



sartorius



iQue[®] Screener PLUS

hardware manual

February 2018

intellicyt[®]

A SARTORIUS BRAND

Table of Contents

INTRODUCTION	1
Published By	1
Copyright	1
Trademarks	1
Statement of Proper Use	1
End User Use Agreement for iQue Screening System	2
IntelliCyt Corporation Software License Agreement	4
Declaration of Conformity	5
USING THIS MANUAL	7
Conventions	7
Terminology	7
Text Conventions	7
Text Symbols	8
Safety Symbols	8
Accessing Technical Support	9
SAFETY	11
General Precautions	11
General Warnings	11
Operator Safety	12
Safety Symbols and Labels	13
Biological Handling Precautions	14
Laser Precautions	14
Operational Precautions	15
Electrical Precautions	15
GETTING TO KNOW THE IQUE SCREENER PLUS	17
Overview	17
Requirements	17
Specifications	18
Variations	18
Fluorescence Channels	19
Front View	22
Status Light Detail	23
Shaker Detail	24
Sampling Area Detail	24
Sampler Detail	25
Pump Detail	25
Right Side Panel Detail	26
Bottle Station	26
Fluidics Harness Detail	27
Back Panel Detail	27
Front Service Area	28
Optical Bench and PMT Module Detail	29

OPERATION 33
 Daily Startup 35
 Daily QC 37
 Running a Plate 39
 Daily Shutdown 45
 iQue Screener PLUS Bottle Fluids 47
 iQue Screener PLUS Deck Fluids 51

MAINTENANCE 55
 Recommended Maintenance Schedule 57
 Standard Cleaning Procedures 59
 Changing the Probe and Tubing 63
 Fluidics Maintenance 69
 Managing Plate Models 75
 Manual Control Mode 83
 Clog Prevention and Management 87

SPECIAL TOPICS 91
 Moving an iQue Screener PLUS 93
 Connecting iQue Screener PLUS Power and Data Cables 95
 Purge and Prime 99

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Copyright

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Trademarks

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Microsoft, Windows 7, Windows 8, and Windows 10 are trademarks or registered trademarks of Microsoft Corporation.

Other products or company names mentioned in this document may be trademarks or registered trademarks of their respective owners and are treated as such.

The iQue Screener PLUS uses ForeCyt and IntelliCyt Data Manager software which require licensing before use.

Statement of Proper Use

The iQue Screener PLUS is designed to acquire samples in a multi-well microplate to perform high-throughput flow cytometry. The iQue Screener PLUS is designed for use in a temperature-controlled laboratory environment that is free of conductive contaminants.

End User Use Agreement for iQue Screening System

1. Parties. This Product Use Agreement (“Agreement”) is between IntelliCyt Corporation, a Delaware corporation with offices at 5700 Pasadena Ave. NE, Albuquerque, NM 87113, USA (“IntelliCyt”) and the end user organization (“Customer”) using the proprietary iQue Screening System and other IntelliCyt products identified in the Invoice (“Products”). Customer’s use of the Product constitutes its acceptance of the terms and conditions of this Agreement. If the Customer does not agree to the terms and conditions of this Agreement it may not use the Product.

2. Effective Date. This Agreement is effective as of the date of the Customer’s purchase order. This Agreement is made pursuant to Customer’s opportunity to review IntelliCyt’s “iQue Screening System Use Terms and Conditions” (via written communications with IntelliCyt) and (a) Customer’s issuance of a purchase order, (b) and/or Customer’s payment of IntelliCyt’s invoice (the “Invoice”), (c) and/or Customer’s use of the Product.

3. Nature of Agreement. This Agreement contains all the terms and conditions relating to IntelliCyt’s provision of, and Customer’s use of the Product. Customer may contract IntelliCyt to receive technical support for the Product, including software upgrades and maintenance. Such additional services will be pursuant to a separate written agreement.

4. Customer’s Licensed Use of Product. Customer is granted a license to IntelliCyt’s Product for the purposes of processing data for Customer’s own use. Customer shall not: (i) subcontract or otherwise allow use of the Product and associated documentation by third parties; (ii) use the Product and associated documentation to analyze, separate, isolate or otherwise process third party samples or specifications, including fee for service activities, contract research or service bureau activities; (iii) use the Product and associated documentation for human in-vitro diagnostic applications; (iv) remove or destroy any proprietary rights marks or legends on or in the Product or associated documentation; (v) adapt, translate, modify, enhance, or create derivative works of the software component of the Products or associated documentation; (vi) reverse engineer, disassemble, decompile, or otherwise attempt to derive the source code of the software component of the Product; (vii) assign, distribute, sublicense, rent, lease, sell, post on the Internet, or otherwise transfer the Product or associated documentation, in print or through any electronic or other medium; or (viii) make copies of the software component of the Product or associated documentation other than for archival and backup purposes.

5. Acceptance. The Product is deemed accepted ten (10) days after the date of installation by IntelliCyt unless, within that time period, Customer provides IntelliCyt documentation that the Product delivered does not conform to the specifications in the Invoice or the written description provided by IntelliCyt with the Product (the “Documentation”). If the Product does not perform as set forth above for reasons inherent in the Product (and not, for example, third party hardware, software, equipment, damage by Customer or improper system configuration), IntelliCyt will promptly repair or replace the Product with a conforming Product. If the Product still does not materially conform to its written description or specifications, Customer may accept the Product AS IS or return the Product and receive a refund of fees paid for the Product.

6. Limited Warranties; Exclusion of Certain Warranties.

6.1 Limited Warranty. IntelliCyt warrants that for one (1) year after the date of shipment, the Product will perform in substantial conformance with the Documentation, provided that the Product has been used as specified by IntelliCyt. IntelliCyt will use reasonable efforts to correct any material nonconformance within thirty (30) business days after receipt of written notice of such nonconformance and Customer’s provision of any data, output, or other documentation or description of the nonconformance.

6.2 Voiding the Product Warranty. This limited warranty applies only to the Product used in accordance with this Agreement and the Documentation and does not apply if the Product (a) has been subject to accident or misuse; or (b) has been repaired, reassembled, or modified by a party other than IntelliCyt; or (c) has not been maintained in accordance with the Documentation; or (d) if the Product’s serial number has been removed or defaced; or (e) has been incorporated into a system without IntelliCyt’s review and written approval.

6.3 Exclusive Remedies. IntelliCyt does not warrant that the Product will meet Customer’s specific needs, industry requirements, be error-free, or operate without interruption. The remedies in this Section 7 are the sole and exclusive remedies provided to Customer by IntelliCyt relating to the Product.

6.4 Disclaimers.

6.4.1 INTELLICYT MAKES NO WARRANTIES ON BEHALF OF ITS LICENSORS TO INTELLICYT’S CUSTOMER IN CONNECTION WITH THE PRODUCT AND DISCLAIMS ALL STATUTORY, EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSES AND NON-INFRINGEMENT OF THIRD PARTY RIGHTS.

6.4.2 INTELLICYT AND ITS LICENSORS SHALL HAVE NO LIABILITY TO CUSTOMER FOR ANY SPECIAL, INDIRECT, CONSEQUENTIAL, INCIDENTAL OR PUNITIVE DAMAGES, LOSS OF ANTICIPATED PROFITS OR BUSINESS, LOSS OF DATA OR SAMPLES OR FOR INTERRUPTIONS IN BUSINESS WITH RESPECT TO ANY CLAIM OF ANY KIND RESULTING FROM THE PRODUCT.

7. Product Intellectual Property. IntelliCyt or its licensors retain all right, title and interest in the Product and associated documentation, including all intellectual property rights therein and any derivations thereof.

8. Limitations of Liability for Damages. Neither party shall be liable for indirect, incidental, consequential, special, punitive or exemplary damages, or for lost profits or business interruption losses, in connection with the Product or this Agreement, regardless of whether such party has been made aware of their possibility. Other than amounts due to IntelliCyt for purchase of the Product, the indemnification obligations of Section 11, and the breach of the provisions of Sections 4 and 10, in no event shall either party be liable to the other, under any theory of recovery, including contract, negligence, strict liability, warranty, misrepresentation, or products liability, in an amount in excess of ten thousand dollars (\$10,000). Any claims relating to this Agreement shall be brought within one (1) year after the occurrence of the event giving rise to the cause of action.

9. Confidentiality. IntelliCyt and Customer may have access to information that the other considers to be confidential, private, or a trade secret. This information may include, but is not limited to, data, technical know-how, technical specifications, results of testing, new product designs, strategic plans, and competitive intelligence (“Information”). Each party shall use the other’s Information only to perform its

obligations under, and for the purposes of, this Agreement. Neither party shall use the Information of the other for the benefit of a third party. Each party shall maintain the confidentiality of all Information in the same manner in which it protects its own information of like kind, but in no event shall either party take less than reasonable precautions to prevent the unauthorized disclosure or use of the Information. Upon termination of this Agreement, or upon a party's request, each party shall return to the other all Information of the other in its possession. All provisions of this Agreement relating to confidentiality, ownership, and limitations of liability shall survive the termination of this Agreement.

10. Indemnification.

10.1 Product Intellectual Property Indemnification. IntelliCyt agrees to defend, and hereby indemnifies and agrees to hold harmless, Customer from all damages, losses, fees, and expenses awarded by a court of competent jurisdiction, or reached through a settlement, arising out of Customer's use of the Product when such claim is based upon a third party claim that the Product infringes a U.S. patent, trademark, copyright or trade secret; provided that (a) Customer promptly notifies IntelliCyt in writing of such claim; (b) IntelliCyt has sole control over the investigation, litigation and negotiation of such claim; (c) Customer is current in its payments of fees to IntelliCyt and is in compliance with its obligations under this Agreement; and (d) Customer reasonably cooperates in the defense or settlement of such claim. This indemnification applies only to the Product delivered by IntelliCyt and shall not apply if the Product has been modified by a party other than IntelliCyt, or if the Product has been combined with (or used in connection with) other products and used as a part of an infringing process or method which, but for the combination, would not infringe the intellectual property rights of such third party.

10.2 If the Product becomes, or in IntelliCyt's opinion is likely to become, the subject of such a claim, then IntelliCyt may either (a) procure (at its expense) Customer's right to continue using the Product, or (b) replace or modify the Product to avoid the claim of infringement. If neither of the foregoing alternatives is reasonably available to IntelliCyt, then IntelliCyt may terminate this Agreement and refund the balance of the Product fee which, for purposes of this Section 11, shall depreciate over a period of three (3) years. This states the entire liability of IntelliCyt with respect to third party claims of intellectual property infringement.

10.3 Customer Indemnification. Customer agrees to defend, and hereby indemnifies and holds harmless, IntelliCyt and its licensors from any damages, losses, fees, expenses, and claims asserted by third parties against IntelliCyt arising out of Customer's use of the Product, provided that (a) IntelliCyt promptly notifies Customer in writing of such claim; (b) Customer has sole control over the investigation, litigation and negotiation of such claim; (c) IntelliCyt is in compliance with its obligations under this Agreement; and (d) IntelliCyt reasonably cooperates in the defense or settlement of such claim.

11. Termination. Either party may terminate this Agreement if there is a material breach by either party that is not cured within thirty (30) days after receipt of written notice of such breach. If IntelliCyt terminates this Agreement because of Customer's material breach that is not cured, Customer is still liable for all payments related to the Product or this Agreement. Upon termination of this Agreement for breach by Customer, Customer shall promptly discontinue using the Product and return it to IntelliCyt.

12. Assignment. Customer shall not assign any of its rights or obligations under this Agreement without IntelliCyt's prior express written consent, which may be granted or withheld at IntelliCyt's sole discretion. Any attempted assignment without such consent shall be void. Subject to the foregoing, this Agreement is binding upon and shall inure to the benefit of each party's successors and authorized assigns.

13. General.

13.1 Notices. All required communications shall be in writing and addressed to the recipient party at its address as set forth on the first page of this Agreement, addressed to the person who signed this Agreement on behalf of such party, or to such address and person as may be designated by such party in writing. All communications will be deemed given when hand-delivered; or if mailed, by registered mail with verification of receipt, upon date of mailing; or if by electronic mail or facsimile, when received (with verification of transmission sent promptly to the receiving party along with a hard copy of the communication).

13.2 Severability. Any part of this Agreement held to be invalid or unenforceable shall be revised so as to make it valid and enforceable and consistent with the intent of the parties expressed in that provision. All other provisions of this Agreement will remain in full force and effect.

13.3 Export. All orders accepted for export are subject to issuance of an export license by the United States Government for export of the Product(s), and subject to Customer providing IntelliCyt with the relevant import certificate or any other document necessary to secure such export license and/or to permit the import of the Product into the country of destination. Customer shall not re-export the Product, and shall comply with all laws, statutes, regulations, and Executive Orders relating to export, including the U.S. Export Administration Act.

13.4 Distribution and/or resale. The Product and associated documentation are for final end use by the Customer and are not for distribution and/or resale to third parties.

13.5 Governing Law and Venue. The Agreement shall be governed exclusively by the laws of the USA and the State of New Mexico and will not be governed by the United Nations Convention of Contracts for the International Sale of Goods, or by the Uniform Commercial Code, the application of which are expressly excluded. Any action brought by either party related to this Agreement shall be initiated and maintained in Bernalillo County, New Mexico, or in the United States District Court of the District of New Mexico, and the parties expressly submit to the exclusive personal jurisdiction and venue of these courts.

13.6 Entire Agreement. This Agreement and the Invoice, and any addenda expressly identified as amending this Agreement, constitute the entire understanding of the parties with respect to the subject matter of this Agreement and replaces all prior and contemporaneous written and oral communications, promises, or understandings. This Agreement may be amended only by a writing signed on behalf of both parties. Electronic mail shall not be deemed to constitute a signed writing for purposes of this modification provision unless expressly identified as an amendment. No waiver of any right or remedy will be effective unless given in writing and signed on behalf of the party making such waiver. No purchase order or other administrative document will amend this Agreement unless signed by a representative of both parties and identified as an amendment to this Agreement, even if accepted by the receiving party without objection. IntelliCyt hereby objects to any additional or different terms and conditions contained in Customer's purchase order, none of which shall be binding upon IntelliCyt unless specifically agreed to in writing signed by an officer of IntelliCyt. Failure by IntelliCyt specifically to object to provisions contained in Customer's purchase order shall not in any way be deemed an alteration to or waiver of these terms and conditions.

IntelliCyt Corporation Software License Agreement

This Software License Agreement (“Agreement”) for the iQue Screener System software is entered into in conjunction with the purchase of the license to the Software. By installing and using the Software, Licensee accepts the Software and agrees to be bound by the terms of this Agreement.

1) License Grant: IntelliCyt Corporation (“Licensor”), grants the purchaser (“Licensee”) a non-exclusive, non-transferable license (“License”) to use the Software, and associated manuals and documentation, in conjunction with hardware configurations authorized by IntelliCyt Corporation, at the designated Licensee’s business location until this License is terminated in accordance with the terms and conditions specifically set out in the Agreement. This License permits the Licensee to make one copy of the Software in machine-readable form for backup purposes only.

2) Licensor’s Rights: Licensor represents that it has all rights necessary to grant the license herein. The Software is protected by patents, patent applications, and copyrights and includes valuable trade secrets and other proprietary material. Licensee agrees to treat the Software as confidential and not to copy, reproduce, sub-license, or otherwise disclose the Software or its associated manuals and documentation to third parties, including any parent, subsidiaries, or affiliated entities, without the prior written consent of Licensor, and all Licensee personnel using the Software shall be so advised. Licensee agrees not to disassemble, decompose, reverse engineer, or otherwise translate the Software. Licensee agrees not to modify the Software, not to allow access to the Software through any terminal located outside of Licensee’s location, and that any derivative works and the backup copy are the sole property of the Licensor.

3) Term: This License is effective at the time the Licensee receives the Software. Termination shall occur when Licensee ceases all use of the Software and returns or destroys all copies thereof. This License shall automatically terminate upon the failure of the Licensee to comply with any of the terms of this Agreement. Sections 2, 4, and 5 shall survive the termination of the License for any reason.

4) LIMITATION OF LIABILITY: LICENSOR SHALL HAVE NO LIABILITY WITH RESPECT TO ITS OBLIGATIONS UNDER THIS AGREEMENT OR OTHERWISE FOR ANY INDIRECT, INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES, HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER FOR BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE) OR OTHERWISE, ARISING OUT OF OR RELATED TO THIS AGREEMENT, INCLUDING BUT NOT LIMITED TO LOSS OF ANTICIPATED PROFITS, LOSS OR INTERRUPTION OF USE OF OR CORRUPTION OF ANY FILES, DATA OR EQUIPMENT, EVEN IF LICENSOR HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THESE LIMITATIONS SHALL APPLY NOTWITHSTANDING ANY FAILURE OF ESSENTIAL PURPOSE OF ANY LIMITED REMEDY. THE PARTIES AGREE THAT THE FOREGOING LIMITATIONS REPRESENT A REASONABLE ALLOCATION OF RISK UNDER THIS AGREEMENT.

5) DISCLAIMER OF WARRANTY: LICENSOR AND ITS DISTRIBUTORS MAKE NO PROMISES, REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS, IMPLIED, STATUTORY, OR OTHERWISE, WITH RESPECT TO THE SOFTWARE, MANUALS, AND DOCUMENTATION, INCLUDING THEIR CONDITION, THEIR CONFORMITY TO ANY REPRESENTATION OR DESCRIPTION, OR THE EXISTENCE OF ANY LATENT OR PATENT DEFECTS, AND LICENSOR AND ITS DISTRIBUTORS SPECIFICALLY DISCLAIM ALL IMPLIED WARRANTIES OF MERCHANTABILITY, NONINFRINGEMENT, AND FITNESS FOR A PARTICULAR PURPOSE. LICENSEE ACKNOWLEDGES THAT THE LOADING OF THIS OR ANY THIRD PARTY SOFTWARE ON A COMPUTER SYSTEM MAY RESULT IN SYSTEM DAMAGE, DATA LOSS, DATA CORRUPTION OR SOFTWARE INCOMPATIBILITY.

6) Miscellaneous: Licensee may not assign this Agreement or any rights or obligations hereunder, directly or indirectly, by operation of law or otherwise, without the prior written consent of Licensor. Subject to the foregoing, this Agreement shall inure to the benefit of and be binding upon the parties and their respective successors and permitted assigns. No waiver or modification of this Agreement shall be valid unless in writing signed by each party. The waiver of a breach of any term hereof shall in no way be construed as a waiver of any other term or breach hereof. If any provision of this Agreement is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This Agreement shall be governed by United States and New Mexico law (except for conflict of laws principles). United States law shall supplement New Mexico law where United States law is non-exclusive (e.g., trademark, trade secret, and unfair competition laws), and shall be exclusive where United States law is exclusive (e.g., copyright and patent laws). This Agreement contains the complete agreement between the parties with respect to the subject matter hereof, and supersedes all prior or contemporaneous agreements or understandings, whether oral or written. The undersigned warrants that they have actual authority to bind Licensee as to the subject matter of the Agreement.

Declaration of Conformity



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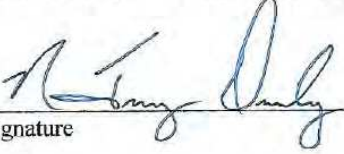


DECLARATION OF CONFORMITY

Manufacturer's Name	Intellicyt Corporation
Manufacturer's Address	9620 San Mateo Blvd. NE Albuquerque, NM 87113 United States
Model Name/Model Numbers	iQue® Screener PLUS/91218, 91219, 91051, 91059, 91220, 91221
Product Description	The Intellicyt Model iQue Screener PLUS, is a Flow Cytometry Analyzer intended for general laboratory use and cell analysis research.
Equipment Type/Environment	Electrical Laboratory Equipment
Application of Council Directive(s)	European Directive 2006/95/EC (Low Voltage Directive) European Directive 2004/108/EC EMC European Directive 2011/65/EC RoHS-2
Conformance to Directives Product Standards	IEC 61010-2-081:2001 (1 st Edition) + A1:2003 in conjunction with IEC 61010-1: 2010 (3 rd edition) + EN 61010-1: 2010 + Corrigendum 1: 2011 EN 61326-1 Electrical Equipment for Measurement, Control and Laboratory Use EN 61000-3-2:2014 Harmonic Current Emissions EN 61000-3-3:2013 Voltage Fluctuations and Flicker Meets the radio interference Power Line Conducted and Radiated emission requirements of FCC Rules and Regulations, Part 15, Subpart B, Sections 15.107b & 15.109b for Unintentional Radiators, Class A digital devices. Meets the radio interference Power Line Conducted and Radiated emission requirements of ICES-003, Issue 5 for Class A Information Technology Equipment.

Test Report	IEC 61010-1, IEC 61010-2-081 Dated September 4, 2015
Date of Compliance	July 21, 2017

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s).


Signature

R. Terry Dunlay, President
Name

July 14, 2017
Date

Using This Manual

Conventions

This guide assumes basic knowledge of computers using Microsoft Windows operating systems and familiarity with windows, menus, commands, buttons, tabs, dialog boxes, and other Microsoft Windows elements. The terminology, conventions, and symbols used in this guide are described next.

Terminology

Click	Place the mouse pointer over the item, then depress and release the primary mouse button (usually the left button) in one quick motion.
Right-click	Place the mouse pointer over the item, then depress and release the secondary mouse button (usually the right button) in one quick motion.
Double-click	Place the mouse pointer over the item, then depress and release the primary mouse button twice in quick succession.
Drag	Place the mouse pointer over the item, depress and hold down the left mouse button, then move the pointer (and the object) to some target location and release the mouse button.
Press	Push and release a key on the keyboard.
Shift, Ctrl, Alt	When any of these terms appear before any of the above terms, it means to hold down the specified keyboard key while taking the hyphenated action.
Shortcut menu	A menu that appears when an item has been right-clicked.

Text Conventions

Menus, menu items, drop-down lists, text boxes, buttons, and options that require user action appear in bold type. For example: Click **Run**.

Window titles and dialog box names begin with uppercase letters. For example: Sampler Control window.

Text Symbols

Symbols are used in iQue Screener PLUS documentation to draw attention to important information, such as operating tips and suggestions, as well as the presence of hazards.

NOTE



A tip, suggestion, or additional information.

WARNING



Indicates information that is necessary for proper instrument or software operation.

Safety Symbols

The following symbols may appear adjacent to safety precaution statements.

DANGER

Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.



WARNING

Indicates a moderately hazardous situation that, if not avoided, may result in death or serious injury. When this symbol appears on equipment, consult product documentation to identify the nature of any potential hazard and determine the actions to perform.



CAUTION

A cautionary statement which, if not followed, may result in instrument damage, corruption of data, or minor injury.



RISK OF FIRE



BIOHAZARD



MOVING PARTS

Risk of body parts, clothing, hair, jewelry, etc. encountering or catching in moving parts.



HAZARDOUS VOLTAGE

Risk of shock injury.



Accessing Technical Support

For help with a technical question that is not addressed within the documentation, please contact support.intellicyt@sartorius.com or IntelliCyt Customer Service at (505) 345-9075 Opt 2.

Before contacting us, please be prepared to answer the following questions:

What were you doing when the problem occurred?

Did you try to follow the steps in this guide, but they didn't work?

Can you reproduce the problem?

Did you try to solve the problem? If so, what steps did you take and what did you observe?

Which error messages, if any, appeared?

Your answers to these questions help us provide you with a solution as quickly as possible.

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General Precautions

WARNING



Use this product only in the manner described in this guide. When used other than as specified, the safety protections may be impaired. Failure to adhere to safety precautions and/or procedures outlined in this document may result in system failure or personal injury. IntelliCyt Corporation shall not be held liable under any circumstances.

BIOHAZARD!

WARNING



- Use proper laboratory practices when handling any hazardous materials.
- Make sure that biohazards do not contaminate iQue Screener PLUS components.
- In the event that system contamination occurs, contact customer support for applicable cleanup procedures.

DANGER



If smoke, abnormal noise, or strange odor is present, immediately shutdown the system and notify Customer support. It is dangerous to continue using the system.

WARNING



For safe operation of the iQue Screener PLUS, the system must be connected to an IntelliCyt approved uninterruptable power supply.

General Warnings

THE iQue SCREENER PLUS IS INTENDED FOR GENERAL LABORATORY AND RESEARCH USE ONLY. IT IS NOT INTENDED FOR IN VITRO DIAGNOSTIC TESTING. READ THE ENTIRE iQue PLUS SCREENER SYSTEM HARDWARE MANUAL BEFORE ATTEMPTING TO OPERATE THE INSTRUMENT. DO NOT ATTEMPT TO PERFORM ANY PROCEDURE BEFORE CAREFULLY READING ALL INSTRUCTIONS. ALWAYS FOLLOW PRODUCT LABELING AND MANUFACTURER'S RECOMMENDATIONS. IF THERE IS ANY QUESTION AS TO HOW TO PROCEED, CONTACT INTELLICYT.

IF THIS INSTRUMENT IS USED IN A MANNER NOT SPECIFIED BY THE MANUFACTURER, THE PROTECTION PROVIDED BY THE INSTRUMENT MAY BE IMPAIRED.

COMPLY WITH ALL NATIONAL HEALTH AND SAFETY STANDARDS SUCH AS THE USE OF BARRIER PROTECTION. THIS MAY INCLUDE, BUT IS NOT LIMITED TO, PROTECTIVE EYEWEAR, GLOVES, AND SUITABLE LABORATORY ATTIRE WHEN OPERATING OR MAINTAINING THIS INSTRUMENT.

The information in this user guide is subject to change at any time without notice. Products may change in response to technological advancements.

Operator Safety

WARNING: There is a risk of operator injury if:

- The covers are not opened and/or closed with care.
- All covers and panels are not closed and secured in place prior to and during instrument operation.
- Contact is made with moving parts.
- Broken parts are mishandled.
- Improper tools are used for troubleshooting.
- The integrity of safety interlocks and/or sensors is compromised.
- Instrument alarms and error messages are not acknowledged and acted upon.

To avoid injury:

- Open and close the covers with care.
- Keep covers and panels closed and secured in place while the instrument is in use.
- Keep away from moving parts.
- Report any broken parts to the manufacturer.
- Use the proper tools when troubleshooting.
- Take full advantage of all safety features and do not defeat safety interlocks and/or sensors.
- Acknowledge and act upon instrument alarms and error messages.

IF THIS INSTRUMENT IS USED IN A MANNER NOT SPECIFIED BY THE MANUFACTURER, THE SAFETY PROTECTION PROVIDED BY THE INSTRUMENT MAY BE COMPROMISED LEADING TO OPERATIONAL FAILURE AND/OR OPERATOR INJURY.

To help ensure compliance with intended use:

- Operate the instrument as described in this user guide.
- Only operate with an original copyrighted version of software.
- Install, update, and run anti-virus protection software on a regular basis.

If this product was purchased from anyone other than an authorized distributor and if it is not presently under a service contract, there is no guarantee that the product is fitted with the latest mandatory engineering revisions or that the user will receive the most current information bulletins concerning the product.

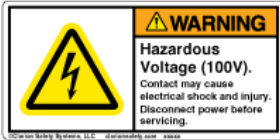
The Flow Cytometer System is a Class 1 laser device.

Safety Symbols and Labels

Safety symbols and labels draw attention to potentially dangerous conditions. These symbols, together with text, apply to specific procedures and appear as needed on the instrument and throughout this user guide. Do not remove these labels.



Biohazard/Biological Risk: Consider all materials (specimens, reagents, controls, etc.) and the areas these materials come into contact with as being potentially infectious and/or life threatening. Wear appropriate laboratory attire, follow universal laboratory safety protocols, and adhere to local regulations.



Electrical Shock Hazard: There is the possibility of electrical shock when the instrument is plugged into the power source.



Laser Radiation Hazard: Consider the laser source as being potentially hazardous to eyesight. Wear the proper protective eyewear to avoid damage to eyes from the laser. Never look directly into laser light.



Laser Aperture Hazard: Directed laser light is emitted from the aperture indicated with this label. Follow all laser radiation/hazard warnings.



General Caution: Indicates a potentially dangerous area of the system. Consult the user manual before using the system.

Biological Handling Precautions

Biological samples are potentially dangerous and/or life threatening. Adhere to proper handling procedures for samples and reagents at all times.

Depending on the laboratory environment, there could be a risk of biological, chemical, or radiological contamination resulting from contact with samples, sample tubes, sample waste, the waste container, and/or associated tubing. Handle all samples as if potentially infectious or life threatening. Wear protective clothing, gloves, and eyewear. Never pipette by mouth. Clean up all spills immediately. Dispose of all samples and waste according to proper handling procedures and local regulations.

Always treat waste with decontamination solution before disposal. Dispose of waste according to local regulations.

Always empty the waste bottle daily or when prompted by software to prevent spillover and possible biohazard risk.

Consult appropriate Material Safety Data Sheets when necessary.

The screening system is programmed for automatic decontamination of the fluidics system during shut down.

Laser Precautions

The flow cytometer contains two or three lasers in the 405nm to 640nm range, depending on instrument variant, under the outer and secondary covers. The instrument, therefore, may pose certain hazards associated with this laser, if misused.

Eye and skin exposure to direct and reflected laser light is hazardous and may be extremely harmful. Never remove or attempt to remove the internal covers.

Ensure that all optical filters are securely positioned. Prevent stray reflections from other surfaces. Never place any foreign object in the path of the laser beam.

Only authorized personnel can install, remove, or repair the laser. Do not open the laser head enclosure for any reason. Always return the instrument for repair.

Never operate the unit in the presence of flammable gases or fumes.

Turn off the cytometer when not in use.

Operational Precautions

Ambient Temperature and Humidity

Operating temperature is between 15°C and 30°C (59°F and 86°F) and < 80% relative humidity.

Area of Use

The iQue Screener PLUS is designed to fit on a laboratory bench top.

Provide a safety perimeter of 15 cm (6 inches) around the instrument and computer to allow proper ventilation and to protect the instrument and computer from accidental liquid spills.

Take special care while handling fluids around the instrument.

Do not allow uncontained fluids to enter the interior of the instrument or computer.

Immediately clean up spills.

Do not place anything on top of the flow cytometer, including sample tubes and racks.

Before manually cleaning the system, turn off the instrument and unplug the power cord.

Electrical Precautions



Electrical devices pose the risk of an electric shock. To reduce the risk of an electric shock, do not open the back or side service panels while the system is plugged in. Allow only authorized personnel to remove any other panels from this device.

Always use the provided power cords, power supplies, and cables. Do not abuse the cords. Never use the cords to pull the plug from an outlet. Keep cords away from heat, oil, or sharp edges. Damaged cords increase the risk of electric shock.

CAUTION: The instrument must be plugged into an IntelliCyt approved uninterruptable power supply (UPS). The UPS must be plugged into a standard, grounded, or earthed mains electrical outlet, conforming to local codes. Non-grounded or non-earthed mains outlet adaptors must not be used.

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Getting to Know the iQue Screener PLUS

Overview

IntelliCyt's iQue Screener PLUS is a platform for screening suspension cells, beads, microbes and mixtures. The system consists of a robotic plate rail with an orbital shaker, robotic plate sampler with a contact sensing probe, peristaltic pump, detector, and ForeCyt screening software to design, run, and analyze screening assays.

Requirements

Power	120 VOLT CONFIGURATION
	AC Input: 120 VAC, 50-60Hz, less than 3A Fuses are 5mm x 20 mm Glass-Tube Fuse, Time Delay, 250 VAC, 5 Amp
	220 VOLT CONFIGURATION AC Input: 220 VAC, 50-60HZ, less than 2A Fuses are 5mm x 20 mm Glass-Tube Fuse, Time Delay, 250 VAC, 5 Amp
	The instrument must be plugged into an IntelliCyt approved uninterruptable power supply (UPS). The UPS must be plugged into a standard, grounded, or earthed mains electrical outlet, conforming to local codes. Non-grounded or non-earthed mains outlet adaptors must not be used. The iQue Screener PLUS is provided with an approved UPS.
Power Cable Between UPS and Electrical Outlet	Minimum ratings: 6A, 250 V, 70°C, PVC H03WVF or equivalent, 3 x 0.75 mm ² cable, Female Connector Type: IEC 60320 C13, Male Plug: European Type CEE 7/7, or certified equivalent plug for other countries.
Environment	15–30°C, less than 80% relative humidity (Non-Condensing) Altitude up to 2000 meters Transient overvoltage Category II Condensation Pollution Degree 2
Instrument Size	
Height x Width x Depth (includes bottle station, does not include computer and UPS):	66 x 130 x 63 cm 97 x 130 x 97 cm with all doors open
Dry Weight	93kg (205 lb)

Variations

There are three variations of the iQue Screener PLUS:

“BR” & “BR HD”	Two laser (Blue, Red), six color system. HD supports 1536 well Plates.
“VBR”	Three laser (Violet, Blue, Red) thirteen color system.
“VYB”	Three laser (Violet, Yellow, Blue) thirteen color system.

Specifications

Screening Detection Method	Automated Flow Cytometry		
Laser Power	BR / BR-HD 20 mW 488 nm 40 mW 640 nm	VBR 50 mW 405 nm 20 mW 488 nm 40 mW 640 nm	VYB 50 mW 405 nm 50 mW 561 nm 50 mW 488 nm
Multicolor Detection	BR / BR-HD 6 Simultaneous Color Channels using PMTs	VBR 13 Simultaneous Color Channels using PMTs	VYB 13 Simultaneous Color Channels using PMTs
Label Free Object Detection	2 Light Scatter Channels for Size and Granularity		
Sensitivity	7 Decade Dynamic Range using Fixed Optics		
Sample Formats	96-, 384- and 1536-Well Microplates up to 35 mm maximum thickness and 1.5 mL Microcentrifuge Tubes		
Sampling Rate	Up to 35,000 Objects/Second		
Plate Processing Speed	As Low as 3 Minutes/96-Wells, 12 Minutes/384-Wells		
Control & Analysis Software	ForeCyt version 5.x and 6.x		
File Export:	FCS, CSV, and ForeCyt Experiment File Format (IEX)		
PC Operating System	Microsoft Windows 7, 8 and 10 64-Bit		
Options	ForeCyt Enterprise Database with Distributed Clients Automation Interface, 21 CFR Part 11, Q-Max refill station		

Fluorescence Channels – BR / BR-HD

The iQue Screener PLUS – BR has two lasers and six fluorescence channels. The table below lists these channels, their associated filter, and gives a few example dyes for each.

Blue Laser (488nm)	BL1	530/30	FITC, Alexa 488, GFP
	BL2	572/28	PI, PE
	BL4	675/30	PE-cy5.5, PerCP, 7-AAD
	BL5	780/60	PE-cy7
Red Laser (640nm)	RL1	675/30	APC, DRAQ5/7
	RL2	780/60	APC-cy7, APC - eFluor 780

Fluorescence Channels - VBR

The iQue Screener PLUS-VBR has three lasers and thirteen fluorescence channels. The table below lists these channels, their associated filter, and gives a few example dyes for each.

Violet Laser (405nm)	VL1	445/45	Pacific Blue, BV421, DAPI
	VL2	530/30	Alexa Fluor 430-H, BV510, Qdot525
	VL3	572/28	Pacific Orange, BV570, Qdot585
	VL4	615/24	BV605, Qdot605
	VL5	675/30	BV650/711, Qdot655
	VL6	780/60	BV785, Qdot800
Blue Laser (488nm)	BL1	530/30	FITC, Alexa 488, GFP
	BL2	572/28	PI, PE
	BL3	615/24	Texas Red, eFluor 615
	BL4	675/30	PE-cy5.5, PerCP, 7-AAD
	BL5	780/60	PE-cy7
Red Laser (640nm)	RL1	675/30	APC, DRAQ5/7
	RL2	780/60	APC-cy7, APC - eFluor 780

Fluorescence Channels – VYB

The iQue Screener PLUS–VYB has three lasers and thirteen fluorescence channels. The table below lists these channels, their associated filter, and gives a few example dyes for each.

Violet Laser (405nm)	VL1	445/45	Pacific Blue, BV421, DAPI
	VL2	530/30	Alexa Fluor 430-H, BV510, Qdot525
	VL3	586/20	Pacific Orange, BV570, Qdot585
	VL4	615/20	BV605, Qdot605
	VL5	660/20	BV650/711, Qdot655
	VL6	780/60	BV785, Qdot800
	YL1	586/20	mStrawberry, tdTomato, eYFP
	YL2	615/20	mCherry, mKate2, mPlum
	YL3	660/20	Katushka2s, DRAQ5, DRAQ7
	YL4	780/60	PE-Cy7, PE-Alexa 750, DRAQ5
Blue Laser (488nm)	BL1	530/30	FITC, Alexa 488, GFP
	BL3	615/20	Alexa 610, PE-Texas Red
	BL4	660/20	PE-cy5, PerCP, 7-AAD

Front View



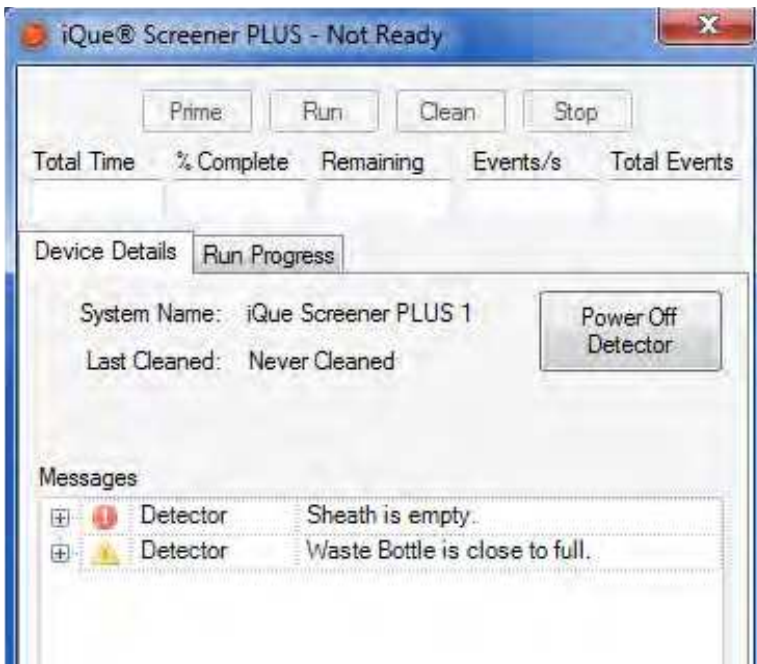
Status Light Detail

The iQue Screener PLUS has a status light that indicates whether the system is ready to run. The status indicator in the ForeCyt controller window will match the physical status light. Green = Ready. Yellow = Warning. Red = Not Ready.

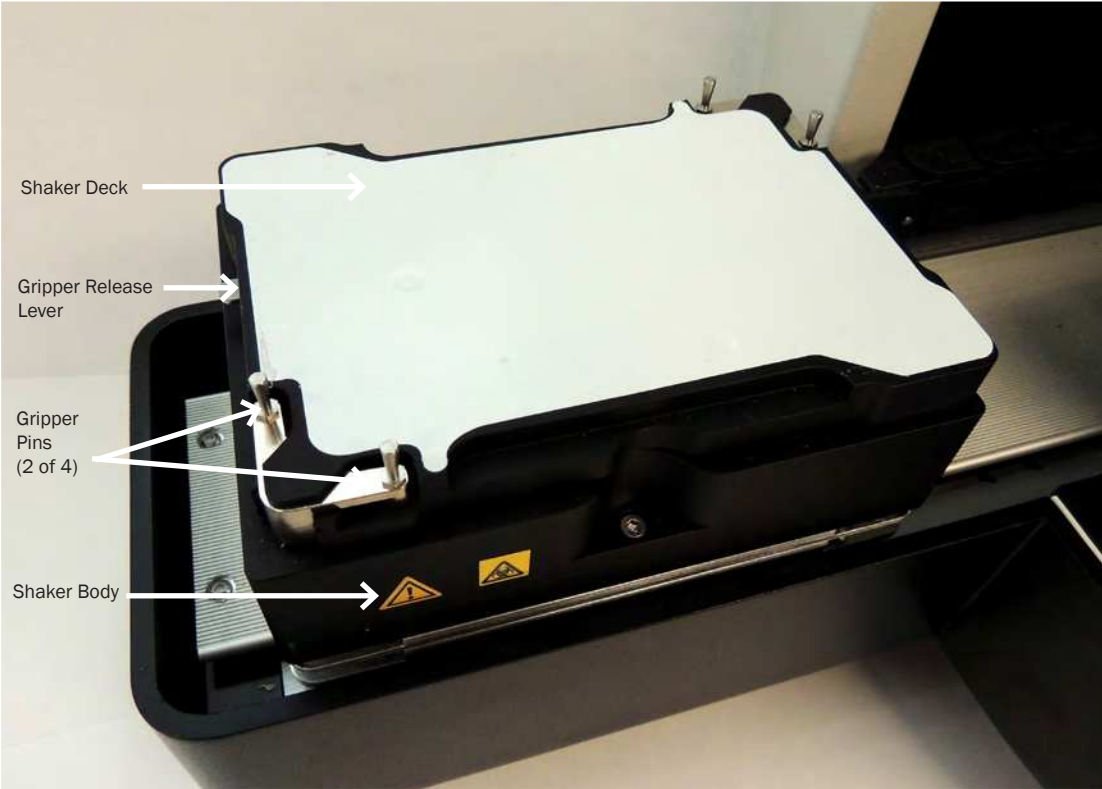


The iQue Screener PLUS will continue to run if it encounters a warning. For example, a "Waste Bottle is close to full" warning will not cause the current run to stop. However, if the iQue Screener Plus encounters an error, such as a "Sheath is empty" error, the current operation will terminate.

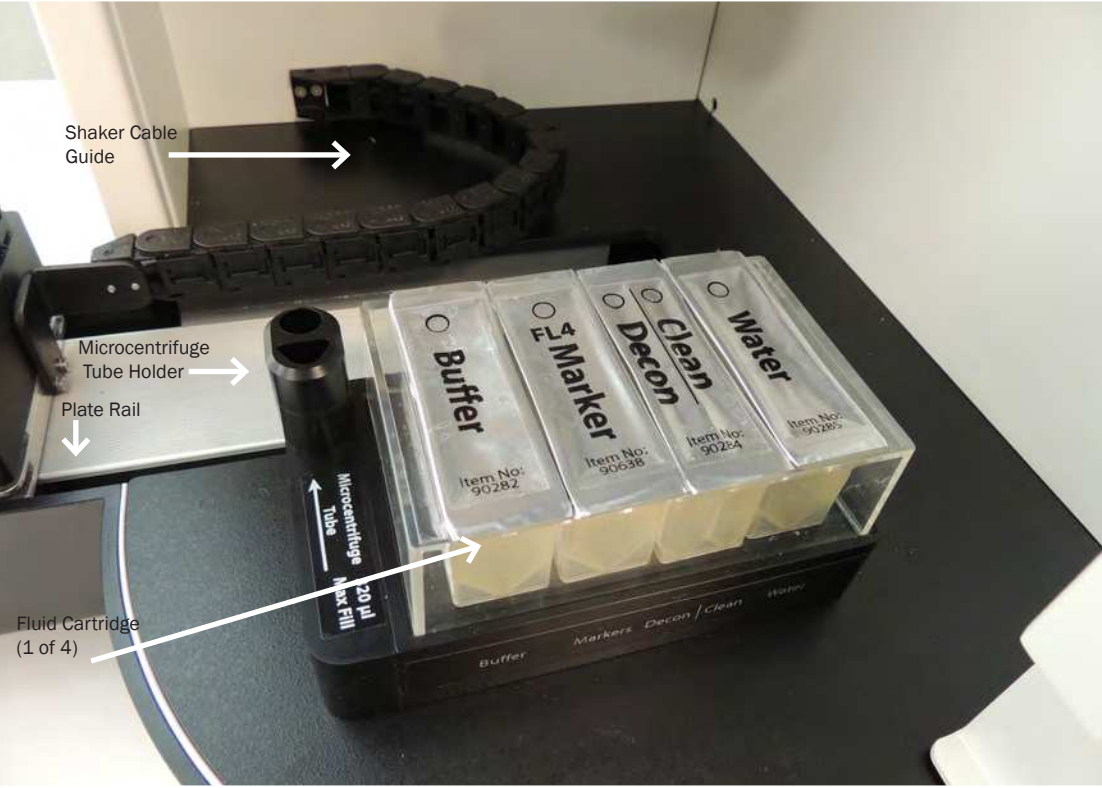
Click **Show Details** to view messages explaining warning or error states:



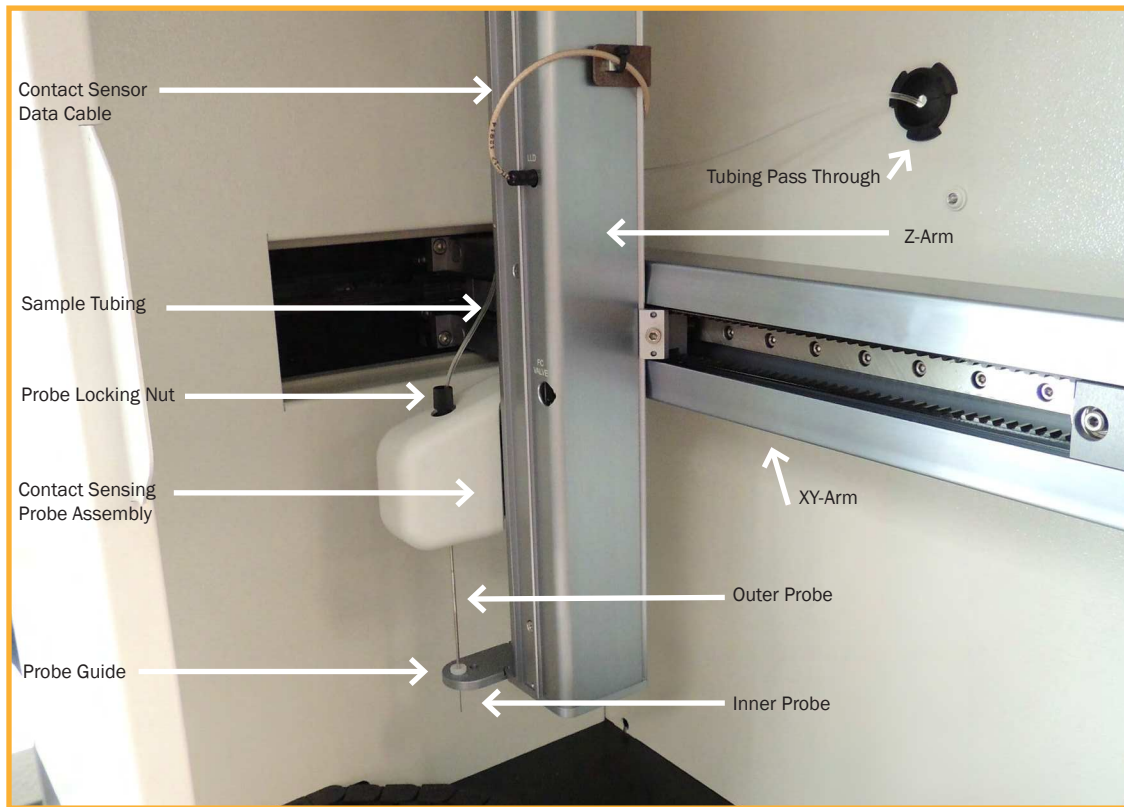
Shaker Detail



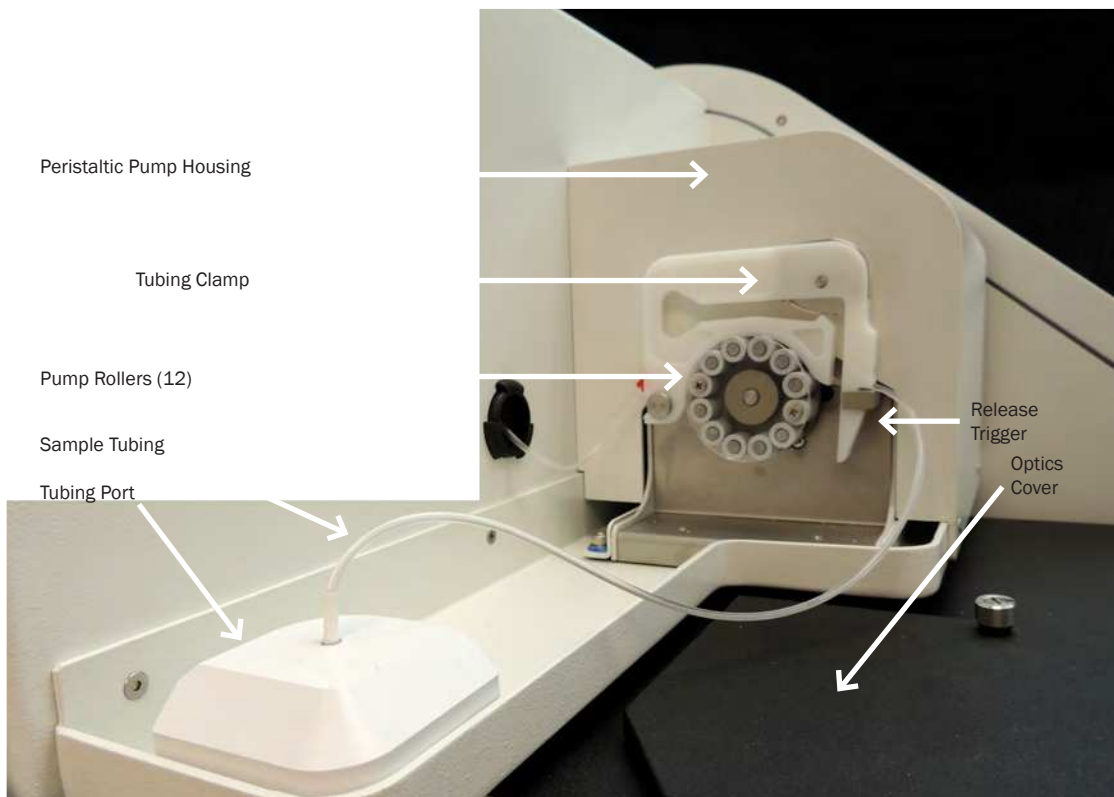
Sampling Area Detail



Sampler Detail



Pump Detail



Right Side Panel Detail

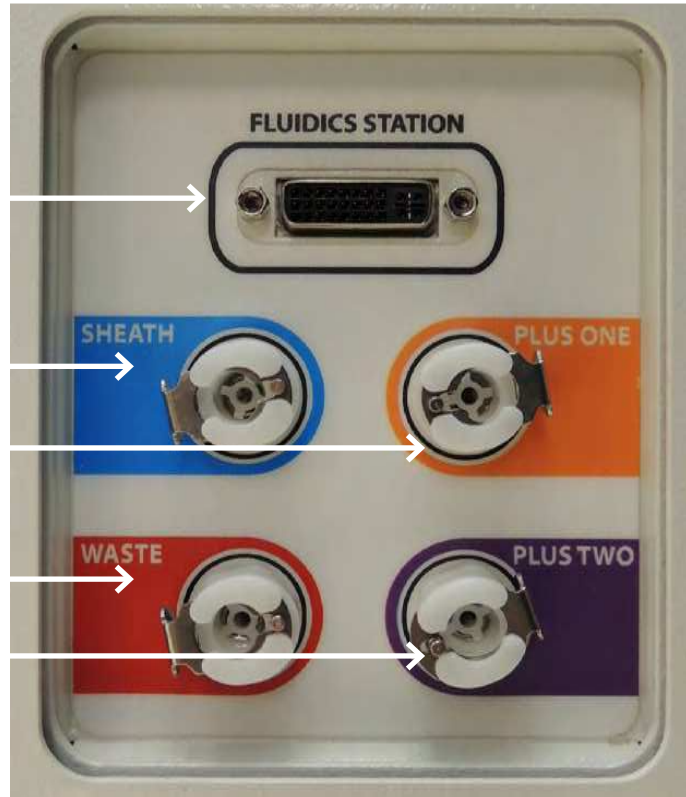
Fluidics Station
Data Connection

Sheath Port

PLUS One Port

Waste Port

PLUS Two Port



Bottle Station

Sheath Bottle

PLUS One Bottle

PLUS Two Bottle

Waste Bottle

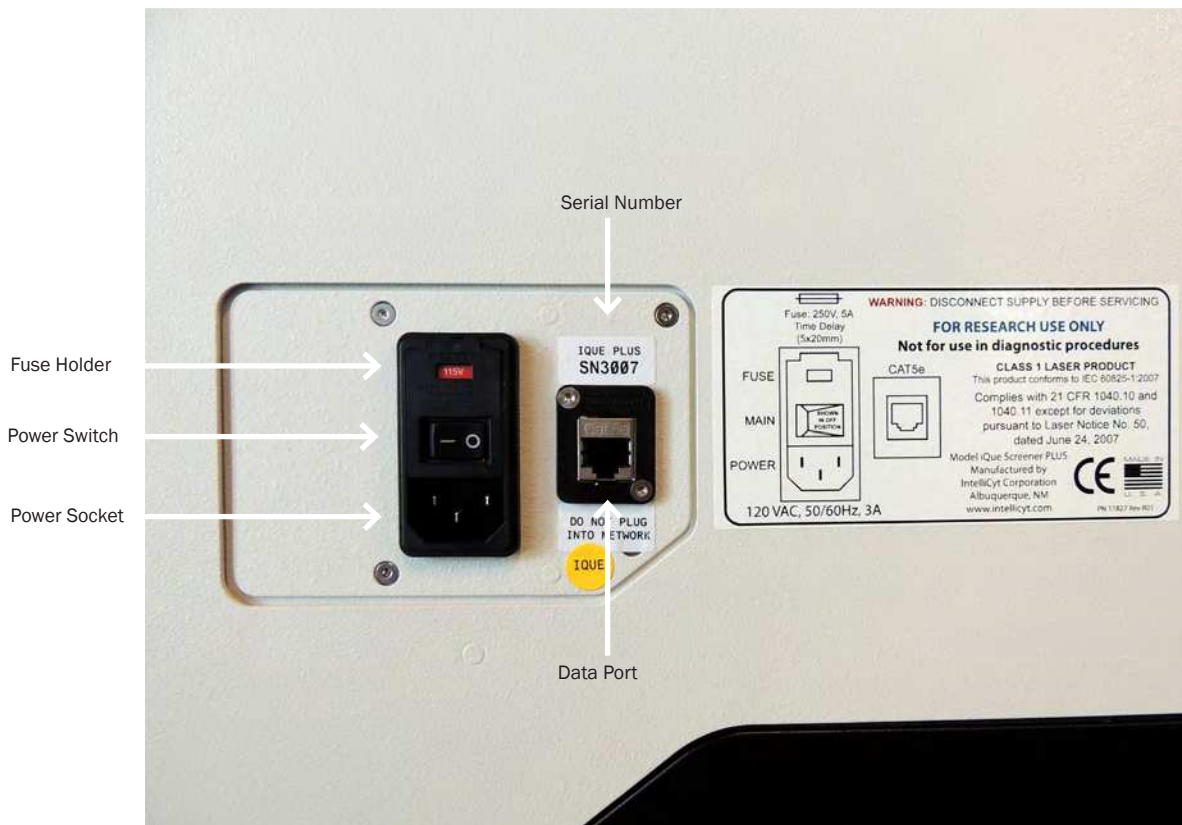
Bottle Station



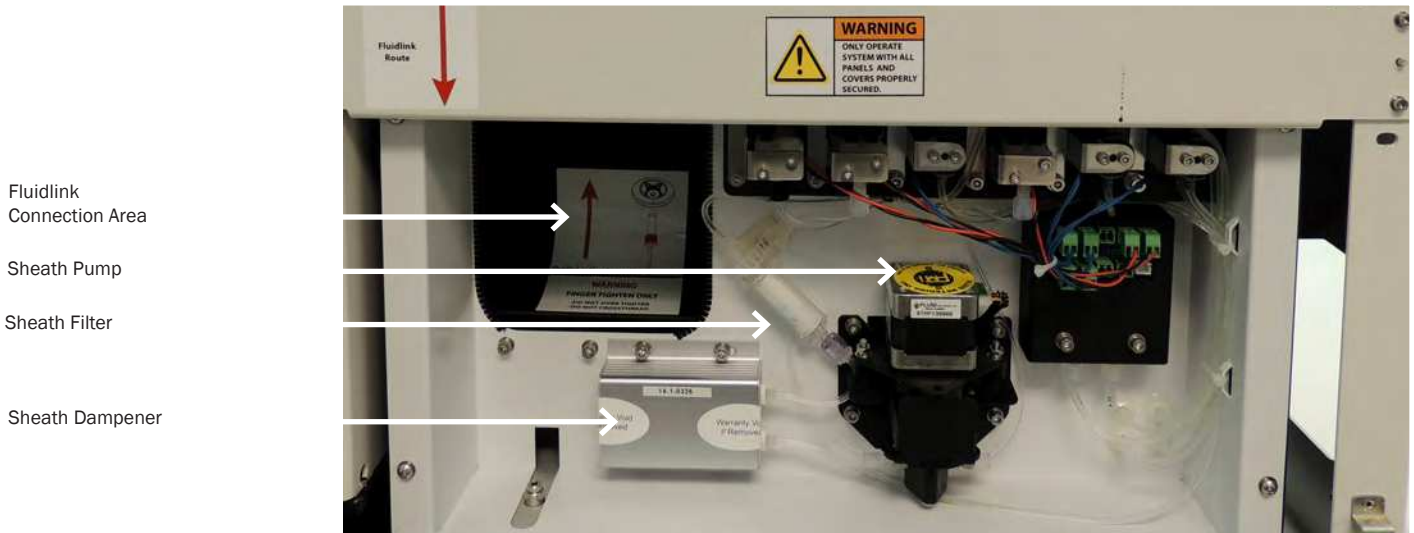
Fluidics Harness Detail



Back Panel Detail



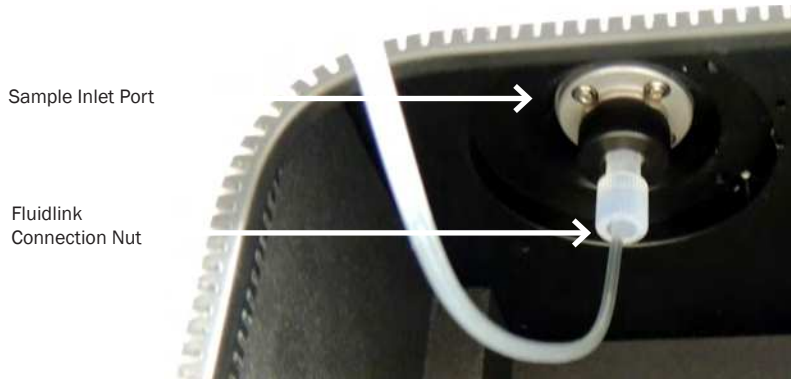
Front Service Area



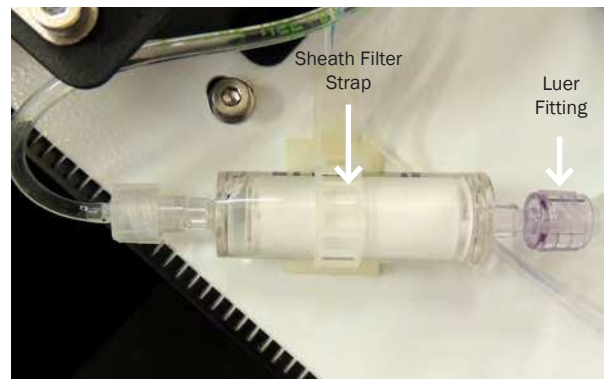
CAUTION



Fluidlink and sheath filter are the only user serviceable parts in this area.



Fluidlink Connection



In-line Sheath Filter

Optical Bench – BR / BR-HD

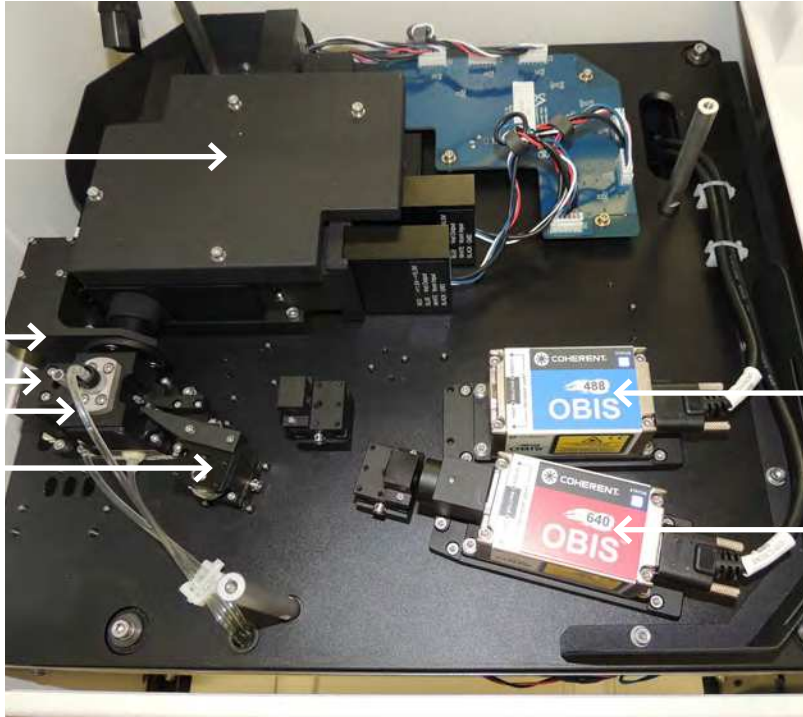
PMT Module

Objective Lens

Forward Scatter Detector

Flow Cell

Focusing Stage
(1 of 4)



Blue Laser

Red Laser

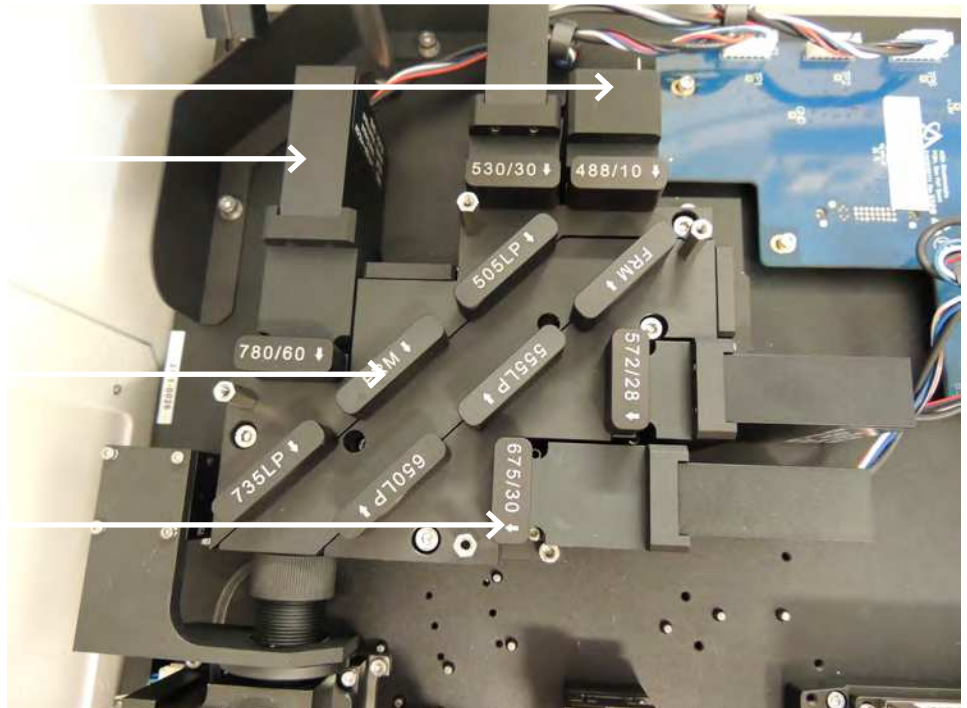
PMT Module Detail – BR

Side Scatter Detector

PMT (1 of 4)

Dichroic Mirror (1 of 6)

Band Pass Filter (1 of 5)



CAUTION



There are no user serviceable parts in this area.

Optical Bench – VBR

PMT Module

Objective Lens

Forward Scatter Detector

Flow Cell

Focusing Stage
(1 of 6)



Violet Laser

Blue Laser

Red Laser

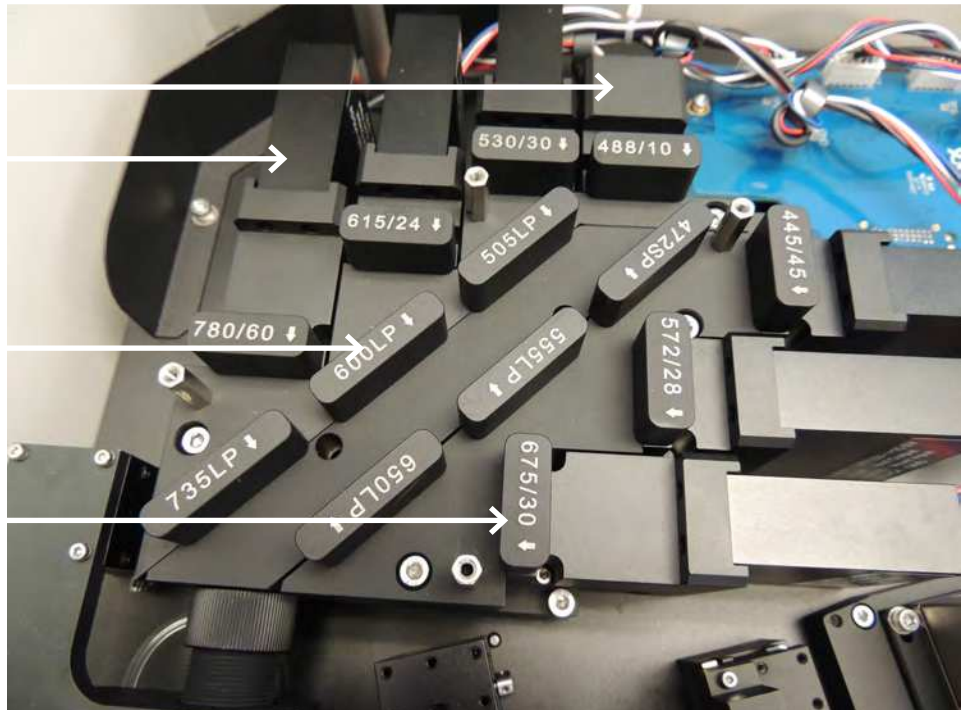
PMT Module Detail – VBR

Side Scatter Detector

PMT (1 of 6)

Dichroic Mirror (1 of 6)

Band Pass Filter (1 of 7)



CAUTION



There are no user serviceable parts in this area.

Optical Bench – VYB

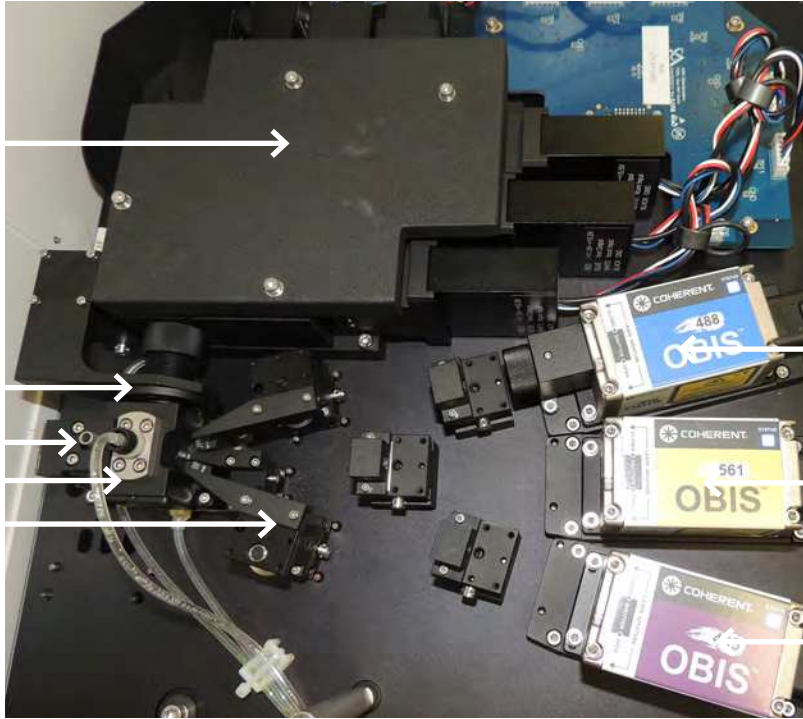
PMT Module

Objective Lens

Forward Scatter Detector

Flow Cell

Focusing Stage
(1 of 4)



Blue Laser

Yellow Laser

Violet Laser

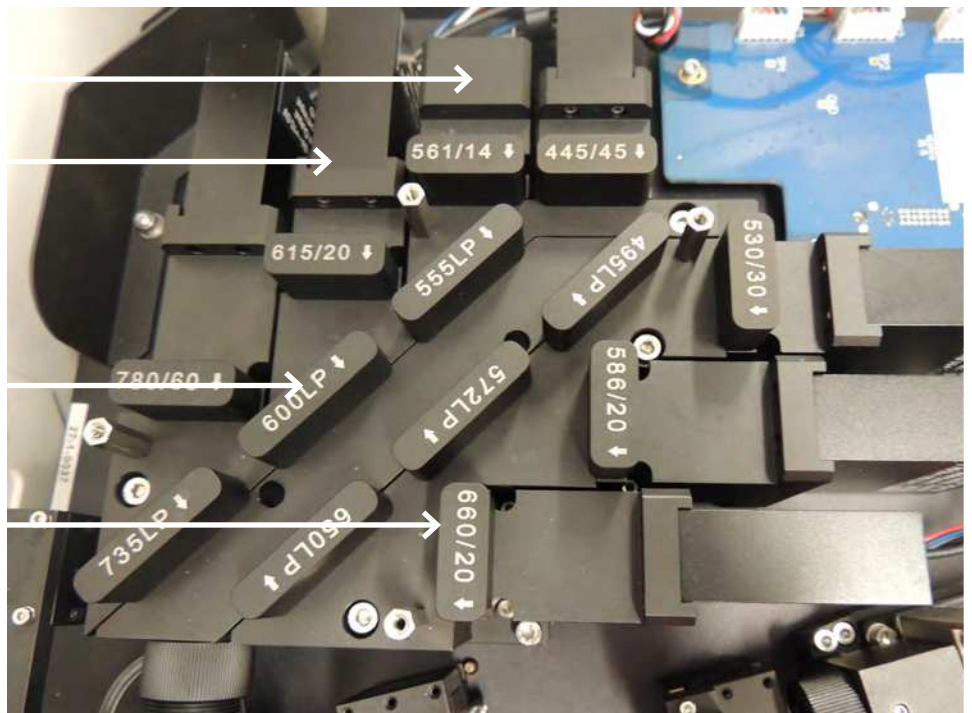
PMT Module Detail – VYB

Side Scatter Detector

PMT (1 of 6)

Dichroic Mirror (1 of 6)

Band Pass Filter (1 of 7)



CAUTION



There are no user serviceable parts in this area.

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Operation

Articles

[Daily Startup](#)

[Daily QC](#)

[Running a Plate](#)

[Daily Shutdown](#)

[iQue Screener PLUS Bottle Fluids](#)

[iQue Screener PLUS Deck Fluids](#)

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Daily Startup

Overview

This procedure explains how to perform a proper daily startup of the iQue Screener PLUS.

Steps

Fill the Sheath, PLUS ONE, and PLUS TWO bottles and empty the Waste bottle.

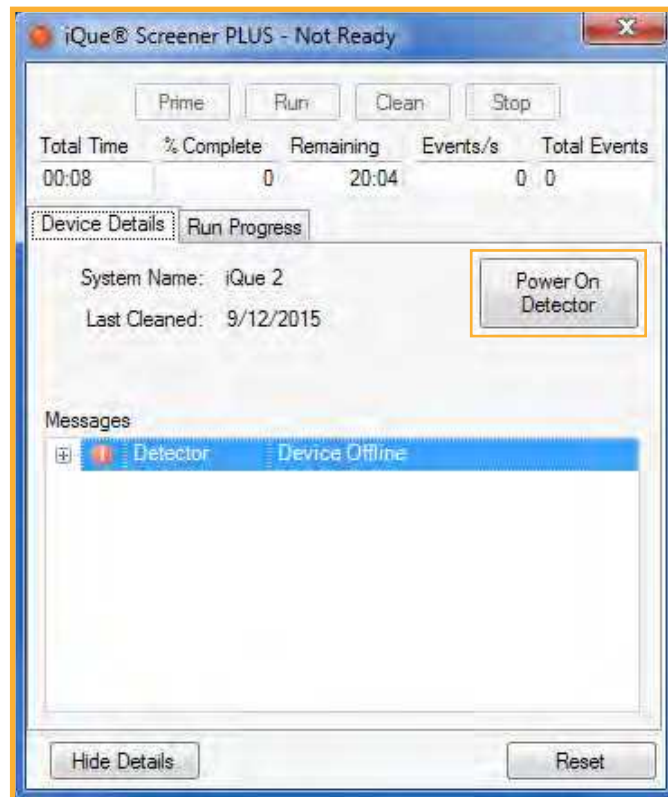
Refer to the [iQue Screener PLUS Bottle Fluids](#) chapter for detailed instructions.

Install new deck fluid cartridges or fill the deck troughs.

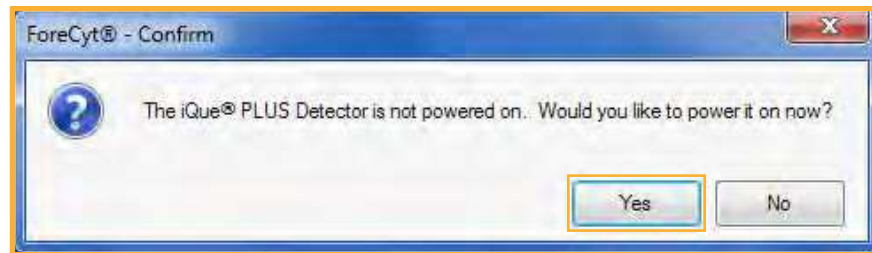
Refer to the _ chapter for detailed instructions.

Power on the detector.

If ForeCyt is already started, click the **Power on Detector** button.



If ForeCyt is not started, use the desktop shortcut to launch ForeCyt. When prompted to power on the detector, click **Yes**.



Make sure that the fluid link and peristaltic pump tubing clamp are properly installed as shown in the iQue Screener PLUS Startup Wizard and then click **Start**.



The system will go through an initialization and startup procedure that takes approximately 30 minutes, 10 minutes to start the cytometer and 20 minutes to perform the probe and tubing clean. Note that it is possible to skip the probe and tubing clean but this is not recommended.

Perform Daily QC.

Refer to the [Daily QC](#) chapter for detailed instructions.

Daily QC

Overview

Running daily quality control is highly recommended. A daily QC check not only ensures that system performance is within specification, but is also a useful diagnostic tool if issues arise. IntelliCyt makes the QC process easy by providing reagents and pre-configured analysis templates. Daily QC should take less than 5 minutes to complete. ForeCyt 6.2 features Automatic QC. Refer to the ForeCyt Reference Guide for more information.

Procedure

The Daily QC test runs a set of Validation Beads and checks their performance against a set of standards. For each fluorescence channel, the mean fluorescence and CV of the brightest peak is checked.

Prepare Validation Beads by adding **2 drops** of beads to **300 μ L** Buffer Solution in a 1.5 mL microcentrifuge tube.

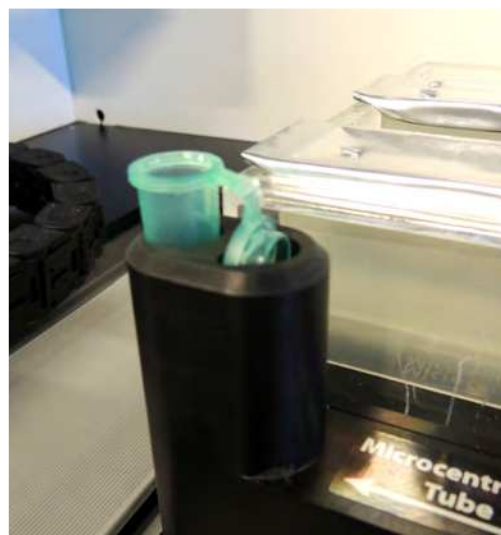
Note: A single preparation of beads is sufficient for five days of Daily QC runs and should last a week if stored in the dark at 2–8°C.

Vortex the bead sample and place the tube in the iQue Screener PLUS tube holder.

Ensure there is a Buffer cartridge in the Buffer slot in the fluid trough holder.

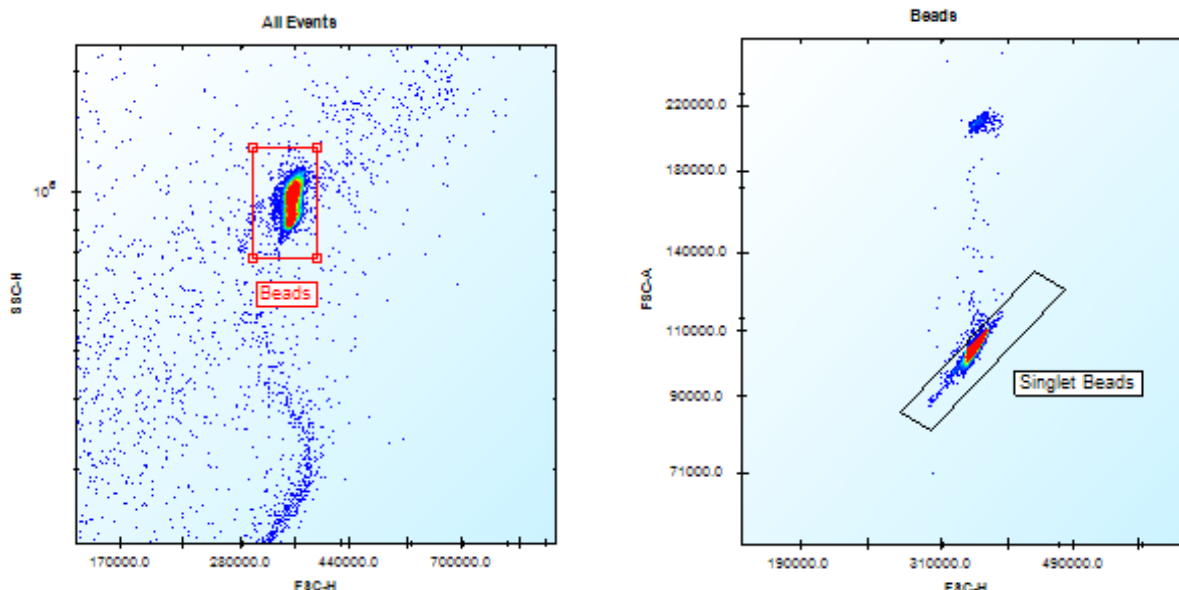
Add a plate to your current Daily QC Experiment.

Run the plate (approximately 5 minutes).



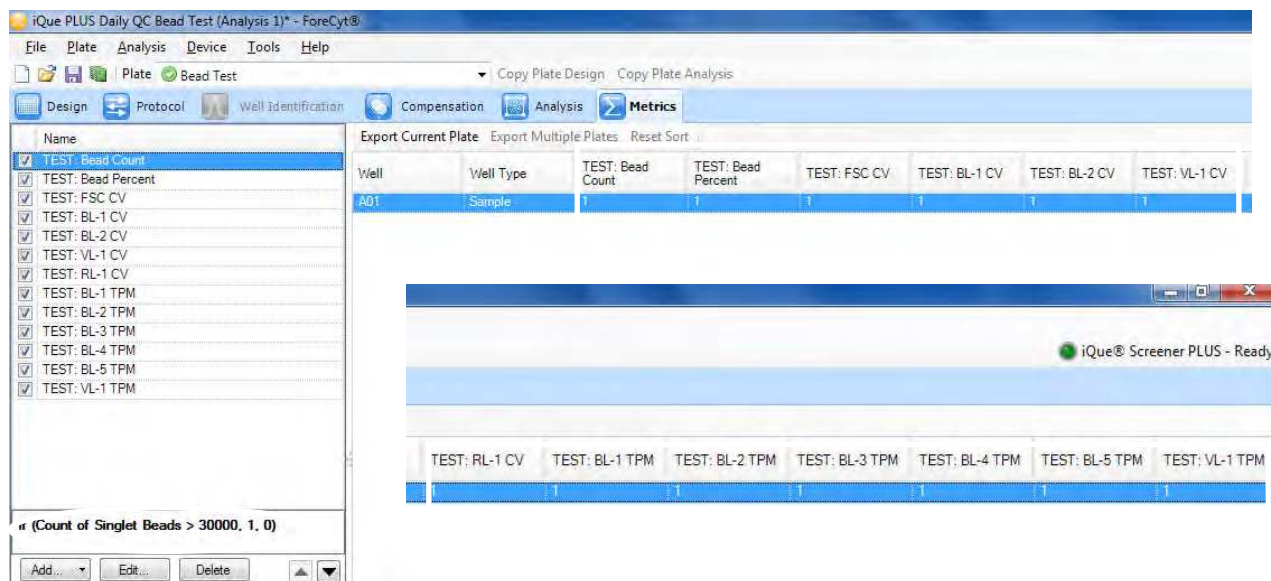
Interpreting the Test Results

After the test completes, switch to the **Analysis** tab in ForeCyt and observe the dot plots for the bead population. They should form a compact, well defined population.



If the bead population is poorly defined (sparse, smeared, shadowed), prepare a new batch of beads, run a [Detector Debubble](#) as documented in the [Standard Cleaning Procedures](#) section and retest.

Switch to the **Metrics** tab and observe the values for the thirteen "TEST" metrics. These are custom calculation metrics that return "1" if the test passes and "0" if the test fails.



Be sure to scroll through all thirteen test metrics. If any metric fails (returns 0), try the following:

- Re-run with a fresh bead preparation;
- Debubble (See [Standard Cleaning Procedures](#)) ;
- Perform Probe and Tubing Clean (See [Standard Cleaning Procedures](#)).

If the test still fails, contact IntelliCyt Technical Support.

The specific definition of each test can be observed by selecting the metric in the list and looking at its calculation expression. For example, the "TEST: Bead Count" metric passes if the test recorded more than 30,000 events.

Running a Plate

Overview

This chapter describes the minimum steps required to run a simple plate. The purpose is to illustrate basic operation of the instrument, not to explain all of the hundreds of options and features in the ForeCyt® software.

Checklist for Running a Plate

- Step 1 – [Prepare a Plate](#)
- Step 2 – [Create a New Experiment](#)
- Step 3 – [Set the Acquisition Protocol](#)
- Step 4 – [Run the Plate](#)
- Step 5 – [Perform Well Identification](#)
- Step 6 – [Analyze your Data](#)

Step 1 – Prepare a Plate

This example experiment was run using a simple suspension cell line. Final cell concentration was 1,000 cells per μL . 30 μL were put in each well of a V-bottom 96-well plate. When preparing your sample, be sure to adhere to IntelliCyt's best practices for assay development and optimization which is covered in detail elsewhere. Please contact support.intellicyt@sartorius.com if you have questions about sample preparation for the iQue Screener PLUS instrument.



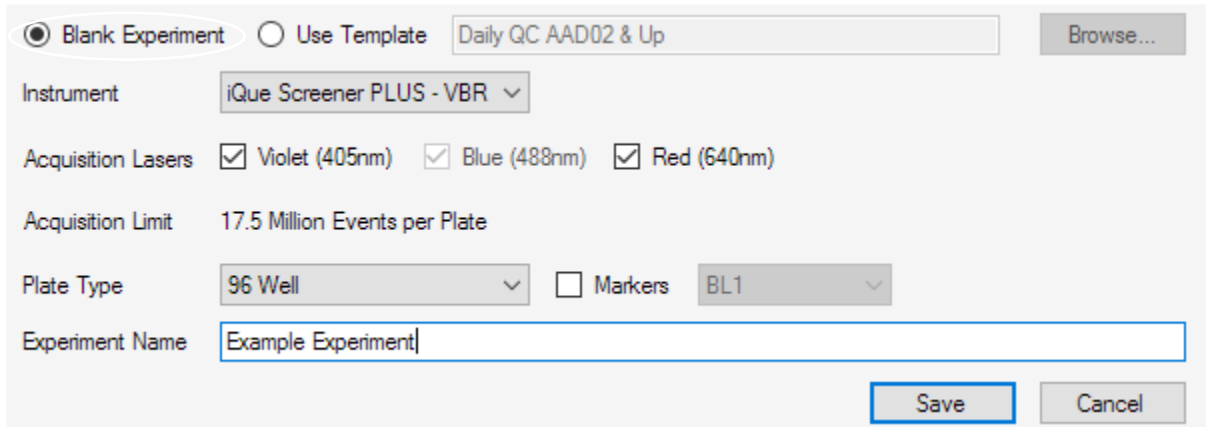
NOTE For cell based assays, IntelliCyt recommends a final cell concentration of 1 to 3×10^6 cells/mL. Higher concentrations may clog the instrument.

Step 2 – Create a New Experiment

Click the **New Experiment** button on the ForeCyt® toolbar.

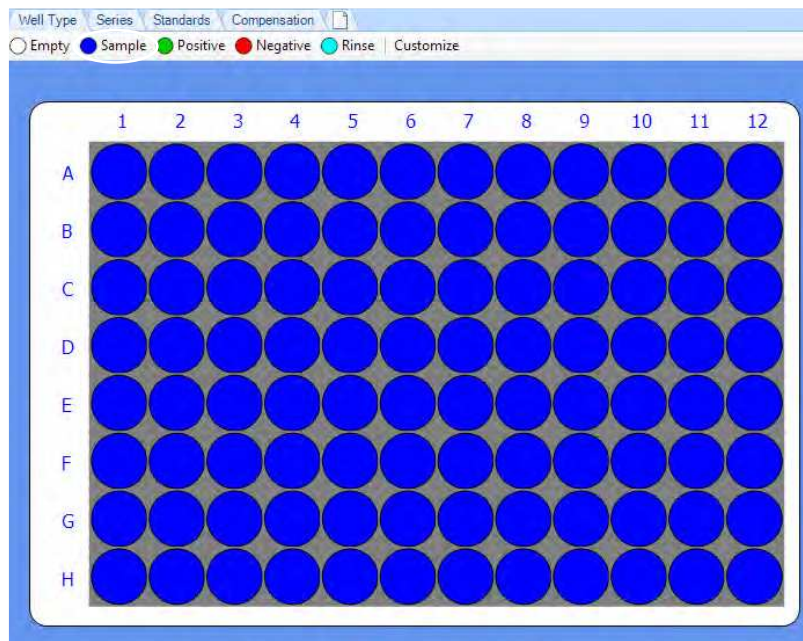


In the New Experiment dialog, choose **Blank Experiment**, **Plate Type = 96 Well**, give your experiment a name and click **Save**.

A screenshot of the 'New Experiment' dialog box in ForeCyt®. The 'Blank Experiment' radio button is selected. The 'Instrument' is set to 'iQue Screener PLUS - VBR'. Under 'Acquisition Lasers', 'Violet (405nm)', 'Blue (488nm)', and 'Red (640nm)' are all checked. The 'Acquisition Limit' is '17.5 Million Events per Plate'. The 'Plate Type' is '96 Well', 'Markers' is unchecked, and 'BL1' is selected in the dropdown. The 'Experiment Name' field contains 'Example Experiment'. 'Save' and 'Cancel' buttons are at the bottom right.

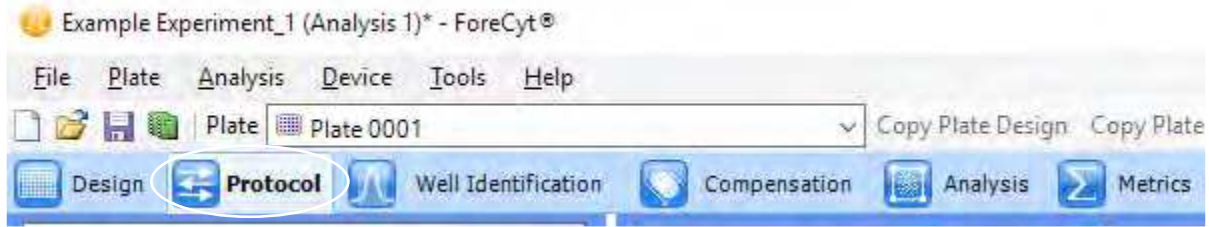
Your new, blank, 96 well experiment will be created and opened.

Click and drag to select all 96 wells on the plate on the Design tab and click **Sample** to mark them as wells to be sampled.



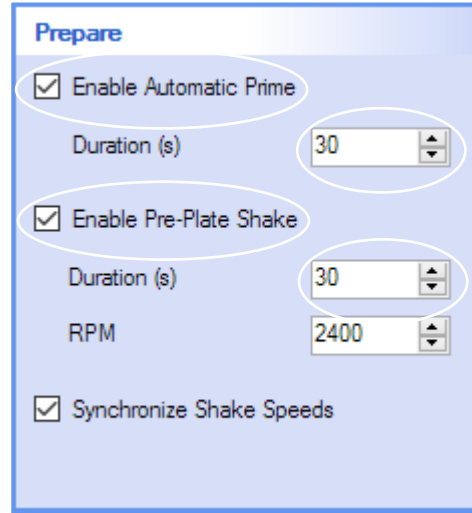
Step 3 – Set the Acquisition Protocol

Switch to the **Protocol** Tab



In the Prepare box, enable a 30 second pre-plate prime and a 30 second pre-plate shake.

Note that other prime and shake patterns can be used. If you suspect insufficient sample resuspension increase the duration of the pre-plate shake. In total, however, it is best to have 60 seconds of combined pre-plate prime and shake (prime = 30 seconds, shake = 30 seconds).

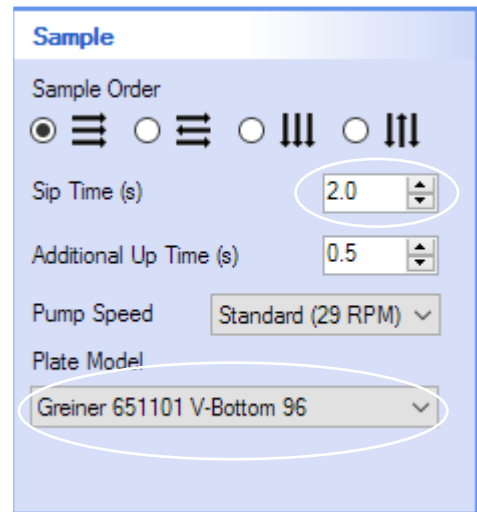


and a 30

If you have 60 + shake

In the Sample box, set the Sip Time to 2 seconds and choose a mapped 96 well plate model that matches the plate you prepared.

IntelliCyt recommends collecting 1000–2000 events of interest per well for statistical relevance in most assays. IntelliCyt also recommends the Standard (29 RPM) speed for most assays. At this speed, the instrument delivers between 1.5 and 2 μL per second. Taking your cell concentration and the percentage of cells that qualify as events of interest (for example, CD4+ normal singlets), you can calculate Sip Time.



In this example:

Cell concentration = 1000/ μL .

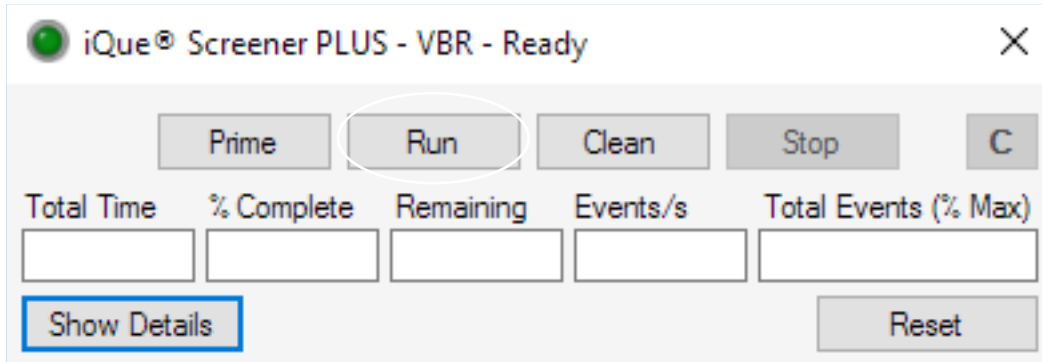
Events of interest (normal singlets) = ~65% of the initial cells

2 second Sip = ~3.5 μL = ~2,275 normal singlets/well.

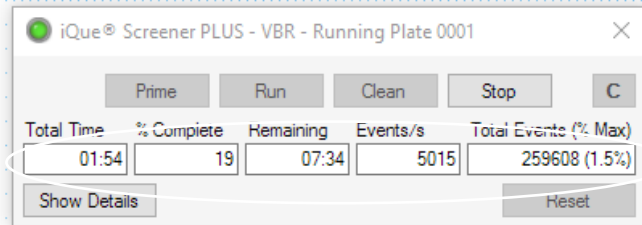
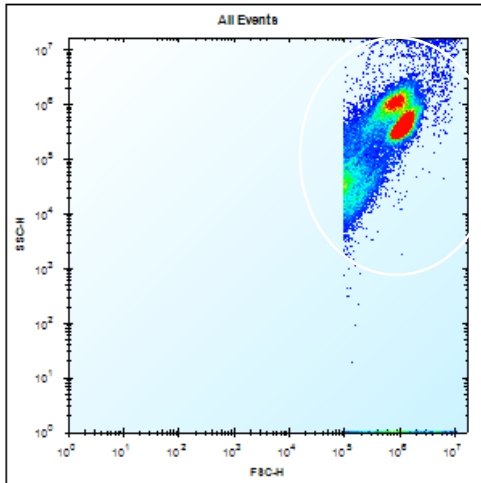
Step 4 – Run the Plate

Open the grippers on the deck by pulling back the gripper release lever and place your plate on the deck.

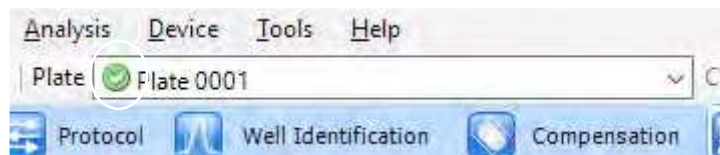
In the Controller Console window, click **Run**.



As the plate runs, you can monitor the run progress by observing the default scatter plot and looking to the Controller Console for additional plate statistics.



When the plate is finished, you will notice that the Controller Console shows 100% complete and the icon next to the Plate in the plate selector box will be a green checkmark.

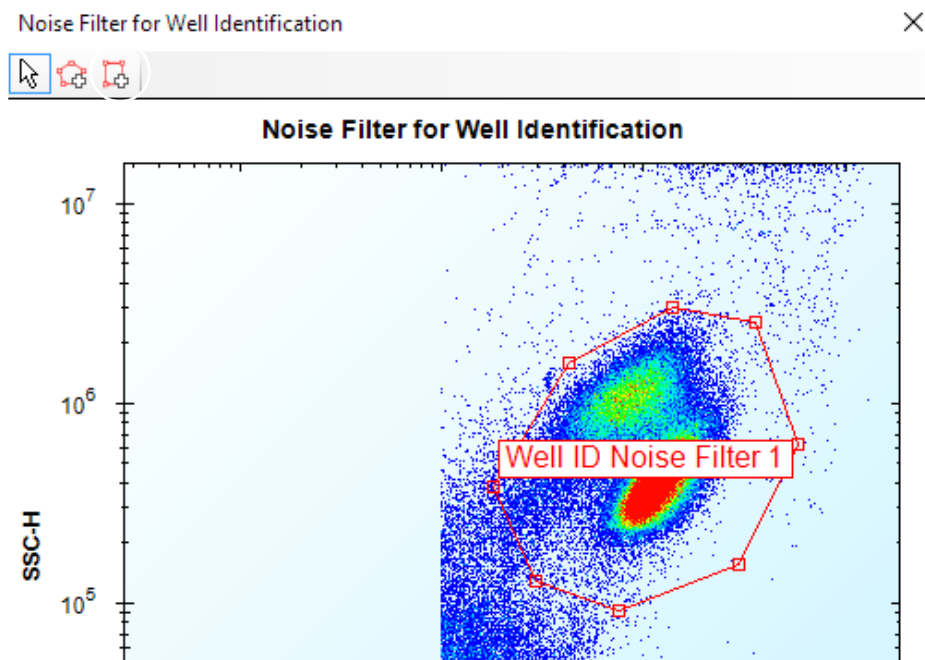


Step 5 – Perform Well Identification

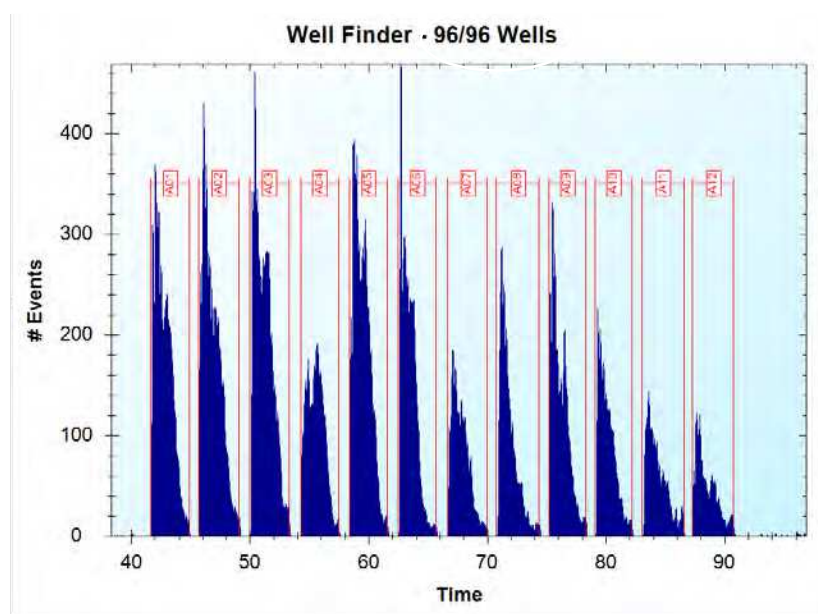
Click on the **Well Identification** tab and click the **Calculate Wells** button.



In the Noise Filter for Well Identification dialog, zoom in, choose a gating tool, and draw a gate around a population that exists in all of your wells. Then click **Close**.



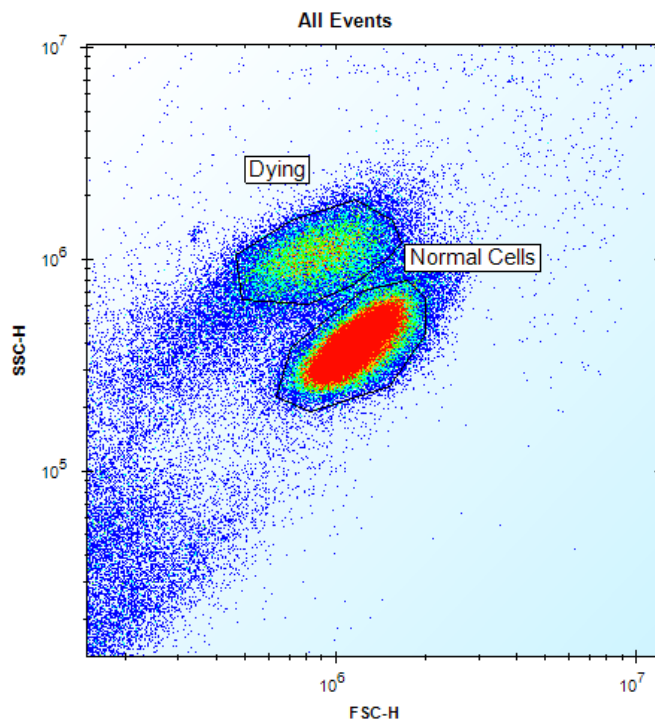
At this point, your wells are calculated. What this means is that ForeCyt® creates a series of time gates that identify which events belong to which well. You can proof the well ID by verifying that 96 of 96 wells were identified and by zooming in to observe the time gates.



Step 6 – Analyze your Data

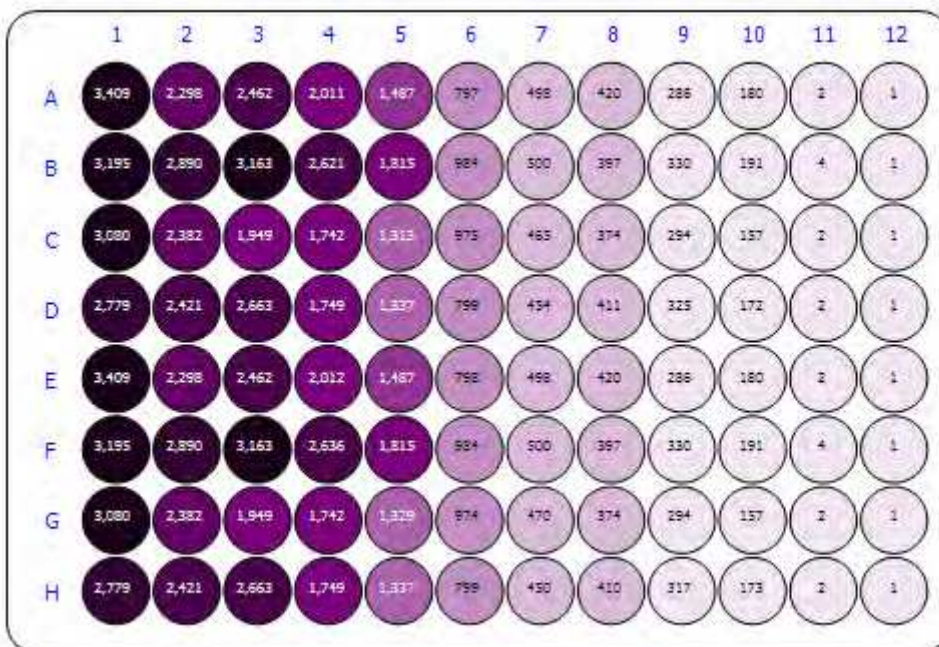
This is an example of a very simple data analysis showing some of the basic techniques in ForeCyt. For detailed instructions on ForeCyt data analysis see the video tutorials on the IntelliCyt website.

A FSC vs. SSC scatter plot is used to identify normal and dying cells based on their morphology.



A "Live-Dead" ratio is calculated using an Advanced Metric that takes the count of Normal Cells as % of Dying which is then visualized using a Heat Map.

Live Dead Ratio



Range: 1 to 3,409

Daily Shutdown

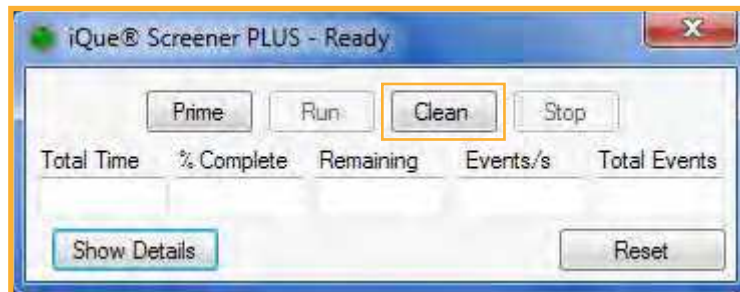
Overview

This procedure explains how to perform a proper daily shutdown of the iQue Screener PLUS.

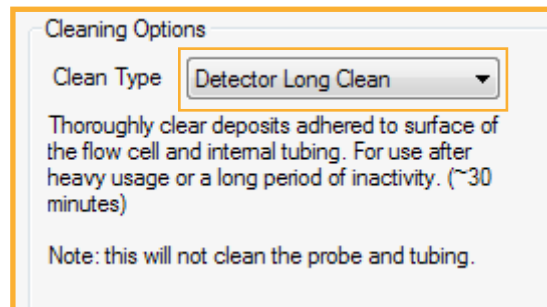
Steps

Optional Long Clean: At least once a week, and particularly after heavy usage, perform a Detector Long Clean.

Click **Clean** in the Controller Console.



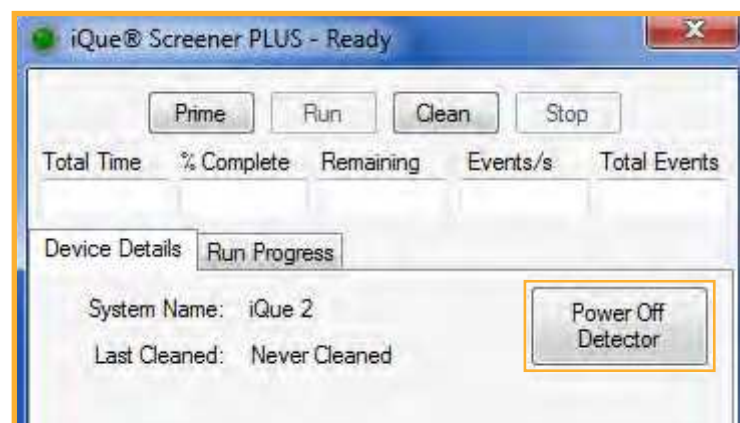
Choose **Detector Long Clean** in the Cleaning Options drop down.



Click **Next** and follow the wizard to complete the Long Clean

Power Off Detector

Click **Power Off Detector** in the Controller Console.



Follow the instructions in the Shutdown Wizard and click **Start** to initiate the shutdown.



iQue Screener PLUS Bottle Fluids

Overview

This article describes the fluids in the iQue Screener PLUS Bottle station, how they are prepared, and how the bottle station liquid level detection works.

Bottle Station



SHEATH

Hydrodynamic focusing of samples in the flow cell.

1 bottle of IntelliCyt Bacteriostatic Concentrate in 1 liter of water.
Part No. **90078**

First phase cleaning solution for cleaning the detector.

1 part IntelliCyt PLUS One 5x Concentrate to 4 parts water.
Part No. **91089**

PLUS TWO

Second phase rinsing solution for cleaning the detector.

1 part IntelliCyt PLUS Two 5x Concentrate to 4 parts water.
Part No. **91090**

WASTE

Empty reservoir for waste.

Optional: 100–200 mL household bleach in the bottle after it has been emptied.

Bottle Fluid Concentrates



CAUTION



Use **only** IntelliCyt approved fluids in the iQue Screener PLUS. Use of unapproved fluids can damage the instrument. In particular, the use of sheath fluid or cleaners designed for other flow cytometers as well as the use of household bleach or other caustic agents are strictly prohibited.

NOTE



For all iQue Screener PLUS fluids, the use of HPLC reagent grade filtered, distilled water (0.22 μm filter), or equivalent is recommended.

Filling the Bottles

- Release the bottle connectors from the tops of the bottles.
- Remove the bottles from the bottle station.
- Open the lids.
- Fill with the appropriate solution.
- Close the lids (do not over-tighten).
- Return the bottles to their proper, color-coded positions in the station.
- Firmly attach the lines to ensure the auto-closing quick-connects engage.
- Run Debubble (See [Standard Cleaning Procedures](#)).

NOTE



The bottle connectors are auto-closing quick-connects. If they are not firmly re-attached, the valve will remain closed, fluid will not be supplied, and the instrument will enter a low pressure error status.



CAUTION

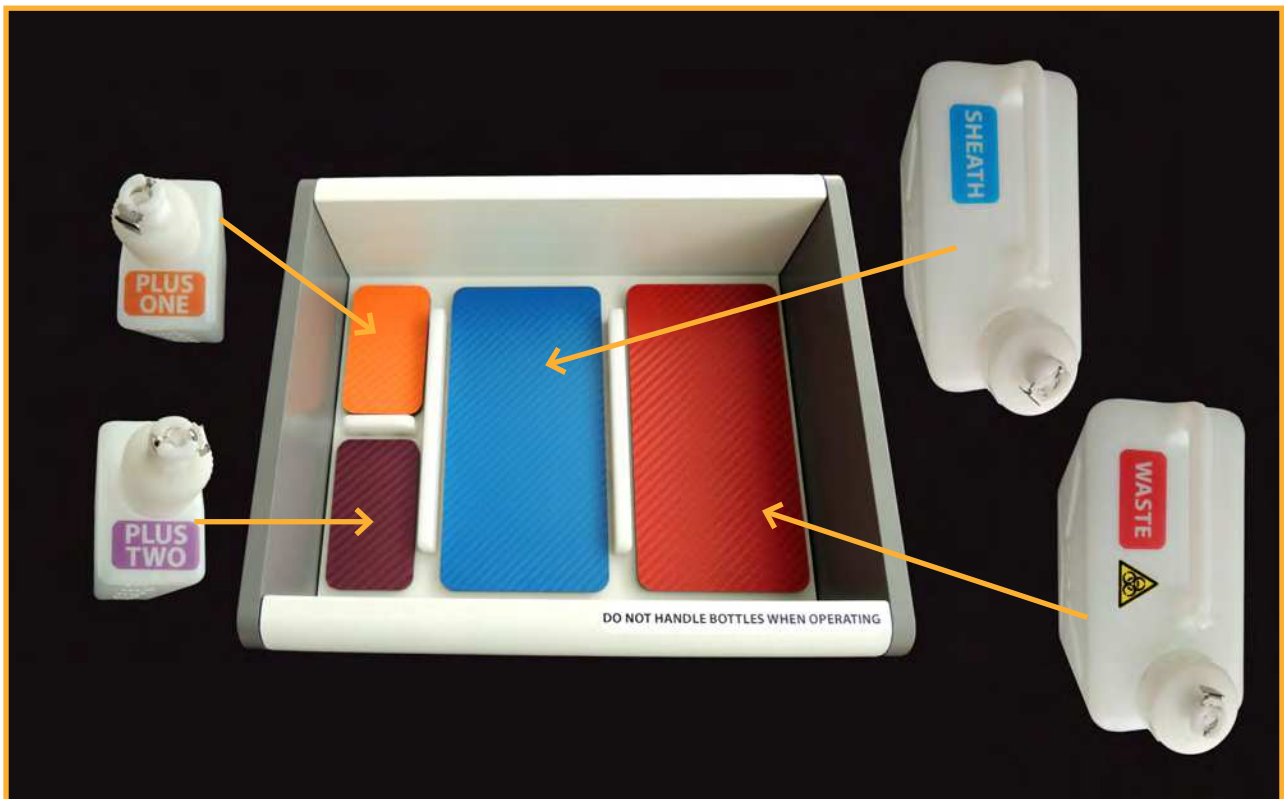


Touching the bottle station during a run can trigger a false bottle error thereby stopping the run. **Do not** attempt to fill or otherwise touch the bottles while the instrument is running.

NOTE

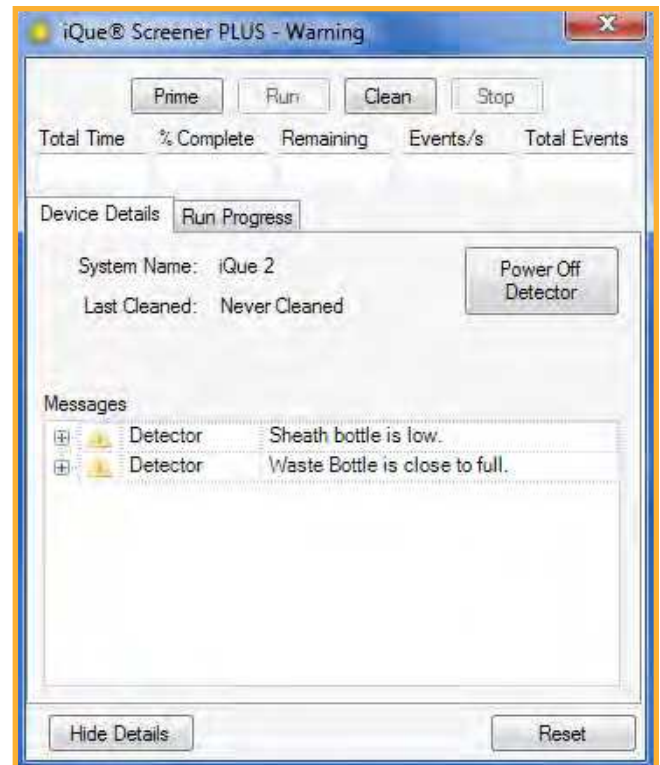


For liquid level detection to function properly, the bottles must be placed in their proper color-coded positions.



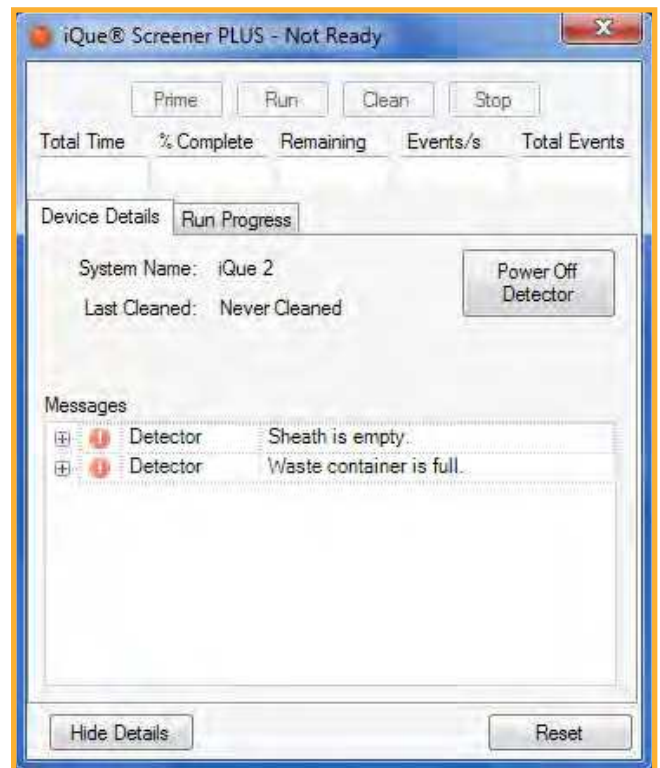
Liquid Level Detection

The bottle station monitors the liquid level. If the Sheath, PLUS One or PLUS Two bottles are running low, or if the Waste bottle is getting full, you will get a warning in the ForeCyt Controller Console.



The system will continue to run with warnings, but they should be addressed before the next plate is started. Do not attempt to address a bottle warning while the system is running. Doing so may trigger a false error state that will halt the current run.

If the system fully runs out of Sheath, PLUS One or PLUS Two, or if the Waste bottle is full, you will get an error in the ForeCyt Controller Console and the system will halt operation.



CAUTION

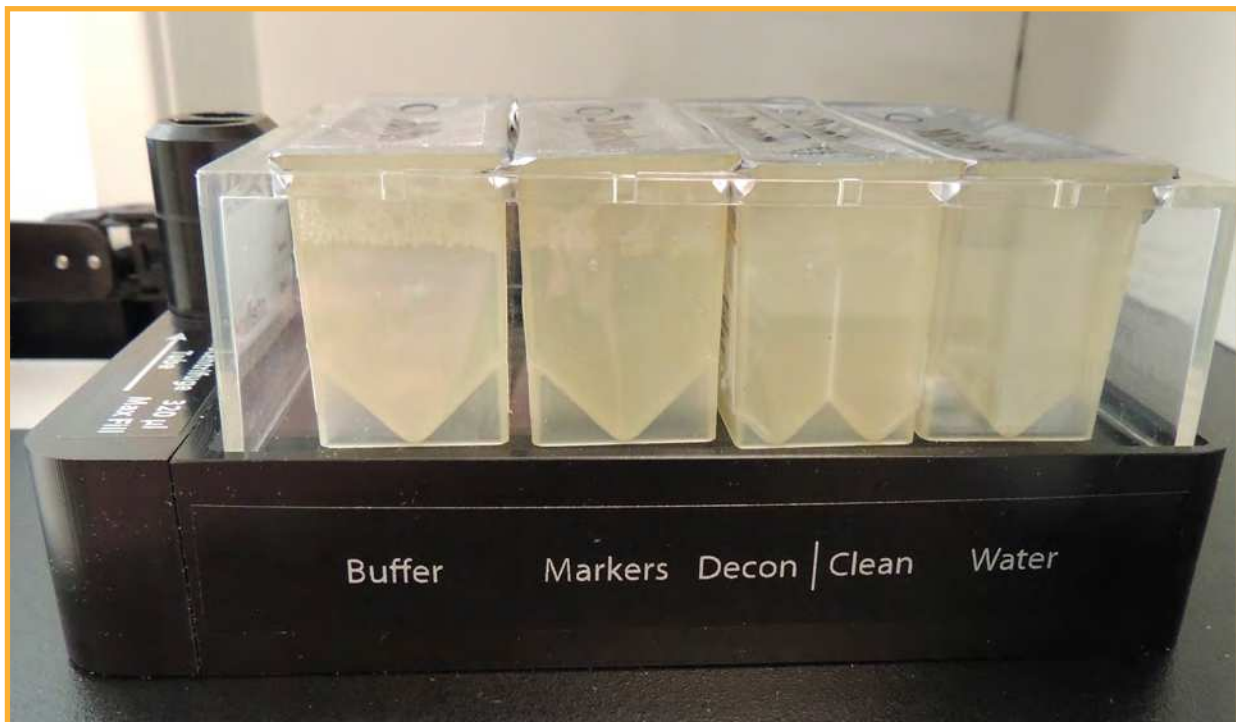


The bottle station must be placed at the same level as the instrument otherwise low pressure errors may result.

iQue Screener PLUS Deck Fluids

Overview

This article describes the fluids found in cartridges or troughs in the iQue Screener PLUS sampling area. In the sampling area of the iQue Screener PLUS there are slots for four quarter module troughs. These can be filled using pre-prepared IntelliCyt fluid cartridges (recommended and shown) or with empty troughs filled with hand mixed solutions.



BUFFER	Coat the sampling line to promote smooth flow of sample.	Part No. 90282 (single) Part No. 90286 (ten)	PBS + 0.1% BSA
MARKERS	Fluorescent particles, sampled between each well, to demarcate well boundaries.	Part No. 90635 (FL1) Part No. 90636 (FL2) Part No. 90637 (FL3) Part No. 90638 (FL4)	None
DECON	A mildly basic solution used to clean and decontaminate the probe and tubing.	Part No. 90284 (single) Part No. 90288 (ten)	One vial of IntelliCyt Decontamination Concentrate in 180 mL of water Part No. 90077
CLEANER	A mildly acidic and surfactant solution used to neutralize the decontamination solution and clean the probe and tubing.		3 mL of IntelliCyt Cleaning Concentrate in 197 mL of water Part No. 90079
WATER	Used to rinse the probe and tubing after Decon and Cleaner have been run through the line.	Part No. 90285 (single) Part No. 90289 (ten)	HPLC reagent grade filtered, distilled water (0.22 µm filter), or equivalent

QSol Buffer

IntelliCyt's standard Buffer formula of PBS + .1% BSA is tried and true and has worked for millions of samples. However, in an effort to continuously improve the robustness of the iQue Screener PLUS platform, IntelliCyt now offers QSol Buffer which is a higher performance alternative to standard Buffer and which can help prevent clogging and aggregation with the most challenging sample types. To order QSol Buffer cartridges use Part No. 90283 (single) or Part No. 90287 (ten).

CAUTION



Use **only** IntelliCyt approved fluids in the iQue Screener PLUS. Use of unapproved fluids can damage the instrument. In particular, the use of sheath fluid or cleaners designed for other flow cytometers as well as the use of household bleach or other caustic agents are strictly prohibited.

NOTE



For all iQue Screener PLUS fluids, HPLC reagent grade filtered, distilled water (0.22 µm filter), or equivalent is recommended.

Using Cartridges

For a Markers cartridge, shake vigorously before use. For the other cartridges, DO NOT shake.

Pierce the foil with a pipette tip in the circle indicated following the instructions included with the cartridge.

CAUTION



Do not pierce the cartridges with the contact sensing probe as this may damage the probe.

Install the cartridge in the appropriate slot.

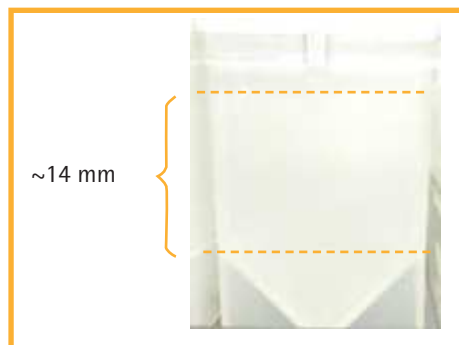
Note: If there is fluid left over in a cartridge at the end of the day, reseal the cartridge with laboratory parafilm and store at 2–8° C for up to a week.

Using Troughs

Manually prepare the required solution using the appropriate concentrate.

Empty and thoroughly clean or replace the trough.

Fill to a point no higher than 14 mm above the "V" of the trough.



Max Fill for Troughs



NOTE



Dirty fluid troughs are a common source of contamination. Replace troughs as needed and always use fresh fluids.

CAUTION



Overfilling troughs may cause contact sensor faults and cross-contamination.

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Maintenance

Articles

[Recommended Maintenance Schedule](#)

[Standard Cleaning Procedures](#)

[Changing the Probe and Tubing](#)

[Fluidics Maintenance](#)

[Managing Plate Models](#)

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Recommended Maintenance Schedule

Overview

iQue Screener PLUS maintenance involves several procedures that need to be performed regularly. Some of these procedures can be performed more frequently as needed based on usage and sample types. Working with samples that are prone to aggregation may require more frequent cleaning and maintenance.

Daily Procedures

Probe and Tubing Clean	Performed daily as part of both instrument startup and shutdown.
Daily QC	Performed daily after startup and before running samples.

Weekly Procedures

Change Probe and Tubing	The recommended interval for a probe and tubing change is every 20 hours. An automatic warning will display when a probe and tubing change is due.
Detector Long Clean	Performed as part of the end-of-week shutdown procedure.

Monthly and Bi-Monthly Procedures

Fluidics Maintenance	The recommended interval for fluidics maintenance is every 176 hours. An automatic warning will display when fluidics maintenance is due.
Detector Unclog	Performed once a month as a preventative clean.

On-Demand Procedures

Detector Quick Clean	Performed on demand as needed to clean the instrument.
Detector Long Clean	Performed on demand as needed to clean the instrument.
Detector Unclog	Performed on demand as needed to address a clog.
Detector Debubble	Performed on demand as needed to clear bubbles from the instrument.

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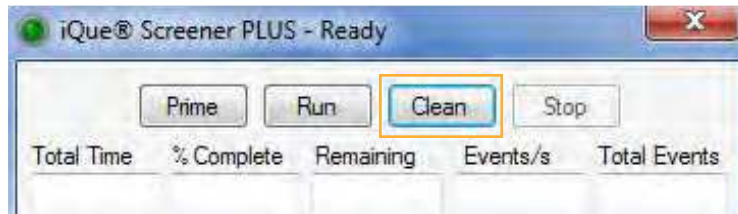
Standard Cleaning Procedures

Overview

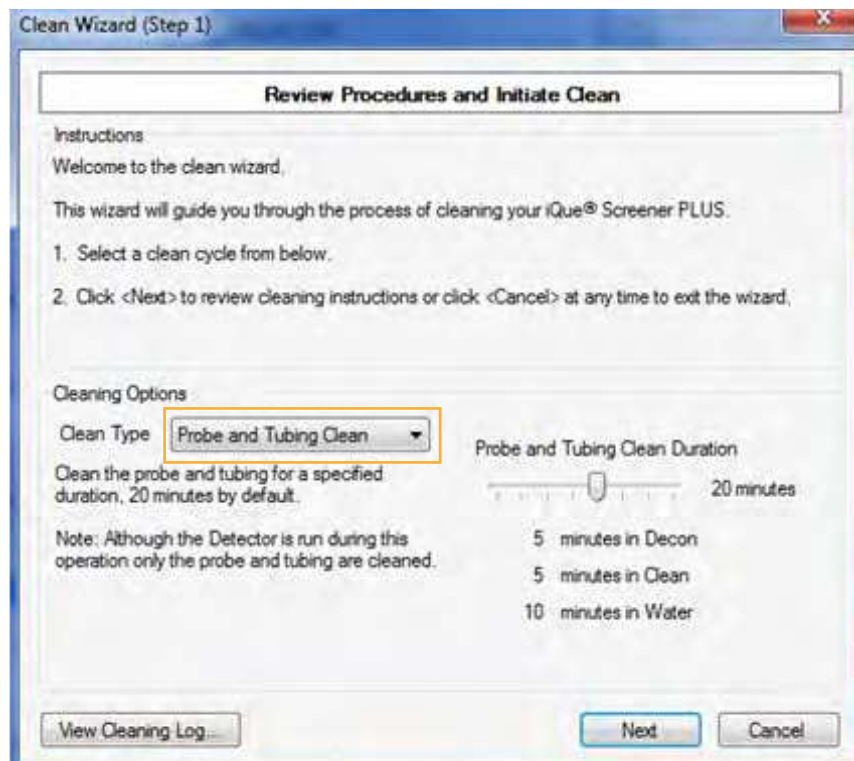
The ForeCyt software supports several standard cleaning procedures. This article explains what each one does and when to use it. All of the standard cleaning procedures are accessed by clicking the **Clean** button and using the Clean Wizard.

Accessing the Clean Wizard

To perform any standard cleaning operation, click the **Clean** button in the Controller Console window.

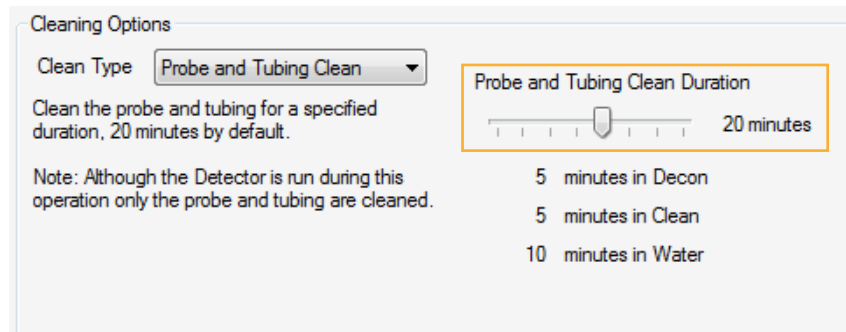


This brings up the Clean Wizard. To perform a specific clean, choose the appropriate clean in the **Clean Type** dropdown, click **Next** and then follow the directions in the wizard.



Probe and Tubing Clean

This clean runs a sequence of Decon, Cleaner and Water through the probe and tubing using the solutions on the sampling deck. This clean should be used any time where you suspect clogging or contamination in the probe and tubing, for example, when the Daily QC water test returns a higher than normal result. You can customize the duration of the clean from 4 minutes to 32 minutes using the Probe and Tubing Clean Duration slider. The default is a 20 minute clean consisting of five minutes of Decon, five minutes of Cleaner and ten minutes of water.



Cleaning Options

Clean Type

Clean the probe and tubing for a specified duration, 20 minutes by default.

Note: Although the Detector is run during this operation only the probe and tubing are cleaned.

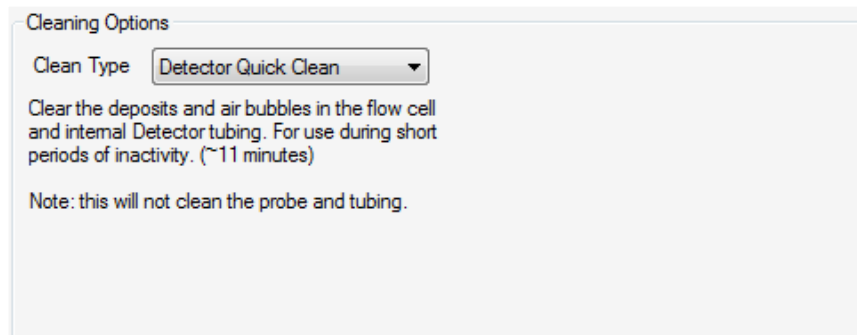
Probe and Tubing Clean Duration

20 minutes

5 minutes in Decon
5 minutes in Clean
10 minutes in Water

Detector Quick Clean

This clean is used clear deposits and air bubbles in the flow cell and internal Detector tubing using the fluids from the bottle station. Use this clean after the instrument has been idle for a short period of time. This clean takes about eleven minutes.



Cleaning Options

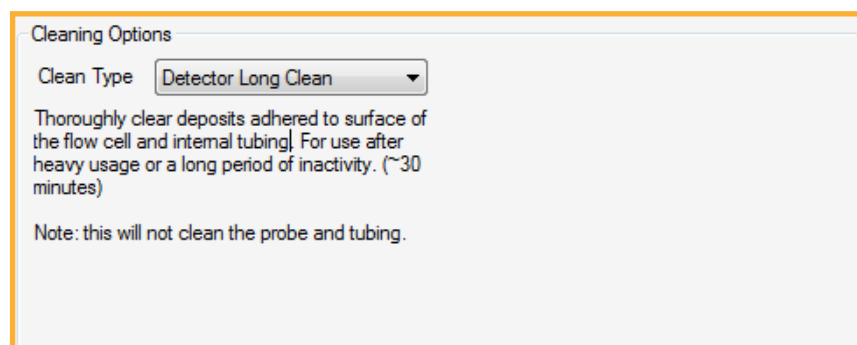
Clean Type

Clear the deposits and air bubbles in the flow cell and internal Detector tubing. For use during short periods of inactivity. (~11 minutes)

Note: this will not clean the probe and tubing.

Detector Long Clean

This clean is used to thoroughly clear deposits adhered to the surface of the flow cell and internal Detector tubing using the fluids from the bottle station. Use after heavy usage or a long period of inactivity. This clean takes about thirty minutes to run.



Cleaning Options

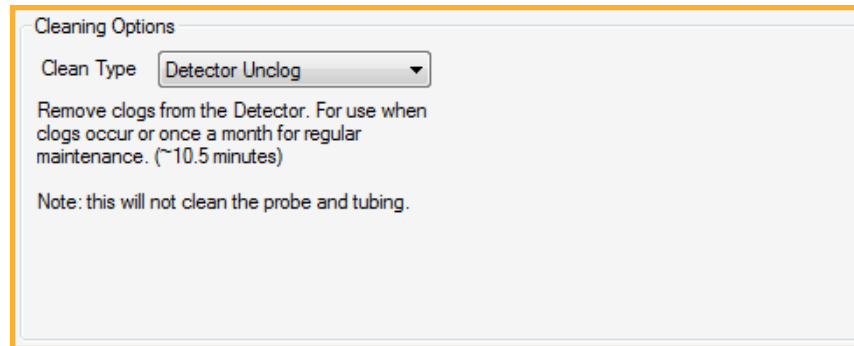
Clean Type

Thoroughly clear deposits adhered to surface of the flow cell and internal tubing. For use after heavy usage or a long period of inactivity. (~30 minutes)

Note: this will not clean the probe and tubing.

Detector Unclog

This procedure is used when a clog in the detector is suspected and also as part of regular monthly maintenance. It takes about ten and a half minutes to run.



Cleaning Options

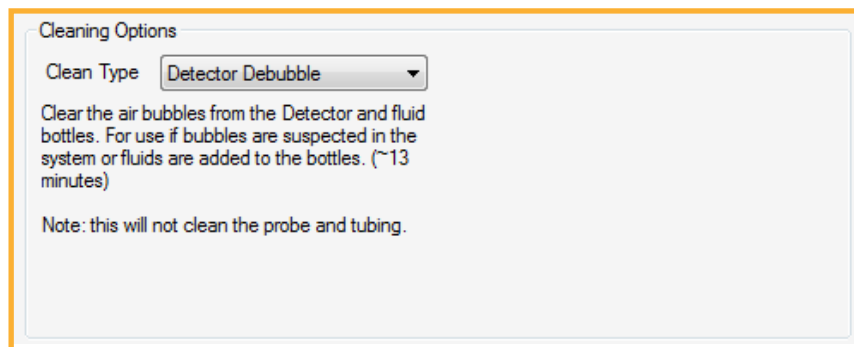
Clean Type **Detector Unclog**

Remove clogs from the Detector. For use when clogs occur or once a month for regular maintenance. (~10.5 minutes)

Note: this will not clean the probe and tubing.

Detector Debubble

This procedure is used to clear air bubbles from the detector fluidic lines and bottles. Use if Daily QC shows irregular scatter, after fluidics maintenance and when fluids are added to the bottles.



Cleaning Options

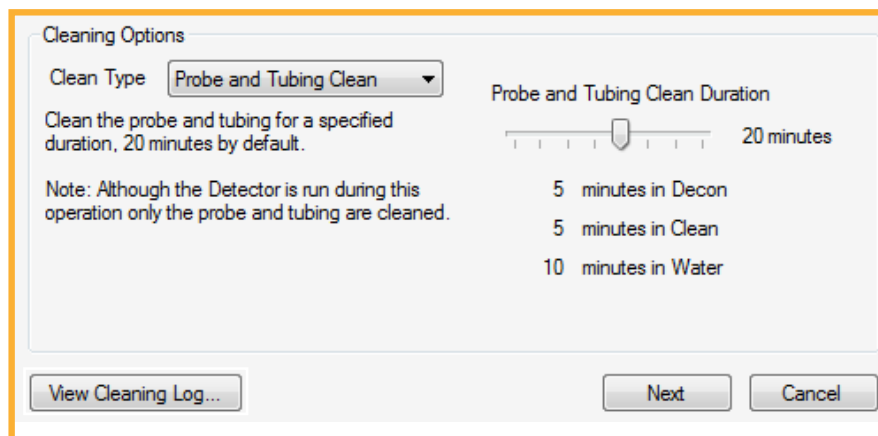
Clean Type **Detector Debubble**

Clear the air bubbles from the Detector and fluid bottles. For use if bubbles are suspected in the system or fluids are added to the bottles. (~13 minutes)

Note: this will not clean the probe and tubing.

The Cleaning Log

The cleaning log is a list of the clean procedures that have been performed, showing the date, time, and user who performed the clean. To view the cleaning, click the **View Cleaning Log...** button in the lower left corner of the Clean Wizard.



Cleaning Options

Clean Type **Probe and Tubing Clean**

Clean the probe and tubing for a specified duration, 20 minutes by default.

Note: Although the Detector is run during this operation only the probe and tubing are cleaned.

Probe and Tubing Clean Duration

20 minutes

5 minutes in Decon
5 minutes in Clean
10 minutes in Water

View Cleaning Log... **Next** **Cancel**

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Changing the Probe and Tubing

Overview

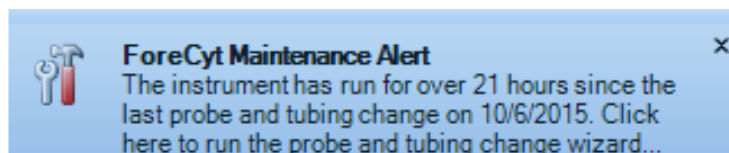
As the iQue Screener PLUS runs, the main sample tubing is worn by the rollers of the peristaltic pump. To ensure proper sample collection, IntelliCyt recommends that the probe and tubing assembly be changed after 20 hours of usage. This article describes the proper way to perform this procedure and how to adjust the automatic reminder that a probe and tubing change is due.

Required Materials

91088	iQue® Probe & Tubing Assy for iQue® Screener PLUS – 5 Pk
91087	iQue® Probe & Tubing Assy for iQue® Screener PLUS – 10 Pk
91086	iQue® Probe & Tubing Assy for iQue® Screener PLUS – 50 Pk

Replace Probe and Tubing Alert

The iQue Screener PLUS instrument tracks how long the current probe and tubing have been in use. When this value passes a certain threshold, a pop-up alert will appear in the lower right-hand corner of the computer screen:

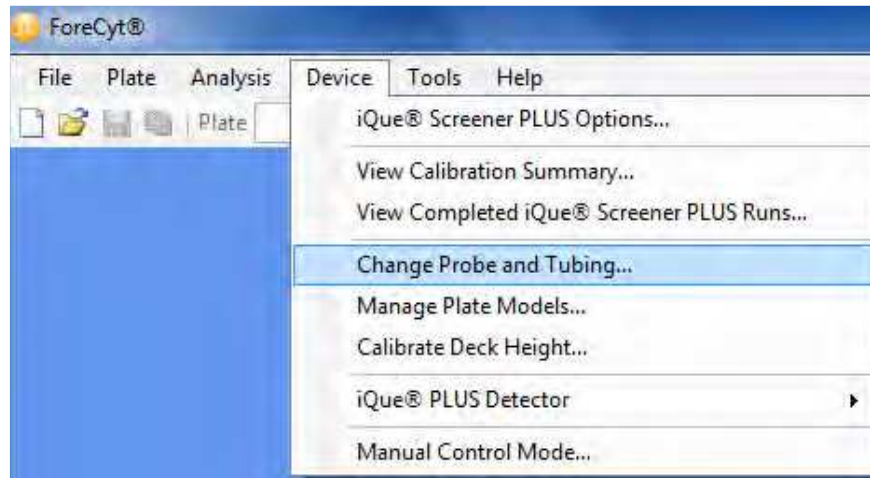


By default, this alert starts appearing after 20 hours of run-time since the last probe and tubing change. You can configure this value by clicking **Device** → **iQue Options** and changing the value in the Replace Probe and Tubing Alert field:

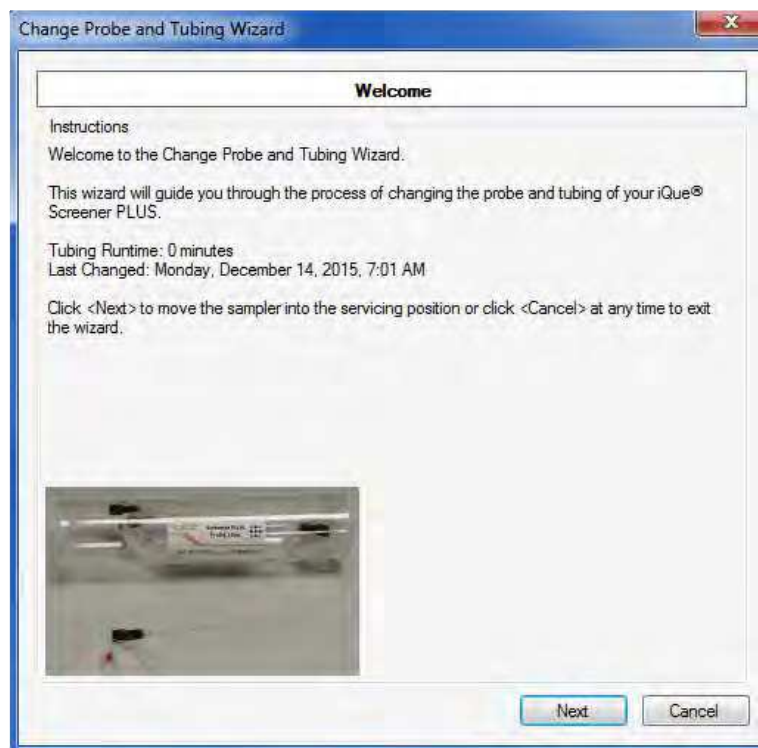


Launching the Change Probe and Tubing Wizard

The Change Probe and Tubing Wizard will guide you through the process of changing the probe and tubing. To launch the wizard, click **Device**→**Change Probe and Tubing...**

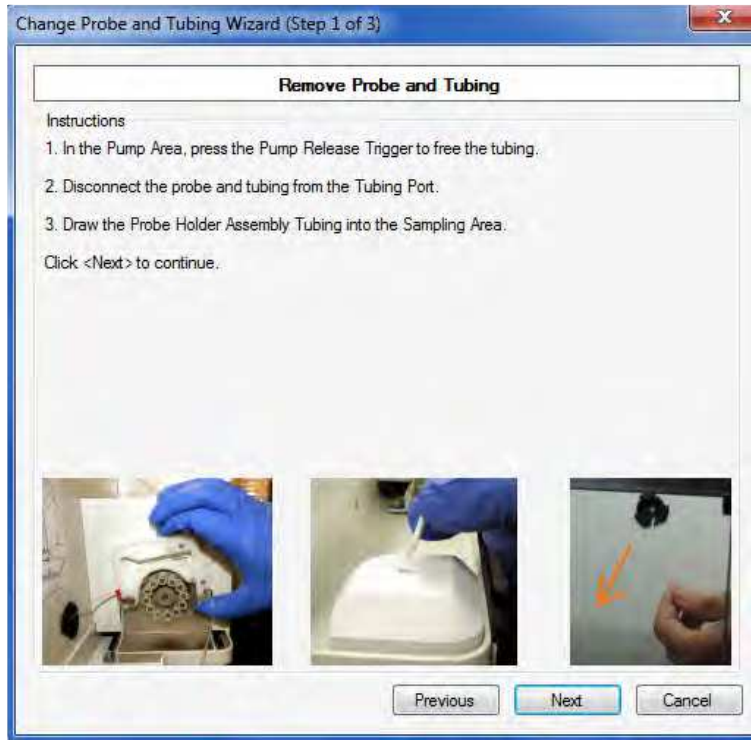


This will launch the Change Probe and Tubing Wizard. The Welcome screen will display the total runtime since the tubing was last changed.

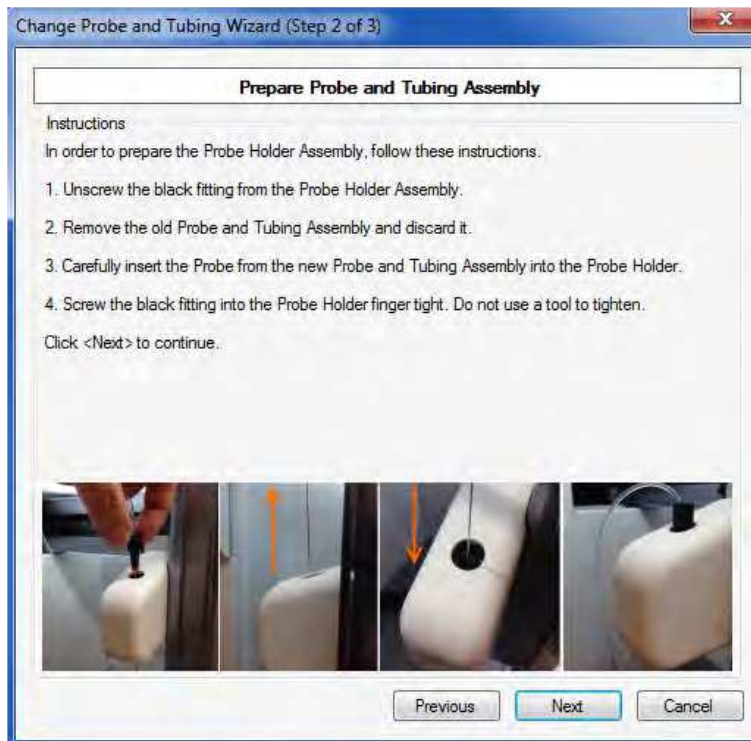


Wizard Steps

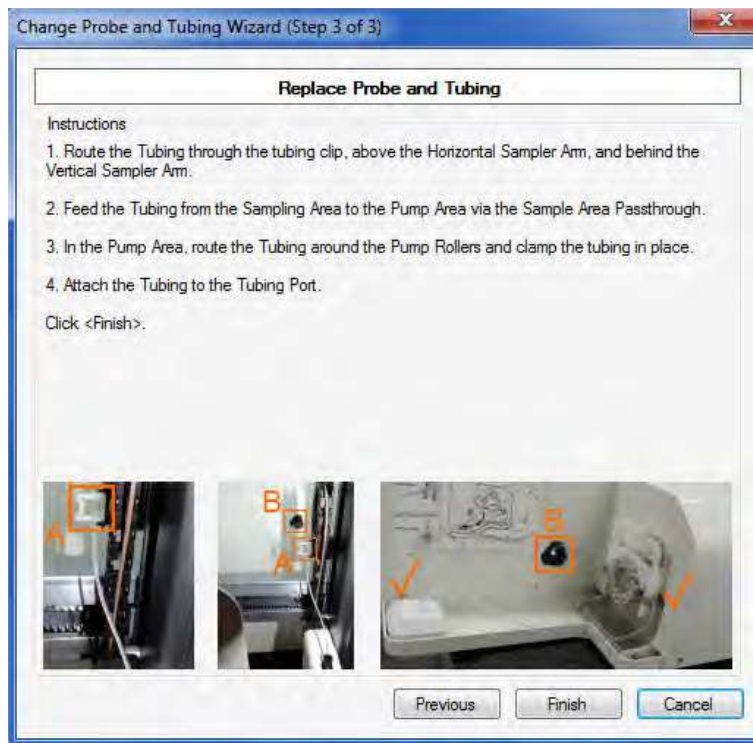
Remove Probe and Tubing.



Prepare Probe and Tubing Assembly.



Replace Probe and Tubing.



NOTE When routing the tubing in the pump head, take care not to crimp the tubing in the locking key.



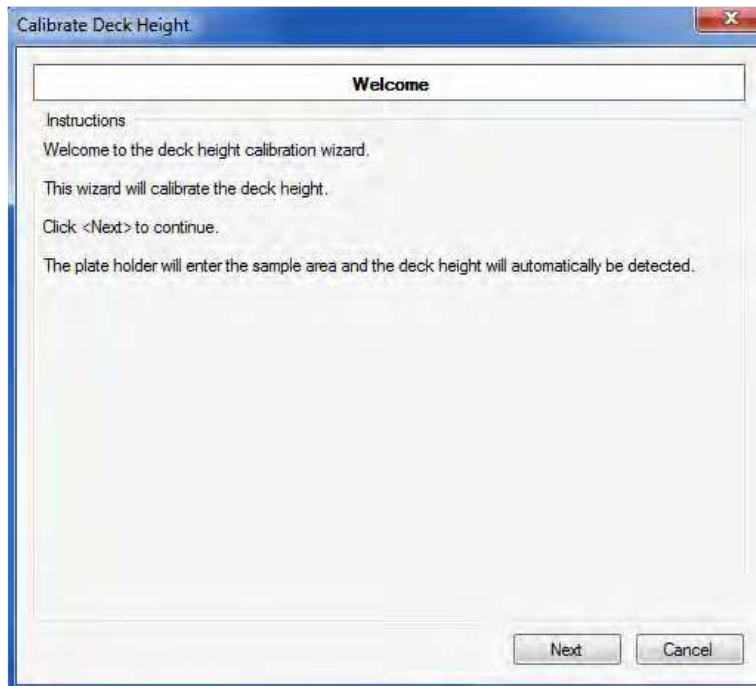
Crimped



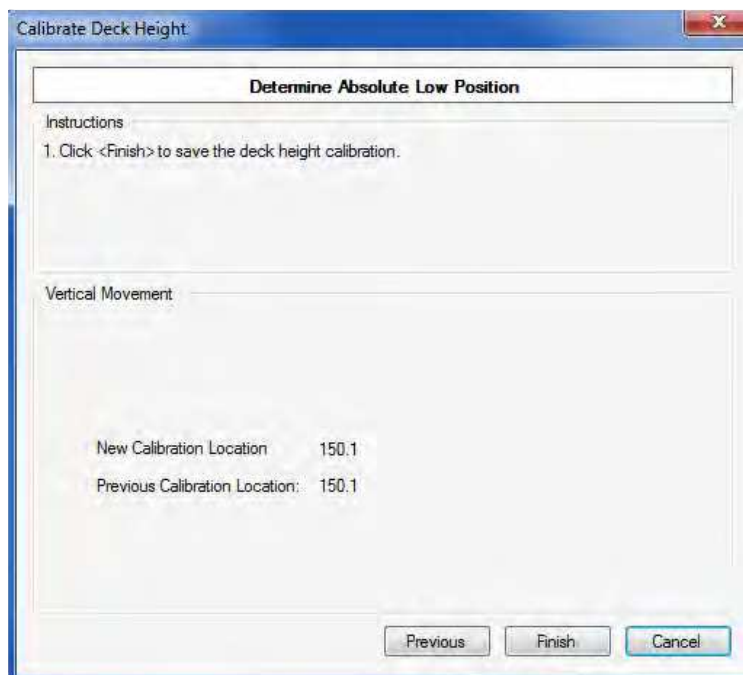
Correct

Calibrating Deck Height

When the Change Probe and Tubing Wizard completes, the Calibrate Deck Height Wizard will automatically launch. It is important to recalibrate the deck height after a probe and tubing change. When the wizard launches, click **Next** to continue.

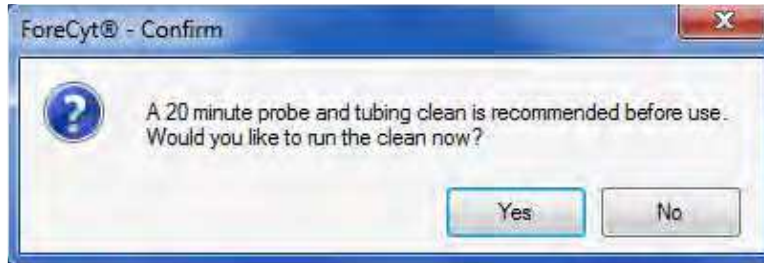


Then click **Finish** to save the new deck height calibration value.

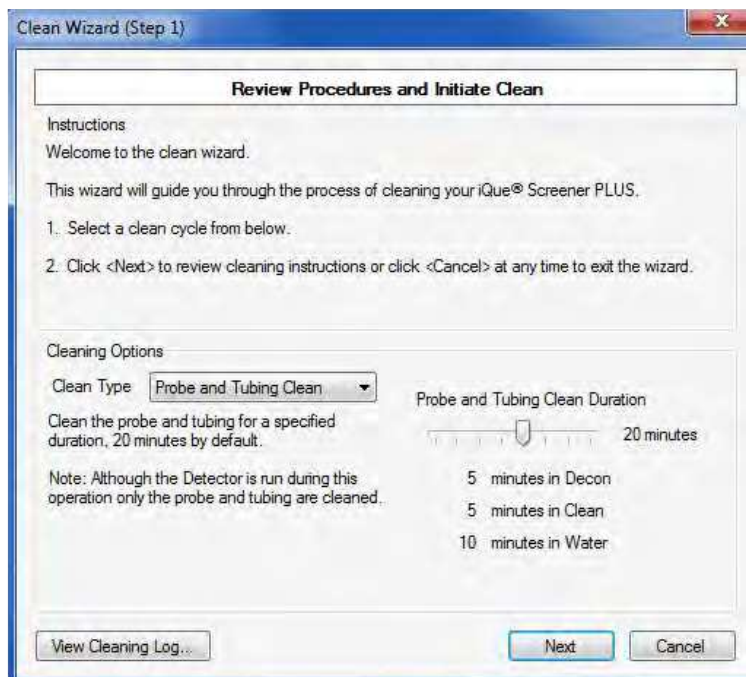


Cleaning the New Tubing

When the Deck Height Calibration Wizard finishes, you will be prompted to clean the probe and tubing.



Ensure that the Decon, Cleaner and Water troughs/cartridges in the fluid stations are full and click **Yes** and then follow the Clean Wizard to perform a Probe and Tubing Clean.



Fluidics Maintenance

Overview

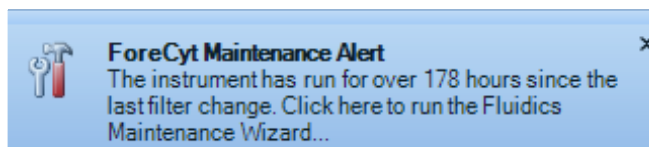
The iQue Screener PLUS detector has several parts that are designed to be regularly replaced in order to keep the system running in optimal condition. These include various filters as well as the FluidLink. The process of replacing these parts is called "fluidics maintenance." To ensure proper sample collection, IntelliCyt recommends that the fluidics maintenance be performed after 176 hours of usage.

Required Materials

91094	iQue® Screener PLUS Maintenance Kit 1 - 91092 Plus ONE, Plus TWO and Sheath Bottle Filters 1 - 90080 In-line Sheath Filter 1 - 91093 PLUS FluidLink tubing connector – 5 Pk
91095	iQue® Screener PLUS Maintenance Kit – 10 pack 10 - 91092 Plus ONE, Plus TWO and Sheath Bottle Filters 10 - 90080 In-line Sheath Filter 10 - 91093 PLUS FluidLink tubing connector – 5 Pk

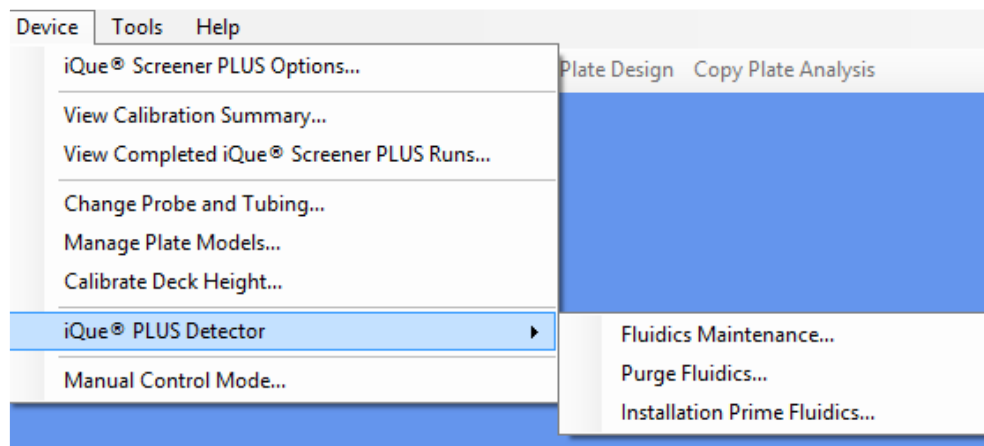
The Replace Probe and Tubing Alert

The iQue Screener PLUS instrument tracks how long it has been since the last time fluidics maintenance was performed. When this value passes 176 hours, a pop-up alert will appear in the lower right-hand corner of the computer screen.

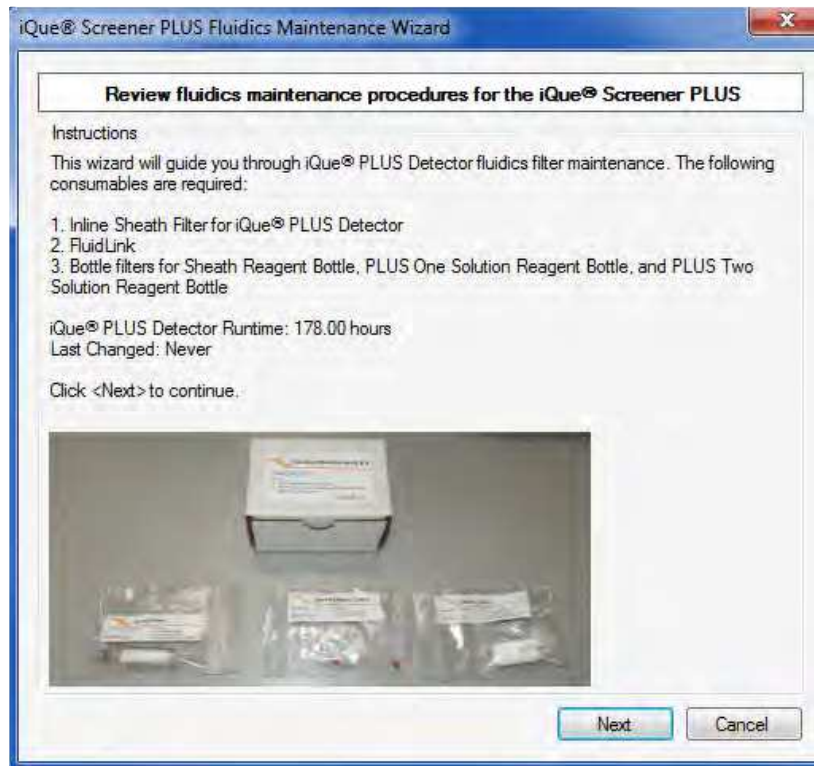


Launching the Fluidics Maintenance Wizard

The Fluidics Maintenance Wizard will guide you through the process of performing fluidics maintenance. To launch the wizard, click **Device**→**iQue PLUS® Detector**→**Fluidics Maintenance...**



When the wizard launches, a list of required items is displayed. Make sure you have all the supplies that are needed.

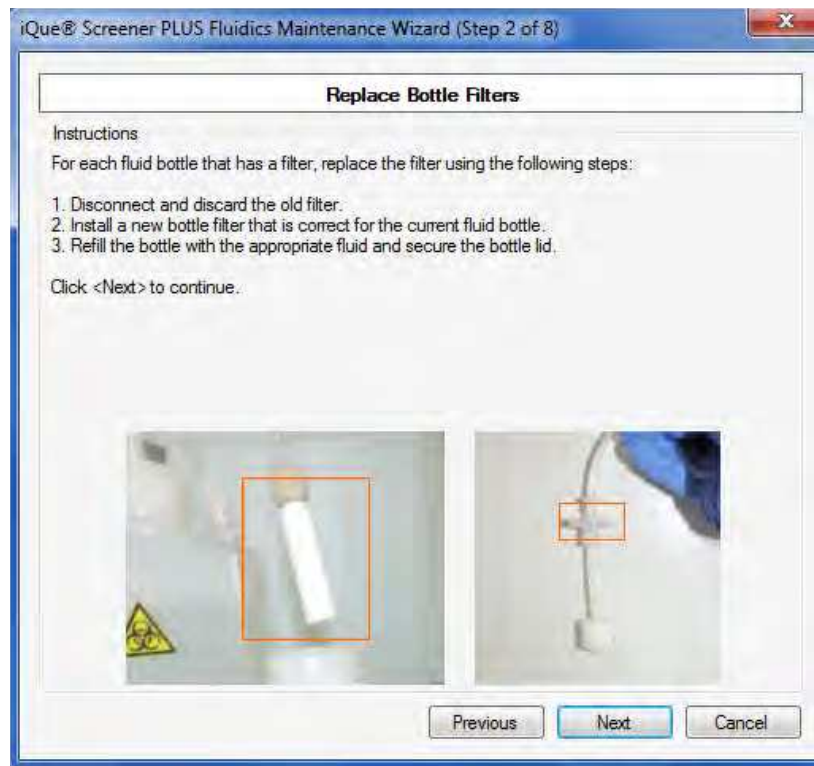


Wizard Steps

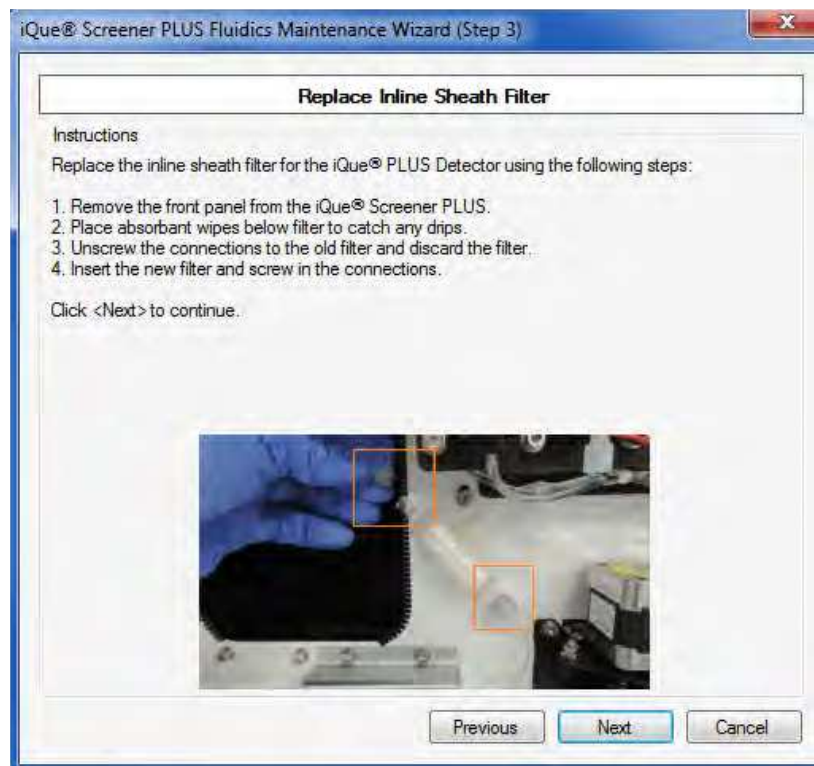
Empty and Clean Fluid Bottles.



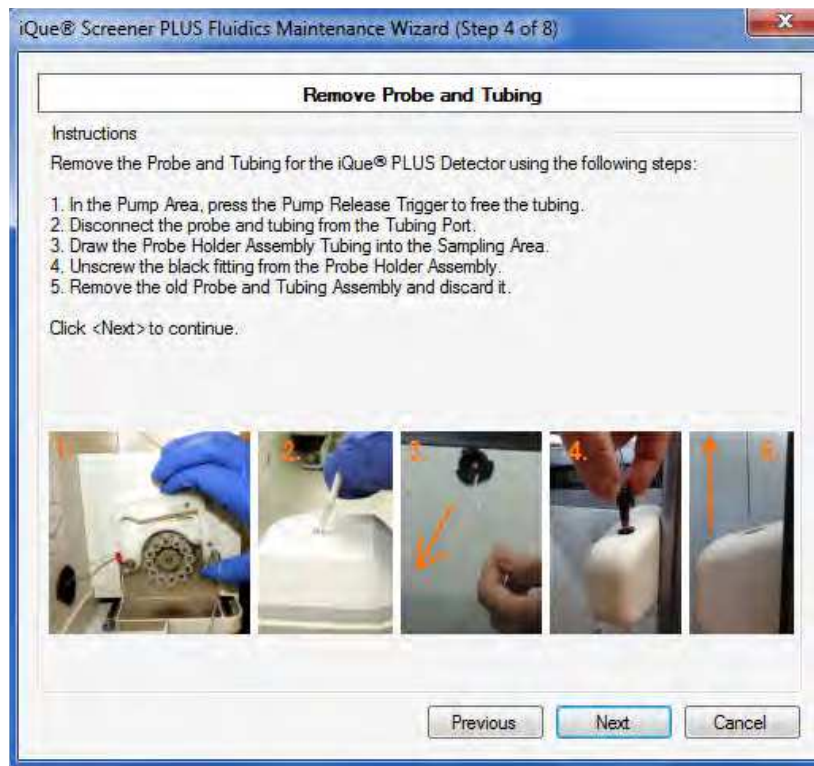
Replace Bottle Filters.



Replace In-line Sheath Filter.



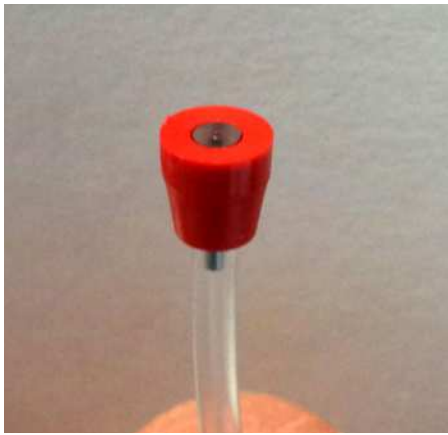
Remove Probe and Tubing.



Replace FluidLink.



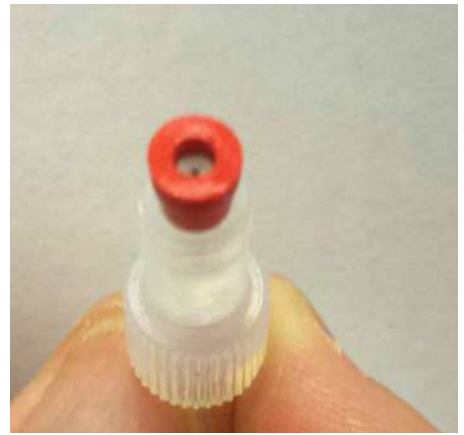
Take care when threading the new FluidLink into the detector inlet. Make sure the tubing is flush with the ferrule. Make sure the threads are aligned and the FluidLink is securely finger tightened and do not over-tighten. Do not use a tool to tighten the FluidLink.



Correct (inner tubing flush with ferrule)



Incorrect (inner tubing protruding)



Incorrect (inner tubing recessed)

Replace Probe and Tubing.

iQue® Screener PLUS Fluidics Maintenance Wizard (Step 6 of 8)

Replace Probe and Tubing

Instructions

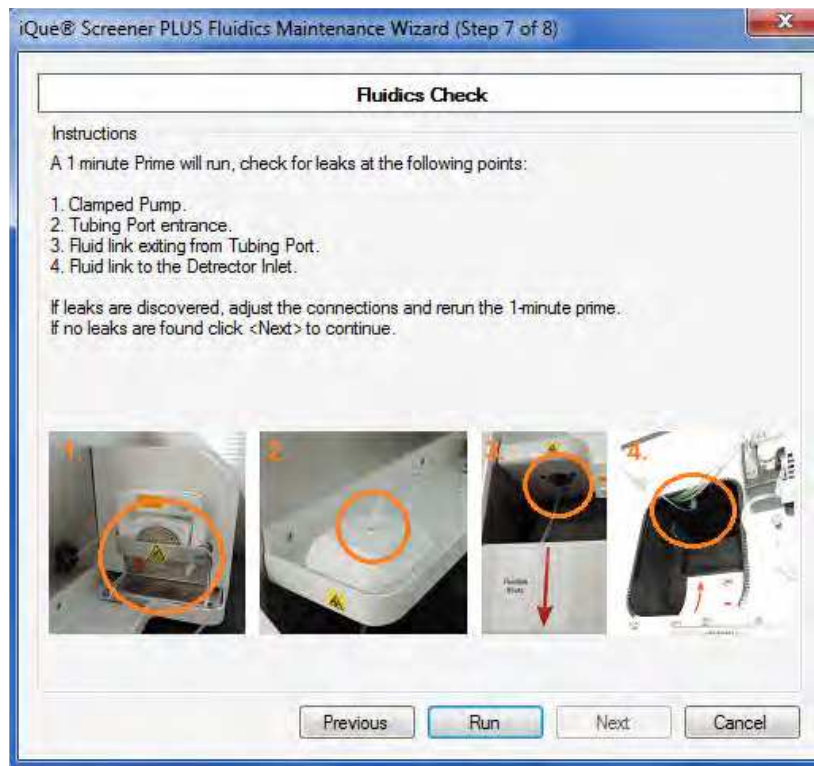
Replace the Probe and Tubing for the iQue® PLUS Detector using the following steps:

1. Carefully insert the Probe from the new Probe and Tubing Assembly into the Probe Holder.
2. Screw the black fitting into the Probe Holder finger tight. Do not use a tool to tighten.
3. Route the Tubing through the tubing clip (A), above the Horizontal Sampler Arm, and behind the Vertical Sampler Arm.
4. Feed the Tubing from the Sampling Area to the Pump Area via the Sample Area Passthrough (B).
5. In the Pump Area, route the Tubing around the Pump Rollers and clamp the tubing in place.
6. Attach the Tubing to the Tubing Port.

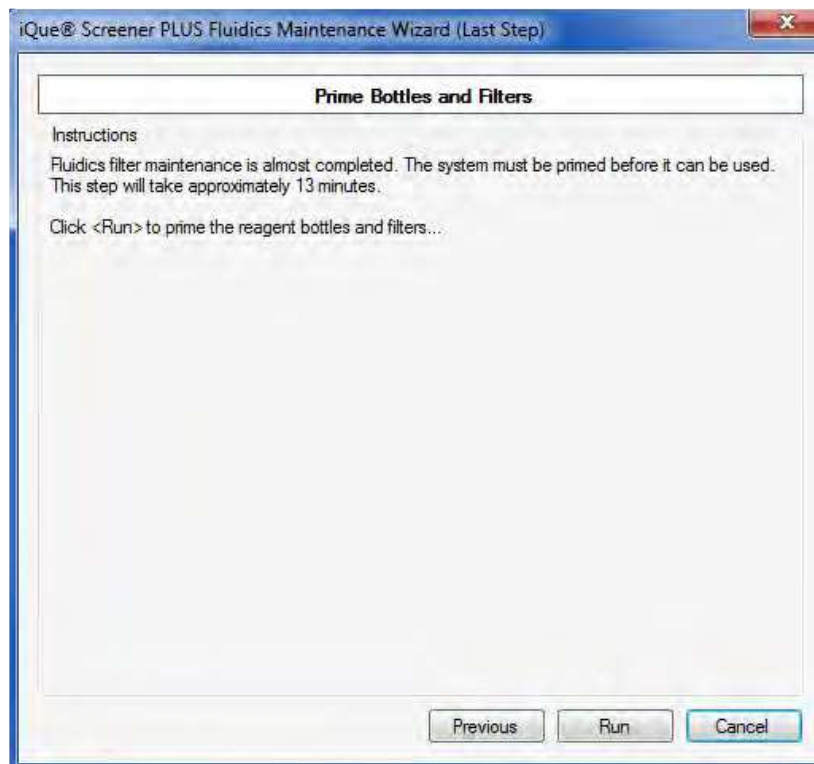
Click <Next> to continue.

Previous Next Cancel

Fluidics Check.



Priming the System.



Managing Plate Models

Overview

For different experiments, researchers use different kinds of plates with different geometries, depths and characteristics: v-bottom vs. round-bottom vs. flat bottom; shallow vs. deep; circular vs. square. This article discusses how to set up and maintain a user-defined library of plate models that can be used when defining an experiment protocol.

Understanding Probe Depth Calculation and Plate Model Mapping

The formula for calculating probe depth is: Deck Height + Mapped Plate Model Offset (for that well) + Fixed Sampling Offset.

Deck Height

The deck height position is calibrated during instrument installation and re-checked prior to each plate. This is done by having the contact sensing probe make contact with a designated touch point on the edge of the shaker. This measurement is independent of the specific plate type in use.

Mapped Plate Model Offset

The mapped plate model offset is defined for each specific plate model. When each Plate Model is mapped, a series of well bottom positions are measured using the contact sensing probe and a full map of the well bottom positions is interpolated from those points so each well has its own depth offset.

Sampling Offset

This is a configurable value. By default it is 0.5mm.

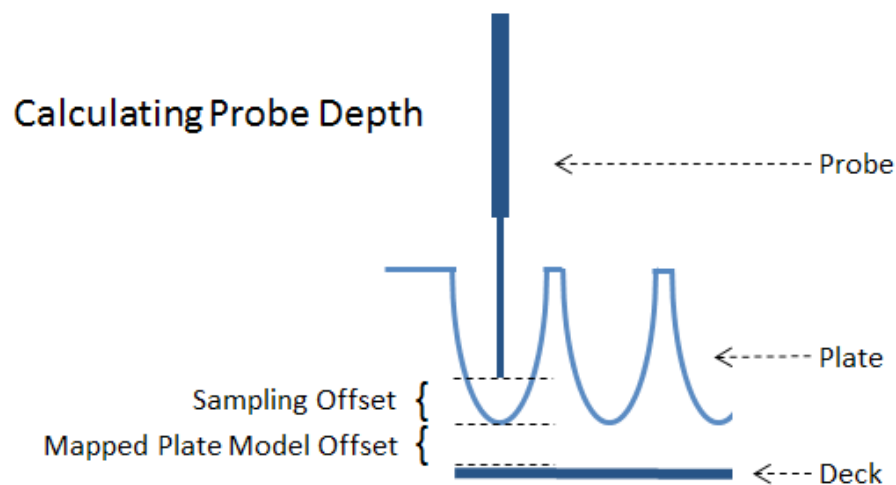
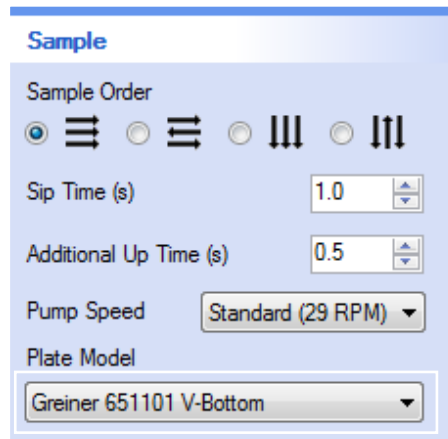


Plate Model Selection is Part of Protocol

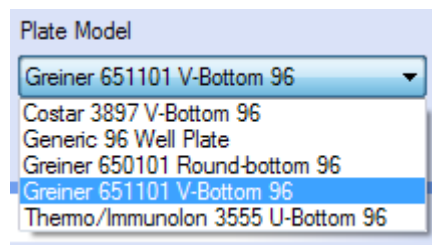
Each plate on each experiment has a set of Protocol settings that control how the plate is run. On the Sample section, there is a field for Plate Model. This is where the plate model is selected.



The screenshot shows the 'Sample' configuration panel. It includes the following settings:

- Sample Order:** Four radio buttons with corresponding icons (three horizontal lines, three vertical lines, three diagonal lines, and three vertical lines with a central dot). The first option is selected.
- Sip Time (s):** A numeric input field set to 1.0.
- Additional Up Time (s):** A numeric input field set to 0.5.
- Pump Speed:** A dropdown menu set to 'Standard (29 RPM)'.
- Plate Model:** A dropdown menu currently showing 'Greiner 651101 V-Bottom'.

By default, the system comes with only two plate models listed: the Generic 96 Well Plate and Generic 384 Well Plate models. Additional plate models may be added to this list for each format.



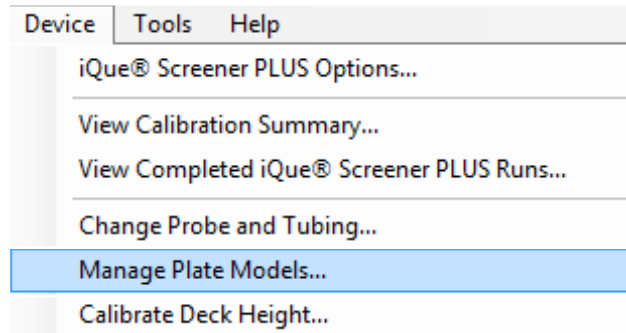
The screenshot shows the 'Plate Model' dropdown menu expanded, displaying the following options:

- Greiner 651101 V-Bottom 96 (highlighted)
- Costar 3897 V-Bottom 96
- Generic 96 Well Plate
- Greiner 650101 Round-bottom 96
- Greiner 651101 V-Bottom 96
- Thermo/Immunolon 3555 U-Bottom 96

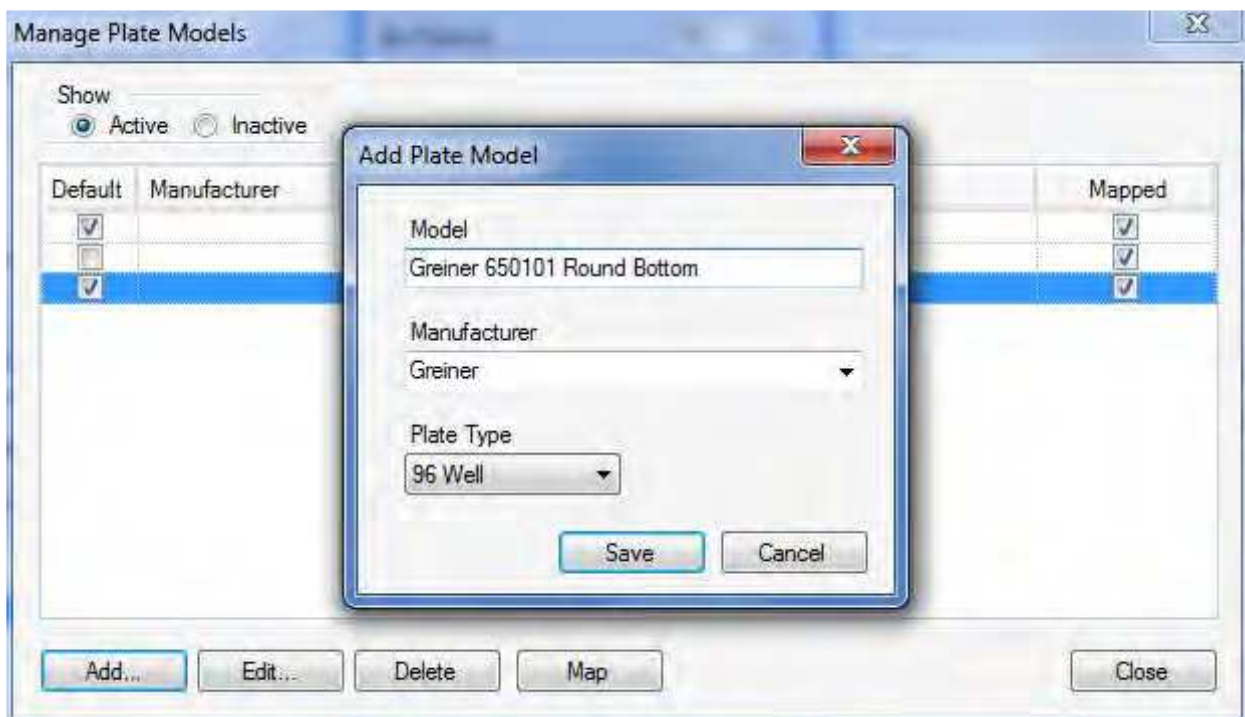
Note that in a multi-instrument installation, each plate model is only set up once but must be mapped for each individual instrument. Plate models are global and are shared among multiple instruments.

Adding a New Plate Model

Click **Device > Manage Plate Models**.



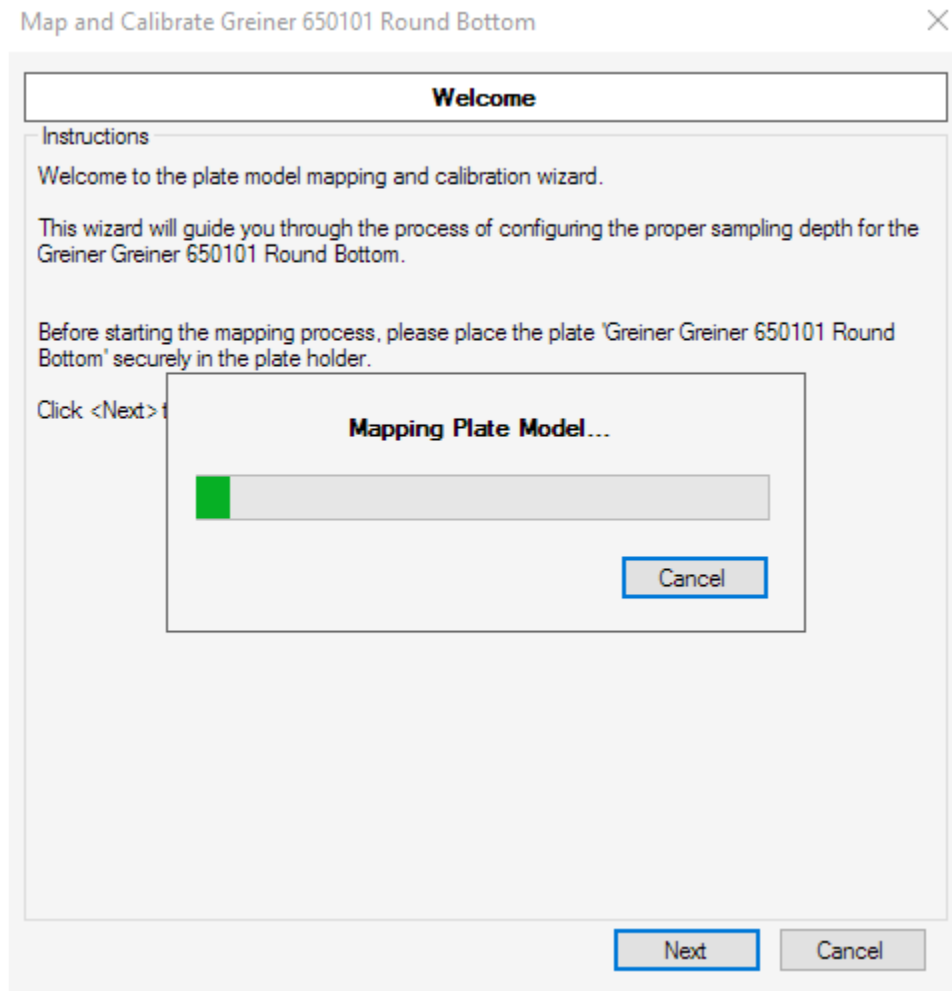
In the Manage Plate Models screen, click **Add** and enter the name, manufacturer and type for the new plate model.



Click **Save**. A confirmation prompt will appear for calibrating the plate model. Click **Yes**.

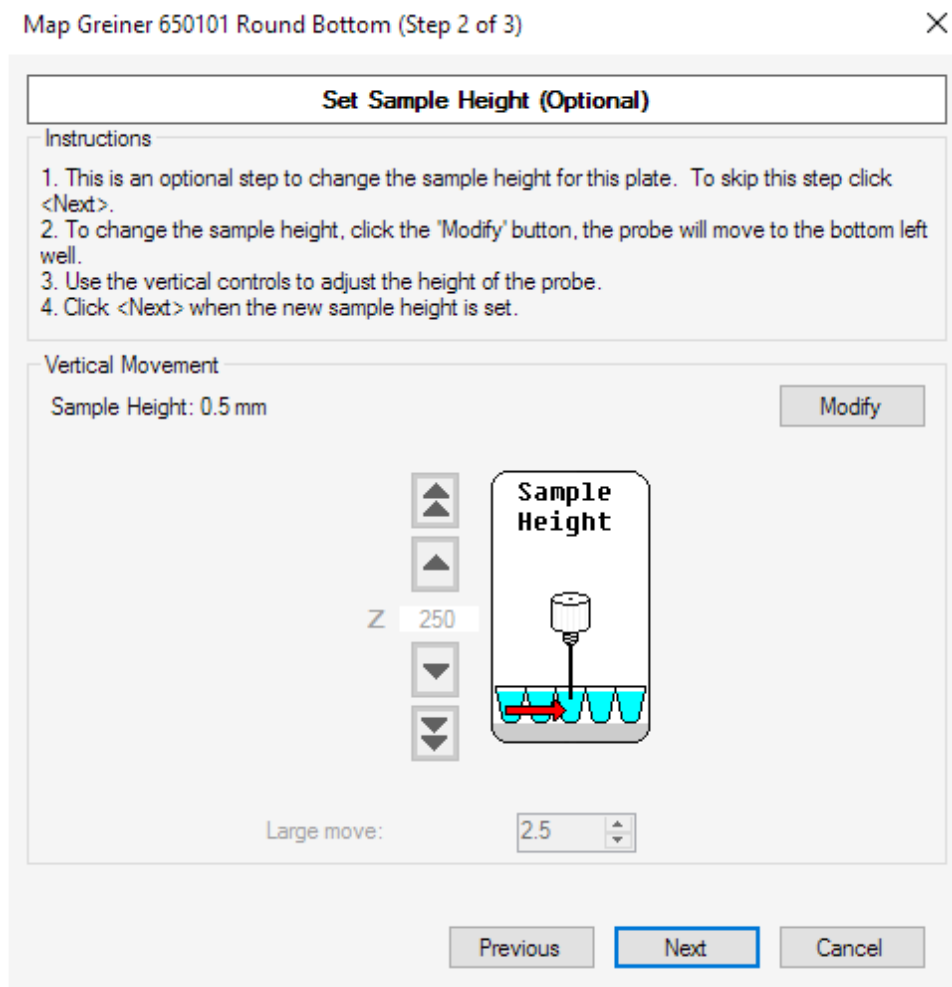


This will launch the Map and Calibrate Wizard. Place an example of the plate you are adding in the gripper and click **Next**. As soon as you click Next, the instrument will map twelve or more depth positions on the plate.



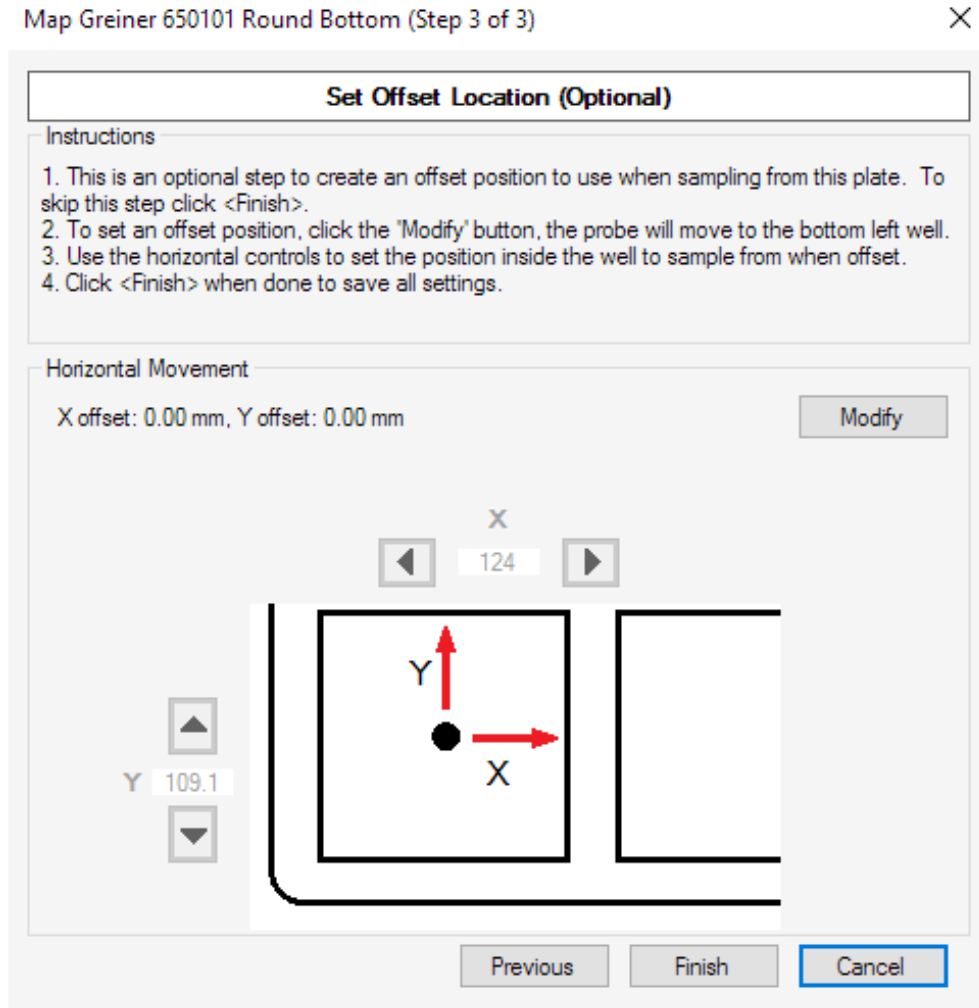
When the mapping is done the Wizard will show you a summary. Click **Next**.

This will bring you to the optional Set Sample Height step. By default, the sampling offset is .5 mm. This means that the probe tip will go to a location .5 mm above the bottom of the well. This is optimal for most assays. However, there may be situations where sipping higher or lower in the well is required.

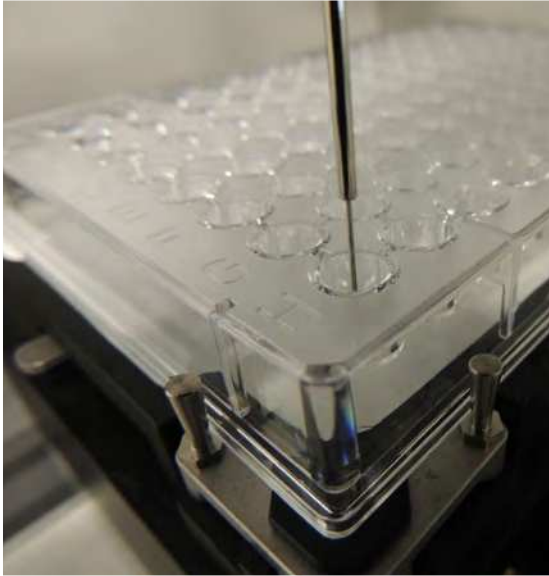


If you want to adjust the sample height for this plate model, click **Modify** to enable the controls and use the Up and Down arrows to move the probe up and down to the desired height. Then click **Next**.

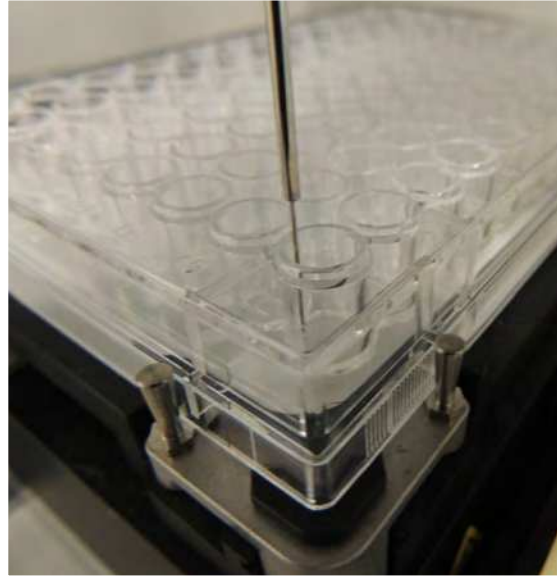
This will bring you to the Optional Set Offset Location step. The normal sample position is from the center of the well. When using flat bottom plates, however, the vortexing action of the shaker causes sample to accumulate on the edges of the well so it becomes necessary to sample from the side or corner of the well. The optional Offset Location step makes this possible.



If you want to configure an offset location, click the **Modify** button to enable the controls and then use the X and Y arrows to move the probe to an offset position.

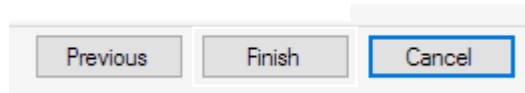


No XY-Offset: probe samples from center of well (96 Well v-bottom plate shown).



XY-Offset: probe samples from edge of the well (96 well flat bottom plate shown).

IMPORTANT: At the end of the wizard, be sure to click **Finish**. None of your mapping and calibration steps are saved until you complete the wizard and click the Finish button.



Setting the Default Plate Model for each Plate Type

When creating a blank experiment (i.e., not from a template) a default plate model for the format (96 or 384 well) is chosen. To customize which plate model is used as the default follow the steps below.

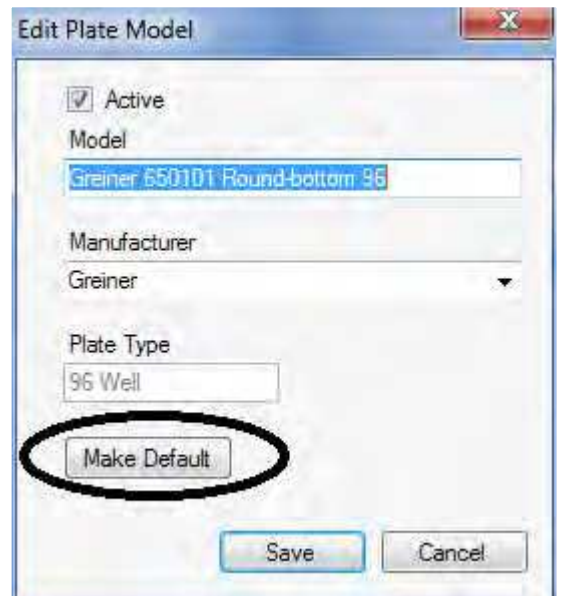
Click **Device > Manage Plate Models**.

Highlight the desired default plate model and click **Edit**.

In the Edit Plate Model window, click **Make Default**.

A confirmation prompt will appear. Click **Yes**.

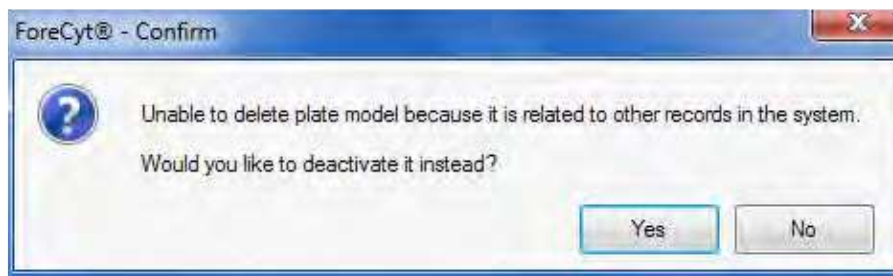
Click **Save** in the Edit Plate Model screen. The Plate Model is now the default and will be used on new Experiments unless they are created from a template that specifies a different Plate Model.



Deleting a Plate Model

To delete a plate model that should no longer appear in the dropdown menu in the Sample Settings, simply locate the Plate Model in the Manage Plate Models screen and click **Delete**.

If the plate model has been used on one or more experiments, it cannot be deleted, but it can be deactivated. In this case, choose to deactivate it instead.



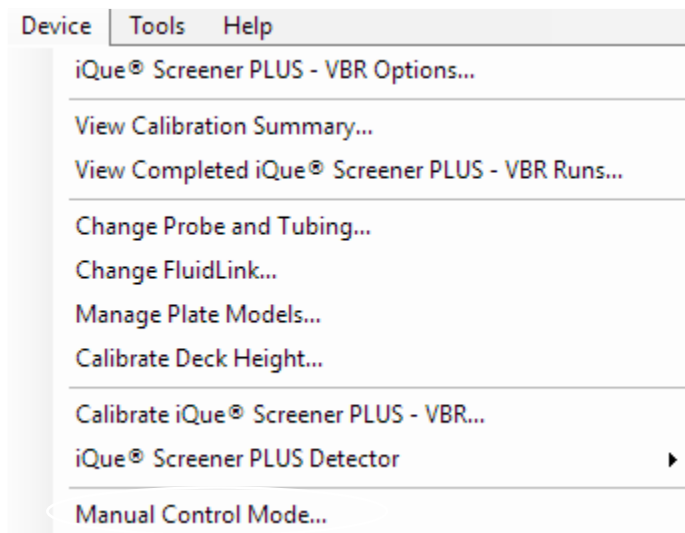
Manual Control Mode

Overview

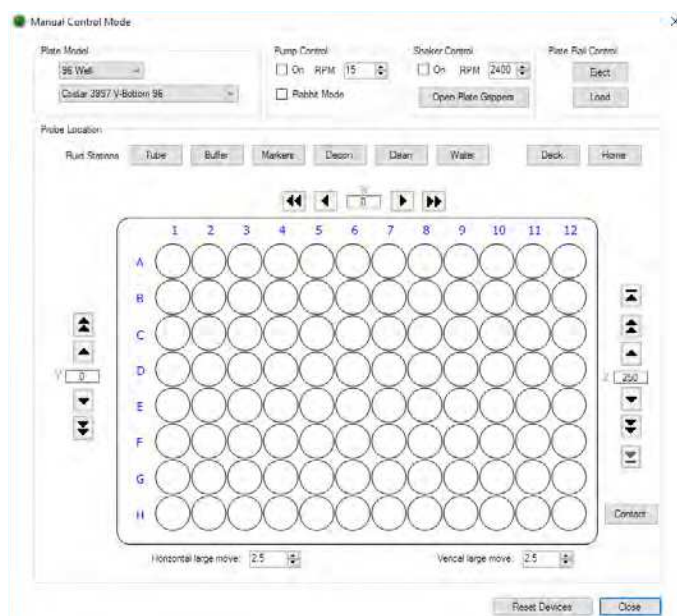
Manual Control Mode is a feature of the ForeCyt® software that allows you to interact with the various instrument subcomponents directly. This can be helpful when troubleshooting instrument problems.

Accessing Manual Control Mode

To access Manual Control Mode click **Device > Manual Control Mode**.



This will bring up the Manual Control Mode screen.

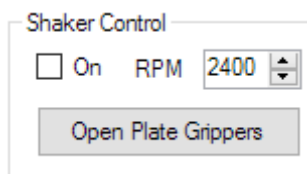


What follows are some common tasks that Manual Control Mode can help with.

Test a Shake RPM

If you have a large volume in your wells (for example more than 50 μL in a 96-well plate) there is a risk that the default shaker speed will be too fast and the sample will vortex out of the well.

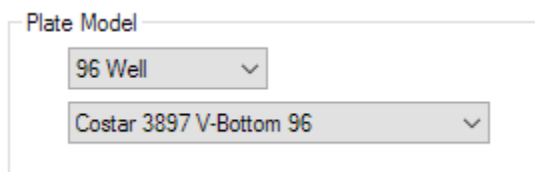
To find a shaker speed that is "safe," fill a plate with water at the volume you want to test, place it on the deck and use the Shaker Control to turn the shaker on to test various speeds.



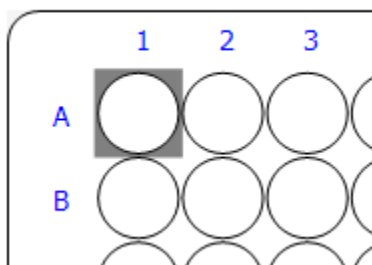
Verify Sample Position and Depth after Mapping

After mapping a plate model, use Manual Control Mode to verify proper sampling position and depth.

Choose the plate model.



Click on a well to move the probe to that position.



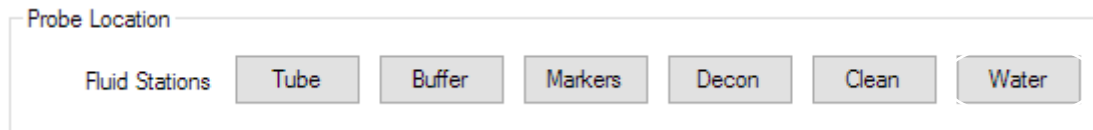
Click the **Z-down** button to lower the probe into the well and check position and depth.



Troubleshoot a Clog

When the iQue Screener PLUS appears to have a clog it is not always obvious if the clog is in the probe and tubing or in detector. Use Manual Control Mode to isolate these subsystems and troubleshoot.

Click the **Water** button to move the probe over the Water cartridge/trough.



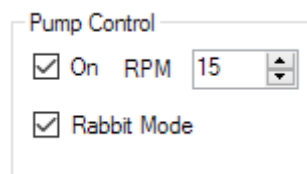
Click the **Z-down** button to lower the probe into the water.



Unplug the tubing from the Tubing Port.



Use the Pump Control to turn the pump on. Select **Rabbit Mode** for maximum speed.



Observe fluid flow through the tubing. If no fluid is flowing there is likely a clog in the probe and tubing or another problem such as an improperly installed pump clamp.

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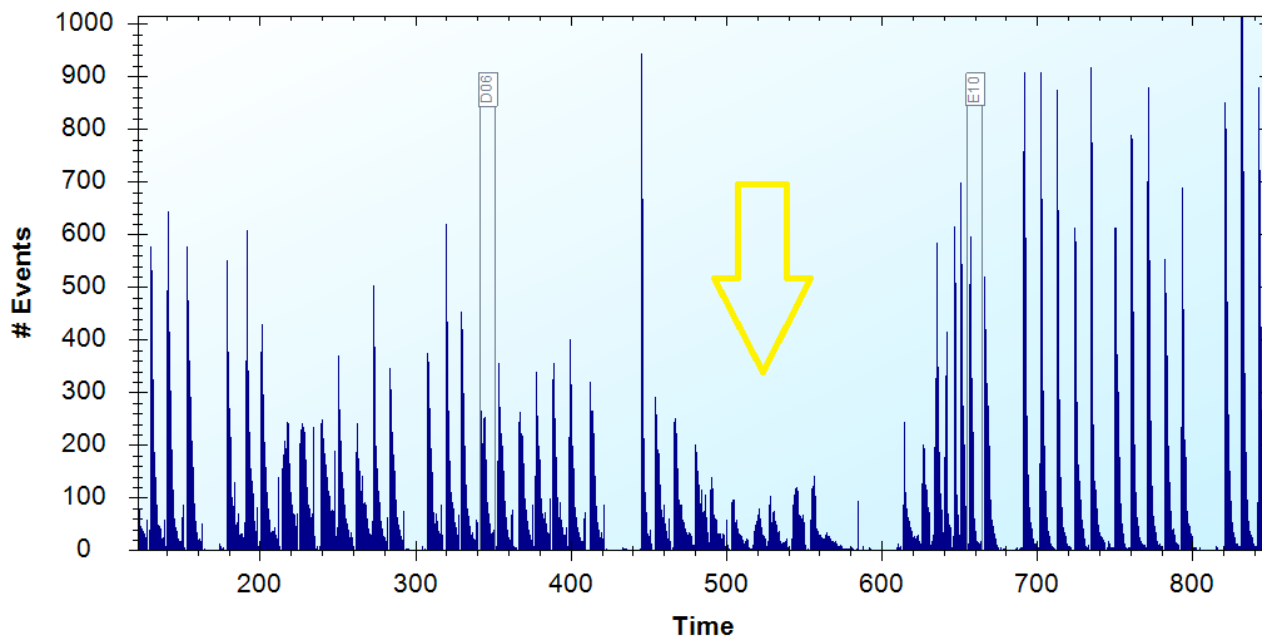
Clog Prevention and Management

Overview

It is important to take steps to avoid clogs. This article explains how to recognize, address and prevent a clog.

Recognizing a Clog

Clogs are often noticed when looking at time data such as the Well Identification time histogram. They usually present as an interruption of normal sampling sometimes followed by a burst of compressed wells as the clog breaks free.



The other way to recognize a clog is to observe the sample slugs as they travel through the tubing. If the slugs are not moving at all or if they are moving very erratically, you may have a partial or total clog.

Types of Clogs

Probe and Tubing Clog: The most common clog exists in the probe and tubing itself rather than in the detector. See [Manual Control Mode](#) earlier in this section for a technique on isolating and diagnosing a probe and tubing clog. The simplest way to resolve a probe and tubing clog is to change the probe and tubing. Sometimes a [Probe and Tubing Clean](#) will also take care of a partial clog.

Flow Cell Clog: A much less common clog is one in the flow cell of the detector. These can usually be resolved using the [Standard Cleaning Procedures](#) mentioned earlier in this section. Please contact IntelliCyt Technical Support at support.intellicyt@sartorius.com if you suspect a flow cell clog.

Clog Prevention

Obviously, it is much better to prevent clogs in the first place. There are several parts to clog prevention.

The Instrument

Keeping your instrument in good working condition is the first step in clog prevention. This involves:

- Proper system startup and shutdown;
- Proper daily, weekly and monthly cleaning and maintenance;
- Running Daily QC to monitor instrument performance.

The Sample

Having a properly prepared sample at the proper target concentration is the next step in clog prevention. For rapid sampling using common suspension cell lines, IntelliCyt recommends a final cell concentration of between **1-3 x10⁶ cells/mL**. Use of higher cell densities may clog the instrument.

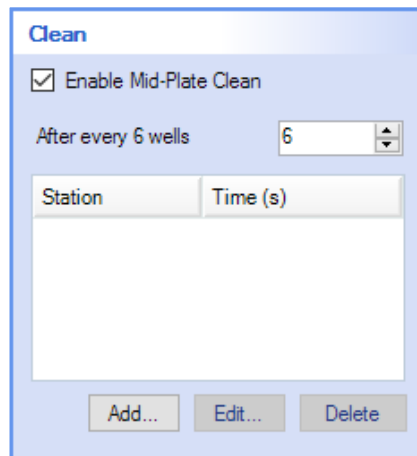
Certain sample types are prone to aggregation so it may be necessary to include small amounts of an additive, such as a QSol buffer concentrate or cell detachment reagent, in the sample buffer to minimize this effect.

The Buffer

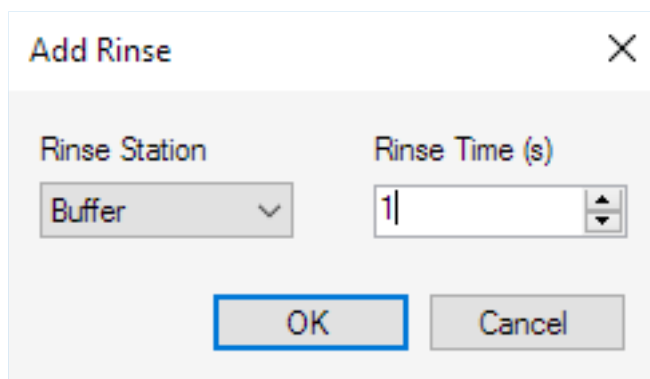
Insufficient or improper buffering is the leading cause of probe and tubing clogs. It is essential to use either IntelliCyt's original Buffer (PBS + .1% BSA) or IntelliCyt's new and improved QSol buffer in the Buffer station. Other solutions, such as water or pure PBS, do not properly coat the probe and tubing and are not effective at preventing aggregation and clogging.

The Protocol

Adding rinse steps during the plate run is the last technique for preventing clogs. To configure an on-plate rinse, switch to the Protocol tab in ForeCyt® and check the **Enable Mid-Plate Clean** checkbox in the Clean box and set the frequency.

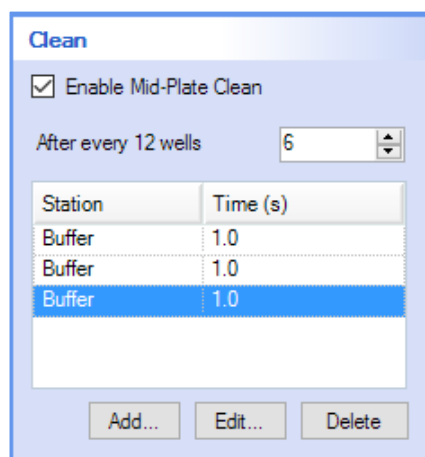


Then click **Add...** which brings up the Add Rinse button.



Set the Rinse Station to **Buffer** and the time to **1** second and click **OK**.

Repeat these steps two more times to create a 3 second Buffer rinse configured as three 1 second rinses:



In this example, we've created a 3 second rinse after every 6 wells which will add about 50 seconds to a 96-well plate run. However, it can sometimes be necessary to rinse more frequently, even as much as after every well for the most challenging sample types. There is no hard-and-fast rule. Test different protocols and adjust the frequency and duration of the rinse to match the needs of your particular sample and throughput.

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Special Topics

Articles

[Moving an iQue Screener PLUS](#)

[Connecting iQue Screener PLUS Power and Data Cables](#)

[Purge and Prime](#)

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Moving an iQue Screener PLUS

Overview

Describes the procedure for safely moving an iQue Screener PLUS from one location to another within the same lab or building. This does not include instructions for packaging the iQue Screener PLUS for shipment. If the need to package and ship an iQue Screener PLUS arises, contact IntelliCyt Technical Support.

Shutting Down before a Move

Shut down the machine as described the [Daily Shutdown](#) procedure.

Empty all bottles and troughs.

Wipe work surfaces down with disinfectant.

Turn off ForeCyt and shut down the computer.

Unplug power, data cables, and fluidics lines.

Moving the Instrument

Due to its weight, 4 people are required to lift and move the unit.

Prepare the destination location. Make sure there is adequate space, ventilation and power.

Avoid shocks to prevent disturbing the optics.

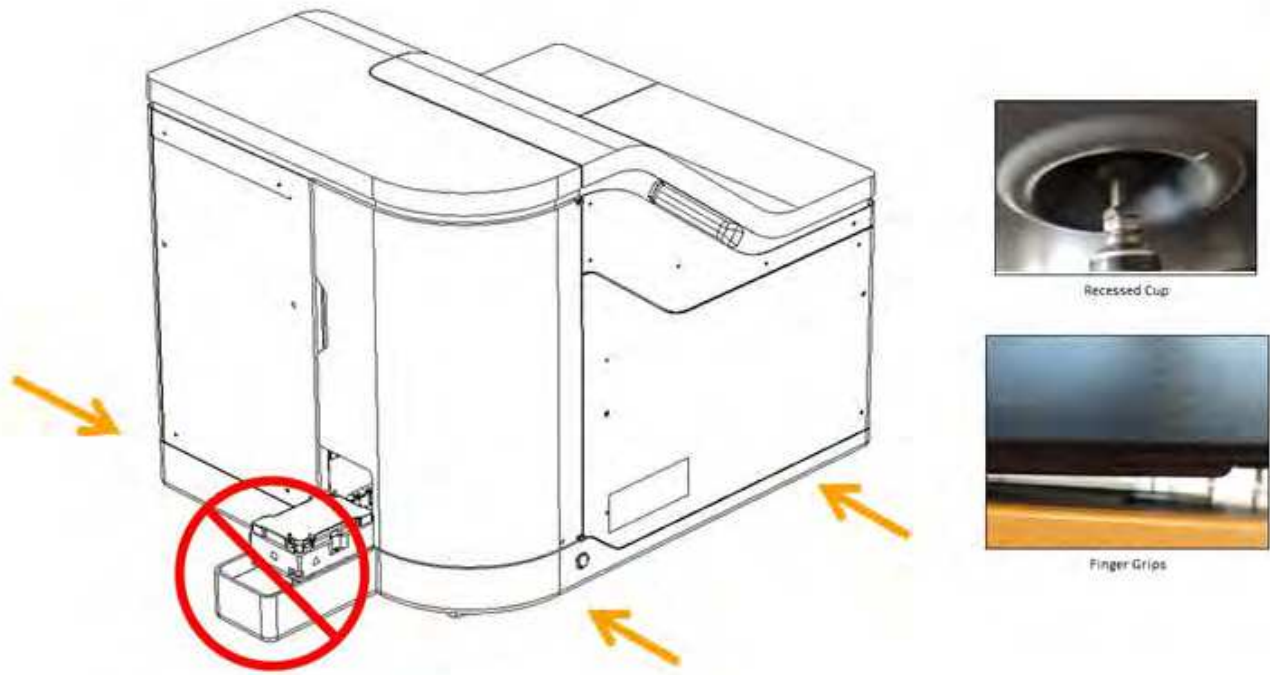
Use a cart with cushioned tires if possible. Alternatively, place the unit on a thick piece of foam.

Lift by gripping the base tray using the recessed cups near each of the four feet as finger grips on the underside.

Do NOT lift by the plate rail extension.

Do NOT tip the system when moving. Keep the system in its normal orientation.

Be gentle when setting the system down.



After a Move

Reconnect the power and data as described in [Connecting iQue Screener PLUS Power and Data Cables](#).

Fill all the bottles and troughs and perform [Daily Startup](#) and [Daily QC](#).

Connecting iQue Screener PLUS Power and Data Cables

Overview

This procedure shows the proper way to connect the iQue Screener PLUS power and data cables. It is used as part of first time startup and also any time that the instrument needs to be physically moved to a new location.

The iQue Screener PLUS Uninterruptible Power Supply

Each iQue Screener PLUS comes with an Uninterruptible Power Supply (UPS). This UPS is required equipment and the instrument's CE Mark is invalid unless the iQue Screener PLUS power connection is connected to the UPS.

The iQue Screener PLUS comes with one of two UPS units depending on the power system of the target locale.

110V Locales



APC BR1500G UPS

220V Locales



APC BR900GI

Connecting iQue Screener PLUS Power Cables

Plug the UPS into a grounded socket.

Check the UPS for warnings or alarms that indicate faulty or inadequate power or a defective UPS batter.

Plug the iQue Screener PLUS main power into one of the protected and battery backed up sockets on the UPS as shown in the diagram below.

Turn the main iQue Screener PLUS power on using the switch on the back of the instrument.

Plug the iQue Screener PLUS workstation into another protected and battery backed up sockets on the UPS (this is not required for safety, but having the computer on battery backup can prevent work interruption in the case of a power outage).

CAUTION



The iQue Screener PLUS's UPS is required equipment. Failure to properly connect the iQue Screener PLUS power can result in severe instrument damage and invalidates the instruments CE mark.

Connecting iQue Screener PLUS Data

Connect the iQue Screener PLUS workstation to the corporate LAN using the primary Network Interface Card (NIC) on the workstation.

Connect the iQue Screener PLUS to the iQue Screener PLUS workstation using a standard Ethernet cable plugged into the secondary Network Interface Card (NIC) on the workstation.

CAUTION

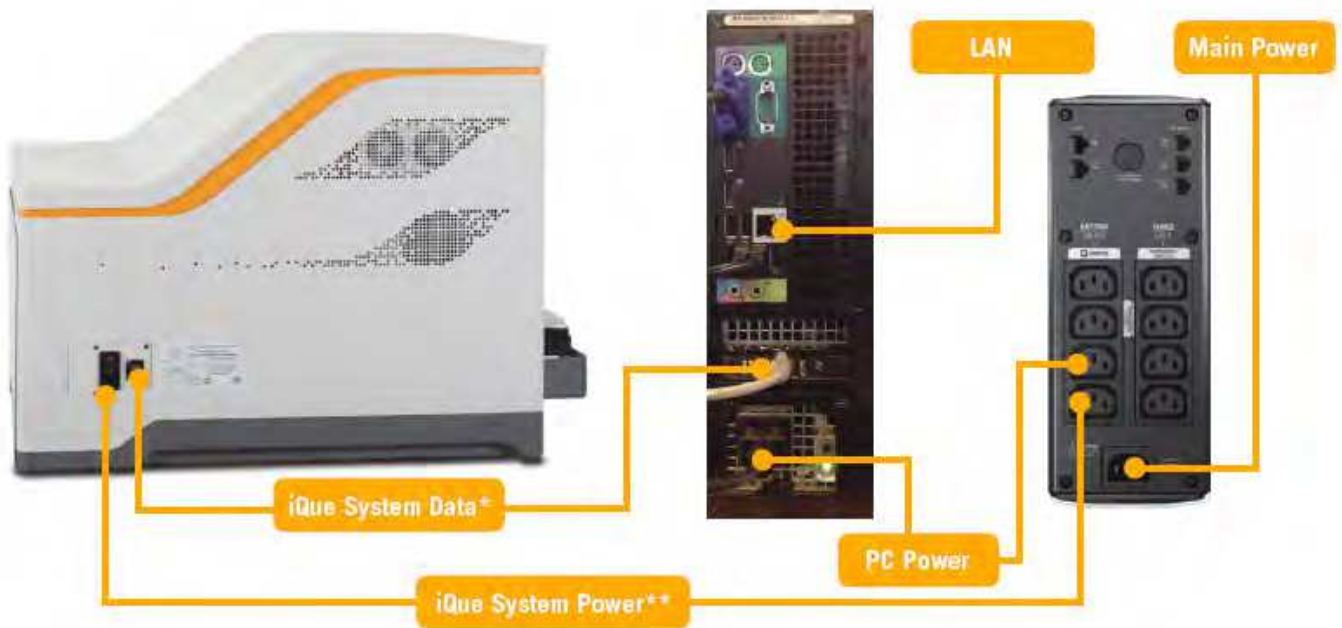


Never connect the iQue Screener PLUS directly to the corporate network. The iQue Screener PLUS's internal computer runs a DHCP server.

110V Power and Data Connection Diagram



220V Power and Data Connection Diagram



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Purge and Prime

Overview

Whenever an iQue Screener PLUS is going to be inactive for a long period of time (longer than one month) and whenever it may be placed in an airplane for transport, it should be purged to remove all fluids from the lines. This prevents bacterial growth and protects the fittings and lines from freezing.

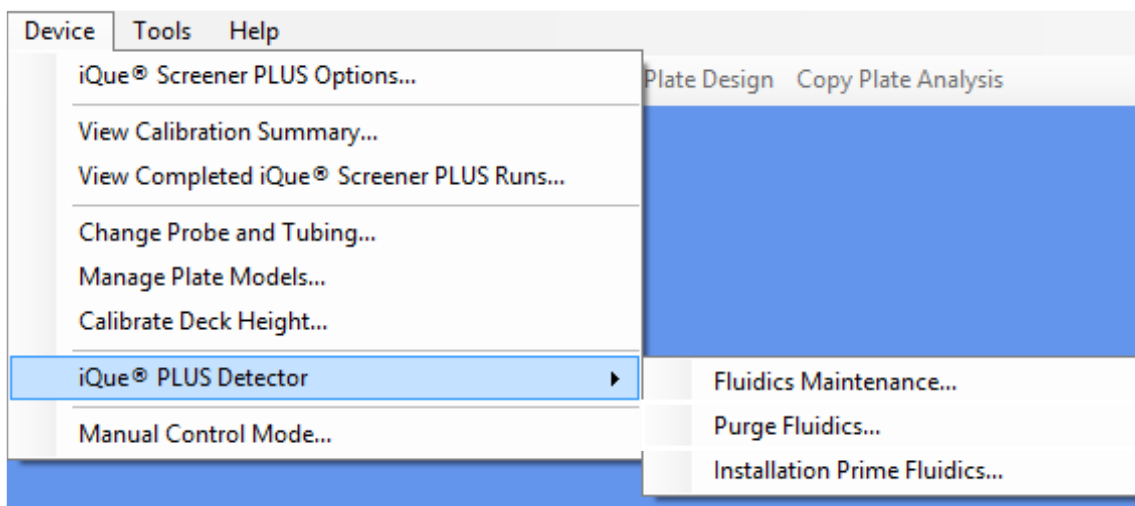
Subsequently, any iQue Screener PLUS that has been purged needs to be re-primed before it can be used. This article describes the twin processes of purging and priming an iQue Screener PLUS.

Purging

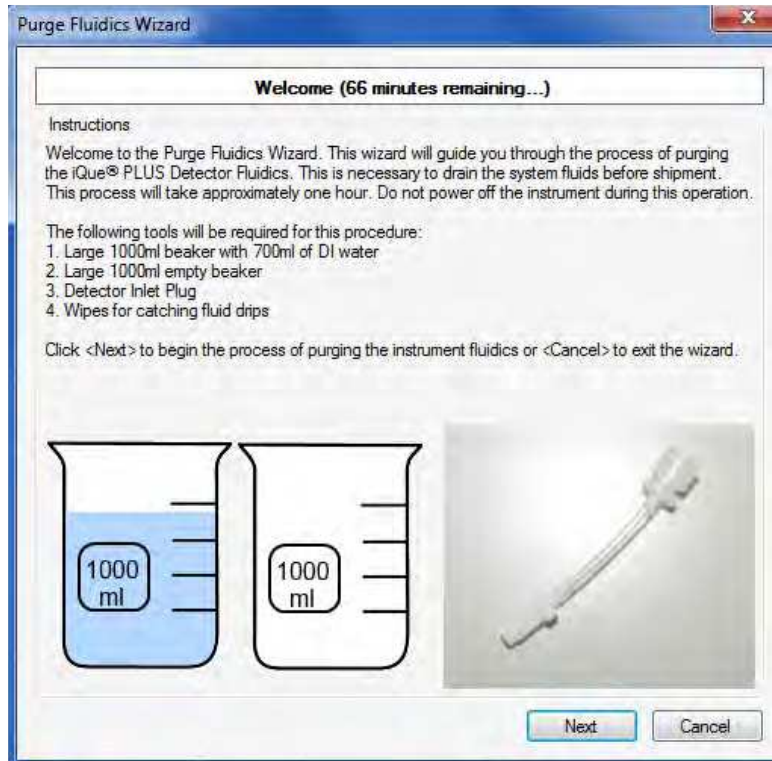
The purge process takes over an hour and requires two 1000ml beakers and a Detector Inlet plug (see below).

Start the system normally (See [Daily Startup](#)).

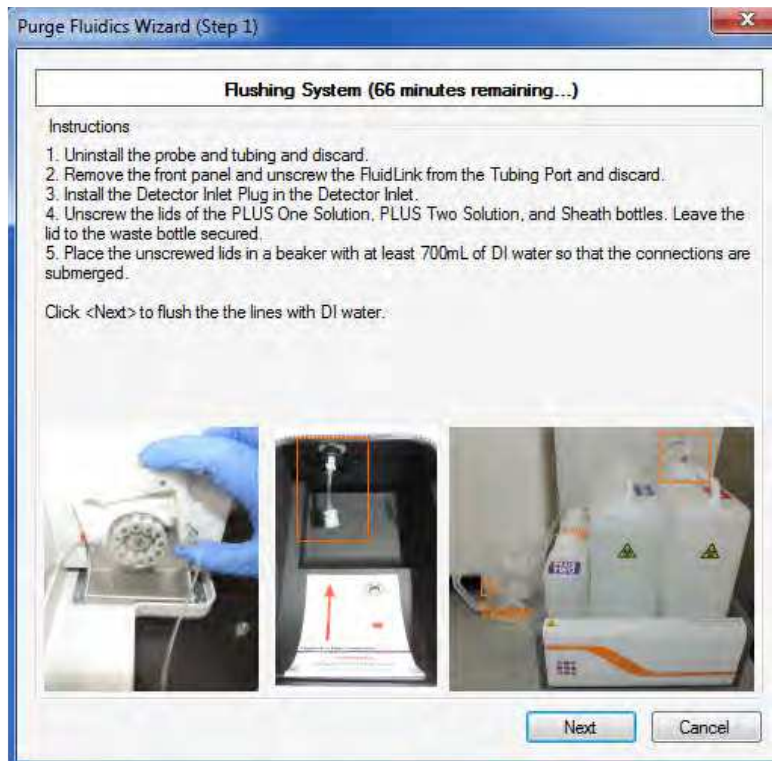
Click **Device**→**iQue PLUS Detector**→**Purge Fluidics...**



Ensure that you have the required supplies and time to complete the operation as shown in the introduction to the Purge Fluidics Wizard.



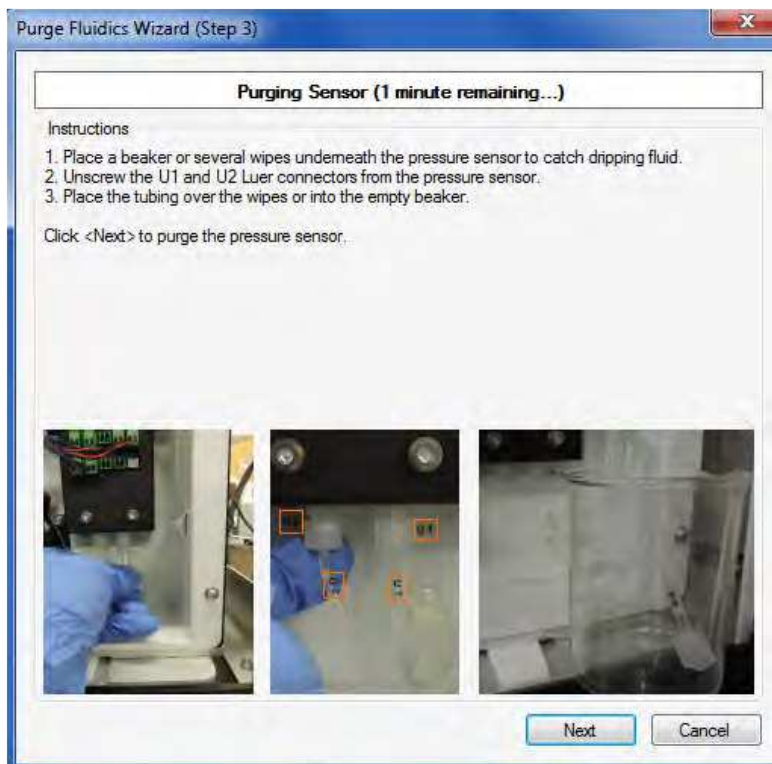
Wizard Step 1: Flushing System.



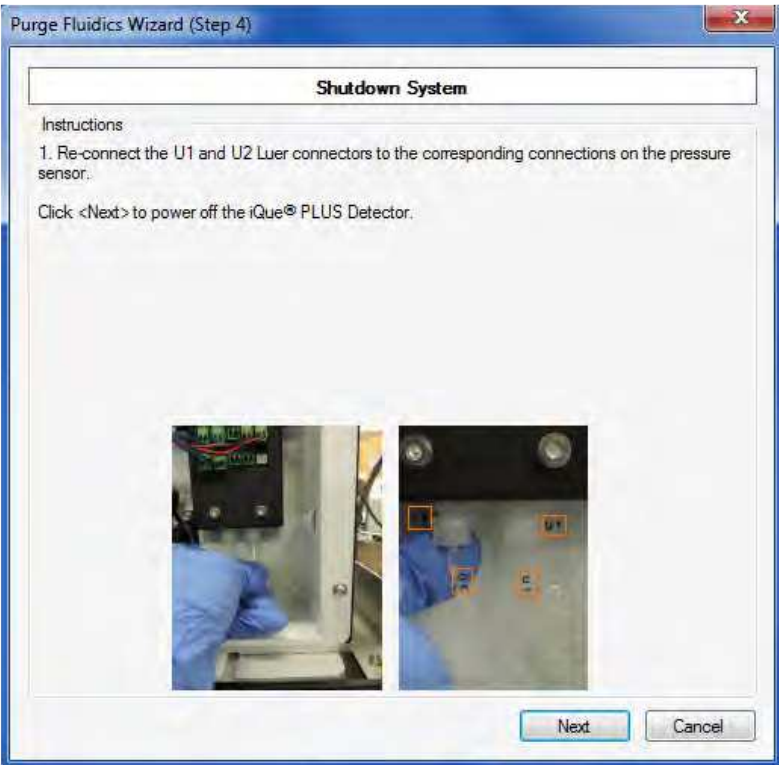
Wizard Step 2: Purging System.



Wizard Step 3: Purge Pressure Sensor Lines.



Wizard Step 4: Reconnect Pressure Sensor Lines and Power Down.



Priming

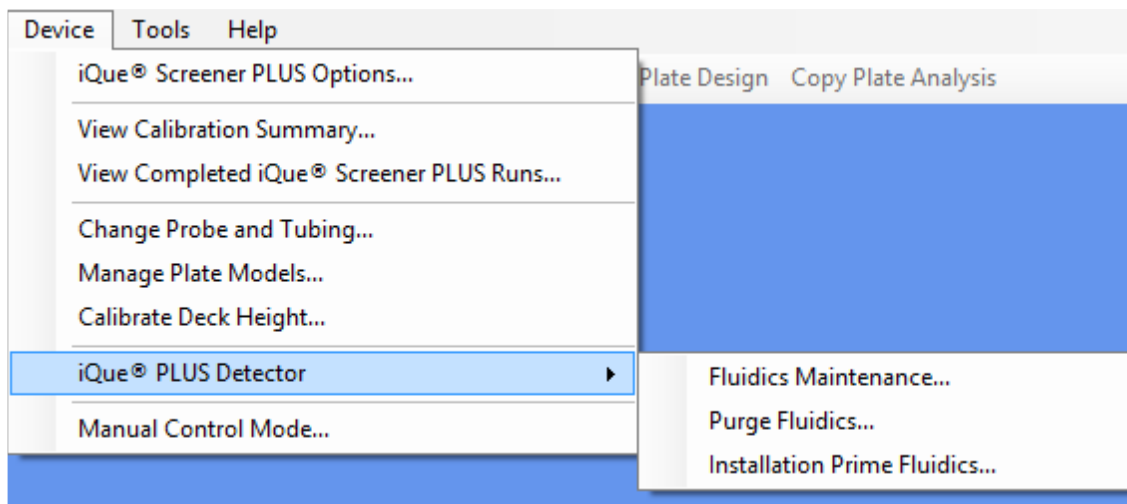
Once an iQue Screener PLUS has been purged, it must be re-primed before it can be used again. The installation priming process takes approximately 40 minutes and requires an inline sheath filter, a Fluid Link and a Probe and Tubing assembly and an empty 500 mL beaker.

Ensure that instrument power and data are properly connected as shown in [Connecting iQue Screener PLUS Power and Data Cables](#).

Ensure that the bottles are filled and the bottle station harness and data cable is connected as shown in [iQue Screener PLUS Bottle Fluids](#).

Ensure that the deck cartridges are full and in place as shown in [iQue Screener PLUS Deck Fluids](#).

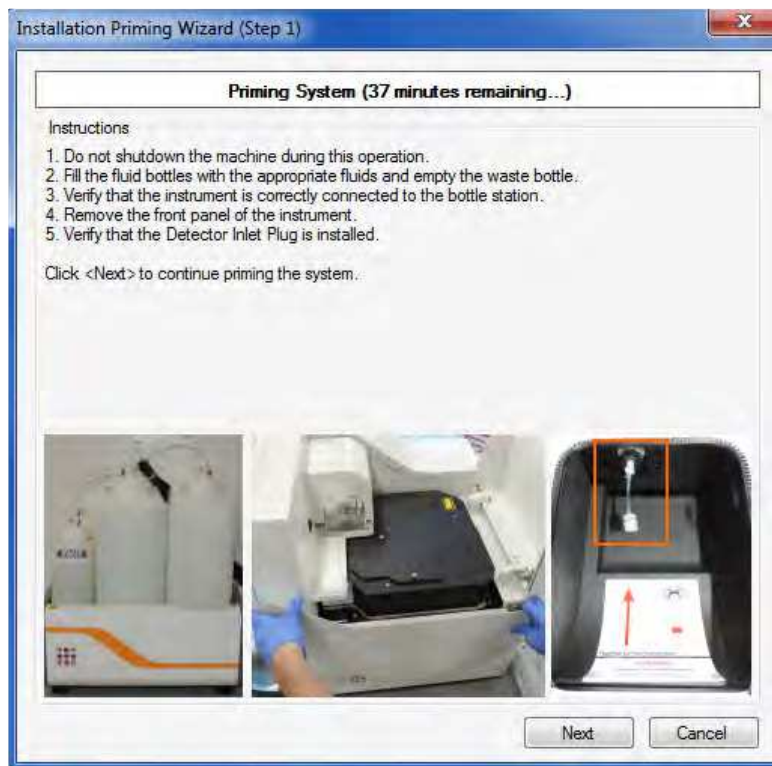
Click **Device**→**iQue PLUS Detector**→**Installation Prime Fluidics...**



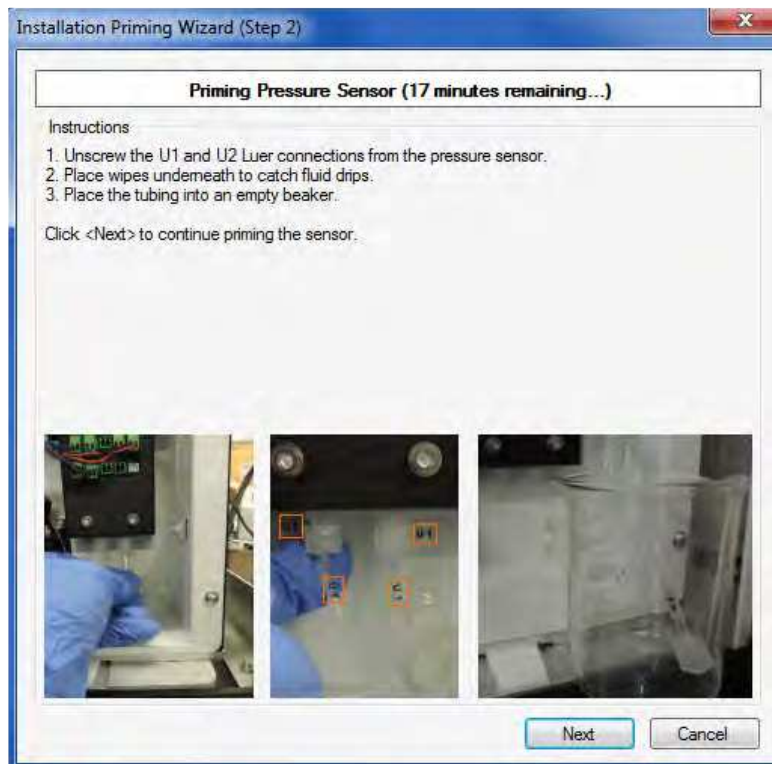
Ensure that you have the required supplies as shown in the Installation Priming Wizard welcome screen.



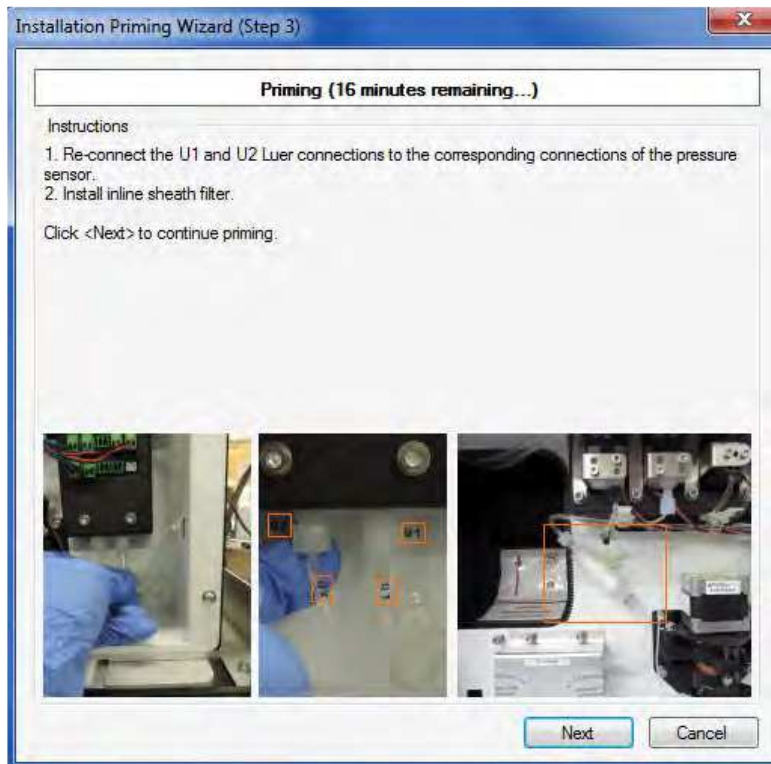
Wizard Step 1: Initial Prime.



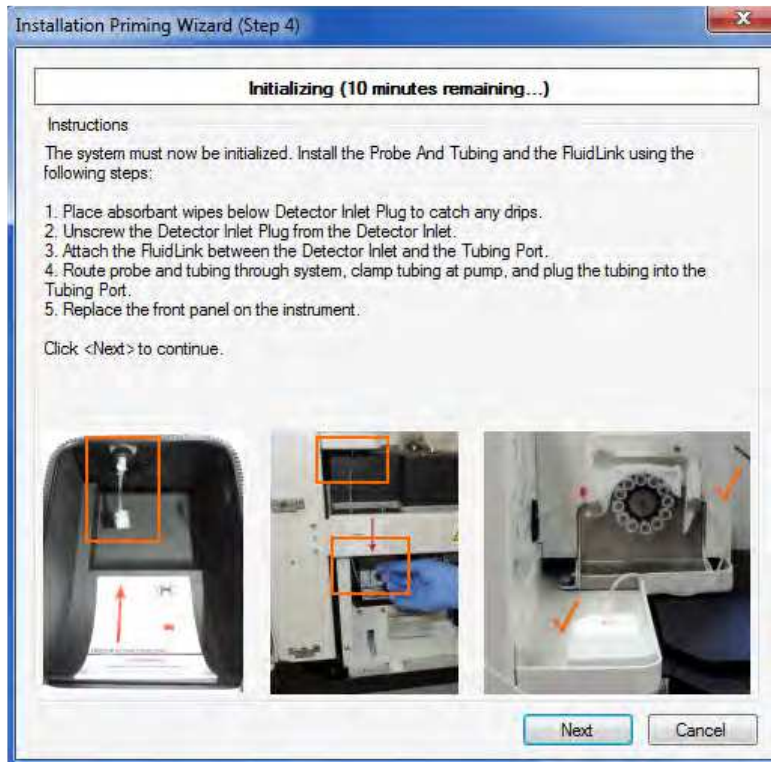
Wizard Step 2: Priming the Pressure Sensors.



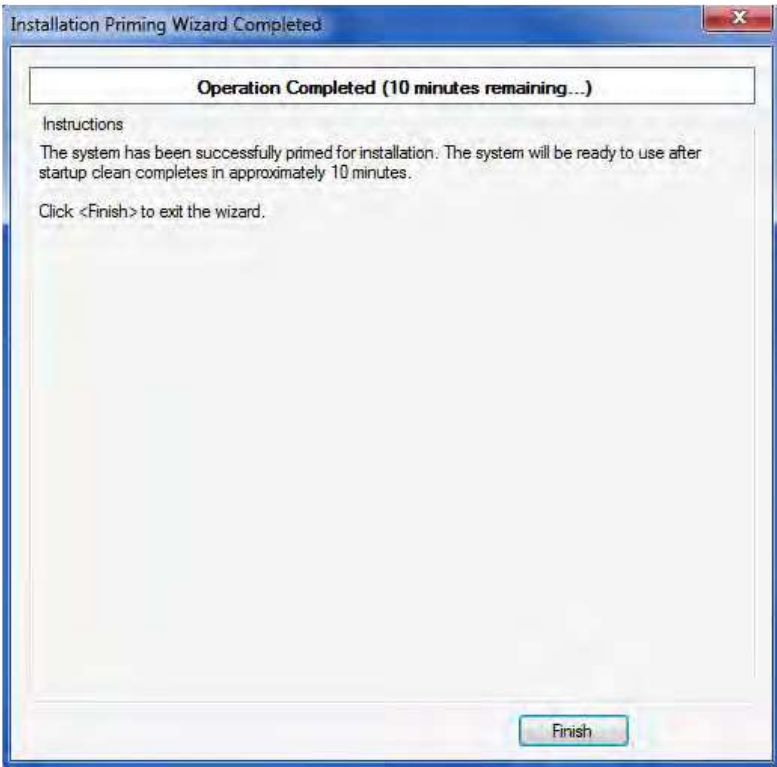
Wizard Step 3: Reconnect the Pressure Sensor Lines and Install Sheath Filter.



Wizard Step 4: Connect the FluidLink, Probe and Tubing.



Wizard Finish – Final Prime.



After the system has been primed, click **Power on Detector** to start the detector (see [Daily Startup](#)).

IntelliCyt Technical Support

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