



# GAMRY INSTRUMENTS RxE 10k Rotating Electrode User Guide

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**GAMRY INSTRUMENTS RxE 10k Rotating Electrode**



## Specifications

- Product Name: RxE 10k Rotating Electrode
- Power Supply: External power supply providing regulated 48 V DC output
- Control: Motor Controller with USB connection
- Motor Control Cable: P/N 985-00194 with dedicated power lines for motor, encoder, and fan

## Product Usage Instructions

### Unpacking

1. Verify that all parts listed on the packing list are received and undamaged.
2. Contact support if any parts are missing or damaged.

### Hardware Setup

#### Connect USB Cable

1. Place rotator and Motor Controller on a flat workbench surface.
2. Connect the Motor Controller to a computer using the provided high-speed USB A/B cable (P/N 985-00131).
3. Connect the type A end to a USB port on the computer or hub.
4. Connect the type B end to the USB port on the Motor Controller.
5. The USB connection can be hot plugged.

#### Connect Power In Cable

1. Use an external power supply with regulated 48 V DC output.
2. The DC output cord plugs into the DC Power In jack on the Motor Controller.
3. Ensure the line cord for the power supply has adequate power ratings and no damages.

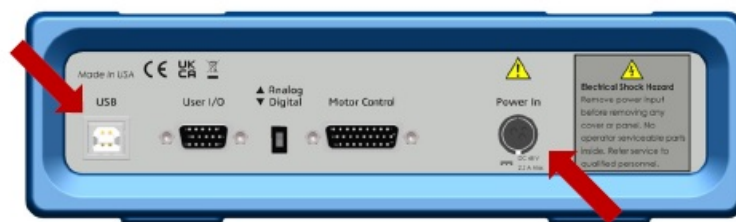
## Unpacking

1. Verify that you have received all parts listed on your packing list and that no part is damaged.  
If anything is missing or parts are damaged, contact Gary's support ( <https://www.gamry.com/support-2/> ) or your local distributor. Do not use any damaged part as they impose a safety hazard.

## Hardware setup

### Connect USB cable

1. Place rotator and Motor Controller on a flat workbench surface. Leave enough space to the rear side to have access for the cables.
2. Connect the Motor Controller to a computer using the high-speed USB A/B cable provided with your system (P/N 985-00131).
3. Connect the type A end (the wider, rectangular shaped connector) into a USB port on your computer or USB hub).
4. Connect the type B end (a nearly square connector plug) into the USB port on the rear panel of the Motor Controller. 5. The USB connection can be "hot plugged". This means both the computer and the Motor Controller can be powered up before the USB cable is plugged in.



### Connect Power In cable

1. The Motor Controller does not plug in directly into the AC mains supply but uses an external power supply which supplies a regulated 48 V DC output.
2. The external power supply is normally supplied with a line cord suitable for use in your country
3. The DC output cord from the external power supply plugs into the DC Power In jack on the rear panel of the Motor Controller. When replacing the line cord for the power supply, always verify that it has adequate power ratings. Do not use a line cord that shows any damages or exposed wires.

### Connect the Motor Control cable

1. The RE 10k rotator does not directly plug into the AC mains supply. Instead, it is powered and controlled by the Motor Controller using the Motor Control Cable (P/N 985-00194).
2. The Motor Control Cable has three dedicated power lines for the motor and two additional power lines for the encoder and fan.
3. Connect the female 26-pin HD D-sub connector of the cable to the Motor Control connector on the rotator's rear panel.
4. Connect the male 26-pin HD D-sub connector of the cable to the Motor Control connector on the Motor

Controller's rear panel.



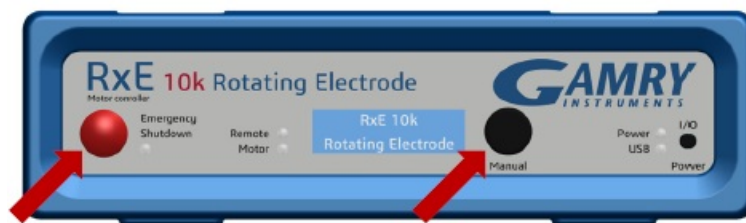
## Power up instrument

1. Power up your system by pressing the Power button on the Motor Controller front panel. The blue Power LED blinks until steady. The USB LED turns green if a valid connection has been made to the computer.
2. The LC-display turns on showing the rotator's model number and subsequently the rotation speed display.



## Rotator test

1. Perform a quick start-up test to check rotator's functionality. Install the Safety Shield and always wear safety goggles while operating the RxE 10k system. While extremely rare, rotating shaft, electrode, or attached parts can break and fly off, injuring the operator.
2. Turn the Manual knob clockwise until the speed on the LC display reads 100 rpm. Press the knob to confirm the setting. The motor should turn on and the motor shaft begin accelerating to the set rotation speed.
3. During operation, the Motor LED is turned on. Increase and decrease the rotation speed by rotating the knob clockwise or counterclockwise, respectively. Verify that the rotator operates smoothly.



4. Press the Emergency Shutdown button to the left. The motor should abruptly turn off and the motor shaft stop rotating. System control is now fully disabled. The LC display shows a warning message.

SHUTDOWN - Cycle  
Power to Reset

5. To re-enable the rotary system, press the Power switch.

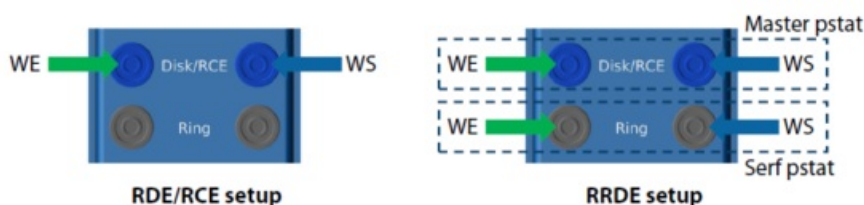
## Potentiostat setup

1. Depending on the electrode, either a single potentiostat is required for RDE and RCE experiments or a bi-pstat setup for RRDE experiments.

Follow the installation instructions of the potentiostat. A current version of each manual can be downloaded on Gamry's website at <https://www.gamry.com/support/documentation-downloads/>

## Connect cell cables

1. The cell cable connectors (4 mm female banana) are located on the rear side of the RxE 10k rotator
  - The Disk/RCE connectors connect to the disk of an RDE/RRDE and cylinder electrode of an RCE.
  - The Ring connectors connect to the ring electrode of an RRDE.



## Mounting electrode shaft and electrode

Before replacing any parts on the rotator, make sure that the instrument is turned OFF. Rotating components are a safety hazard. Complying with all necessary protection measures is crucial for your personal safety.

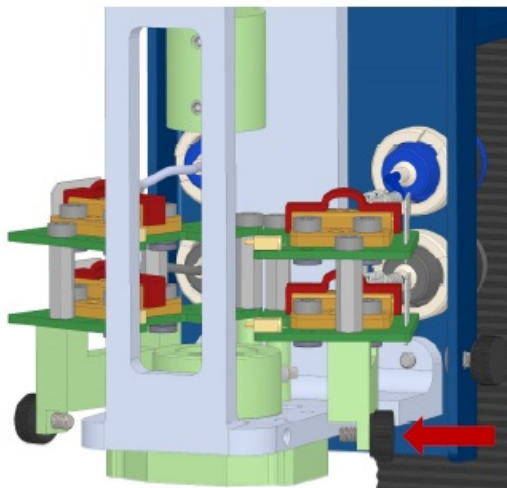


### Remove front cover

1. Slightly unscrew the six thumb screws on the left and right side of the rotator enclosure. Carefully slide off the rotator enclosure.
2. The interior reveals four carbon brushes. They are protected by red covers. Leave them on for now until the electrode shaft is installed.
3. Additionally, four wires go from each PCB to the rotator's back panel and banana connectors. You can leave them as they are.

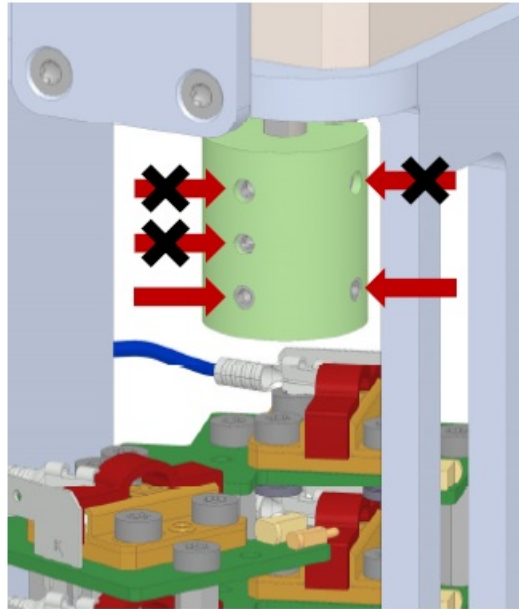
### Unscrew brush holders

Unscrew the thumb screws on both sides that hold the brush holders in place. Rotate them outwards.



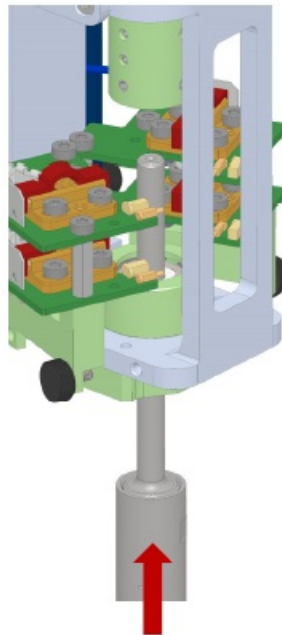
### Prepare shaft adapter

Above the brush holders, you can see the shaft adapter mounted onto the motor shaft. Unscrew the bottom two set screws which will be later used to attach the electrode shaft.



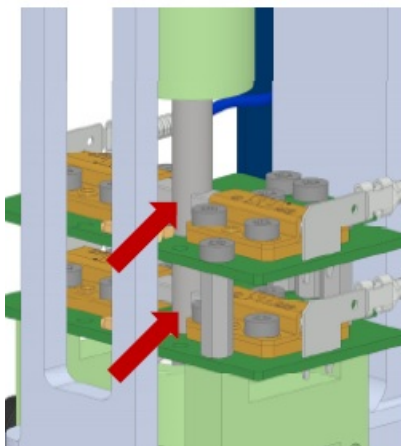
### Install electrode shaft

1. Carefully guide the electrode shaft from the bottom of the rotator through the bearing housing- Do not bend shaft sideways, tilt, or force it through the bearings. This can irreversibly damage both bearings and shaft.
2. Slide the electrode shaft upwards into the shaft adapter until it touches the center set screw.
3. Secure the electrode shaft by tightening both set screws. Do not overtighten the screws!

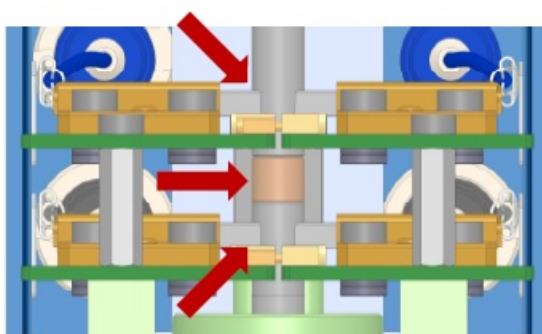


### Test the electrode shaft

1. Carefully remove all four red covers from the brushes. The brushes snap outwards.
2. Move both brush holders back to their original position and secure them again with the previously removed thumb screws.
3. Test the assembly by manually rotating the shaft. The electrode shaft should rotate freely without much counterforce. Make sure that all four brushes have good contact with the electrode shaft.
4. After verifying correct functionality, put the rotator enclosure back on and secure with the six thumb screws.



Upper and lower brushes are electrically insulated from each other. When using an RRDE shaft, verify that both upper brushes make contact above the RRDE shaft's PEEK insulator. The lower brushes should make contact below the shaft's PEEK insulator.



## Mount electrode

Hold the lower part of the electrode shaft in place. Guide the electrode into the shaft's sleeve and screw on hand tight. Do not bend the shaft sideways, otherwise the bearings, shaft, and carbon brushes could get damaged. Make sure to have an RRDE shaft installed when using RRDEs.

The RRDE shaft has two electrically insulated portions for the disk and the ring electrode. RDEs and RCEs should be preferably used with the RDE/RCE shaft. The RCE cylinders have an oil coating to prevent rust during storage. It is recommended to rinse them with an organic solvent such as methanol, ethanol, or isopropyl alcohol before usage.

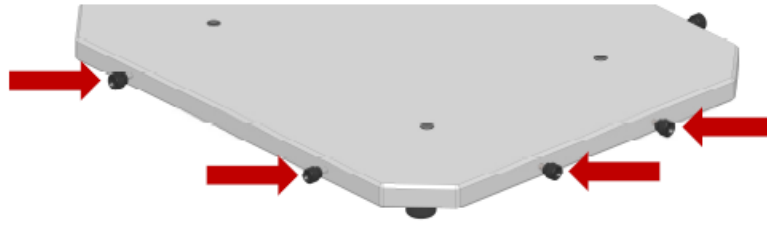
## Safety Shield installation

Even with the Safety Shield installed, always wear safety goggles while operating the RxE 10k system. While extremely rare, rotating shaft, electrode, or attached parts can break and fly off, injuring the operator. Use extra caution when running experiments with glass cells.

## Prepare rotator base plate

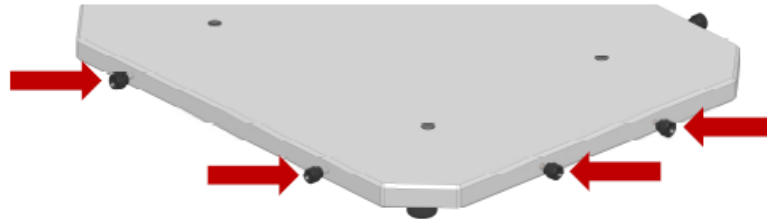
Slightly unscrew all eight knurled knobs at the front and back of the rotator base plate. Don't unscrew completely as the Safety Shield will rest on top of the threads.



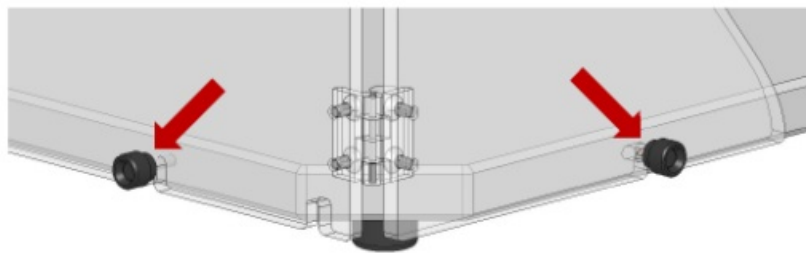


## Mount Safety Shield

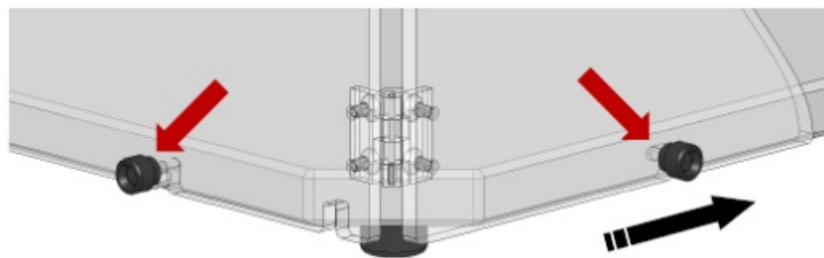
1. Unfold a Safety Shield and align the slots on the bottom side of the acrylic panels with the exposed threads of the knobs

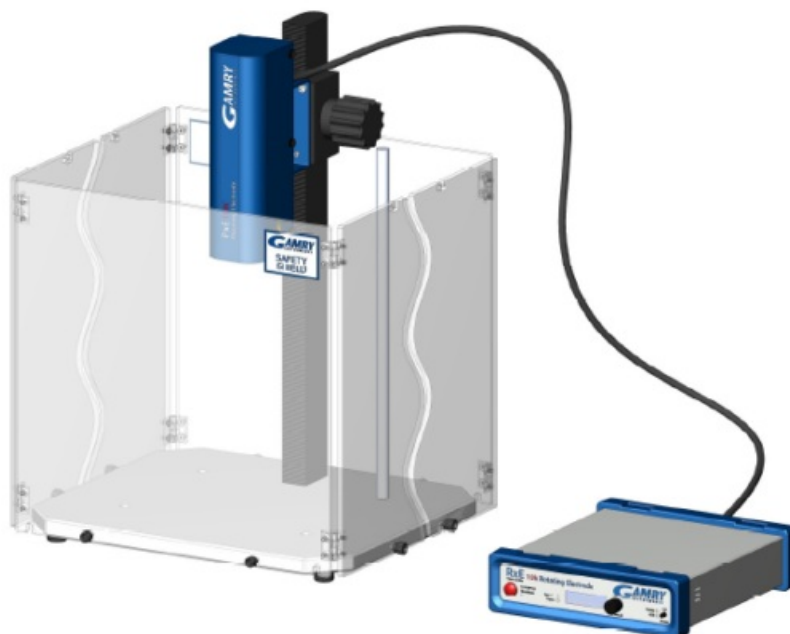


2. Push the Safety Shield fully back towards the base plate to lock the side threads within the panels' L-slots. .



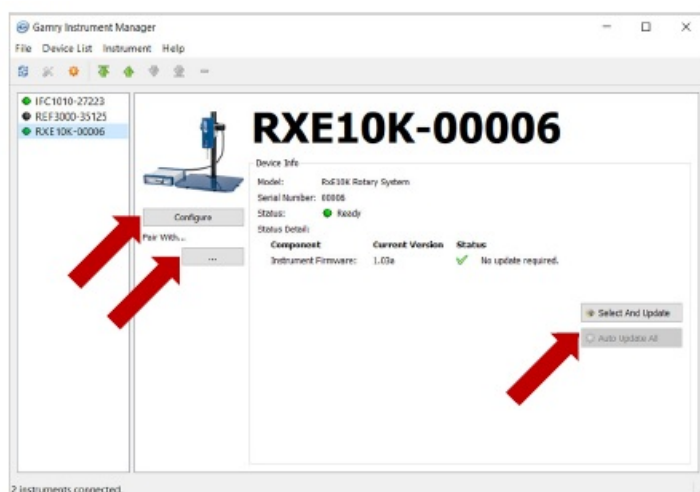
3. Tighten all four knobs to secure the Safety Shield.
4. Repeat these steps for the second Safety Shield





## Software configuration using GIM

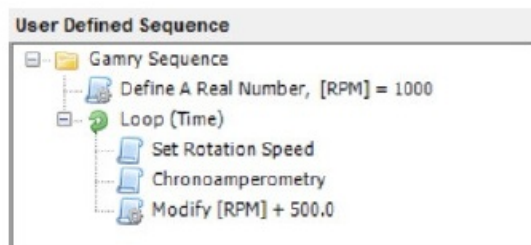
1. Power up both Motor Controller and potentiostat.
2. Launch the Gamry Framework™ software and open the Gamry Instrument Manager (GIM) under Otion/Instrument Manager..



3. Press the Configure button to set the maximum permitted rotation speed. The maximum value is 10500 rpm.
4. Click the button under Pair with... to select a potentiostat to pair with your rotator. Once confirmed, the selected potentiostat is listed as paired device in the Gamry Instrument Manager.
5. Instrument information and installed firmware software are listed under Device Info. A warning symbol appears if software and firmware are not compatible. To update the firmware, press the Auto Update All button or Select And Update to manually select the firmware.

## Running experiments within Framework

1. Launch the Gamry Framework™ software and open the Gamry Sequence 6 Wizard under Experiment > Sequence Wizard
2. Create a custom experiment sequence. Select from a list of individual experiments and utilities and simply drag-and-drop them to your user- defined sequence.



Please visit Gamry's service and support page if you require additional assistance. The QR-code on the right provides a direct link to the RE 10k website and its latest documentation.

Contact your local Gamry representative or Gary's technical support if you experience any problems. Phone: +1 215-682-9330 Web: <https://www.gamry.com/support-2/> Email: [techsupport@gamry.com](mailto:techsupport@gamry.com)



## Documents / Resources



[GAMRY INSTRUMENTS RxE 10k Rotating Electrode \[pdf\] User Guide](#)  
RxE 10k Rotating Electrode, Rotating Electrode, Electrode

## References

- [Service and Support Pages: FAQ-Electrochemical Training-Tech Support Gamry Instruments](#)
- [User Manual](#)

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