QPatch Compact Utility Experiments

In order to make sure the QPatch Compact instrument is working as expected, e.g. after shipping or service, it is possible to execute standard non-biological assays.

Conducting an ARQ experiment

1. **Locate the ARQ plate**

   The QPatch Compact is delivered with a special Artificial Reference QPlate (ARQ) plate. It is red and features a barcode starting with ”032”.

2. **Start up the QPC**

   Turn on the instrument (on the left-hand side). Login via the touchscreen using your normal login credentials for the QPC database.

3. **Preflight the QPC**

   Insert the red ARQ plate into the QPC. QPlate test sites now appear on the screen. Select all 8 sites for execution. Press the green ”Whole-cell protocol” button and select the specific protocol called “#ARQ – Sophion standard”.

   Leave settings for “Sampling filter” and “Pipetting” as default (10kHz, 3333Hz cutoff, 8th order Bessel, Voltage-gated pipetting).

   Settings for “Cell type”, “Ion channel type”, and “Compound map” are not applicable.

4. **Start experiments**

   Click on “Start” to begin your experiment. The touchscreen will now give you instructions for next steps. *Notice: You will not use any liquids for this experiment.*

   - ”Dispense intracellular” – Press ”Done” without adding liquid.
   - ”Dispense Extracellular” – Press ”Done” without adding liquid.
   - ”Dispense cells” - Set the ”Dispense Delay” parameter to 1s and uncheck ”Pause for each site”. Press ”Start count down” without adding liquid

   Wait until the instrument shows all sites in the state of ”Experiment running” visible by a light green indicator.

   Now up to 8 sites are ready for experiments. Choose a site, select ”saline” as compound and choose the voltage protocol called ” #Nav double pulse - Sophion standard”. Press ”Go” and repeat this step for all sites.

   Select ”Resistance” in the live view plot. Toggle through all sites and verify a value of 500 MΩ±100 MΩ.

   If the value is not within the specified range, then please contact qpcsupport@sophion.com for technical support.

   Press ”End all experiments”.

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Priming a QPlate 8

1. Prepare a QPlate 8

Acclimatize the QPlate at room temperature for at least 1 hour before use.

2. Start up the QPC

Turn on the instrument (on the left-hand side). Login via the touchscreen using your normal login credentials for the QPC database.

3. Prepare the solutions

For a simple priming experiment, we recommend using a standard Phosphate Buffered Saline (PBS) solution for both intra- and extracellular side.

4. Preflight the QPC

Insert the QPlate into the instrument. QPlate test sites now appear on the screen. Select all 8 sites for execution. Press the green ”Whole-cell protocol” button and select the specific protocol called “#Priming – Sophion standard”.

Leave settings for “Sampling filter” and “Pipetting” as default (10kHz, 3333 Hz cutoff, 8th order Bessel, Voltage-gated pipetting)

Settings for “Cell type”, “Ion channel type”, and “Compound map” are not applicable

5. Start experiments

Click on “Start” to begin your experiment. The touchscreen will now give you instructions for next steps. *Notice: We recommend always using reverse pipetting.*

How to do reverse pipetting:

- Setup the pipette to the applicable volume
- Depress the plunger completely – go past the first stop to the second stop
- Immerse the tip in the liquid. Slowly release the plunger to full extension
- Dispense by pressing to the first stop
- If you use a motorized pipette, select “reverse pipetting”

The instructions will take you through priming of a QPlate.

- ”Dispense intracellular” – Press ”Done” after adding PBS solution
- ”Dispense Extracellular” – Press ”Done” after adding PBS solution
- ”Dispense cells” – Use PBS solution without cells and add to each site according to the on-screen instructions

Now up to 8 sites have been primed. Select ”Resistance” as parameter in the plot and verify in the site overview if all sites have primed to a value in range of 1.5 MΩ - 2.3 MΩ.

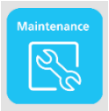
If the value is not within the specified range, then please contact qpcsupport@sophion.com for technical support.

Press ”End all experiments”.

Software button explanations

Click the button to enter preflight mode.
In this window you can initiate and setup your experiments.

Not applicable in first release



Click the button to open maintenance mode.
In this window you can perform all maintenance tasks.

Click the button to view all completed results.

Click the button to get system information and logout possibility.

Preflight parameter explanations

QPlate	Once the QPlate is inserted, well status is displayed: • Blue wells = selected • White wells = can be selected • Greyed out = not usable
Whole-cell protocol	Choose the protocol you wish to use for your experiment.
Pipetting	Choose voltage- or ligand gated, the selection toggles.
Sampling filter	Setup criteria for the filters.
Cell type	Choose the cell type to be used in the experiment.
Ion channel	Choose the ion channel to be used in the experiment.
Compound map	Setup the compound map.
Start	Click this button to start the experiment.