forces all error codes stored to reset. If the error code is still displayed after this operation, please contact a support centre.

Speed limit

This entry is reserved for the installer.

Wheel circumference

This entry is reserved for the installer.

LCD contrast (fig. 13)

Used to set the contrast of the LCD display to obtain the best viewing quality.

The top part of the display shows a character pattern for instantly evaluating the effect of the changed contrast.

Set the value using the (\blacktriangle) key to increase it by 1 or the (\blacktriangledown) key to decrease it by 1.

Press the (M) key to confirm the value set.

Language (fig.14)

Used to set the system language. Use the (\blacktriangle) and (\blacktriangledown) keys to scroll through the languages available. Press the (M) key to confirm and save the language selected.

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Diagnostics

This entry is reserved for maintenance operations by the dealer.

10 - ERRORS DISPLAYED

In the event of a fault, the system warns the user of the problem by displaying a danger icon with a 4-letter code to help identify the type of problem.

NOTE: Depending on the type of fault and to ensure safety, the system may prevent the motor from starting or it could operate in reduced power safety mode.

The table below helps identify the source of the fault from the 4-letter code displayed with the message.

Fault code	Description
0001	Communication problem with the battery. The battery status data could be displayed incorrectly. Check that the battery wiring and contacts are intact and properly connected.
0101	Communication problem between the drive and the HMI. Check that the wiring is intact and properly connected.
0104	Speed sensor not detected. Check that alignment between the magnet and speed sensor is correct. Check that the speed sensor is properly installed and connected.
0105	Non-conforming torque signal. The torque signal is faulty. Reduced power operation.
0106	Non-conforming torque offset. The torque signal is faulty.
0801	Motor rotation sensors faulty.
0802	Pedal rotation sensors faulty.
0804	Excessive controller temperature. The temperature sensor inside the controller has detected a temperature higher than the danger threshold.
0805	Excessive motor temperature. The motor has reached a temperature higher than the danger threshold.
0806	Non-conforming peripheral bus voltage.

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Fault code	Description
0808	Rotor blocked. The motor failed to start due to a mechanical block or a problem with the wiring in the drive unit.
0809	The battery voltage is higher than the maximum allowed.
0810	Non-conforming current sensor signal.
0811	The drive has detected overcurrent.
1101	Communication problem between the HMI and the drive. Check that the wiring is intact and properly connected.
1102	A key on the control panel is stuck down.

11-TROUBLESHOOTING

Problem	Cause/solution
The system does not switch on	Check that the battery is properly inserted in place and is charged.
Electric assist is not active	Check that the assist level selected is above 0 and the battery charge level is sufficient.
An error message is displayed	The system has detected a fault. Depending on the type of fault, the motor may be off or operating with reduced power. See chapter 10 for more details.
The display glass is cloudy	Due to sudden variations in the environmental conditions, condensation may have formed under the glass. The condensation will disappear once the temperature stabilises.

12 - CLEANING AND MAINTENANCE

Do not put any of the components into water or clean with a high pressure jet. Clean the HMI unit with a cloth dampened with water.

13 - DISPOSAL

The HMI unit, display, control panel, various accessories and packaging must be disposed of in compliance with the environmental regulations in force.

Do not throw any of the components into household waste bins.

Do not throw this product in the fire.

Only for EC countries:

according to the European Directive 2012/19/EU, waste electrical equipment and, according to the European Directive 2006/66/EC, rechargeable batteries/faulty or used batteries must be sent to environmentally friendly recycling centres.

Return HMI units that no longer work to an authorised e-bike dealer.

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