SERVICE & SUPPORT

Thank you for choosing Sutter Instrument products. To guarantee the highest standards of quality and performance, every instrument is fabricated on site by highly skilled technicians. The instrument contained herein has been assembled with care and tested to assure it meets rigid quality control standards.

We hope that our instruments and products continually meet your needs. However, should a problem arise, please contact our technical support staff to discuss your concerns. If the instrument requires factory service, we will furnish shipping instructions. Items under warranty will be repaired free of any costs for parts or service. Both delivery and return shipping costs are the responsibility of the owner.

This product carries a limited warranty of 2 years for parts and labor.

Our office hours are 8:00 am to 5:00 pm Pacific Standard Time, Monday through Friday.

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Sutter Instrument
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Novato, CA 94949

IPA®/DOUBLE IPA®
INTEGRATED PATCH AMPLIFIER

with

SUTTERPATCH®
DATA ACQUISITION AND ANALYSIS SOFTWARE

QUICK START GUIDE

SUTTER INSTRUMENT

IPA OVERVIEW
Please read these instructions carefully before installation. This guide covers both IPA and Double IPA systems. If you have any questions or need additional information, contact Sutter Instrument.

OPERATING SYSTEM REQUIREMENTS
Windows 7 or later: 64-bit versions
macOS 10.11 (El Capitan) or later

INSTALL HARDWARE
1. Attach IPA Headstage to amplifier front panel: HEADSTAGE. Double IPA headstages are tuned - attach the lower serial-numbered headstage to HEADSTAGE 1, and the higher serial-numbered headstage to HEADSTAGE 2.
2. Attach IPA Breakout Cable, or the optional Patch Panel cable, to amplifier rear panel: AUXILIARY I/O.
3. Attach USB cable to USB ports on amplifier rear panel: USB, and your computer.
4. Attach power cord to amplifier rear panel and a grounded power outlet.

INSTALL IGOR PRO / SUTTERPATCH SOFTWARE
1. Power on computer.
2. If you have Internet access, download the latest version of the SutterPatch Installer software from www.sutter.com/AMPLIFIERS/SutterPatch.html
3. If Internet access is not available, attach the included USB flash drive to your computer.
4. Double click on ''SutterPatch_Installer_with_Igor' (Windows) or 'sutterpatch_mac_full' (macOS)
5. Follow the prompts of the installer.
6. Open Igor Pro and activate the Igor Pro license as instructed:
    i.   Serial Number:
    ii. Activation Key:

    > affix label here

TEST SYSTEM
1. Model Cell:
    a. Attach Model Cell to IPA headstage and tighten the collar. For a Double IPA system, attach Model Cell to Headstage 1.
    b. Attach ground wire to IPA headstage and model cell (gold plugs).
    c. Surround with aluminum foil for shielding and ground to the headstage ground connector.
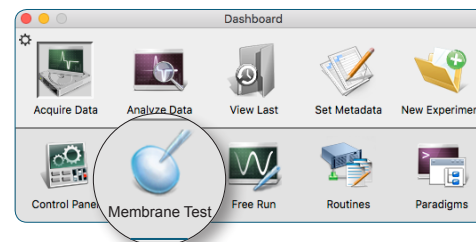
2. Click icon to launch Igor:

3. SutterPatch window will open. Press 'Start'.

4. Dashboard window:
    I. Click on the Acquire Data icon:
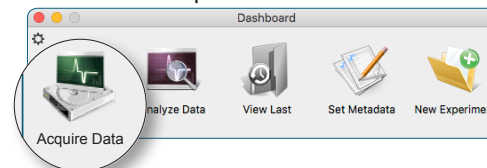
    II. Click on the Membrane Test icon:


5. Scope + Analysis windows open:
    (Actual analysis values depend on IPA filter settings)
    I. With the Model Cell switch in Bath position, click the Bath button.
    Pipette Resistance   = ~10 MΩ
    II. With the Model Cell switch in Seal position, click the Seal button.
    Seal Resistance   >   10,000 MΩ
    III. With the Model Cell switch in Cell position, click the Cell button.
    Access Resistance   = ~10 MΩ
    Membrane Resistance   = ~500 MΩ
    Membrane Capacitance   = ~28 pF

    For a Double IPA system, move the model cell (and shielding) to HEADSTAGE 2, set the Scope window to 'Headstage 2', and repeat steps I – III.

BACK PANEL

AUXILIARY I/O PORT
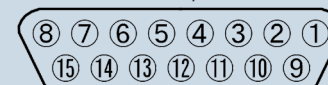
AUXILIARY I/O PINOUT LEGEND

Pin	Function	Pin	Function	Pin	Function
1	Digital Output 1	6	Digital Output 6	11	Auxiliary Analog Input 3
2	Digital Output 2	7	Digital Output 7	12	Auxiliary Analog Input 4
3	Digital Output 3	8	Digital Output 8	13	Auxiliary Analog Output 1
4	Digital Output 4	9	Auxiliary Analog Input 1	14	Auxiliary Analog Output 2
5	Digital Output 5	10	Auxiliary Analog Input 2	15	Signal Ground