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CHICOUTIMI, QUÉBEC



ELECTRIC
SYSTEM



TECHNICAL MANUAL

E-MILANO HD 2024+

DEVINCI



FROM PART TIME HUSTLER
TO FULL TIME COMMUTER



PLEASE READ BEFORE USING YOUR BIKE

Even if you have already piloted a bike for years, it is important to be aware of the information contained in the User's Manual and the Specific Manual PAB (Power-Assisted Bike). Read them carefully before riding your E-Milano :

- These documents contain important information.
- Understand the use, layout and maintenance of each electrical components of your new PAB.

Your safety and those of others is paramount:

- Never ride the bike without its battery; the battery must be on the bike when you head out, otherwise there will be no lights on the bike.
- Never ride the bike without a saddle; failure to comply with this rule could lead to accidents.
- Inspect your bike to make sure there are no loose screws or components or damages. In the event of a defect, visit your authorized Devinci retailer for a repair.
- A PAB is faster than a normal bike, risks of accident with other users on the road may occur.
- Ride under the conditions mentioned in the Owner's Manual.
- For PAB's that have a rear rack: the limit is 25 kg.

The electrical system requires careful handling:

- Do not clean the bike with a high-pressure jet. The system is sensitive to moisture. High-pressure water may seep into the connectors or other parts of the electrical system.
- Handle the battery carefully and pay attention to electric shocks. Failure to comply with this instruction could lead to abnormal heating or severe damage. In very rare cases, the consequences of an electrical shock could lead to a fire. In case of doubt, have the battery inspected by an authorized Devinci retailer.

Perform maintenance of the battery as mentioned in the Technical Manual.



NOTE → Failure to follow the instructions below may damage the battery and require you to purchase a new battery kit.

- Charge the bike with the charger provided with your bicycle only;
- When the battery is not used for a long time, recharge to 100% (5 LEDs on the charge indicator);
- Check the battery state of charge regularly when not in use, recharge it to 100% if the load is less than 20%. Check the load every month and have it fully charged every 6 months;
- It is not recommended to keep the battery connected to the charger for a long period;
- If the battery remains uncharged for a long time, it can lose a significant part of its effectiveness;
- Store the battery in a well-ventilated and dry place. Pay attention to moisture;
- In case of poor conditions, remove the battery from the bike and store it in a dry place until next use;
- The battery can be stored at temperatures between -20°C (-4°F) and 23°C (73°F). For long service life, store it at a temperature close to 20° C (68°F);
- Monitor the storage temperature and try to avoid discrepancies. For example, do not leave the battery in your car during summer or leave the battery outdoors during a storm in winter;
- It is recommended to store a battery which is not connected to the bike.

Follow the transport instructions for your PAB:

- Comply with local laws regarding transportation on the PAB;
- A PAB is heavier than a normal bike, so you must be careful when transporting it. Check that the maximum load of the rack, roof or bike rack used is respected. Refer to the support manual used;
- The Li-Ion battery of your PAB, due to its size, is considered a "Class 9 dangerous good" during transport. Applicable regulations could limit transport of a separate Li-Ion battery (when the battery is not on the bike) in some places. This regulation applies to several airlines and a number of road transport companies. On the other hand, if you are planning to move around with a full PAB (when the battery is on the bike), regulations are less strict. In case you use these transport methods, check the regulations that apply to your PAB with your transport company before booking.

Visit your authorized Devinci retailer for regular maintenance of your new PAB:

- Only your retailer has the know-how and the proper equipment to maintain your PAB.
- If you have any question about your PAB, please ask for assistance from your retailer.



ABOUT OUR MANUALS

Our user manuals meet ISO 4210-10TS, EN 15194 et EN 14766 standards.

Like many sports, cycling involves risk of injury and accidents, so you must be fully aware of these risks. Neither the manufacturer, the retailer, nor the person who sold you the bike, nor the people who maintain the trails are responsible for these risks. As you are solely responsible, it is, therefore, essential that you read and fully understand all the parts contained in this manual.

To enjoy maximum safety and enjoyment right from the get go, it is important that you are familiar with your new bike, its handling and its possibilities. It is your duty to maintain your bike well and reduce the risk of injury. Biking can be a dangerous activity, even under the best conditions. These are risks associated with using a bicycle that cannot be predicted or avoided. These are the sole responsibility of the cyclist.

YOUR AUTHORIZED DEVINCI RETAILER

Your authorized Devinci retailer is at your service to guide your choices of bike and accessories which are best suited to the style of biking you wish to perform. This will help you maintain your equipment in good condition so that you can take full advantage of your investment. The staff at your authorized Devinci retailer have the training, experience and tools to carry out the repairs and provide you with reliable advice.

However, your authorized Devinci retailer cannot make decisions for you, and cannot be held responsible for your lack of knowledge, experience, qualification or common sense. However, it will take the necessary time to explain the operation of a component or to help you choose an accessory that meets your specific needs.

For further information, please see the User Manual that you are currently reading, visit www.devinci.com or ask your authorized Devinci retailer. They will take the time to answer any questions you may have and will advise you with great pleasure.

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A close-up, low-angle shot of a black bicycle battery pack mounted on a frame. The battery has a green LED indicator light that is illuminated. Above the light, there are four small white icons: a battery symbol, a power symbol, a signal symbol, and a battery symbol. The word "BATTERY" is overlaid in large, white, sans-serif capital letters across the middle of the battery pack. The background is dark and out of focus, showing parts of the bicycle frame and a rear wheel.

BATTERY

GENERAL INFORMATION

N°	ITEMS	SPECIFICATIONS
1	Dimension	Lenght: 430mm Width: 65mm Height: 75mm
2	Weight	< 3.5kg
3	IP Rating	IPX4
4	Fireproof Grade	UL94-V0
5	Safety Certification	UN38.3 CE FCC EN ISO13849-1:2015 CNS15387

⚠ WARNING

CHARGING PORT LOCATION

Please recharge your Devinci E-Milano HD battery **EXCLUSIVELY** via the **DC Jack 2.1** charging port located on the lower left side of the battery.

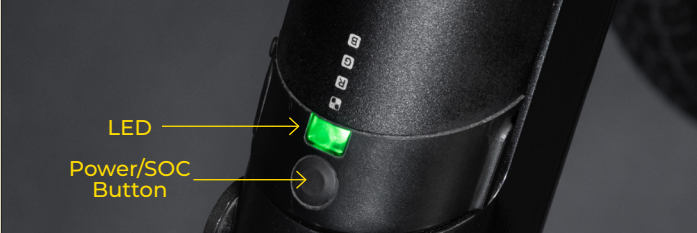
The other connectors are intended for other purposes unrelated to recharging the battery. Disregarding this warning could cause damage to the battery and cancel the warranty.



LED DISPLAY EXPLANATIONS

The battery's management system (BMS) can display, using the LEDs, the state of charge. It can also display the type of protection in case of an error.

Please refer to the table below for details ↓

There's 3 LED colors: Red, Green and Blue. LED is located above the Power/SOC Button.		
LEDs STATUS	SOC STATUS	DESCRIPTION
Solid Blue	Full Charge to Partially Charged	The SOC of the battery is between 100% and 66%.
Solid Green	Half-Charged	The SOC of the battery is between 65% and 33%.
Solid Red	Critical Charge	The SOC of the battery is between 32% and 10%.
Flashing Red	Discharged	The SOC is between 9% and 0%. You can still ride your bike without the power-assisted mode.
Flashing Green	Protection Mode*	The system is protecting the battery from OT (Over Temperature) or UT (Under Temperature).
Flashing Blue	Protection Mode*	The system is protecting the battert from OC (Open Circuit) or SC (Short Circuit).
Power On	Indicated	The tricolor LEDs will flash sequentially in the order of Blue, Green, and Red, and the color indicating the recent State of Charge (SOC) status will be displayed.
Power Off	N/A	The tricolor LEDs flash before the button is released to turn the system off.

*See the following page for more details.

PROTECTION MODE DETAILS

The system of the E-Milano HD protects the battery from various undesirable conditions that could damage it. These conditions are typically monitored by the Battery Management System (BMS) to ensure the proper functioning of the bike.

The different potential conditions that could be harmful to your battery and protected by the Protection Mode are listed below.

→ **OVERVOLTAGE (OVP)**

When one of the cell series in the battery pack exceeds the preset maximum output voltage, the battery pack will cut off the main power loop to prevent thermal runaway in the cells.

→ **UNDERVOLTAGE (UVP)**

When one of the cell series in the battery pack falls below the preset minimum output voltage, the battery pack will cut off the main power loop to prevent over-discharge damage.

→ **OVERCURRENT PROTECTION (OCP) IN CHARGING**

If the charge current of the battery pack exceeds the preset maximum charging current, the battery pack will cut off the main power loop to prevent thermal runaway in the cells.

→ **OVERCURRENT PROTECTION (OCP) IN DISCHARGING**

If the discharge current of the battery pack exceeds the preset maximum discharging current, the battery pack will cut off the main power loop to prevent thermal runaway in the cells.

→ **SHORT-CIRCUIT (SC)**

When the battery pack is powered on (the main MOSFET is ON), and an external short-circuit occurs with a current higher than the preset short-circuit current and delay time, the battery pack will cut off the main power loop.

→ **OVERTEMPERATURE (OT) IN CHARGING**

If the battery pack temperature exceeds the preset maximum charging temperature, the battery pack will cut off the main power loop to prevent thermal runaway in the cells.

→ **OVERTEMPERATURE (OT) IN DISCHARGING**

If the battery pack temperature exceeds the preset maximum discharging temperature, the battery pack will cut the main power loop to prevent thermal runaway in the cells.



→ **UNDERTEMPERATURE (UT) IN CHARGING**

Charging the battery at very low temperatures is not recommended, as it could damage the battery cells. If the measured temperature is lower than the threshold, the battery pack will cut the main power loop to prevent cell damage.

→ **UNDERTEMPERATURE (UT) IN DISCHARGING**

Some battery cells cannot discharge normally at temperatures below their recommended value, so the BMS will cut off the main power loop to prevent cell damage.

→ **SURGE PROTECTION**

The battery pack includes a surge protection circuit to prevent damage to the BMS electronic components and battery cells from extreme high-voltage surges.

→ **BACK ELECTROMOTIVE FORCE (EMF) PROTECTION**

When the battery pack is connected to an inductive device such as a motor, it may induce a counter/back electromotive force (Back EMF) when the voltage across the motor drops instantly. The BMS design includes a free-wheel circuit to provide the current loop and protect the BMS and battery cells from damage caused by back EMF.





WARNINGS AND CAUTIONS

PLEASE NOTE

PROPER HANDLING | Make sure the pack is kept away from heat sources. Handle the pack in a manner that prevents sudden impacts. Take care to avoid short-circuiting the terminals.

WARNINGS & CAUTIONS

1. The battery pack **SHOULD NOT** be opened, disassembled, or damaged. It contains safety and protection devices that, if damaged, may cause the battery to generate heat, rupture, or ignite.
2. The battery pack **SHOULD NOT** be exposed to heat or fire.
3. Do **NOT** pierce or pricked with a needle and do not crush the battery pack.
4. Do **NOT** expose the battery pack to water or corrosive liquids.
5. The battery pack **SHOULD NOT** be abused by short circuiting; several of them should not be organized in a way that could create a short circuit or come into contact with any conducting material. **DO NOT** make a reverse connection or short circuit where the positive (+) and negative (-) terminals are contacted to discharge the battery pack.
6. Only a specially designed charger can be used to charge the battery pack. Uncertified chargers cannot be used for charging this battery pack.
7. The battery pack SOC range should be kept at **30% to 50%** for long-term storage and charged every 6 months to avoid excessive discharge that could reduce battery pack life.
8. Keep children away from the battery pack.
9. The battery pack should be kept dry and clean. If the connections of the battery pack are dirty, clean them with a dry and clean towel.
10. Do **NOT** leave battery packs without charging if you will not use them for a long period of time.
11. Please keep the product information for future reference.
12. The battery pack should only be used in the application for which it was designed.
13. If you do not use your bicycle for a certain period of time, make sure to remove the battery and store it in a dry and clean place with a temperature between -20°C and 23°C.
14. Handle the battery pack carefully.



BATTERY USE AND STORAGE

SUBJECT	SPECIFICATION
Maximum Temperature (Charge)	The battery should be recharged in a location that does not exceed 40°C .
Minimum Temperature (Charge)	The battery should be recharged in a location where the temperature reaches a minimum of 0°C .
Maximum Temperature (Discharge)	The battery should be recharged in a location that does not exceed 60°C .
Minimum Temperature (Discharge)	The battery should be recharged in a location where the temperature reaches a minimum of -20°C .
Maximum Temperature for Storage	The battery should be stored in a location that does not exceed 23°C .
Minimum Temperature for Storage	The battery should be stored in a location where the temperature reaches a minimum of -20°C .
<p>The battery pack State of Charge (SOC) range should be kept at 30% to 50% for long-term storage and charged every 6 months to avoid excessive discharge that could reduce battery pack life.</p>	

DISPLAY



GENERAL INFORMATION



DISPLAY NAVIGATION

FUNCTION	BUTTON	ACTION	NOTES/DESCRIPTION
Power ON/OFF	ON/OFF (⏻)	Press the ON/OFF button for ≥ 2 sec.	If the electric vehicle is not used for more than 5 minutes, the meter will automatically shut down.
Switching Between Dials	ON/OFF (⏻)	Press the ON/OFF button quickly.	Switch between total mileage <u>ODO</u> (km), maximum speed <u>MAX</u> (km/h), average speed <u>AVG</u> (km/h), riding time <u>TIME</u> (min), remaining mileage <u>RANGE</u> (km) and clock.
Walk Assist	Minus (-)	Press the - button for ≥ 2 sec.	The electric vehicle enters the electric power-assisted driving state. Electric vehicle drives at a constant speed of no more than 6 km/h. At the same time, the screen displays a logo. Release the - button, and the electric vehicle will immediately cease power output and return to its original state.
Turn Headlights ON/OFF	Plus (+)	Press the + button for ≥ 2 sec.	The display will turn the headlights ON and OFF.
Power Assist Selection	Plus (+) Minus (-)	Press the + and - buttons to switch between modes.	The default output power range of the display is 0-5 gear. 0 gear is to stop power output, 1 gear is the lowest power, and 5th gear is the highest power.
USB Connection Display	N/A	Connect the meter to an external device using a USB connector.	The meter has USB function when the meter is connected to an external device.
Error Code* Display	N/A	N/A	When an electric vehicle electronic control system fails, the display will display an error code. For detailed error code definitions, see page 20.
Parameter Settings	ON/OFF (⏻) Plus (+) Minus (-)	Press the ON/OFF button for ≥ 2 sec, then + and - simultaneously.	While the bicycle is stationary, access the parameter setting interface. Use + and - buttons to navigate the settings and the ON/OFF button as a Select/Enter button. There is 3 parameters that you can access: 1. Display settings: Trip reset, Unit, Wheel Size; 2. Advanced Setting: Auto Off (System in standby), Language, Clock; 3. Reset: Yes or No.

* When an error code is displayed, the issue must be rectified promptly. After a fault occurs, the electric vehicle will not be able to drive normally until the issue is rectified.

In the Battery's Management System (BMS), the MicroController Unit (MCU) communicates with the Analog-Front-End (AFE) chip to monitor and collect

ERROR CODE N°	DEFINITION
DISPLAY	
30	<i>The display did not communicate with the controller for 10 seconds</i>
40	<i>The display did not complete the handshake with the controller for 7 seconds</i>
50	<i>Controller Area Network (CAN) communication error</i>
60	<i>Display function error</i>
70	<i>Display setting error</i>
BATTERY MANAGEMENT SYSTEM (BMS)	
0A	<i>Charging overcurrent protection</i>
0B	<i>Charging low temperature protection</i>
0C	<i>Charging over-temperature protection</i>
11	<i>Cell imbalance error</i>
2F	<i>BMS communication error</i>
CONTROLLER	
31	<i>Hall sensor detection error</i>
32	<i>Torque sensor not detected</i>
33	<i>Controller overcurrent</i>
34	<i>Controller over temperature</i>
35	<i>Motor overtemperature</i>
36	<i>Steering wheel sensor not detected</i>
37	<i>The steering wheel sensor voltage is out of range.</i>
38	<i>Motor temperature sensor not detected</i>

WARRANTY INFORMATION

For any failure caused by quality problems of the product itself under normal use, the maker will be responsible for providing a limited warranty during the warranty period. The product warranty period is within 24 months from the date the display leaves the factory.

The following situations are **NOT** covered by the warranty:

- The shell is opened;
- The connector is damaged;
- After the display leaves the factory, the outer shell is scratched or damaged;
- The display lead wire is scratched or broken;
- Failure or damage caused by force majeure (such as fire, earthquake, etc.) or natural disaster (such as lightning strike, etc.);
- The product is beyond the warranty period.

PRECAUTIONS

Pay attention to safety during use and do not plug or unplug the display while the power is on:

- Try to avoid bumping the display.
- Regarding the background parameter settings of the display, please do not change them at will, otherwise normal riding cannot be guaranteed.
- When the display cannot be used normally, it should be sent for repair as soon as possible.



SERVICE KIT



**SERVICE
KIT**

If you need a replacement part for your bike, Devinci offers service kits at a reasonable price.

For further details, refer to your authorized Devinci retailer or contact our customer service department; we will be happy to assist you to the best of our abilities.

E-MILANO HD 2024+	
# SERVICE KIT	DESCRIPTION
KFC08601	Service BB set w/Torque sensor
KFC08602	Service Battery 36V/14H-504W
KFC08603	Service Display Interface
KFC08604	Service Rr Hub Suntour Motor
KFC08605	Service Converter for light system
KFC08606	Service Battery Mount W/Key
KFC08607	Service System controller
KFC08608	Service Charger USA/CAN
KFC08609	Service USB dongle
KFC08611 to 40*	Service Spare Key – N°1 to N° 30
KFC08641	Service Rotor Tektro 6 bolt TR180-27
KFC08642	Service Front Light MR4 E6-12V
KFC08643	Service Rear Light Z-EIA E6-12V

*To ensure that you are ordering the correct key, please refer to our customer service department.

**D E V I N C I ' S
W A R R A N T Y**



DEVINCI'S RIDE IN PEACE WARRANTY

ALL OUR FRAMES HAVE A LIFETIME WARRANTY

WARRANTY PERIOD FROM DEVINCI CYCLES INC

The frames of cycles devinci inc. are guaranteed against all manufacturing defects, for the periods specified below, as of the date of the initial purchase. During these specific periods, devinci will replace or repair without charge, and at its discretion, the devinci frames that display a manufacturing defect. The parts replaced or repaired in accordance with this warranty, will be covered for a period equal to the remaining portion of the warranty of the original equipment. Replacement parts are subject to availability. In certain cases, color and/or model may differ from the original parts.

BICYCLE FRAMES & WARRANTY PERIOD

Since 2006, all the frames bike model, including all mountain, freeride, downhill frames and dirt jump are guaranteed for life. Paint and decals for all models of frame:

- 1 year the pivots* for double suspension frames;
- 1 year the components assembled on devinci frames are guaranteed by their respective manufacturers.

Please contact your authorized devinci retailer. For more information regarding the applicable warranties.

*The pivots include the bearings, bolts and axles holding together the elements of the suspension of the rear triangle.

WARRANTY EXCLUSIONS

Each devinci bicycle was conceived for a specific use. The operational life of a bicycle varies according to its construction, maintenance and the care provided. Intensive use or use with a heavy load, use during competitions or for activities other than those for which the bicycle was conceived, greatly diminish its operational life. Any of these conditions may lead to random failure. Abusive use will therefore cancel the warranty.

EXCHANGE POLICY IN CASE OF ACCIDENT

Devinci is aware that the purchase of a high performance bicycle is done with the heart. This is why our customer service applies an exchange policy at a low price to accommodate claims that would have been refused for one of the reasons mentioned in the section "warranty exclusions". This policy applies only to the initial buyer. Please contact your devinci retailer for more information.

Limitation of liability: this is an integral warranty, complete and final, for devinci frames. Devinci does not give authorization to any other person, including the authorized devinci retailers, to assume or grant, expressly or implicitly, any or all addition(s) or extension(s) to the warranty specified herein. Any other obligation or responsibility expressed by any other person(s) and any demonstration or illustration of devinci frames is in no way linked to devinci and is furthermore excluded from this warranty.

Devinci assumes no liability in case of any property damage, moral or bodily injury to the user, the buyer or any other person(s), resulting from the use of a devinci frame or one of its components.

Except as limited or expressly forbidden by law, regarding any other condition or guarantee, express or implied, based in law, established commercial customs and usage, including, but not limited to, guarantee of merchantability or adaptation to a specific end, devinci declines any responsibility for any amount exceeding the actual purchase price of the bicycle nor for any particular, accessory or consecutive damages that may occur in connection with said bicycle.

With regard to the exercising of rights resulting from the present warranty, the buyer of a devinci frame agrees to elect domicile in the judicial district of chicoutimi, in the province of quebec, canada, as an appropriate place for the hearing of all claims or legal proceedings.



WARRANTY CONDITIONS

THIS WARRANTY DOES NOT COVER :

- Regular maintenance (cleaning, lubrication or inspection);
- TranOptimum S or shipping charges incurred as a result of the execution of the warranty;
- Cost of labour related to the assembly, disassembly, repair or replacement parts;
- Damages caused by normal wear and tear including damages caused by material fatigue.

THIS WARRANTY DOES NOT APPLY IF :

- The damages were caused by a fortuitous event;
- The bicycle was purchased from a retailer other than those authorized by devinci;
- The bicycle was not entirely assembled by an authorized devinci retailer;
- The bicycle was repaired by a person other than an authorized devinci retailer;
- You are not the original owner of the bicycle;
- The instructions contained in the user's manual for all frames and the technical manual for frames with double suspension were not respected;
- The periodic inspection recommended in the user's manual for all frames and in the technical manual for the frames with double suspension was not carried out;
- Parts not supplied by devinci with the bicycle or not indicated in the user's manual for all frames or the technical manual for the frames with double suspension were used;
- The bike paint is damaged as a result of an adhesive frame protector installation;
- The bicycle was used for an activity other than those for which it was conceived;
- The bicycle and/or its components were subject to abusive use, negligence, abnormal and/or excessive use or was implicated in an accident;
- The frame is too small for you;
- The frame and/or its components were modified (ex: polishing, structural or mechanical modification or addition, stripping, sanding, strain hardening, shot peening);
- You continued to use your bicycle while it was damaged.



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WARRANTY

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