POLINI E-P3:
POWERFUL, COMPACT, LIGHT

polini® motori
trasforma il meglio in massimo

E-P3

THE E-BIKE

The maximum speed of the E-Bike is 25 Km / h (the engine turn off once reach this speed) and the maximum continuous rated power of the engine is 250 Watts.

According with the European Directive 2002/24 / EC, transposed in Italy with the decree of January 31, 2003 from the Ministry of Infrastructure and Transport, the engine is power of the eletric bike must be 250 watts, the engine must be activated automatically when you start riding and it must switched off immediately when stop riding.

The engine must turn off once the speed of 25 Km / h has been reached, beyond this speed it is possible to proceed only thanks to the strength of our legs (or downhill).

THE E-P3 ENGINE CONCEPT

Among all types of electric motors, Polini has adopted the center position of the engine on the bike frame, because we believe it is the most functional and efficient.
The distribution of the weights is optimal and has the possibility to take advantage of the gearbox already present on the bike.

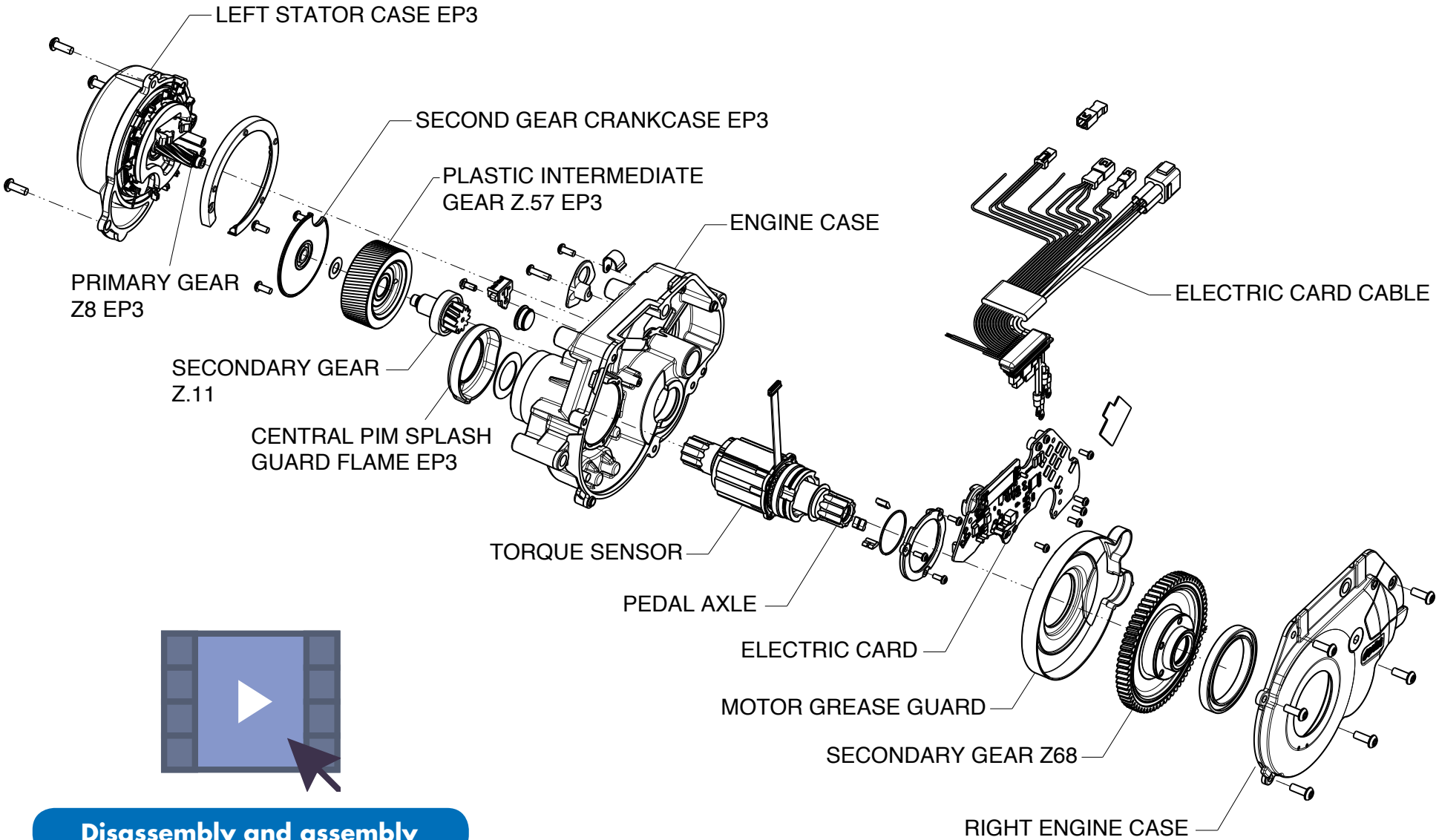
The engine is operated thanks to a torque sensor positioned on the central axis that measures the power of the pedal stroke, depending on the selected level the power is increased.

Without any pression on the pedal the electric assistance must be finish.
The motor is of the brushless type, lighter, smaller and more efficient. This technology is less subject to breakage.

The battery have the best technology present on the market at the moment , lithium ions tecnology.

Polini Motori designed their motors so that they can be inspected, if necessary: this ensures a higher value to the motors, once the warranty period of 24 months is over.

E-P3 POLINI ENGINE CONCEPT



Disassembly and assembly

TECHNICAL EXPLANATION:
DIFFERENCES BETWEEN WATT and WATT per HOUR

THE WATT ARE THE MEASUREMENT UNIT OF THE ELECTRIC POWER. FOR EP3 MEAN THE MAXIMUM POWER THAT CAN SUPPLY THE ENGINE.THIS POWER IS LIMITED TO 250 WATT AS PROVIDED BY LAW.

- THE WATT ARE THE MEASUREMENT UNIT OF THE ENERGY QUANTITY OF THE BATTERY

- THE WATT per HOUR REPRESENTS THE TANK AT THE DISPOSAL OF THE ENGINE AND DETERMINE THE DURATION OF THE OPERATION OF THE BIKE.

EP-3 POLINI MOTOR – USER'S MANUAL

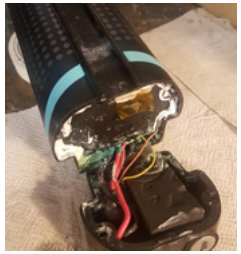
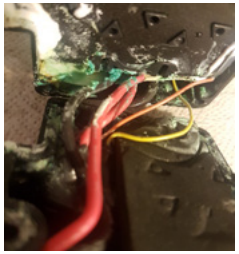
1.1- Important Safety information

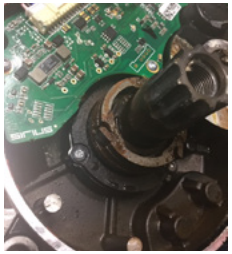
Handling the battery

- Do not deform, modify and disassemble the battery.
- Do not leave the battery near sources of heat such as heaters.
- Do not subjects the battery to strong shocks or throw it.
- Do not place the battery into fresh or sea water and avoid the battery terminals getting wet.
- Do not recharge the battery in places with high humidity or outdoors.
- Do not insert or remove the plug while it is wet.
- The operating temperatures ranges of the battery :
  1. During use: –20 °C /+ 60 °C
  2. During charging: 0 °C /+ 45 °C
- Periodically check the battery charger, particularly the wire.
- When you carry a power-assisted bicycle in a car, remove the battery from the bicycle and place the battery on a stable surface in the car.
- Before connecting the battery, make sure that there is not build-up water or dirt on the connector where the battery will be connected.

1.2- Cleaning the battery

- Do not use thinner or other solvents to clean any of the products. These substances may damage the surfaces.
- Use a damp cloth, with the water well wrung-out, when cleaning the battery and plastic cover.
- Batteries are not guaranteed against natural wear or deterioration from normal use.
- This battery is designed to be fully waterproof and to be used when raining while properly installed on the bicycle. Do not put the battery in contact with water when not installed on the bicycle because the electric terminals, in these conditions, are not protected.
- **Do not clean the bicycle using high pressure water jets.** If the water penetrates inside the parts, may result some malfunctioning.




2 - Features of POLINI EP-3 system

The following information must be satisfied before using the E-bike propulsion system:

- Battery is charged, inserted and turned on.
- Speed sensor is connected in accordance to the central movement and the magneto is properly placed.

2.1- Turn E-P3 system on

1. Turn the battery ON using the on/off button

2. Select your preferred assist mode from 1 to 5 using the arrow buttons.

3. Assistance will start when the pedals start turning

4. Change the assist mode in accordance with the conditions of use.

2.2 - Turn E-P3 system off

1- To keep the travelling data updated on the display, first turn the display off and then the battery. On the contrary the travelling data on the display are not saved properly.

2- By turning off the display only, the battery remains ON for 2 hours with a low battery consumption.

3- It is not possible to turn the display off while riding the E-bicycle.

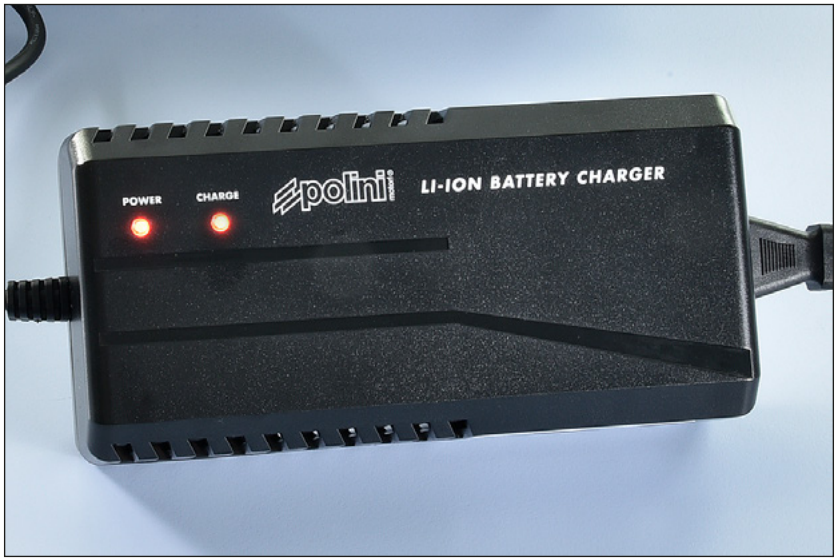
3 - Charging the battery

Charging can be carried out at any time regardless of the amount of charge remaining, but you should fully charge the battery at the following circumstances. (Be sure to use the dedicated charger when recharging the battery during these circumstances):

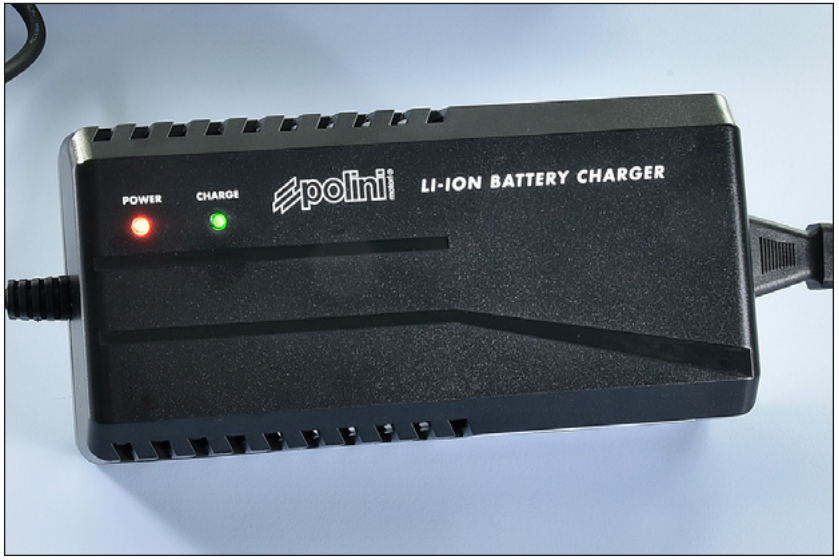
- The battery is not fully charged at the time of purchase. Before riding, be sure to charge the battery until it is fully charged.
  If the battery has become fully spent, charge it as soon as possible. If you leave the battery without charging it, it will deteriorate before its time.

- If the bicycle will not be ridden for a long period of time, store it away with approximately 70% battery capacity remaining. In addition, take care not to let the battery become completely empty by charging it for 2 hours every 3 months.

3.2- About the charger LED lamp



Charger connected into the outlet and battery under **charge** – RED Power led /RED charge led



Charger connected into the outlet and battery recharged (**recharged ended**)
RED Power led /GREEN charge led
Time to recharge a dead battery is about 5 hours

3.3 - Indications of the battery charge level

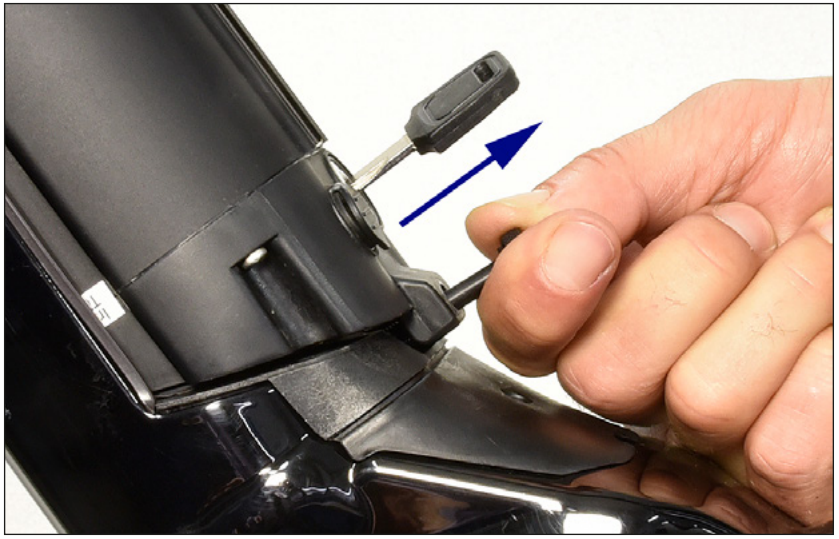
After pushing the LED light button, the five LED lamps indicate the charge level. Each LED corresponds to 20% of capacity.
You can check the current charging status on the LED lamp on the battery (state of charge). When charging the battery, the
LED lamps are blinking.

LED	Charge level
I	0 - 20 %
II	20 - 40 %
III	40 - 60 %
IIII	60 - 80 %
IIIII	80 -100 %

3.4- Removing and Installing the battery

CAUTION: always turn the battery off before removing or installing it.

1. Unscrew the security screw.



2. Insert the key in the cylinder on the battery holder.
3. To open it, turn the key while pulling the battery upwards.
4. Grab the upper side of the battery and remove it from the holder.

Installing the battery

1. Insert the battery into the battery mount paying attention not to damage the rubber gasket.
2. First insert the upper part of the battery and then the bottom part of the electric connectors.
3. Press the battery until a click is heard to lock it. Battery may be assembled even if the key is not inserted.
4. Proceed carefully and without too much strength to avoid damaging the electric connectors.

DANGER – ATTENTION: Do not ride the bicycle with the key inserted, to prevent the battery from falling out and avoid loosing the key.

AVVERTENZE: Before riding your bicycle, make sure that the battery is locked in place and charging port cap is closed.
When transporting the bicycle, remove the battery and place it in a dry place, at the same time covering the electrical contacts against atmospheric agents.

4.0 - Displays

The main screen shows the following information:

1 Display of the current assistance
2 Speed
3 Triangular symbol: assist-walk activated. Headlights symbol: it activates if the lights are ON.
4 Battery level indicator (each notch corresponds to 20% of the battery)

Motor power
Motor power screen example.
It displays the power provided by the pedal-assist electric motor in percentage respect to the maximum power.

Distance travelled in assist-mode
Example of distance travelled in assist-mode. It displays the average of the range to be travelled.
Warning: the average of the range is calculated in accordance with the distances covered in the previous tours, so it is necessary to ride some kms to modify the data. The average is influenced by the itinerary and by the level of assistance used.

Views

Riding performance
Riding performance example.
It displays the average Watt power generated by the rider.

Distance travelled
Example of distance travelled.
It displays the distance travelled from the last reset of the data.
Many pages are included in this screen.

Average speed of the distance travelled
Example of the average speed of the distance travelled.
> average speed
It displays the average speed from the last reset of the data.

Total distance travelled
Example of total distance travelled.
It shows the total distance covered with pedal-assist bicycle.
Another page follows to this screen.

Maximum speed of the distance travelled
Example of the maximum speed of the distance travelled.
>maximum speed
It displays the maximum speed from the last reset of the data.

Total distance travelled/ maximum speed
Example of the maximum speed.
It displays the maximum speed in accordance with the total distance travelled.

Reset
Example of data reset
Resetting of the trip data.
The trip data. (average and maximum speed are cleared and lost)
- Joystick (T3): to move downwards and activate RESET function (RESET outline changes colour)
- Press the Joystick to cleared up the data.
- Switch the display off (do not switch the battery off) to save RESET in the motor.

Bluetooth
Example of Bluetooth.
It shows Bluetooth connection options
NOTE! Currently Blootooth does not have any active function.

4.1- Controls

Buttons	Functions
T1	Increase of the level of assistance; press for more than 3 seconds: walk assist mode activated
T2	Decrease of the level of assistance
T3	Joystick
↑	Upper screen
	To enter next screen, exit from the modification mode
←	and confirm.
■	Elaborate the highlighted value
→	To enter next right screen
↓	Down screen
T4	Switching the Comfort service mode ON/OFF
T5	Short pressure: lights ON Long pressure: lights OFF

4.2 - Displays

The main screen shows the following information:
1 Display of the current assistance
2 Speed
3 Triangular symbol: assist-walk activated. Headlights symbol: it activates if the lights are ON.
4 Battery level indicator (each notch corresponds to 20% of the battery)

ATTENTION: the notches in the battery symbol do not indicate the battery recharging level.

How to move in the display screens:
1. Screen symbol
2. Horizontal navigation position
3. Page content
4. Vertical navigation position: it indicates the following pages and displays the actual position.

- Riding performance
- Motor power
- Distance travelled in assist-mode
- Distance travelled
- Average speed of the distance travelled
- Maximum speed of the distance travelled
- Reset
- Total distance travelled
- Total distance travelled/ maximum speed
- Bluetooth

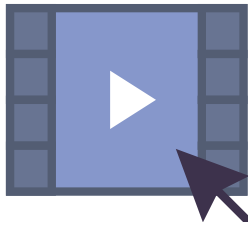
4.3- Turning off

Turn the Comfort service unit off

- Press button T4 for more than 2 seconds

→ The service unit turns OFF

NOTE: it is not allowed to turn it off if the bicycle is moving.



Polini E-P3 “Quick Guide”

4.4 - Headlights – install additional lights

Button T5 turns the lights ON and OFF, in accordance with the pedal-assist bicycle.

Turn the headlights ON

- Shortly press button T5

→ Headlights are ON

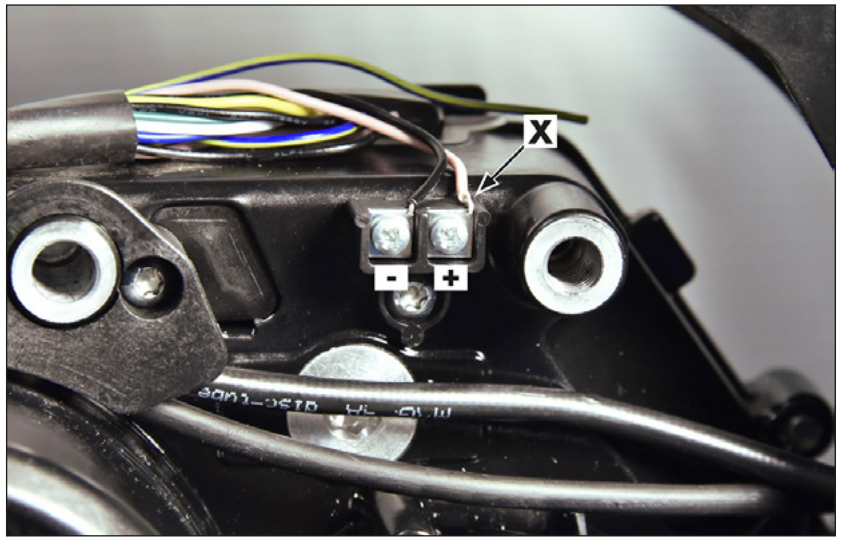
→ The enlightened icon indicates the normal lightening condition.

Turn the headlights OFF

- Press T5 button for more than 2 seconds.

→ Headlights are OFF

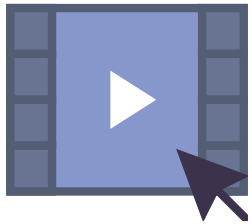
→ The enlightened icon switches off.



Additional lights installation

The motor body is equipped with a plastic block for the light wiring that must have the following features:

1. Lights voltage: 6 Vdc
2. The sum of the lights powers must not exceed 8W
3. The block is provided with 2 cables fixing points, + (pink) and – (black) .
   Connect the + of the motor to the + of the front and rear lights.
   Connect the - of the motor to the - of the front and rear lights.
4. To proceed with this connection, insert the 3+3 cables between the two small metallic plates placed on the plastic block and tight them using the proper screws



Installation of additional headlights

5.0- Assist-mode adjustment

Level	Description
None	Normal bicycle. Motor is not activated.
Level 1	30% assistance – recommended when travelling on level ground or long distance covered
Level 2	60% assistance - recommended when travelling on level ground/gentle slope for medium/long distance covered
Level 3	120% assistance - recommended when travelling on gentle slope/uphill for medium distance covered
Level 4	250% assistance - recommended when travelling uphill for medium/short distance covered
Level 5	400% assistance - recommended when travelling uphill for short distance covered

5.1- Suggestions to optimize the range

- Pedal: slow pedalling consumes a lot of energy; maintain a pedalling frequency higher than 70 rpm to optimize the efficiency.
- Driving style: many hard braking and starts produce more consumption, when possible, prefer a constant speed.
- Gear shifting: when starting and climbing it is better to use lower gears, while it is better to use higher gears only on adequate route and with proper speed.
- Tires pressure: keep the tires with the maximum allowed pressure to improve the range.
- Temperature and battery: battery range decreases when temperature lowers (because the electric resistance increases) so in winter the range is reduced.
- Weight: reduce the bicycle weight and luggage at the minimum.

NOTE: if the battery charging level is low, the motor cannot exploit all its power. In this case, for a longer battery range, it is recommended to set a low level of pedal assistance.

6.0- Servicing – Errors list

Servicing

Lubricate the e-bike gear every 5000 km for maximum noise reduction.

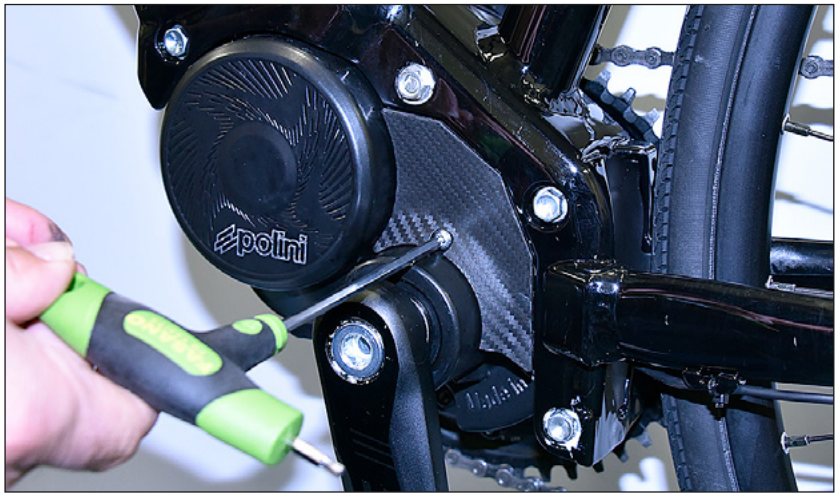
- remove the crown-holder if necessary
- unscrew the cap of the grease tank and add about 2/3 grams of Polini grease. (item 955.435.001)
- Fit all the parts again paying attention to tight the crown holder screw properly (5/6Nm torque)

Display does not read the speed.

Verify the distance between speed sensor and magneto (maximum 15mm) in the position indicated by the line. If it is not enough or too much or if the speed sensor hasn't been properly connected the E-bike motor works in the emergency mode.
In this case, loosen the screw of the magneto and fix the magneto on the ray so that it is at a correct distance respect to the speed sensor symbol. If even after this operation the speed has not been displayed, contact an authorized bicycles' dealer.

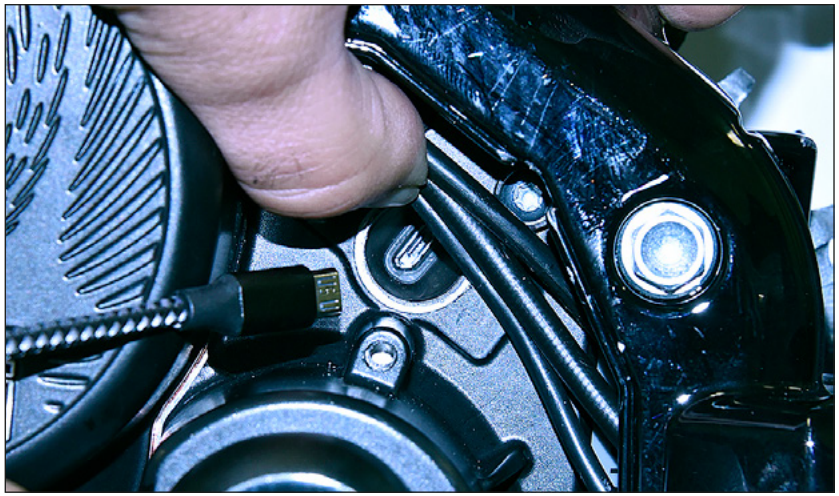
8- FIRMWARE UPDATE

Internet connection and a cable with micro USB outlet are required to update the firmware.



Remove the plastic coverdirection.

Remove the aluminium cap



Connect the cable to the plug in the right direction

Updated Firmware are available on www.polini.com Besides the Firmware it is possible (with the cable connected to the motor) to download a software to modify the mounting side of the right or left display and, in case of variation of the tire size, to set the speed detector.

Firmware Update

OPTIONALS

955.815.001
Battery housing bottlecage.

955.815.002
Universal bottlecage.

955.815.003
Battery housing side bottlecage.

955.815.004
Universal side bottlecage.

955.764.001
Stand for bicycles with rear tire width from 40mm to 70mm.

955.764.002
Stand for bicycles with rear tire width till 40mm

955.830.002
Battery charger UE 220-240V 3A.

955.830.014
Battery charger model U.S.A. 110V 2A.

955.520.009
Battery down-tube cover.

955.810.001 MTB skid plate
955.810.002 Road skid plate

E-Bike with stand.
955.810.003 MTB Skid plate
955.810.004 Road skid plate l

955.830.018
CUT OFF SENSOR
Cut Off Sensor is a gear sensor that allows to interrupt for a few tenths of second the power provided to the motor when you operate on the shifts control, both when down-shifting or increasing. Thanks to the Cut Off Sensor you may shift without causing hits or pulls to the gears and chain. It is installed on the rear shifter cable with the aim to improve the efficiency and the lifetime of all the transmission parts.

CUSTOMER SERVICE:

ebike@polini.com