UM-3K40A-001

User's Manual

Rear Derailleur (Di2) / Battery Charger

https://si.shimano.com

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IMPORTANT NOTICE

- Contact the place of purchase or a distributor for information on installation, adjustment, and replacement of the products which are not found in the user's manual. A dealer's manual for professional and experienced bicycle mechanics is available on our website (https://si.shimano.com).
- Do not disassemble or modify the product.
- Please observe the appropriate rules and regulations of the country, state or region in which you conduct your business as a dealer.
- The Bluetooth ® word mark and logos are registered trademarks owned by the Bluetooth SIG, Inc. and any use of such marks by SHIMANO INC. is under license. Other trademarks and trade names are those of their respective owners.
- ANT ® and ANT+ ® are trademarks or registered trademarks of ANT Wireless.

	For safety, be sure to read this user's manual thoroughly before use, and follow it for correct use.

 **DANGER**	Failure to follow the instructions will result in death or serious injury.
 **WARNING**	Failure to follow the instructions could result in death or serious injury.
 **CAUTION**	Failure to follow the instructions could cause personal injury or physical damage to equipment and surroundings.

Important safety information

	Consult your place of purchase or a distributor regarding items requiring replacement.
	Be sure to observe the following instructions in order to avoid burns or other injury from fluid leakage, overheating, fire, or explosion.

DANGER

- Use the dedicated charging cable when charging the battery. If any non-specified items are used, fire, overheating, leakage, or damage to the connected PC may occur.
- Do not get the charging cable wet and do not touch or hold it while it is wet or with wet hands. If this is not observed, problems with operation or electric shocks may occur.
- Use an AC adapter with a USB port that has a voltage of 5.0 V DC and a current equal to or higher than 1.0 A DC. If the one with a current lower than 1.0 A is used, the AC adapter may heat up, potentially causing a fire, smoke, overheating, destruction, electric shock, or burns.
-  Do not heat the battery or expose it to flames. If this is not observed, combustion or bursting of the battery may occur.
- Do not use or leave the battery in hot and humid places such as where the battery is exposed to direct sunlight, in a closed vehicle on a hot day, or near a heater. If this is not observed, leakages, overheating or bursting may cause fire, burns or other injury to occur.
-  Do not deform, modify, disassemble, or apply solder directly to the battery. If this is not observed, leakages, overheating or bursting may cause fire, burns or other injury to occur.
- Do not touch the metal terminals with metal items such as hairpins. If this is not observed, short-circuits, overheating, burns or other injuries may occur.

WARNING

- Do not disassemble or modify the product. This may cause the product to not operate correctly, and you may suddenly fall and be seriously injured.
- When connecting or disconnecting the USB cable or the charging cable, be sure to hold the cable by the plug. Failure to do so may cause a fire or electric shock.
- If the following symptoms are observed, stop using the device and contact your place of purchase. A fire or electric shock may be caused.
  - If heat, acrid-smell, or smoke is coming out from the power plug.
  - There may be a bad connection inside the power plug.
- If it thunders while charging with an AC adapter with a USB port, do not touch the device, bicycle, or the AC adapter. If lightning strikes, electric shocks may occur.
- Do not use a USB hub when connecting the cable to a PC USB port. This may cause a charging error or fire due to overheating.

- Be careful not to damage the charging cable. Do not damage, process, forcibly bend, twist or pull it, bring it near hot objects, place heavy objects on it or bundle it tightly together. If it is used while damaged, fire, electric shocks or short-circuits may occur.
- If the battery does not become fully charged after 4 hours of charging, stop charging. If this is not observed, fire, bursting, ignition, or overheating may occur.
- Do not place this product in water or sea water, and do not allow the terminals to get wet. If this is not observed, fire, bursting, ignition, or overheating may occur.
- Do not throw or subject this product to strong shocks. If this is not observed, bursting, overheating or problems with operation may occur.
- Do not use the battery if leakages, discoloration, deformation or any other abnormalities occur. If this is not observed, bursting, overheating or problems with operation may occur.
- Clean the chain and QUICK-LINK with an appropriate chain cleaner regularly. Intervals between maintenance depend on the use and riding circumstances. Never use alkali- or acid-based solvents such as rust cleaners. If those solvents are used the chain or QUICK-LINK might break and cause serious injury.
- Check the chain for any damage (deformation or cracking), skipping, or other abnormalities such as unintended gear shifting. If any problems are found, consult your place of purchase or a distributor. The chain may break, and you may fall.

⚠ CAUTION

- Store in a safe place out of the reach of small children to avoid letting them swallow by mistake.
- Do not let grease adhere to the metal terminals. A conduction failure may result.
- Do not leave the charging cable connected when performing maintenance.

Notice

- Be sure to check that the plate unit cover is installed before riding the bicycle.
- The gears should be periodically washed with a neutral detergent then lubricated. In addition, cleaning the chain and QUICK-LINK with a neutral detergent and lubricating them can be an effective way of extending the life of the chain and QUICK-LINK.
- Do not use the thinners or harsh solvents to clean the products. Such solvents may damage the surface.
- If gear shifting operation does not feel smooth, consult the place of purchase for assistance.
- If the chain keeps skipping during use, replace the gears and chain at the place of purchase.
- If there is a large amount of excess play in the pulleys and extra noise is generated while riding, replace the pulleys at your place of purchase.
- The electric wire has small waterproof connectors, so do not repeatedly connect and disconnect it too often. Doing so may impair the waterproofing.
- The components are designed to be fully waterproofed to withstand wet weather riding conditions; however, do not deliberately place them into water.
- Do not clean the bicycle with a high-pressure wash. If water gets into any of the components, operating problems or rusting may result.
- Contact the place of purchase for updates of the component software. The most up-to-date information is available on the SHIMANO website.
- Do not get the charging cable or charging port wet when connecting them.
- Be careful not to get water into the E-TUBE ports.
- Handle the components carefully, and avoid subjecting them to strong shock.
- Disconnect the Bluetooth LE connection when not using E-TUBE PROJECT Cyclist. The rear derailleur does not shift gears when connected over Bluetooth LE.
- Regarding 2.4 GHz digital wireless

  This product adopts digital communication technologies in the 2.4 GHz frequency, which is used for wireless LAN, etc. It may receive interference in the following locations or environments that prevent wireless communication from being performed correctly:

  - Near a device such as a television, computer, radio, or motor, or inside an automobile or railway car
  - Near a railway crossing or railway track, television transmitting station, or radar base, etc.
  - When using the device in combination with another cordless device or some lights
- When not using Bluetooth LE or the ANT function, wireless communication function can be disabled. For the setting procedure, refer to the user's manual for E-TUBE PROJECT Cyclist.

  E-TUBE PROJECT Cyclist:

  https://si.shimano.com/iUM/7J4MA/customization/toc_task_ynb_fww_1mb
- Do not bundle the charging cable.
- Do not connect the battery charger to PC when it is on standby. This may cause a PC failure depending on its specifications.
- Do not apply excessive tension to the charging cable.
- Do not extend the charging cable using an extension cable etc. Extending the cable may disrupt charging.

- Do not ride the bicycle while the charging cable is still connected to it.
- Charging stops if E-TUBE PROJECT Cyclist is connected while charging. Reconnect the charging cable after E-TUBE PROJECT Cyclist is disconnected.
- Charge the battery indoors to avoid exposure to rain or wind.
- Charging can be carried out at any time regardless of the battery level. Always use the dedicated charging cable and charge the battery until it is fully charged.
- If the ambient temperature is low, the battery's usable time will be shorter.
- Store this product or the bicycle with this product installed in a cool indoor location away from direct sunlight and rain (approx. 10 - 20°C). If the storage temperature is too low or too high, the performance of the battery is reduced, and its usable time will be shorter. When you use the battery after a long storage period, make sure to charge it first.
- When the battery is completely depleted, charge it as soon as possible. If you leave the battery without charging it, it will cause the battery to deteriorate.
- The battery is an exhaustible item. The battery will gradually lose its capacity to charging after repeated use. If the length of time that the battery can be used and its traveling distance become extremely short, contact the place of purchase.
- Products are not guaranteed against natural wear and deterioration from normal use and aging.
- For maximum performance we highly recommend SHIMANO lubricants and maintenance products.

FCC

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

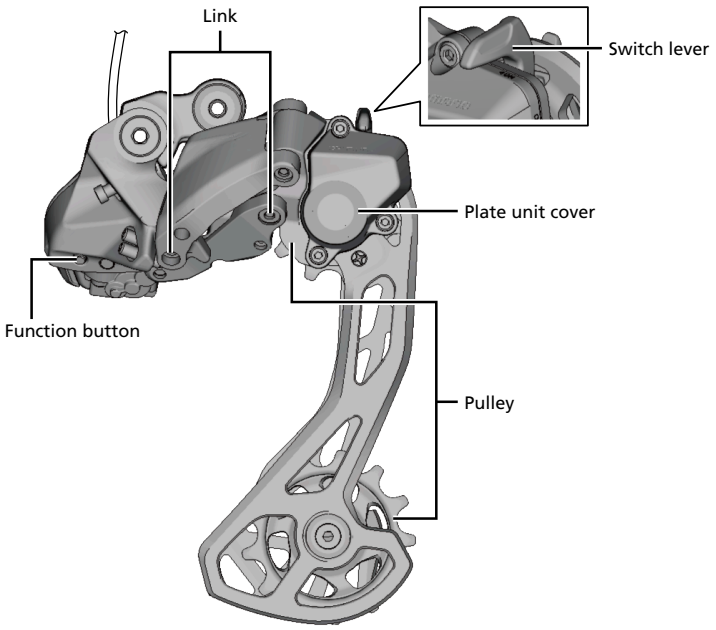
(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

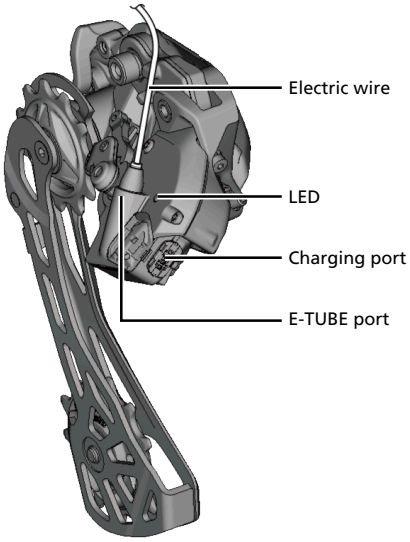
Regular inspections before riding the bicycle

Before riding the bicycle, check the following items. If any problems are found, consult your place of purchase or a distributor.

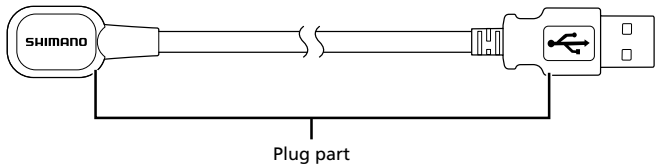
- Are the fastening sections fixed securely?
- Is there sufficient charge remaining in the battery?
- Is there any noticeable damage to the electric wires?
- Is gear shifting carried out smoothly?
- Has excess play increased in the links?
- Has excess play increased in the pulleys?
- Are there any abnormal noises coming from the derailleur?
- Has the chain become elongated?
- Is there any noticeable damage on the chain?

Names of parts





Charging cable (EW-EC300)



- Special battery

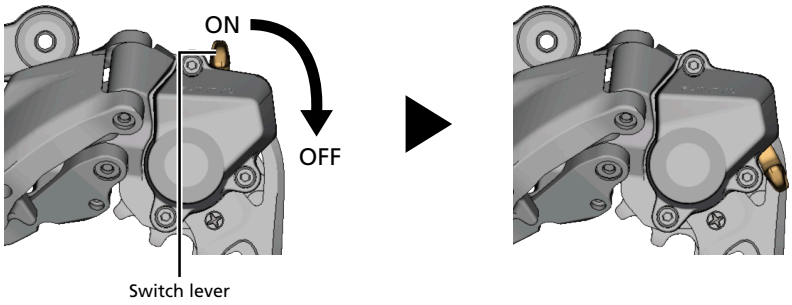
  This product can only charge a SHIMANO lithium-ion battery. Refer to “Line-up chart” on our website (https://productinfo.shimano.com) for details about compatible batteries. Never connect other batteries. Doing so may cause bursting or ignition.

* Fully understand the precautions for use before using the product.

How to operate

When removing the rear wheel, be sure to first move the switch lever to the OFF position.

* The shape and position of the switch lever differ depending on the model.



Wireless connection

Cycle computer connection

This product transmits the following information wirelessly to cycle computers or receivers that support ANT ™ or Bluetooth ® LE connections:

(1) Gear position information (front and rear)

(2) Di2 battery level information

(3) Dual control lever battery level information

(4) Adjustment mode information

For information on which of the above is displayed, refer to the manual for your cycle computer or receiver.

* You can check the latest functions by using E-TUBE PROJECT Cyclist to update the software. Please contact your place of purchase for details.

To connect, the cycle computer needs to be in “connection mode.” For information on how to put the cycle computer into connection mode, refer to the manual for your cycle computer.

1. **Put the cycle computer into connection mode.**
2. **Perform gear shifting operations.**
3. **Follow the instructions on the cycle computer screen to select the target to connect to.**
4. **Connection is complete.**

   Check on the cycle computer to see if connection has been successful. If connection cannot be performed in the way described above, refer to the manual for your cycle computer.

Connecting with a smartphone

E-TUBE PROJECT Cyclist may be used if a Bluetooth LE connection is established with a smartphone. Before setting up a connection, turn on Bluetooth LE on the smartphone.

(1) Start E-TUBE PROJECT Cyclist and set it to listen for Bluetooth LE signals.

(2) Press the function button until the LED flashes blue. The bicycle side is ready to connect. The unit name is displayed on the E-TUBE PROJECT Cyclist screen.

(3) Select the unit name displayed on screen.

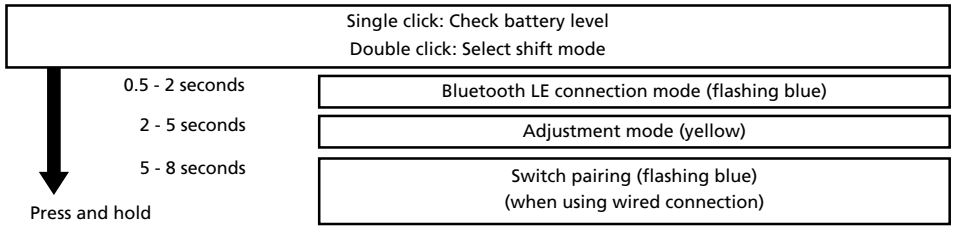
* When disconnecting, cancel the Bluetooth LE connection from the smartphone. (The bicycle will switch from the connection mode to the normal operation mode.)

Connecting to Di2 shift switch

This product can use an original wireless standard to wirelessly communicate with a compatible shift switch. Refer to the user's manual for E-TUBE PROJECT Cyclist or contact the place of purchase for details.

Switching modes

Switching operation modes



For the setting procedure, contact your place of purchase or a distributor.

Selecting the shift mode

Double click the function button to switch the shift mode. The LED changes as indicated in the figure each time the shift mode switches.

Manual shift		
	Manual shift (M)	Blue
Synchronized shift 1		
	Shift mode 1 (S1)	Flashing blue (twice)
Synchronized shift 2		
	Shift mode 2 (S2)	Flashing blue (3 times)

Checking the battery level

The LED lights up as indicated in the figure when the function button is quickly pressed once (for less than 0.5 seconds).

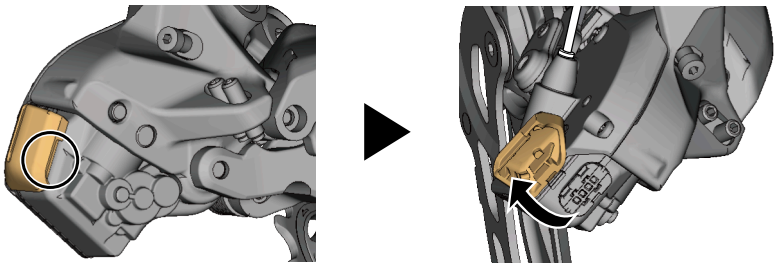
51% - 100%		Green
26% - 50%		Flashing green
1% - 25%		Red
0%		Off

* When the battery level is low, the front derailleur stops operating first, then the rear derailleur. When the battery is completely drained, the derailleurs are fixed at the last gear position. It is recommended to charge the battery as soon as possible when the LED lights red.

Charging method

This product can be charged by using an AC adapter with a USB port or by connecting it to the USB connector of a PC.

1. **Connect the battery to this product.**
2. **Place your finger on the notch to open the cover.**

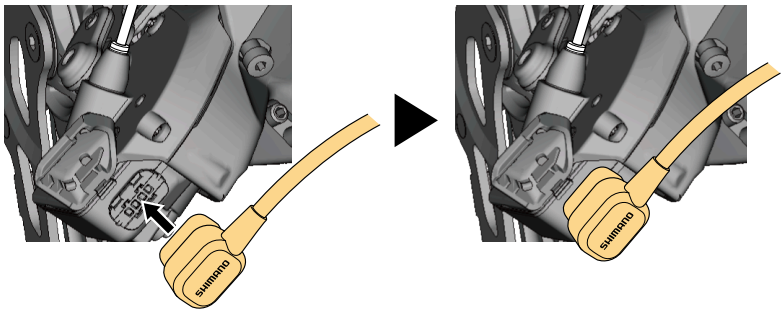


3. **Connect the charging cable to the charging port of this product as indicated in the figure. The LED lights up blue when charging starts.**

   * The charging time of an AC adapter with a USB port is about 1.5 hours, and that of a PC USB port type about 3 hours. (Note that the actual charging time will vary depending on the remaining battery level.) Depending on the specifications of the AC adapter or ambient temperature, recharging via the AC adapter may require as much time (about 3 hours) as recharging via PC.

   * Even if gear shifting is performed while charging, the rear derailleur and front derailleur cannot be operated.

   ■ Overview of connecting for charging



4. **When the LED (blue) turns off, charging is complete.**

   If the LED blinks red, refer to “ Troubleshooting .”
5. **Disconnect the charging cable, and keep it at the location specified in the precautions.**
6. **Close the cover.**

Specifications

Operating temperature	-10°C - 50°C	**Wireless specifications**	ANT ™ / Bluetooth ® LE
Charging temperature	0°C - 45°C		
Frequency band		2.4 GHz	
Maximum radio-frequency power		<10 dBm	
Firmware version		4.0.0 or later	

Troubleshooting

Check the following information if you have a problem with the product. If the problem is not covered below or cannot be solved with the indicated method, contact the place of purchase or a distributor.

Details		Causes / possibilities	Remedies
Gear shifting	**Gear shifting is not performed.**	Has the shift switch been paired?	If not, connect to E-TUBE PROJECT Cyclist and pair the included shift switch.
		Is there sufficient charge remaining in the battery?	Charge the battery and check again.
		Is the battery charging?	Gear shifting is not performed while charging. Disconnect the charging cable and check again.
		When using the shift switch wirelessly, gear shifting is not performed when the switch is next operated if a certain amount of time has elapsed since the last time gear shifting was performed.	Operate the shift switch to shift the gear again.
		The RD protection function * may be operating.	While turning the front chainwheel, operate the shift switch until the gear is shifted from the largest sprocket to the smallest sprocket.
Charging	**Cannot charge.**	Are the battery, rear derailleur, charging cable, AC adapter, and electric wire securely connected?	Connect the various parts securely, and charge the battery again. If it still does not charge, contact the place of purchase.
		Are the connection terminals of the battery, rear derailleur, charging cable, AC adapter, or electric wire dirty?	Wipe the connection terminals clean with a dry cloth, then charge again. If it still does not charge, contact the place of purchase.
		Is the product connected to E-TUBE PROJECT Cyclist?	Disconnect E-TUBE PROJECT Cyclist and connect the charging cable again.
		The battery may have reached the end of its life.	Replace the battery with a new one.

Details		Causes / possibilities	Remedies
	The LED does not light up when the charging cable is connected.	Is the battery fully charged?	The LED lamp turns off when the battery is fully charged, but this is normal. Remove and reconnect the power plug of the AC adapter, then charge again. If the LED lamp still does not light up, contact the place of purchase.
	The rear derailleur and battery become hot when charging.	The temperature of the battery and battery charger may exceed the operating temperature.	Stop charging, and wait a while before starting to charge again. There is a problem if it is too hot to touch. Contact the place of purchase.
		The rear derailleur may become hot when charging multiple batteries in succession.	Wait a while between charges.
	The LED flashes red while charging.	The current may be insufficient for charging.	Use an AC adapter with a current capacity higher than 1.0 A. If you are using a USB hub, reconnect the charging cable to the AC adapter directly.
Pairing	**The LED flashes red while pairing.**	The shift switch may not support wireless communication.	Check whether the shift switch supports wireless communication. If it does, perform pairing again. If pairing still fails, contact the place of purchase.
Other	**The LED lights red.**	The battery level may be too low to perform operations.	Charge the battery and check again. If the problem is not resolved, contact the place of purchase.

* In order to protect the system when the bicycle falls and is subjected to a strong impact, the RD protection function will activate and momentarily sever the connection between the motor and link, disabling function of the rear derailleur.



This symbol on your product, literature, or packaging reminds you that this product must be taken to separate collection at the end of its working life. Do not dispose of this product as unsorted municipal waste but instead take it for recycling. By ensuring the product is disposed of correctly, you will help to prevent potential negative consequences for the environment and human health. For info on your nearest recycling point, check with your local waste authority.

	**Disposal information for countries outside the European Union** This symbol is only valid within the European Union. Follow local regulations when disposing of used batteries. If you are not sure, consult the place of purchase or a distributor.

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