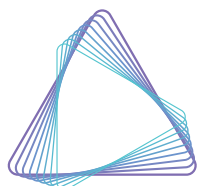
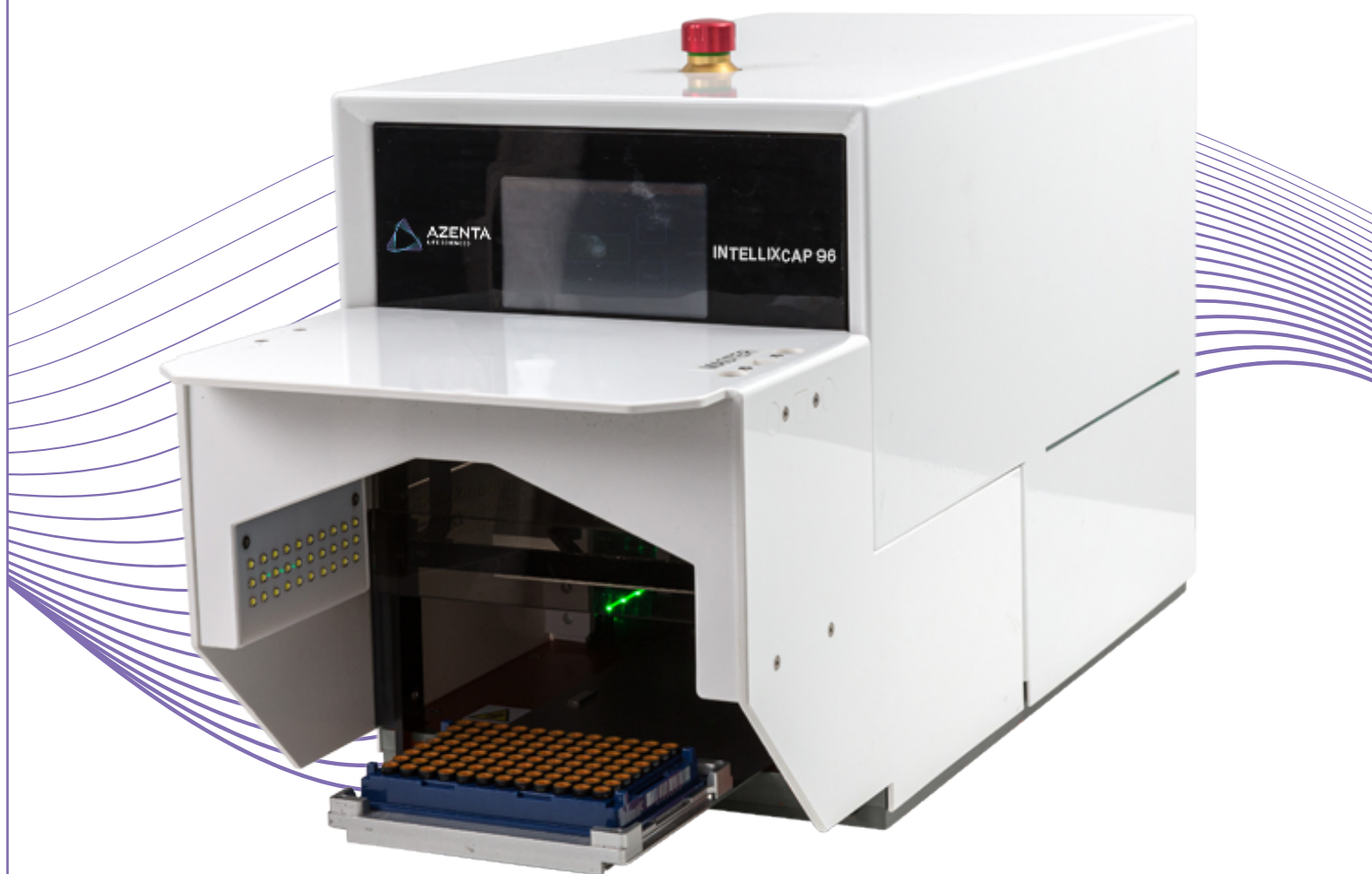


IntelliXcap™ Automated Screw Cap Decapper/Recapper Acoustic 96-format User Manual



AZENTA
LIFE SCIENCES

Azenta, Inc.

Information provided within this document is subject to change without notice, and although believed to be accurate, Azenta, Inc. assumes no responsibility for any errors, omissions, or inaccuracies.

BioStore™, BioWarehouse™, SampleStore™, Strata™, Tube Auditor™, Azenta™, Azenta Life Sciences™, and the Azenta logo are trademarks of Azenta, Inc.

CryoExchange®, CryoPod®, FrameStar®, FreezerPro®, and IntelliXcap® are registered U.S. trademarks of Azenta, Inc.

All other trademarks are properties of their respective owners.

© 2024 Azenta, Inc. All rights reserved. The information included in this manual is proprietary information of Azenta, Inc. and is provided for the use of Azenta, Inc. customers only and cannot be used for distribution, reproduction, or sale without the express written permission of Azenta, Inc.

This technology is subject to United States export Administration Regulations and authorized to the destination only; diversion contrary to U.S. law is prohibited.

Original manual printed in English.

These are the original instructions for the IntelliXcap Acoustic.



Corporate Headquarters

200 Summit Drive, 6th Floor
Burlington, MA 01803 U.S.A.

European Union Representative

Im Leuschnerpark 1B
64347 Griesheim, Germany

For Customer Service/Sales Inquiries:

Location	Contact Number	Website
North America	+1-888-2AZENTA (+1-888-229-3682)	www.azenta.com
Europe	+44-161-777-2000	
Japan	+81-3-6628-2950	

For Technical Support:

Location	Contact Number	Website
North America	+1-800-379-7221	www.azenta.com
Europe	+41-31-770-7373 / +44-161-777-2107	
Japan	+81-3-6628-2950	

Table of Contents

Cover	1
1. Safety	6
Explanation of Hazards and Alerts	7
Safety Text	7
Safety Icons	7
Signal Words and Color	7
Alert Example	8
Regulatory Compliance and Declaration of Conformity	9
General Safety Considerations	11
Safety Functions	13
E-Stop	13
Safety Door	15
2. Overview	17
Using this Manual	17
Concepts and Terminology	18
Product Illustration	20
3. Specifications and Site Requirements	21
Specifications	21
Unit Software and Firmware	21
Site Requirements	22
Space Requirements	22
Environmental Requirements	24
Electrical Requirements	25
4. Installation	26
Package Contents	27
Unpacking	29
Safety Requirements	29
Preparation	29
Procedure	30
Setting Up IntelliXcap Acoustic	37
LED Indicators	37
Procedure	38
Installing the Azenta Decoding Software	39
5. Operation	42
Overview	42
Starting the Product	43
Validating the Decapping Process	46
Cap Detect	48
Drop Detect	48
Peregrine48 Cap	49
Peregrine48 Code	51
Starting the Decapping and Recapping Process	52

Procedure	52
Manage the Cartridges	54
Change Cartridge	55
Manage Setpoints	62
Edit Setpoints	63
Manage Profiles	64
Standby Mode	65
Manually Enter Standby Mode	65
Configure Automatic Standby Mode Entry after Inactivity	66
Exit Standby Mode	68
6. Preventative Maintenance	69
Maintenance Schedule	70
Cleaning	70
Viewing Machine Servicing and Cartridge Replacement Intervals	71
Waste Disposal	73
System Test	73
7. Troubleshooting	74
Error Messages	74
Error Recovery	77
Manual Recovery	78
8. Appendices	79
Appendix A: Integrating the IntelliXcap Acoustic	80
Appendix B: Controlling Azenta Decoding Software Remotely	81
Appendix C: Repacking	83
Appendix D: WEEE Statement (European Union)	89

1. Safety



WARNING

Read the Safety Chapter

Failure to review the Safety chapter and follow the safety warnings can result in death or serious injury.

- All personnel involved with the operation or maintenance of this product must read and understand the information in this safety chapter.
- Follow all applicable safety codes of the facility as well as national and international safety codes.
- Know the facility safety procedures, safety equipment, and contact information.
- Read and understand each procedure before performing it.



NOTICE

It is the responsibility of each person working on this product to know the applicable regulatory safety codes as well as the facility safety procedures, safety equipment, and contact information.

This product is intended for use by industrial customers and should be serviced only by Azenta or Azenta trained representatives. The service manuals and related materials are provided in English at no charge and are intended for use by experienced technicians. It is the responsibility of the user to obtain and assure the accuracy of any needed translations of manuals. If you require assistance please contact Azenta service department. Contact information can be found at azenta.com.

If additional safety related upgrades or newly identified hazards associated with the IntelliXcap Acoustic are identified, Azenta Technical Support notifies the owner of record with a Technical Support Bulletin (TSB).

Explanation of Hazards and Alerts

This manual and this product use industry standard hazard alerts to notify the user of personal or equipment safety hazards. Hazard alerts contain safety text, safety icons, signal words, and color.

Safety Text

Hazard alert text follows a standard, fixed-order, three-part format.





- Identify the hazard,
- State the consequences if the hazard is not avoided,
- State how to avoid the hazard.

Safety Icons

- Hazard alerts contain safety icons that graphically identify the hazard.
- The safety icons in this manual conform to ISO 3864 and ANSI Z535 standards.

Signal Words and Color

Signal words inform of the level of hazard.

	<p>Danger indicates a hazardous situation which, if not avoided, will result in death or serious injury.</p> <p>Danger signal word is white on a red background with an iconic exclamation point inside a yellow triangle with black border.</p>
	<p>Warning indicates a hazardous situation which, if not avoided, could result in death or serious injury.</p> <p>Warning signal word is black on an orange background with an iconic exclamation point inside a yellow triangle with black border.</p>
	<p>Caution indicates a hazardous situation or unsafe practice which, if not avoided, may result in minor or moderate personal injury.</p> <p>Caution signal word is black on a yellow background with an iconic exclamation point inside a yellow triangle with black border.</p>
	<p>Indicates a situation or unsafe practice which, if not avoided, may result in equipment damage.</p> <p>Notice signal word is white on blue background with no icon.</p>

Alert Example

The following is an example of a *Warning* hazard alert.

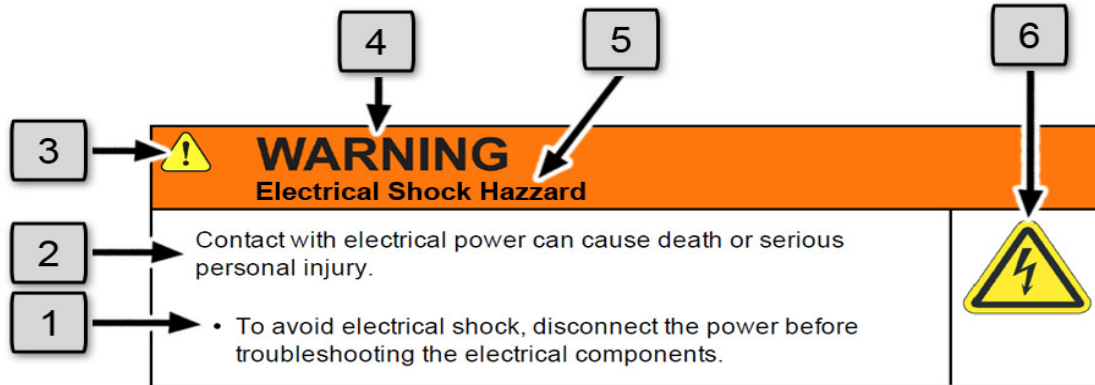



Figure 1-1: Components of a Safety Alert

Number	Description
1.	How to Avoid the Hazard
2.	Source of Hazard and Severity
3.	General Alert Icon
4.	Signal Word
5.	Type of Hazard
6.	Hazard Symbol(s)

Regulatory Compliance and Declaration of Conformity

The IntelliXcap Automated Screw Cap Decapper/Recapper Acoustic 96-format meets the requirements of the European Union's Machinery Directive 2006/42/EC and 2014/30/EU as a completed machine. In accordance with the Directive, Azenta Life Sciences has issued a Declaration of Conformity and the IntelliXcap Automated Screw Cap Decapper/Recapper Acoustic 96-format has a CE mark affixed.

DOCUMENT NUMBER: 297745	TITLE: Declaration of Conformity, Machinery Directive	
REVISION: E ECO# EC132455	DOCUMENT CLASSIFICATION: 04-Form, Template or Other	

DECLARATION OF CONFORMITY

Description: IntelliXcap Automated Screw Cap Decapper
 Function: The IntelliXcap is designed to remove and replace caps from tubes with screw caps in a rack on closed set tubes in specific rack types.
 Product code: 46-8010, 46-8011, 46-8012, 46-8014, 46-8112

Business name and full address of the manufacturer of the machinery:
 Azenta Life Sciences, Northbank, Irlam, Manchester M44 5AY, United Kingdom

Name and address of the person, established in the Community, authorized to compile the relevant technical documentation:
 Azenta Life Sciences (Germany) GmbH, Im Leuschnerpark 1B, 64347 Griesheim, Germany

The manufacturer declares:

- That this machinery fulfills all the relevant provisions of Directive 2006/42/EC (Machinery Directive)
 - EN 12100:2010 Safety of machinery. General principles for design. Risk assessment and risk reduction
 - ISO/TR 14121-2:2012 ED2 Safety of machinery. Risk assessment. Practical guidance and examples of methods
 - EN 61010-1:2010+A1:2019. Safety requirements for electrical equipment for measurement, control, and laboratory use. General requirements
- That this machinery fulfills all the relevant provisions of Directive 2014/30/EU (EMC Directive)
 - EN 61326-1:2021 Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements
- That this machinery is in conformity with Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment and amendment 2015/863/EU.
 - BS EN IEC 63000:2018. Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.

Year CE Marking Affixed to Product: 2018



Signed for and on the behalf of Azenta Life Sciences:

Rob Woodward
Rob Woodward (Oct 25, 2021 05:58 GMT+1)
 Print name: Rob Woodward
 Position: Senior Vice President, Global Quality Executive Management
 Place: Irlam, Manchester



Confidential: The information is confidential and is to be used only in connection with matters authorized by Azenta and no part of it is to be disclosed to others without prior written permission from Azenta.



Date Printed: Saturday, October 23, 2021	This is uncontrolled when printed	PAGE 1 OF 1
------------------------------------------	------------------------------------------	-------------



General Safety Considerations



 WARNING Electrical Shock Hazard	
Contact with electrical power can cause death or serious personal injury. <ul style="list-style-type: none">To avoid electrical shock, disconnect the power before troubleshooting the electrical components.	

NOTE: In case of electrostatic discharge, the product may restart automatically without malfunctioning or losing information.

 WARNING Chemical Hazard	
The IntelliXcap Acoustic may be used to de-/recap samples that expose users to chemical hazards which, if not properly handled, may result in death or serious injury. <ul style="list-style-type: none">Read and understand the safety information for the equipment where the IntelliXcap Acoustic is used.Know the location of the Safety Data Sheets (SDS) in your facility. (also known as Material Safety Data Sheets - MSDS)Become familiar with the proper handling of material in the environment of the decapper.	

 CAUTION Inappropriate Use	
Use of this product in a manner or for purposes other than for what it is intended may cause equipment damage or personal injury. <ul style="list-style-type: none">Only use the product for its intended application.Do not modify this product beyond its original design.Always operate this product with the covers in place.	

 CAUTION Damaged Components	
<p>The use of this product when components or cables appear to be damaged may cause equipment malfunction or personal injury.</p> <ul style="list-style-type: none"> • Do not use this product if components or cables appear to be damaged. • Place the product in a location where it will not get damaged. • Route cables and tubing so that they do not become damaged and do not present a personal safety hazard. 	

 CAUTION Pinch Point	
<p>Moving parts of the product may cause squeezing or compression of fingers or hands resulting in personal injury.</p> <ul style="list-style-type: none"> • Do not operate the product without the protective covers in place. 	

<h1>NOTICE</h1>	
<p>Moving parts are subject to pressure and weight. Do not rest a hand on the stage or twist the rack as it may pull the machine out of position or damage moving parts.</p>	

<h1>NOTICE</h1>	
<p>The IntelliXcap Acoustic should be kept clean at all times, please see "Cleaning" on page 1 for information on cleaning requirements.</p>	

<h1>NOTICE</h1>	
<p>The IntelliXcap Acoustic can only be used with tubes and cartridges that have been configured and tested. Do not use alternative tubes and cartridges that have not been configured and tested.</p>	

NOTICE

Untrained or Improperly Equipped Personnel

Untrained or improperly equipped personnel performing this procedure may cause damage to the equipment.

- Only Azenta Life Sciences trained personnel should perform this procedure.
- Personnel performing this procedure must read and understand this procedure and have the proper tools and supplies ready before starting.
- Personnel performing this procedure must know the applicable safety codes, facility safety procedures, safety equipment, and emergency contact information.

Safety Functions

The use and operation of the machine must only be initiated when all safety functions are fully present and in an operable condition. Defective safety functions and protection equipment may lead to unsafe and hazardous situations. In case that a risk to safety is found, do the following:

1. Stop the machine immediately. It can be brought to a safe stop by either the touch screen (activating the Cancel function), or by the emergency stop button.
2. Disconnect the supply sources to prevent the IntelliXcap Acoustic from restarting.

E-Stop

The emergency stop button is a safety device designed for use as a complementary protective measure. As an example, the operator can press the emergency stop function to cease all mechanical movement of the IntelliXcap Acoustic if a hazardous situation arises that could cause personal injury, or damage to the machine or equipment.



Figure 1-2: E-Stop Button

When activating the emergency stop button, the status will appear on the operator monitor: *Error 238 – Emergency stop*

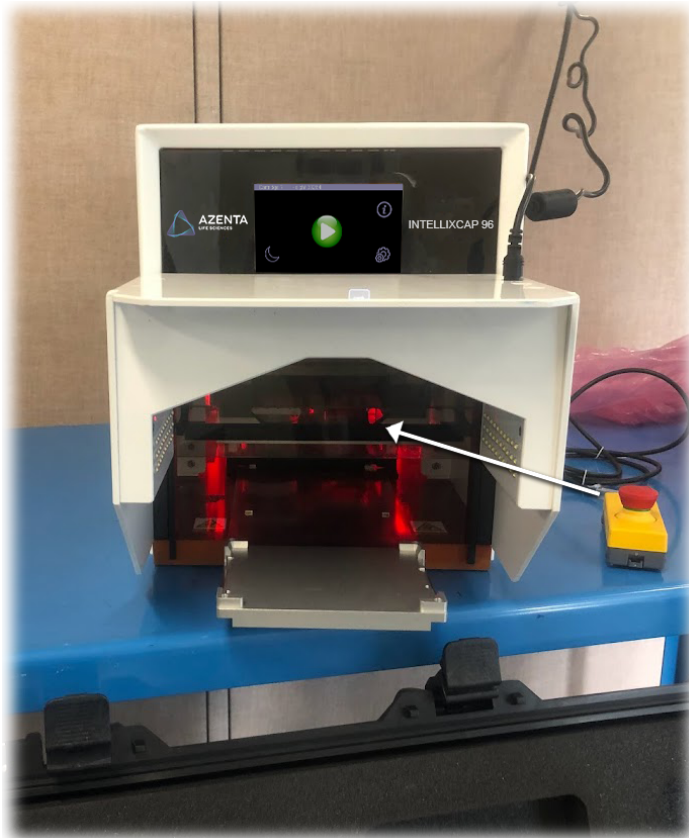
Test the emergency stop function before commissioning the IntelliXcap Acoustic for use and after each installation or re-installation.

At minimum, the function must be visually checked and activated at least every six months.

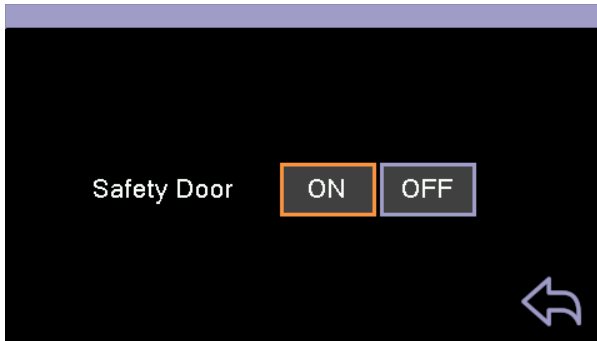
Safety Door

There is a safety switch installed on the access door that prevents the unit from running if the door is not completely closed.

This function protects operators against hazardous moving parts accessible through the front of the IntelliXcap Acoustic.



The access door can be disabled by navigating to *Settings* > *Safety Door*, if the user makes sure that another safety measure takes over.






For example, when the IntelliXcap Acoustic is integrated into a robotic cell with its own safety system. See [Appendix A: "Integrating the IntelliXcap Acoustic" on page 80](#) for further information on using the IntelliXcap Acoustic in an integrated system.

When the IntelliXcap Acoustic is commissioned and starts functioning, the automated door closes and the *Initializing please wait* status message is displayed on the operator monitor.

The safety door must be activated and tested before commissioning the machine for use.

NOTE: At minimum, the safety door should be visually checked and activated at least once a day.

 WARNING Lockout / Tagout	
<p>Working with energized equipment may cause sudden movement or electrical shock and may result in death or serious injury.</p> <ul style="list-style-type: none">• All energy must be removed from the equipment per the facility's Lockout/Tagout procedure before servicing.• If local procedures are not available, follow the procedure for Lockout/Tagout in OSHA Standard 29CFR 1910.147.	 



2. Overview

This manual describes the proper use of the machine.

With an automated glide rail for integration and Verification Camera module for decapping validation, IntelliXcap Acoustic is the only decapper system fully compatible with Acoustic Sample Tube - Echo® Qualified Consumables.

The instrument includes a base unit, a Verification Camera module, and one Acoustic IntelliXcartridge, especially designed to decap/recap Acoustic Sample Tube - Echo® Qualified Consumables.

Using this Manual

 DANGER Read the Safety Chapter	
<p>Failure to review the Safety chapter and follow the safety warnings can result in death or serious injury.</p> <ul style="list-style-type: none">• All personnel involved with the operation or maintenance of this product must read and understand the information in this safety chapter.• Follow all applicable safety codes of the facility as well as national and international safety codes.• Know the facility safety procedures, safety equipment, and contact information.• Read and understand each procedure before performing it.	

The IntelliXcap Acoustic is intended for use in a laboratory environment by trained laboratory personnel and should be serviced only by Azenta or Azenta trained representatives. The manuals and related materials are intended for use by trained and experienced technical personnel.

The manufacturer accepts no liability for any other use of the equipment or its individual parts and components. This also applies to service and repair work carried out by unauthorized service personnel.

All warranties are declared null and void in the event of non-compliance with these instructions. This also applies to parts not directly affected by any unauthorized repair work.

This manual contains information on safety, specifications, and operation as well as troubleshooting and maintenance of the IntelliXcap Acoustic. If there are any questions regarding this manual or use of this system or to order additional copies of this publication, contact Azenta Life Sciences Service. See the contact information on page 3.

Concepts and Terminology

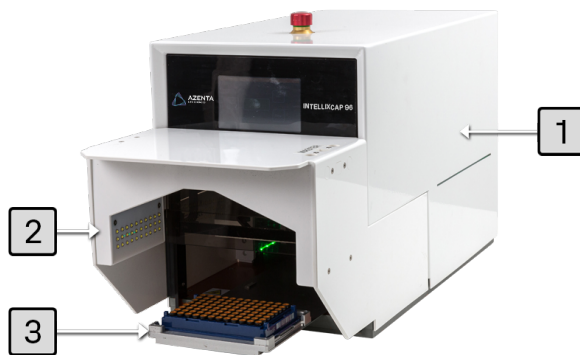
The concepts and terminology defined in this section may be used in this document. Users should read this section first before continuing with the manual.

Word	Definition
Cap motor	Small DC motor with an integral gearbox which can be driven in either direction to remove or refit a test tube caps. Couples to the caps via ejector pin and adaptor within the cartridge.
Caps	Screw caps
Cartridge	A set of adaptors which couple the ejector pins to the tube caps
Cartridge ID Number	The electrical ID number of the cartridge encoded by 4 pin switches. Can be 1–15.
Cartridge Number	The actual number of the cartridge which corresponds to a physical profile.
Cartridge profile	Collection of setpoints which define machine operation for a particular Acoustic Sample Tube - Echo® Qualified Consumable. Often just referred to as a profile.
Common Setpoints	Those setpoints which are common to all types of Acoustic Sample Tube - Echo® Qualified Consumable.
Controller (board)	The main controller module within the IntelliXcap. This has all I/O as well as stepper motor drivers.
CRC16	Cyclic redundancy check, used for profile verification and the CRC algorithm used shall be CRC16-CITT-FALSE.
CSV	Comma separated values. However, in this context it is a semicolon delimited text file which contains a specific cartridge profile.
Cycle	The process of first de-capping and then re-capping a rack of tubes = 1 cycle.
Datalogger	Software application provided by LS Controls which allows configuration of the IntelliXcap via the USB port.
Decap	Unscrew the caps of the sample tubes.
EEPROM	Electrically erasable programmable read only memory. Used for non-volatile storage in the instrument.
Ejector pin	Couples the cap motor to the cartridge adaptor, and hence in turn to the tube cap.

Word	Definition
Extended profile Number	Profile number for use with cartridge ID 15 - numbered 16–96.
Extended stage	That part of the mechanism which adjust the height of the cap drivers, relative to the head assembly. It is driven by stepper motor M3, and mechanically is made possible by the fact the cap drivers are slotted and slide up and down on the ejector pins.
Head	The main moving assembly, which comprises the cap motors and drivers, along with light curtain. It is driven by stepper motor M1.
I/O	Input/Output
Instructed person	A person having received the necessary training to carry out a task in a safe and responsible way.
IntelliXcap 96/48/24	Various Intellixcap variants (i.e. 96, 48 or 24 tube).
LCD Display	480 x 272-pixel touch screen display on the IntelliXcap front panel. It communicates with the controller board via modbus.
Light curtain	System for detecting the height of the tube rack on the stage.
Loaded profile	The profile currently loaded into the machine's working memory area, usually this is copied from EEPROM storage according to the cartridge number, however it could also be a profile that was loaded in using datalogger.
M1	Main Z motor
M2	Stage/Nest motor
M3	Cartridge motor
M4	Safety Door motor
Microcontroller	Microprocessor with integrated memory, I/O and other special purpose peripherals. Runs fixed (embedded) application firmware.
MLA	Microchip Libraries for Applications. A set of drivers and middleware libraries containing such items as USB stacks, graphics frameworks and LCD drivers. Provided by Microchip Technology.
Modbus	Master/slave data communications protocol originally developed for PLCs.
Modbus address	16-bit address for a particular register, which is also a 16-bit value.
MPLABX	Development environment by Microchip Technology, used for developing firmware for their range of PIC microcontrollers
Profile	See 'Cartridge profile'.
Profile number	Numbered profile which corresponds to cartridge number.
Profile Setpoints	The setpoints that are included in a profile.
PSU	Power supply unit. Two are fitted in the IntelliXcap: 24V and 7.5V.
Rack	Set of labware consisting of tray and a number of tubes/vials.
Recap	Screw the caps back onto the sample-tubes.

Word	Definition
Regular profile number	Automatically loaded profile number for cartridges 1–14.
Setpoint	Configurable parameter which defines machine operation. In modbus parlance it is a holding register.
Setpoint Number	Unique number for each setpoint, which corresponds to the modbus holding register address.
Volatile Setpoints	Setpoints which do not need to be stored in non-volatile memory, e.g. commands.
Waste	Mode of operation where caps are not refitted but dropped off into a carrier.
Working profile	See 'Loaded profile'.

Product Illustration



#	Description
1	IntelliXcap 96
2	Verification Camera (IntelliXcheck module)
3	Azenta IntelliXcap Acoustic Tubes and Rack

3. Specifications and Site Requirements

Specifications

Unit Software and Firmware

Table 3-1: Software and Firmware

Software/Firmware	Version
Controller	50.03
Display	23.02
Light curtain	20.1

Site Requirements

Space Requirements

The machine has a rectangular footprint and is regarded as highly stable. Place the IntelliXcap in a well-ventilated area on top of an even surface that is solid enough to carry its weight. The surface must comply with 1.3.1 of Annex I of 2006/42/EC.

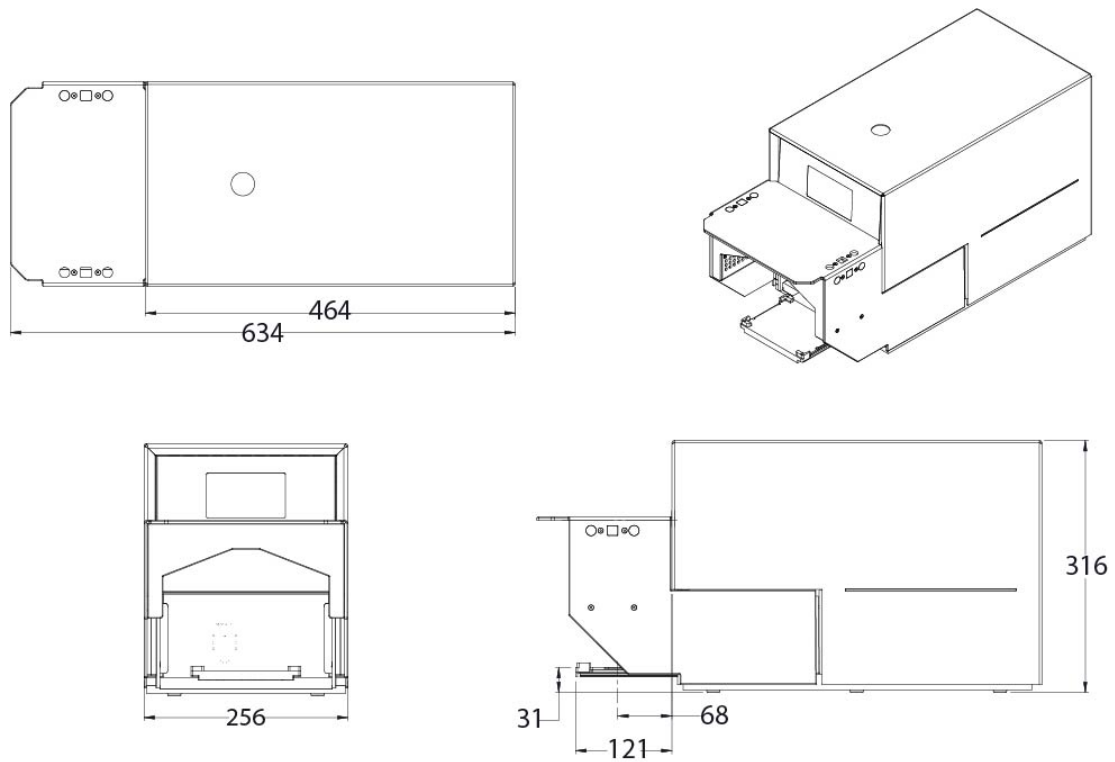


Figure 3-1: Machine Footprint (in mm)

Table 3-2: Space Requirements

Parameter	Specification
System Height	316 mm
System Width	256 mm
System Depth	634 mm
Stage Height	31 mm
Standard Stage Distance (when ejected)	121 mm
Extended Stage Distance (when ejected)	207 mm
System Weight	27 kg

Environmental Requirements

The IntelliXcap Acoustic shall be used within the rule set of the Good Laboratory Practices, GLP.

The machine must be operated indoors and under the following environmental specifications only:

Table 3-3: Environmental Requirements

Parameter	Specification
Temperature - Transport and Storage	15–40 °C (59–104 °F)
Temperature - Operation	0–40 °C (32–104 °F) Using the IntelliXcap in an environment where the temperature is 40 °C (104 °F) or higher for an extended period may cause the screen contrast level of the monochrome LCD to decrease from its original level of brightness.
Storage Humidity	10–70% RH Wet bulb temperature 39 °C (102 °F) max., no condensation
Relative Humidity	10–90% RH Wet bulb temperature 39 °C (102 °F) max., no condensation
Storage Lighting	All external surfaces are resistant to UV-light. Over time UV-light might affect LCD-panels: LCD screens may fade.
IP 30	Protection against small foreign bodies > 2.5 mm (e.g. a screwdriver), and no protection against water
Dust	0.1 mg/m ³ and below (non-conductive levels)
Pollution Degree	For use in Pollution Degree 2 environment Decontamination treatment with Hydrogen Peroxide Gas needs to be avoided as it will damage the electronic parts.

Electrical Requirements

The system must only operate with the power supply and frequency specified on the system identification stickers mounted on the side of the device. Operating the system with any other power supply or frequency can result in damage to the equipment.

Table 3-4: Electrical Requirements

Parameter	Specification
Supply Voltage	100–120 VAC 1/N/PE / 220-240 VAC 1/N/PE Use IEC 320 plugs only Ground must be connected at all times
Maximum Power Consumption	500W
Idle Power Consumption	100W
Supply Frequency	The machine operates below the noise emissions level: < 70 dB(A)
Fuses	Two fuses: 250 V, 5A (5x20 mm) IEC 60127 fuse only
Insulation Resistance	Not less than 1M Ω at 1,000V Phase 1 = 50G Ω Neutral = 50G Ω
UI Connection	RS 232 cable

4. Installation



DANGER

Read the Safety Chapter

Failure to review the Safety chapter and follow the safety warnings can result in death or serious injury.

- All personnel involved with the operation or maintenance of this product must read and understand the information in this safety chapter.
- Follow all applicable safety codes of the facility as well as national and international safety codes.
- Know the facility safety procedures, safety equipment, and contact information.
- Read and understand each procedure before performing it.



NOTICE

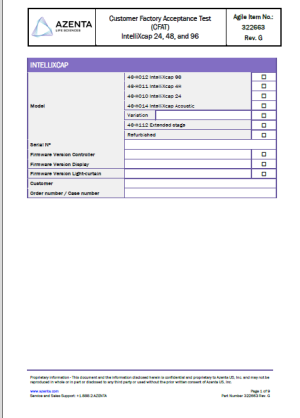


It is the responsibility of each person working on this product to know the applicable regulatory safety codes as well as the facility safety procedures, safety equipment, and contact information.

The system is supplied fully assembled from the manufacturer and no further mechanical assembly is necessary.

Before proceeding, ensure that all items listed in "[Electrical Requirements](#)" on [page 25](#) were delivered inside the Peli Case.



Package Contents

Product Code	Description	Qty	Part Image
46-8014	ASSY,INTELLIXCAP,96,CAP,DECAP,MECHANICAL,ACOUSTIX includes cartridge 48-8013-04 (ASSY,CARTRIDGE,INTELLIXCAP,FX,ACOUSTIC TUBE)	1	
316093	CABLE,POWER EXTENSION,C14 TO 2 X C13, 2.5M,250V,10A	1	
316094	CABLE,ASSY,2COND,18AWG,2X RTANG DC PLUG,BLK,1FT	1	
316095	POWER SUPPLY,AC-DC,12V,5.41A,IEC,2.5MM BARREL PLUG	1	
351374	CABLE ASSY,USB 2.0,A TO B M/M,BLK,PVC,2.0M	1	
20-4012	UPGRADE,INTELLIXCAP 96,E-STOP includes part 315935 and part 315939	1	

Product Code	Description	Qty	Part Image
323304	POWER CORD,C13 TO UK PLUG,2M,250V,10A	1	N/A
323305	CABLE ASSY,POWER,RIGHT ANGLE,C13,3 POLE,US	1	N/A
323306	CABLE ASSY,POWER,RIGHT ANGLE,C13,3 POLE,EU	1	N/A
323307	CABLE ASSY,USB 2.0 A TO A,M/M,1M	1	N/A
323308	CABLE ASSY,EXTENSION,DB9,M/F,BLK,1M	1	N/A
322663	CUSTOMER FAT,INTELLIXCAP,ALL MODELS	1	
354817	FORM,FACTORY ACCEPTANCE TEST,INTELLIXCAP 96	1	
347778	USER MANUAL,INTELLIXCAP Acoustic	1	

Unpacking


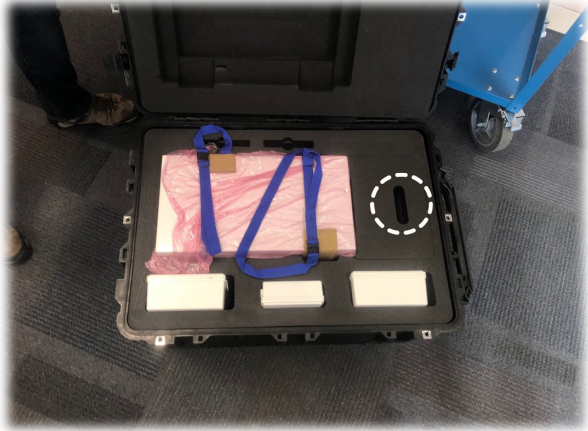
Safety Requirements



 CAUTION Two-Person Lift Recommended	
<p>This product weighs up to 28 kg (61.7 lbs). Improper lifting may result in personal injury.</p> <ul style="list-style-type: none">• Do not attempt to lift this product alone. Always use 2-person lift techniques or a lift aid to unpack and install the equipment.• Use the provided straps installed around the unit when removing the IntelliXcap from the packaging.	



Preparation



Step	Action
1.	Review " Site Requirements " on page 22 for a full list of environmental, electrical, and space requirements.
2.	Move the case to an appropriate unpacking area.
3.	Review the procedure (as described in " Procedure " on the next page) and confirm that you have the proper items required to do the job.
4.	Unpack the kit (as described in " Procedure " on the next page) and inspect and confirm the contents (as described in " Unpacking " above) are present and correct.
5.	Report any missing or damaged items to Azenta Life Sciences.


Procedure

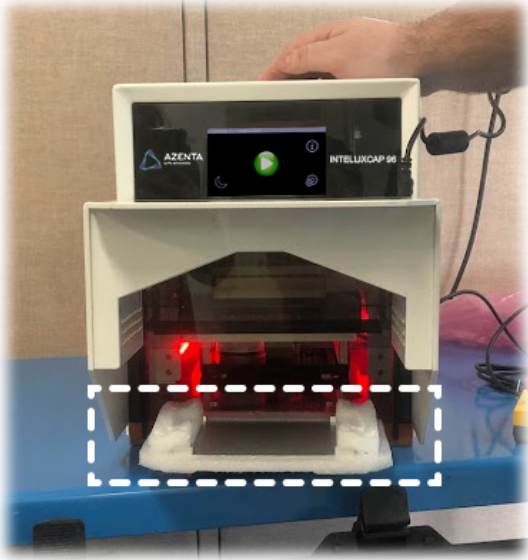
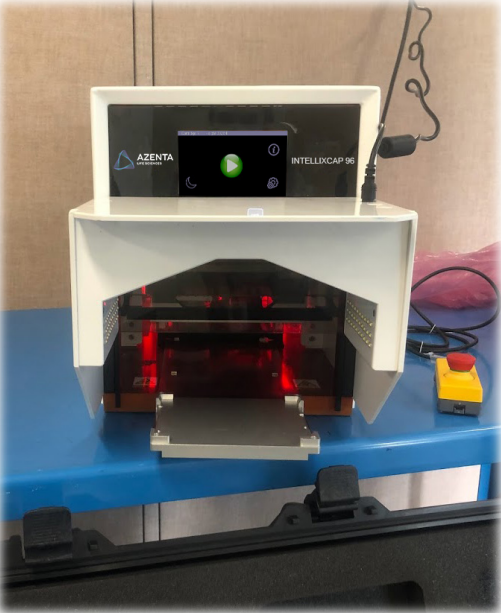
Step	Action
1.	<p>Unclip the seven pelican clips to open the case.</p> 
2.	<p>Remove the foam insert using the slot in the following image.</p> 
3.	<p>Ensure that all parts are included as described in "Package Contents" on page 27.</p>
4.	<p>With two people, carefully lift the IntelliXcap Acoustic system out of the inner cardboard box by the blue straps and place it on a flat surface that can hold 30 kg.</p>

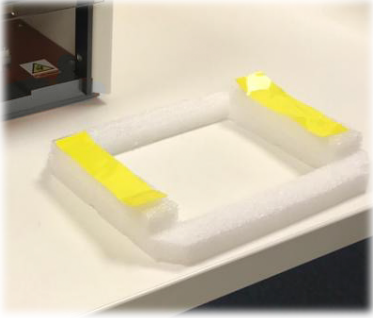
Step	Action
5.	<p data-bbox="354 262 1252 294">Loosen and remove the blue straps, then set them aside as they are required for Step 14.</p> 
6.	<p data-bbox="354 1144 1211 1176">Remove the plastic electrostatic covering and set it aside as it is required for Step 14.</p> 

Step	Action
7.	<p>Remove the tape from the device's sliding doors and set it aside as it is required for Step 14.</p>  A photograph showing the front of the IntelliXcap Acoustic device. The device is white with a black screen area. The screen displays the AZENTA logo on the left and INTELLIXCAP 06 on the right. Below the screen, there are two circular sliding doors, each with a piece of yellow tape attached to its center. The device is sitting on a blue surface.
8.	<p>Insert the E-Stop cable into the IntelliXcap Acoustic and twist the metal screw until tight.</p>  A photograph showing the back of the IntelliXcap Acoustic device. The device is white with a black back panel. A black E-Stop cable is inserted into a port on the back panel. A white dashed circle highlights the cable's connection point. A metal screw is being twisted into the back panel to secure the cable. A warning label with a lightning bolt symbol and the word "DANGER" is visible. A technical specification label is also present, listing manufacturing details and safety information.



Step	Action
9.	<p>Plug the other end of the cable into the E-Stop box.</p>  <p>NOTE: Make sure it is in the ON position by pressing down on the E-stop button and twisting. If it is raised and you can push down on it then it is in the correct position. This process must be repeated each time you press the E-stop button.</p>
10.	<p>Connect the power cable from the instrument back to the electrical power socket (100/240VAC).</p> <p>NOTE: Ensure that the door is free from obstructions, and that there is nothing in front of the instrument.</p> 

Step	Action
11.	<p>Turn the IntelliXcap Acoustic on, using the switch at the rear of the system.</p>  <p>The system initializes and the tray extends.</p>

Step	Action
	<p>Remove the foam block used to secure the IntelliXcap Acoustic stage in place and set it aside as it is required for Step 14.</p> 
12.	<p>The device is now ready for use.</p> 

Step	Action
13.	<p>Stick all provided plastic shipping tape to the foam block.</p> 
14.	<p>Place the straps, foam block and shipping tape inside the anti-static bag and save them. They will be needed if shipping the system.</p>
15.	<p>Keep the original packing material in a dry/low humidity location in case the IntelliXcap Acoustic needs to be transported for service or repair. Follow all local regulations while disposing the original packing solution.</p>

Setting Up IntelliXcap Acoustic

 CAUTION Inappropriate Use	
<p>Use of this product in a manner or for purposes other than for what it is intended may cause equipment damage or personal injury.</p> <ul style="list-style-type: none">• Only use the product for its intended application.• Do not modify this product beyond its original design.• Always operate this product with the covers in place.• Do not change settings.	


NOTICE
<p>It is the responsibility of each person working on this product to know the applicable regulatory safety codes as well as the facility safety procedures, safety equipment, and contact information.</p>

LED Indicators

Table 4-1: LED Indicators and Definition

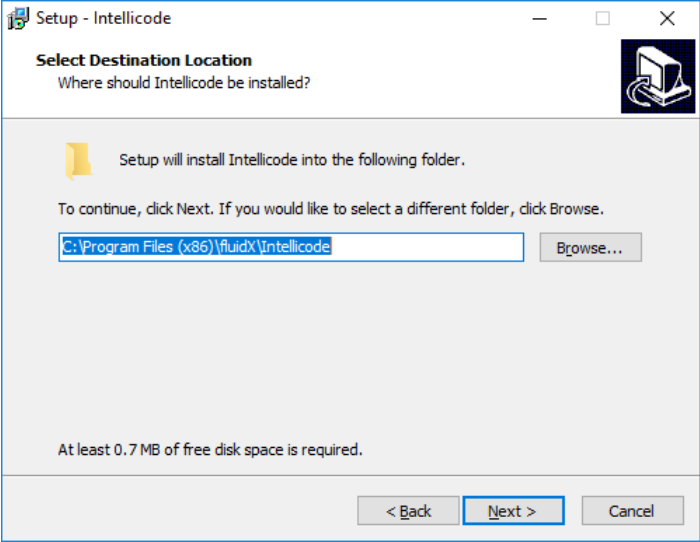
LED Color	Definition
Green	Operation ready. The main menu is displayed.
Green Flashing	Operation in progress.
Orange	Standby status. Press any button to leave standby. Message appears on the screen.
Red	Error code is displayed on screen.

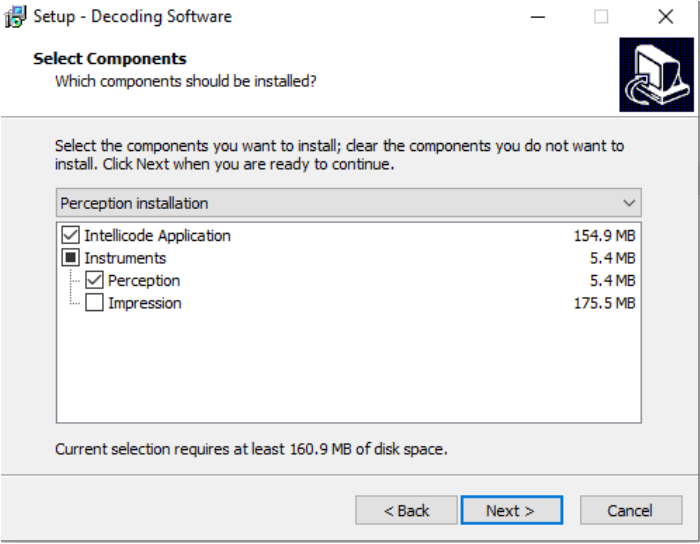
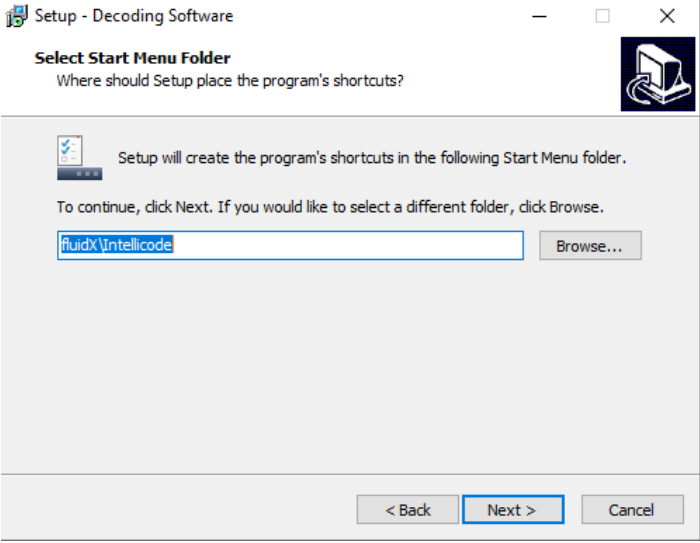
Procedure

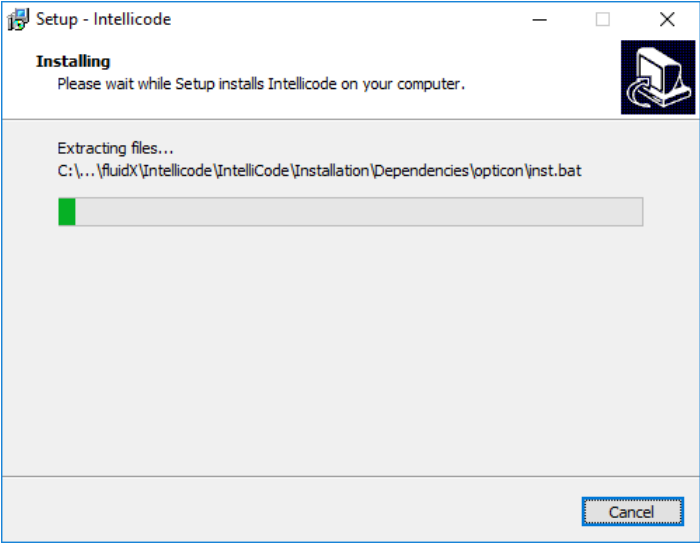
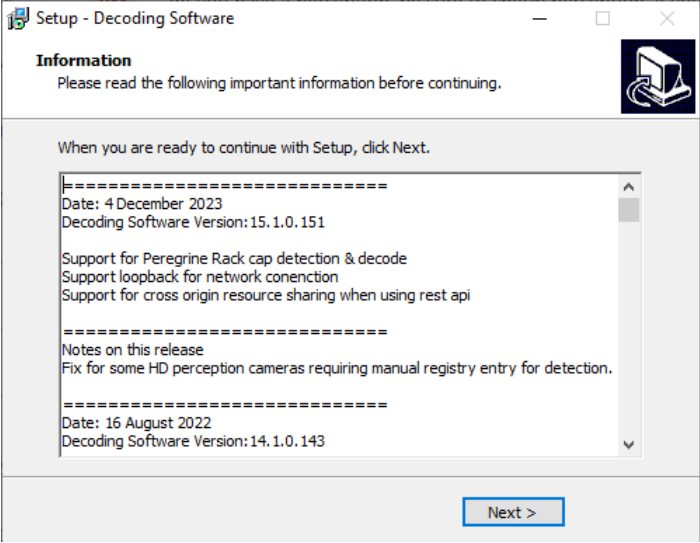
Step	Action
1.	Ensure that the door is free from obstructions, and that there is nothing in front of the instrument.
2.	<p>Complete the following steps:</p> <ol style="list-style-type: none">Connect the provided power cable extension (PN: 316093) to the power transformer. This splits power between the IntelliXcap unit and Verification Camera module.Connect one end to IntelliXcap unit to power the decapper and the other end to the power supply module of Verification Camera (PN: 316095).Connect the power cable to an electrical power socket (100-240 VAC).Connect the provided USB cable to the Verification Camera module and to the computer where the Azenta Decoding Software will be installed. 
3.	Power ON the laptop.
4.	Power ON the IntelliXcap Acoustic, using the switch at the rear of the system.

Installing the Azenta Decoding Software

Ensure to refer to the Azenta Decoding Software Installation Procedure (382851) for the latest version of this procedure.

Step	Action
1.	Power ON your PC and connect the provided USB stick to your PC. NOTE: Make sure your computer meets the minimum system requirements of the program: Processor: Intel Core i5, 8GB RAM Free Disk Space: minimum of 1GB
2.	Ensure you have full admin rights (Read, Write, and Modify) to the registry. Close all other applications during the installation process. NOTE: Do not connect the IntelliXcap Acoustic to the PC at this stage.
3.	Open your file navigator and navigate to the connected USB drive.
4.	Right-click on <code>azenta_decoding_software_setup_15_xx</code> and select Run as administrator .
5.	Select the language to be used during the installation and click OK .
6.	After reading the terms and conditions, select the I accept the agreement check box and then click Next .
7.	<p>Verify the install path and click Next. The installation proceeds.</p>  <p>The <i>Select Components</i> window is displayed.</p>

Step	Action												
8.	<p>Ensure the IntelliCode Application and Perception check boxes are selected and then click Next.</p>  <p>Setup - Decoding Software</p> <p>Select Components Which components should be installed?</p> <p>Select the components you want to install; clear the components you do not want to install. Click Next when you are ready to continue.</p> <p>Perception installation</p> <table border="1"><tbody><tr><td><input checked="" type="checkbox"/></td><td>Intellcode Application</td><td>154.9 MB</td></tr><tr><td><input checked="" type="checkbox"/></td><td>Instruments</td><td>5.4 MB</td></tr><tr><td><input checked="" type="checkbox"/></td><td>Perception</td><td>5.4 MB</td></tr><tr><td><input type="checkbox"/></td><td>Impression</td><td>175.5 MB</td></tr></tbody></table> <p>Current selection requires at least 160.9 MB of disk space.</p> <p>< Back Next > Cancel</p>	<input checked="" type="checkbox"/>	Intellcode Application	154.9 MB	<input checked="" type="checkbox"/>	Instruments	5.4 MB	<input checked="" type="checkbox"/>	Perception	5.4 MB	<input type="checkbox"/>	Impression	175.5 MB
<input checked="" type="checkbox"/>	Intellcode Application	154.9 MB											
<input checked="" type="checkbox"/>	Instruments	5.4 MB											
<input checked="" type="checkbox"/>	Perception	5.4 MB											
<input type="checkbox"/>	Impression	175.5 MB											
9.	<p>Select a shortcut location and then press Next.</p>  <p>Setup - Decoding Software</p> <p>Select Start Menu Folder Where should Setup place the program's shortcuts?</p> <p>Setup will create the program's shortcuts in the following Start Menu folder.</p> <p>To continue, click Next. If you would like to select a different folder, click Browse.</p> <p>fluidX\Intellcode Browse...</p> <p>< Back Next > Cancel</p>												

Step	Action
10.	<p>Verify the install details and click Install. The installation proceeds.</p>  <p>The installation proceeds. This may take a few minutes.</p>
11.	<p>Read the release note information and click Next.</p> 
12.	To finish the installation, select the <i>Yes, restart the computer now</i> option, and then click Finish .
13.	Confirm the Azenta Decoding Software is successfully installed on the PC.
14.	Power on and plug the IntelliXcap Acoustic device into an available port on the PC using the provided cable and wait for the device to be recognized.
15.	Open the Decoding Software. The instrument should now be detected in the software application.

5. Operation

Overview

This chapter provides complete operation directions for the IntelliXcap Acoustic. The operation of the IntelliXcap is covered for both normal operating conditions and emergency conditions.

The IntelliXcap Acoustic has been designed and constructed to allow safe access to all areas where intervention could be necessary during operation.

The settings must not be changed.

Only trained individuals should monitor the IntelliXcap Acoustic while in use.

NOTICE

It is the responsibility of each person working on this product to know the applicable regulatory safety codes as well as the facility safety procedures, safety equipment, and contact information.





CAUTION

Inappropriate Use



Use of this product in a manner or for purposes other than for what it is intended may cause equipment damage or personal injury.

- Only use the product for its intended application.
- Do not modify this product beyond its original design.
- Always operate this product with the covers in place.
- Do not change settings.






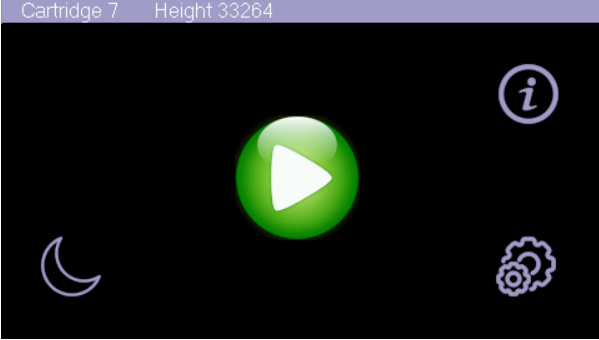
 DANGER Read the Safety Chapter	
<p>Failure to review the Safety chapter and follow the safety warnings can result in death or serious injury.</p> <ul style="list-style-type: none">• All personnel involved with the operation or maintenance of this product must read and understand the information in this safety chapter.• Follow all applicable safety codes of the facility as well as national and international safety codes.• Know the facility safety procedures, safety equipment, and contact information.• Read and understand each procedure before performing it.	

Starting the Product


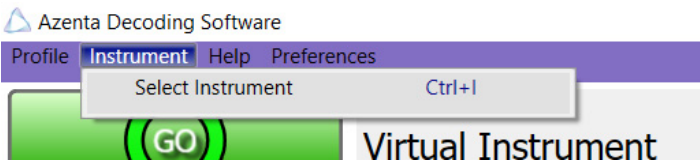
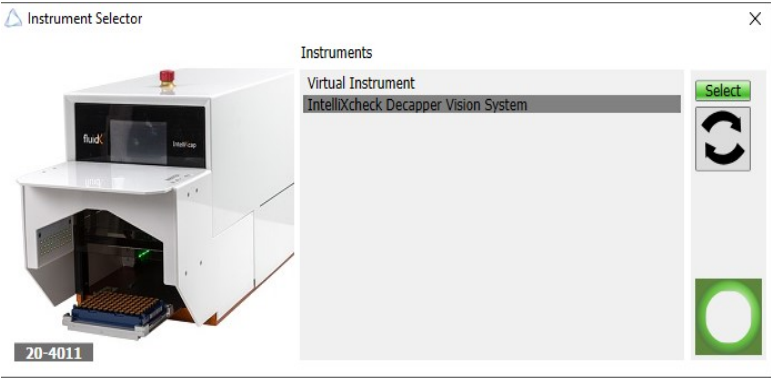
 CAUTION Inappropriate Use	
<p>Use of this product in a manner or for purposes other than for what it is intended may cause equipment damage or personal injury.</p> <ul style="list-style-type: none">• Only use the product for its intended application.• Do not modify this product beyond its original design.• Always operate this product with the covers in place.• Do not change settings.	

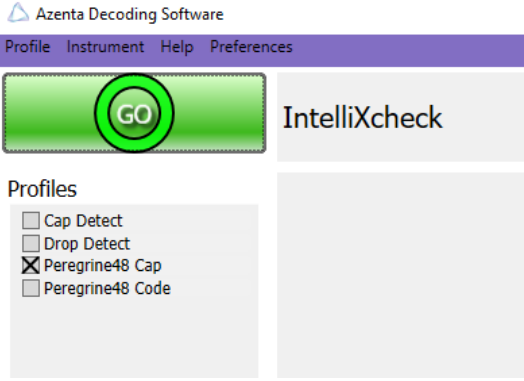
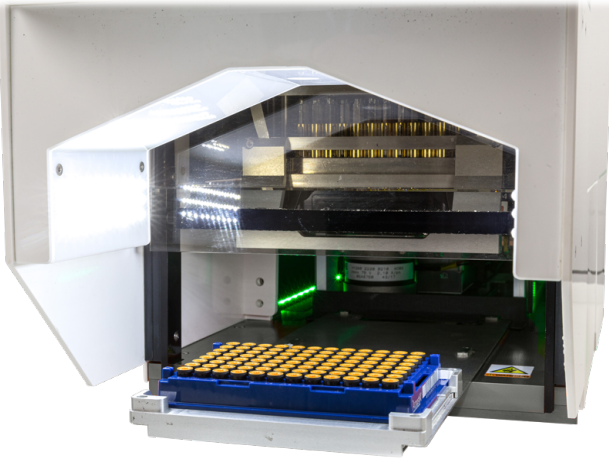
NOTICE
<p>It is the responsibility of each person working on this product to know the applicable regulatory safety codes as well as the facility safety procedures, safety equipment, and contact information.</p>

Step	Action
1.	<p>Connect the power cable into the electrical power socket (100/240VAC) on the back of the device.</p> 
2.	<p>Ensure that the door is free from obstructions, and that there is nothing in front of the instrument.</p>

Step	Action
	<p>Turn the IntelliXcap Acoustic on, using the switch at the rear of the system.</p>  <p>The IntelliXcap Acoustic starts up and begins the Initialization process. NOTE: During this process, the door opens and the stage moves into its extended position.</p> <p>3. </p> <p>Once initialization is complete, the <i>Home</i> screen is displayed.</p> 

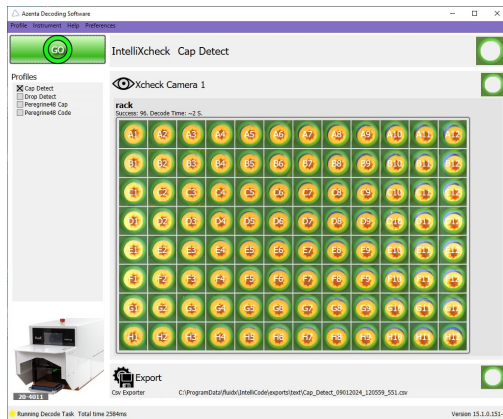
Validating the Decapping Process

Step	Action
1.	Power ON the PC.
2.	Power ON the IntelliXcap Acoustic.
3.	Power ON the Verification Camera module.
4.	Ensure the latest release of the Azenta Decoding Software is installed on the PC.
5.	<p>Double-click on the Azenta Decoding Software icon on your desktop.</p> 
6.	<p>Navigate to Instrument > Select Instrument.</p>  <p>The <i>Instrument Selector</i> window opens.</p>
7.	<p>Select IntelliXcheck, then click Select.</p>  <p>NOTE: If only Virtual Instrument is listed, it means that the IntelliXcap Acoustic is disconnected from the PC or from power (system not detected).</p>

Step	Action
8.	<p>Under Profiles, select a profile. Several profiles are available to chose from, depending on the labware being used:</p> <ul style="list-style-type: none"> • If using FluidX™ Acoustic Sample Tube - Echo® Qualified Consumables, select either Cap Detect or Drop Detect. • If using Cap2™ 0.2ml Dual-Cap Sample Collection PCR Tube. select Drop Detect, Peregrine48 Cap or Peregrine48 Code.  <p>The screenshot shows the 'Azenta Decoding Software' interface. At the top, there is a navigation bar with 'Profile', 'Instrument', 'Help', and 'Preferences'. Below this is a large green 'GO' button. To the right of the button is the text 'IntelliXcheck'. Underneath, there is a 'Profiles' section with four options: 'Cap Detect', 'Drop Detect', 'Peregrine48 Cap' (which is selected with a checked checkbox), and 'Peregrine48 Code'.</p>
9.	<p>Place the rack on the decapper stage.</p> <p>Two different types of labware can be used with the Verification Camera and the Azenta Decoding Software:</p> <ul style="list-style-type: none"> • FluidX™ Acoustic Sample Tube - Echo® Qualified Consumable • Cap2™ 0.2ml Dual-Cap Sample Collection PCR Tube  <p>The photograph shows the interior of a decapping stage. A white rack containing several yellow and blue labware items is positioned on a blue stage. The stage is illuminated with green light, and a camera lens is visible above the stage.</p>
10.	<p>Refer to one of the following, depending on the required profile:</p> <ul style="list-style-type: none"> • "Cap Detect" on page 48 • "Drop Detect" on page 48 • "Peregrine48 Cap" on page 49 • "Peregrine48 Code" on page 51

Cap Detect

If working with FluidX™ Acoustic Sample Tube - Echo® Qualified Consumable and you want to detect the cap presence, select **Cap Detect**, click **GO**, and a screen similar to following is displayed.

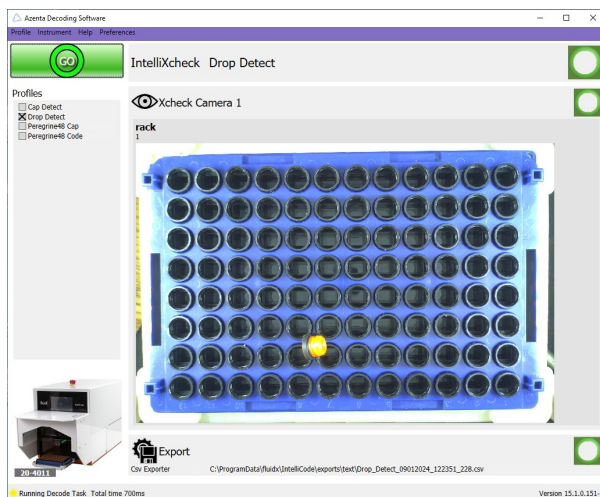


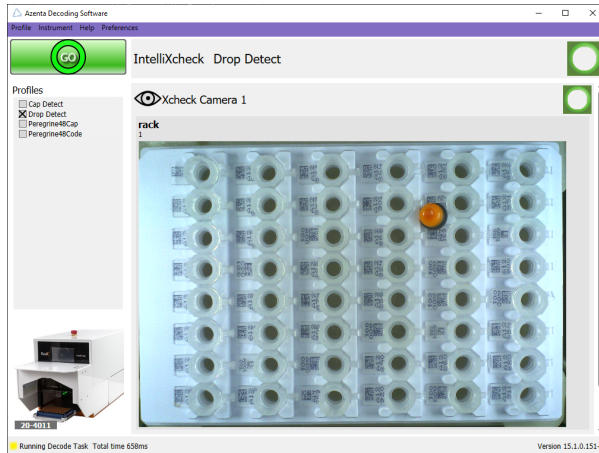
The system automatically detects all tubes that have a cap and registers their position on the rack.

The results are automatically exported.

Drop Detect

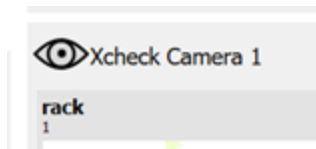
If you have selected **Drop Detect** to detect any orange caps dropped onto the rack, click **GO**, and a screen similar to the following is displayed.





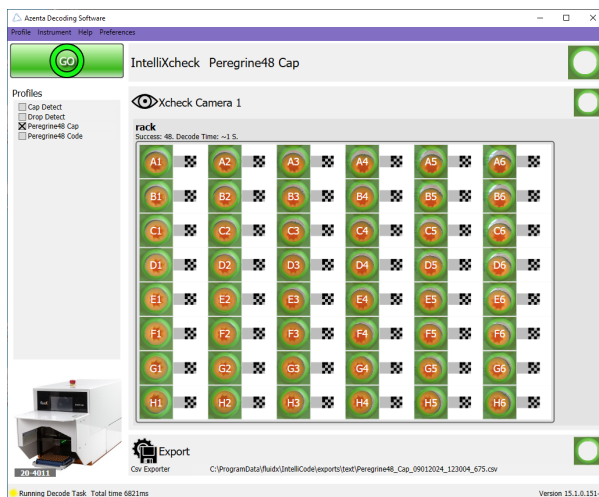
The system will look for any orange caps that are dropped onto the rack. This profile is available for both FluidX™ Acoustic Sample Tube - Echo® Qualified Consumable and Cap2™ 0.2ml Dual-Cap Sample Collection PCR Tube.

If a cap (or caps) is dropped, then there will be a non-zero value displayed on the user interface.

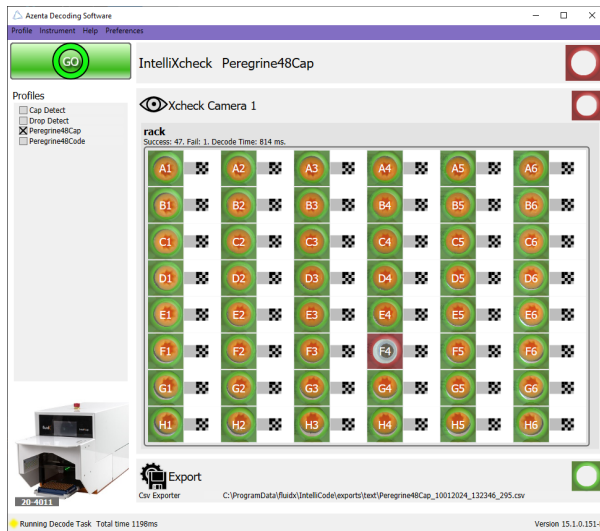


Peregrine48 Cap

If you have selected **Peregrine48 Cap** to detect Cap2™ 0.2ml Dual-Cap Sample Collection PCR caps, click **GO**, and the following screen is displayed.



The system automatically detects all tubes that have a cap and registers their position on the rack.

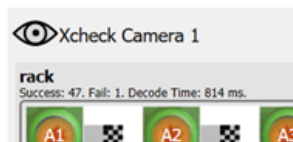


NOTE: The system will also report (and it will be highlighted in red) if a cap is missing.

The system will provide both the successful reads and the failed ones:

- Green area means cap detected
- Red area means no cap detected

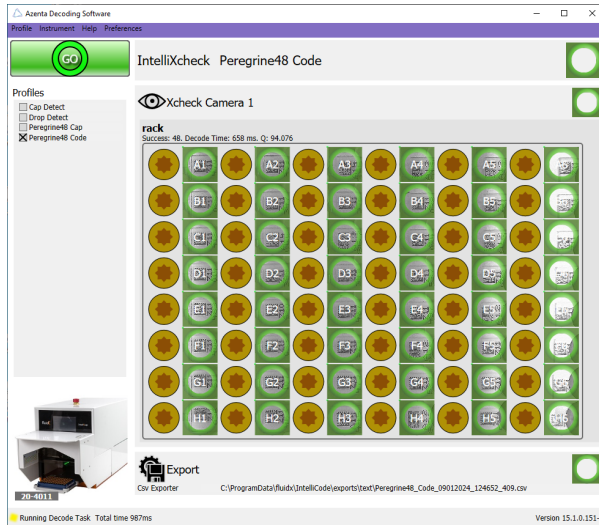
In the following example, there are 47 caps detected and 1 empty well (no cap detected).



The results are automatically exported.

Peregrine48 Code

If you have selected **Peregrine48 Code** to decode the codes on Cap2™ 0.2ml Dual-Cap Sample Collection PCR caps, click **GO**, and the following screen is displayed.



The system automatically detects and decodes all codes on the caps and registers their code and position on the rack.

Starting the Decapping and Recapping Process

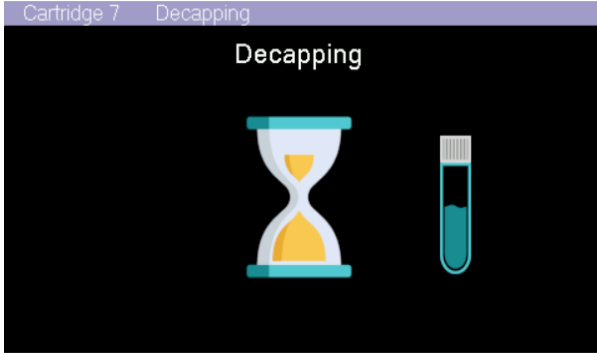
The basic flow of the decapping and recapping proceeds as follows:

1. The operator places a rack fully or partially filled with capped IntelliXcap Acoustic tubes on the instrument's stage.
2. The Azenta Decoding Software detects if all caps are properly placed on the tubes.
3. The IntelliXcap Acoustic confirms that the consumable matches the expected height and then decaps or recaps all the tubes on the rack.
4. If the instrument detects that the tube rack's height is different than expected, the instrument returns an error message.

Procedure

NOTICE

It is the responsibility of each person working on this product to know the applicable regulatory safety codes as well as the facility safety procedures, safety equipment, and contact information.

Step	Action
1.	Place the correct rack for the cartridge into the stage.
2.	On the Azenta Decoding Software, select the desired profile and click GO to validate the decapping profile.
3.	Press the START button on the display of the IntelliXcap Acoustic. The instrument confirms the height of the tubes and then starts decapping.
4.	<p>When in use, the IntelliXcap Acoustic displays the current process with a large <i>Hourglass</i> display indicating the unit that is in use.</p>  <p>NOTE: If needed, stop the process by pressing the E-STOP button .</p>

Step	Action
5.	Once the decapping process has finished, the IntelliXcap Acoustic is ready to start the recapping process. When ready, place a rack of uncapped tubes, and press START . The instrument scans and detects the correct height of the tubes and begins the recapping process.
6.	Once the cartridge has reached the correct height, the IntelliXcap Acoustic proceeds automatically and starts recapping the tubes. If needed, stop the process by pressing the E-Stop button.

Manage the Cartridges

The IntelliXcap Acoustic can work with a range of tube types - a specific cartridge is required for each different cap design. See below for a list of available cartridges.

Additional cartridges are released occasionally. To check the current list or to request a cartridge for your specific storage tube, contact your local sales representative or see the contact information on [page 3](#).

Table 5-1: IntelliXcap 96

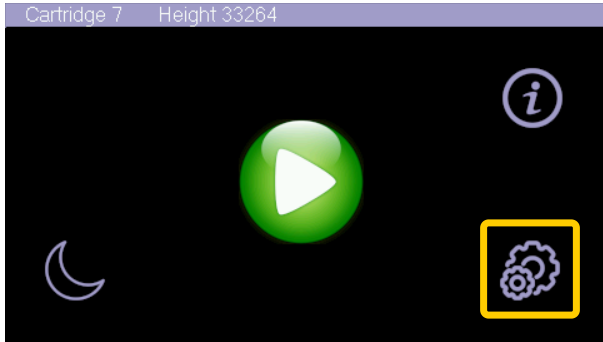
Part Number	IntelliCartridges for IntelliXcap 96 Description (single cartridge)
48-8013-01	IntelliXcap Automated Screw Cap Decapper Cartridge, 96 format, for Azenta Life Sciences internal thread
48-8013-02	IntelliXcap Automated Screw Cap Decapper Cartridge, 96 format, for Azenta Life Sciences external thread
48-8013-03	IntelliXcap Automated Screw Cap Decapper Cartridge, 96 format, for Azenta Life Sciences Internal o-Ring thread
48-8013-04	IntelliXcap Automated Screw Cap Decapper Cartridge, 96 format, for Azenta Life Sciences Acoustic Tube thread
48-8013-05	IntelliXcap Automated Screw Cap Decapper Cartridge, 96 format, for Thermo Matrix 200ul low profile internal thread
48-8013-07	IntelliXcap Automated Screw Cap Decapper Cartridge, 96 format, for Micronic internal thread. NOTE: <i>Not compatible with Micronic low profile caps.</i>
48-8013-08	IntelliXcap Automated Screw Cap Decapper Cartridge, 96 format, for Micronic external thread
48-8013-09	IntelliXcap Automated Screw Cap Decapper Cartridge, 96 format, for LVL Technologies internal thread
48-8013-10	IntelliXcap Automated Screw Cap Decapper Cartridge, 96 format, for LVL Technologies external thread
48-8013-11	IntelliXcap Automated Screw Cap Decapper Cartridge, 96 format, for Thermo Matrix internal thread
48-8013-12	IntelliXcap Automated Screw Cap Decapper Cartridge, 96 format, for Azenta Life Sciences 0.2ml Tube thread
48-8013-13	IntelliXcap Automated Screw Cap Decapper Cartridge, 96 format, for Greiner Cryo.s Biobanking internal thread
48-8013-16	IntelliXcap Automated Screw Cap Decapper Cartridge, 96 format, for Sofra external thread

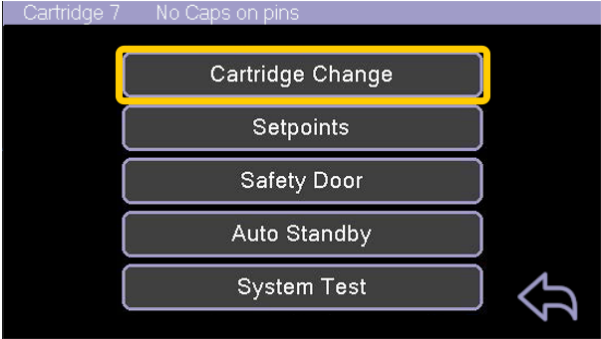
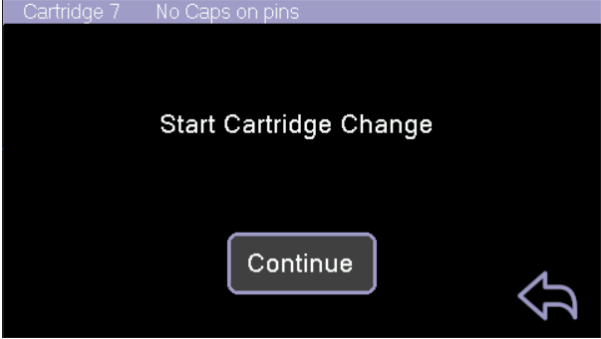
Change Cartridge

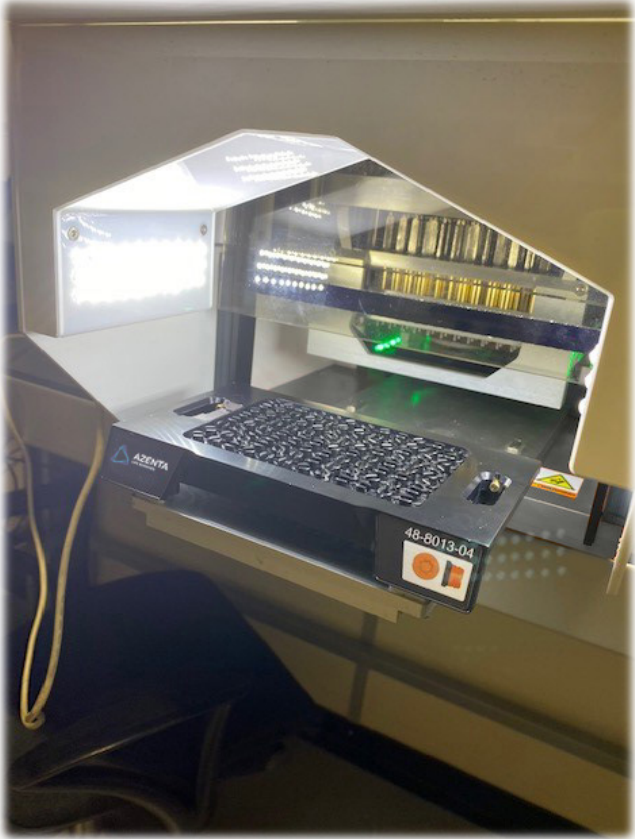
Table 5-2: Cartridge Numbers

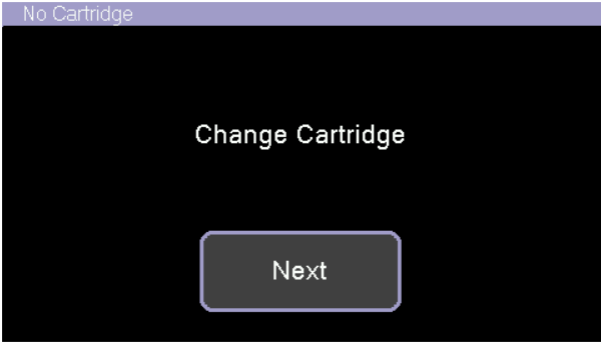
Cartridge Number	Cartridge ID Number	Profile Number Range	Usage
0	0	N/A	No cartridge fitted, loads default values to allow machine homing.
1-14	1-14	1-14	Profile loaded automatically based on cartridge ID number (provided a profile exists in EEPROM).
N/A	15	N/A	There is no cartridge 15. Instead, this is a wildcard for cartridges 16-96.
16-96	15	16-96	The cartridge ID is always 16. The actual number must be entered by the user.

If a cartridge must be replaced, use the following procedure.

Step	Action
1.	Ensure there is nothing on the stage.
2.	<p>Press the Settings button on the <i>Home</i> screen.</p>  <p>The screenshot shows a dark interface with a status bar at the top displaying 'Cartridge 7' and 'Height 33264'. In the center is a large green play button. To the left is a moon icon, and to the right is an information icon. The Settings icon (two interlocking gears) is located in the bottom right corner and is highlighted with a yellow square.</p>

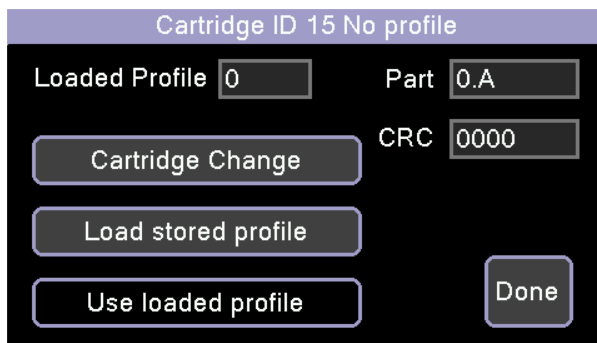
Step	Action
3.	<p>Select Cartridge Change.</p>  <p>The screenshot shows a dark interface with a purple header bar containing 'Cartridge 7' and 'No Caps on pins'. Below the header are five menu items: 'Cartridge Change' (highlighted with a yellow border), 'Setpoints', 'Safety Door', 'Auto Standby', and 'System Test'. A white back arrow is located at the bottom right of the menu.</p>
4.	<p>Press Continue.</p>  <p>The screenshot shows a dark interface with a purple header bar containing 'Cartridge 7' and 'No Caps on pins'. The main text in the center reads 'Start Cartridge Change'. At the bottom center is a 'Continue' button. A white back arrow is located at the bottom right.</p> <p>The stage moves inside the unit and the cap-driver cartridge is lowered and placed onto the stage.</p>

Step	Action
5.	<p>When the homing process is complete, place the new cartridge on the stage.</p> <p>NOTE: Verify the cartridge fits the alignment inserts on the sides of the stage's frame.</p> 

Step	Action
6.	<p>Press Next.</p>  <p>The stage returns to the home position.</p> <p>The stage with the cartridge moves inside the unit and the cap-driver cartridge is collected and attached to the de-capping head.</p> <p>The head carries out a re-initialization process which needs to be completed before the first de-capping process can be carried out.</p>

Cartridge ID is 15

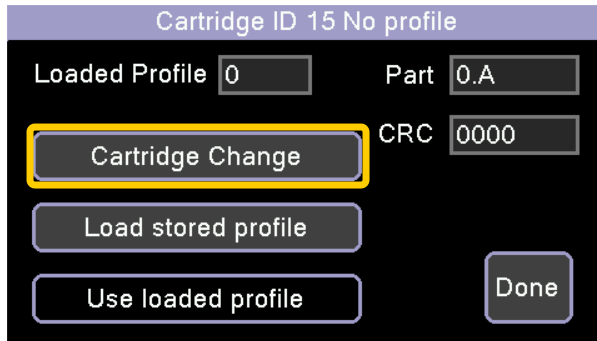
If the cartridge ID number is 15, the following screen is displayed.



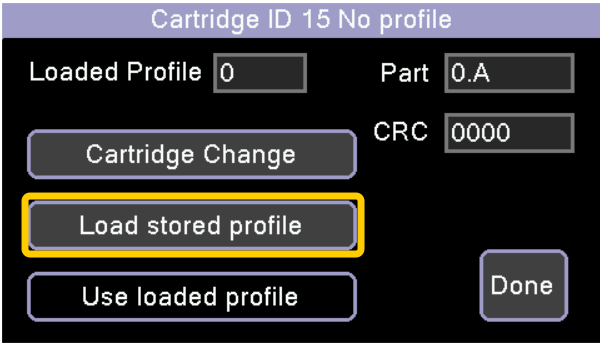
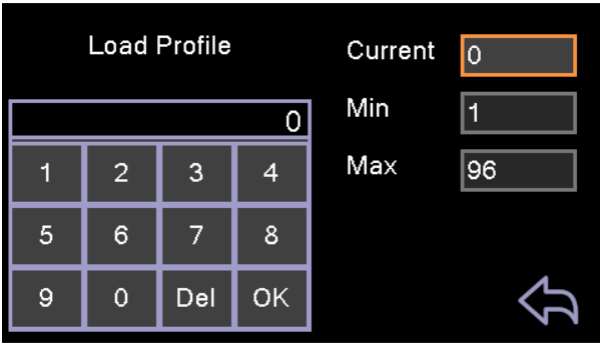
This screen allows you to do the following.

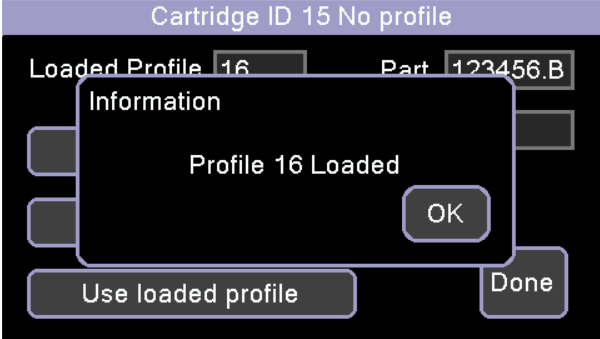
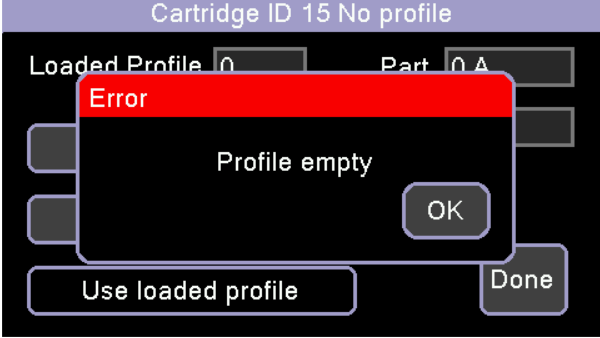
Change the Cartridge

If you have inserted the wrong cartridge, press the **Cartridge Change** button to eject it.

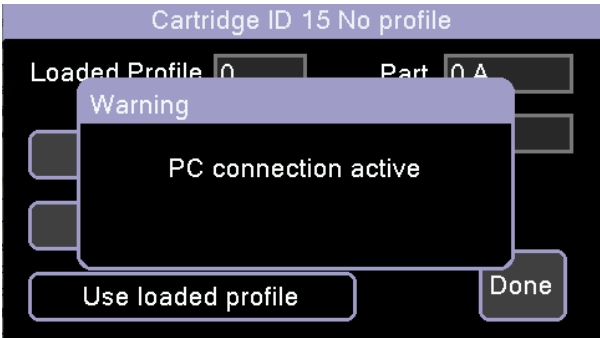


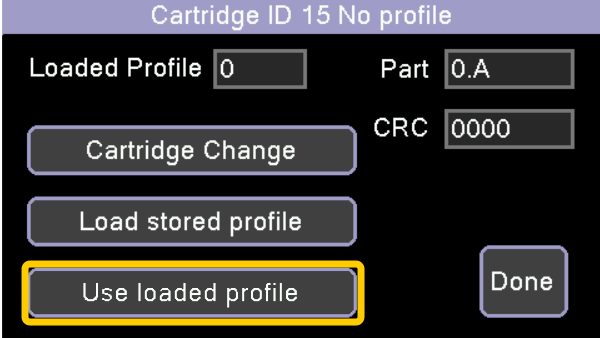
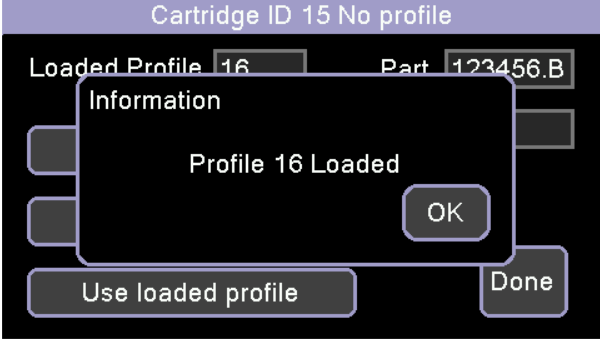
Load a Stored Profile

Step	Action
1.	<p>Press the Load stored profile button.</p> 
2.	<p>Enter an extended profile number (between 16–96).</p> 

Step	Action
<p>3.</p>	<p>Press OK.</p> <p>If a profile with that number exists, it is loaded.</p>  <p>An error is displayed if, for example, a profile with that number does not exist, or the profile does not match the cartridge.</p> 

Load and Use a New Profile

Step	Action
<p>1.</p>	<p>Connect the USB.</p> <p>NOTE: When the USB lead is plugged in, the LCD display is disabled and a warning dialog is displayed.</p> 
<p>2.</p>	<p>Load in the profile using Datalogger.</p>

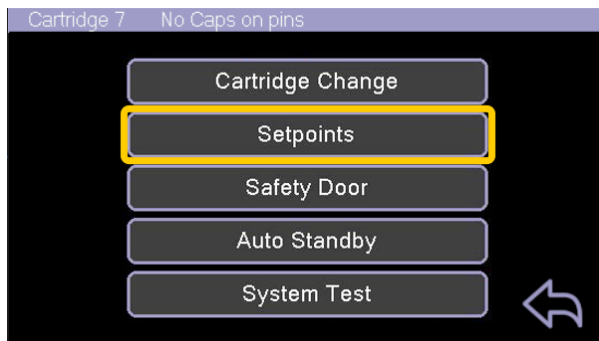
Step	Action
3.	Unplug the USB.
4.	<p>Press the Use loaded profile button.</p>  <p>A confirmation message is displayed.</p> 
5.	Press OK .
6.	Press Done .

Manage Setpoints

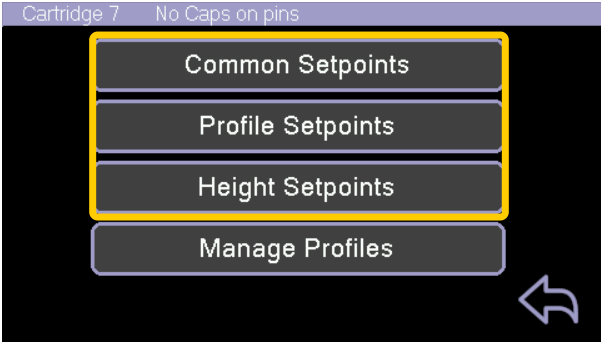
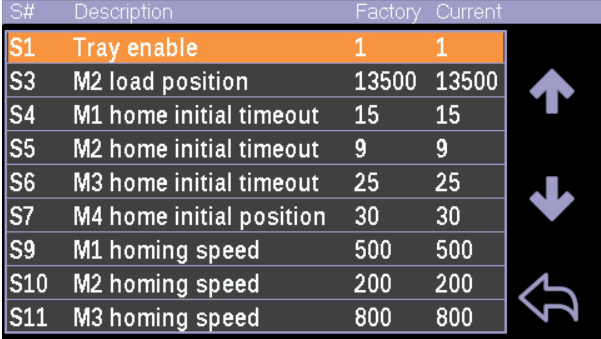
Setpoints are configurable parameters which define machine operation.

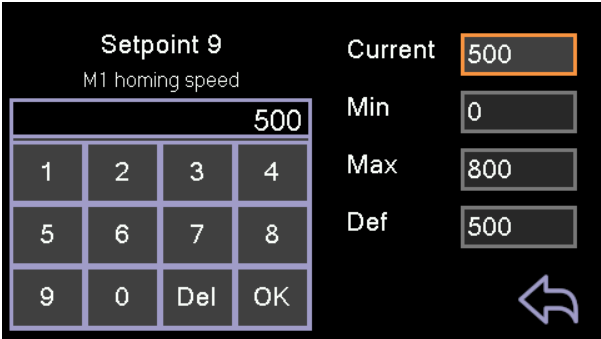
There are occasions when you might change setpoints under the instruction of Azenta service or engineering staff. For example, if the IntelliXcap is not behaving correctly, changing a setpoint to see what effect it has can assist in diagnostics.

They can be viewed by navigating to *Settings > Setpoints*.



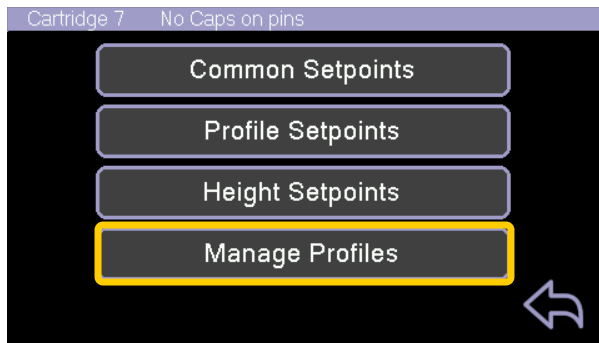
Edit Setpoints

Step	Action																																																							
1.	<p>Select the relevant setpoint category from the <i>Settings > Setpoints</i> menu.</p> <ul style="list-style-type: none"> • Common setpoints are those which are common to all types of labware. • Profile setpoints define setpoints that are included in a profile. • Height setpoints are those which relate to height measurements. 																																																							
2.	<p>Press a record to open it. NOTE: Use the up and down arrows to find the relevant record, if required.</p>  <table border="1" data-bbox="318 999 914 1335"> <thead> <tr> <th>S#</th> <th>Description</th> <th>Factory</th> <th>Current</th> </tr> </thead> <tbody> <tr> <td>S1</td> <td>Tray enable</td> <td>1</td> <td>1</td> </tr> <tr> <td>S3</td> <td>M2 load position</td> <td>13500</td> <td>13500</td> </tr> <tr> <td>S4</td> <td>M1 home initial timeout</td> <td>15</td> <td>15</td> </tr> <tr> <td>S5</td> <td>M2 home initial timeout</td> <td>9</td> <td>9</td> </tr> <tr> <td>S6</td> <td>M3 home initial timeout</td> <td>25</td> <td>25</td> </tr> <tr> <td>S7</td> <td>M4 home initial position</td> <td>30</td> <td>30</td> </tr> <tr> <td>S9</td> <td>M1 homing speed</td> <td>500</td> <td>500</td> </tr> <tr> <td>S10</td> <td>M2 homing speed</td> <td>200</td> <td>200</td> </tr> <tr> <td>S11</td> <td>M3 homing speed</td> <td>800</td> <td>800</td> </tr> </tbody> </table> <table border="1" data-bbox="318 1373 1414 1734"> <thead> <tr> <th>Field</th> <th>Description</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td>S#</td> <td>The setpoint ID.</td> <td>-</td> </tr> <tr> <td>Description</td> <td>A description of the setpoint.</td> <td>M1—Main Z motor M2—Stage/Nest motor M3—Cartridge motor M4—Safety Door motor</td> </tr> <tr> <td>Factory</td> <td>The factory (default) value.</td> <td>-</td> </tr> <tr> <td>Current</td> <td>The currently set value.</td> <td>-</td> </tr> </tbody> </table>	S#	Description	Factory	Current	S1	Tray enable	1	1	S3	M2 load position	13500	13500	S4	M1 home initial timeout	15	15	S5	M2 home initial timeout	9	9	S6	M3 home initial timeout	25	25	S7	M4 home initial position	30	30	S9	M1 homing speed	500	500	S10	M2 homing speed	200	200	S11	M3 homing speed	800	800	Field	Description	Notes	S#	The setpoint ID.	-	Description	A description of the setpoint.	M1—Main Z motor M2—Stage/Nest motor M3—Cartridge motor M4—Safety Door motor	Factory	The factory (default) value.	-	Current	The currently set value.	-
S#	Description	Factory	Current																																																					
S1	Tray enable	1	1																																																					
S3	M2 load position	13500	13500																																																					
S4	M1 home initial timeout	15	15																																																					
S5	M2 home initial timeout	9	9																																																					
S6	M3 home initial timeout	25	25																																																					
S7	M4 home initial position	30	30																																																					
S9	M1 homing speed	500	500																																																					
S10	M2 homing speed	200	200																																																					
S11	M3 homing speed	800	800																																																					
Field	Description	Notes																																																						
S#	The setpoint ID.	-																																																						
Description	A description of the setpoint.	M1—Main Z motor M2—Stage/Nest motor M3—Cartridge motor M4—Safety Door motor																																																						
Factory	The factory (default) value.	-																																																						
Current	The currently set value.	-																																																						

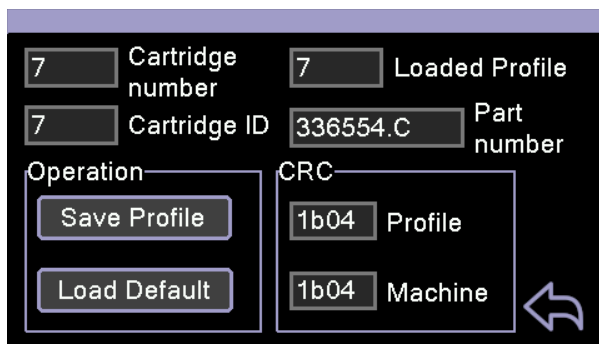
Step	Action
3.	<p>Use the keypad to edit the value, if required. The minimum and maximum values that can be entered are displayed on the right-hand side, along with the default (Def) value.</p> 
4.	Press OK.

Manage Profiles

You can view the details of the currently loaded profile by pressing the **Manage Profiles** button.



The profile information is displayed.



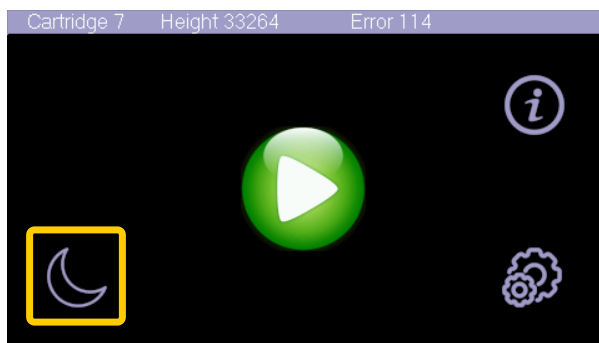
Field/Button	Meaning
Cartridge number	The actual number of the cartridge which corresponds to a physical profile.
Cartridge ID	The electrical ID number of the cartridge encoded by 4 pin switches. Can be 1-15.
Loaded Profile	The profile currently loaded into the machine's working memory area, usually this is copied from EEPROM storage according to the cartridge number, however it could also be a profile that was loaded in using datalogger.
Part number	The Azenta part number.
Operation > Save Profile	This is to be used by Azenta service personnel only.
Operation > Load Default	This is to be used by Azenta service personnel only.
CRC > Profile	A cyclic redundancy check for the profile and the machine, in hexadecimal form. This allows you to see whether a profile has had any of its values changed from original. If so, the values will not match.
CRC > Machine	

Standby Mode

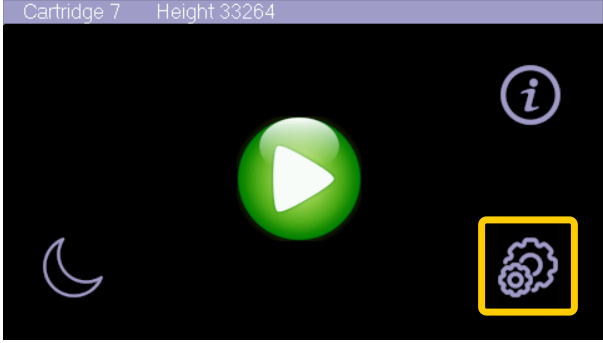
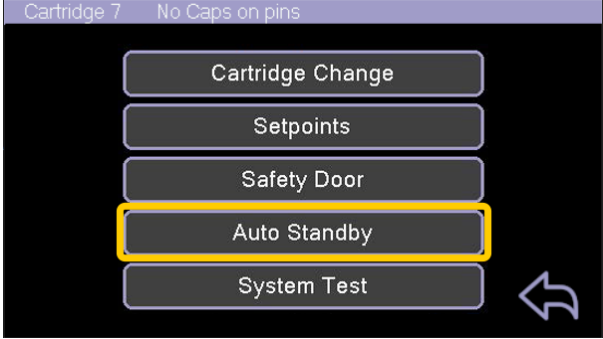
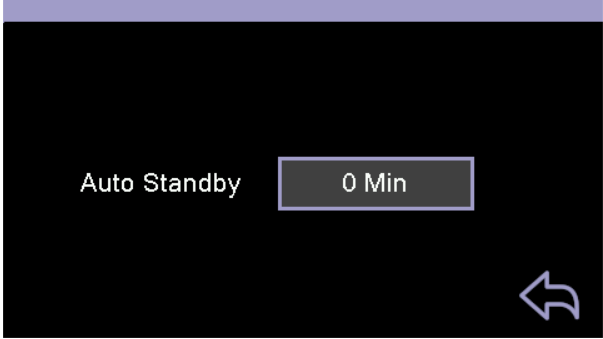
You can set the IntelliXcap Acoustic to close the tray and enter a reduced-power standby mode, either manually or automatically.

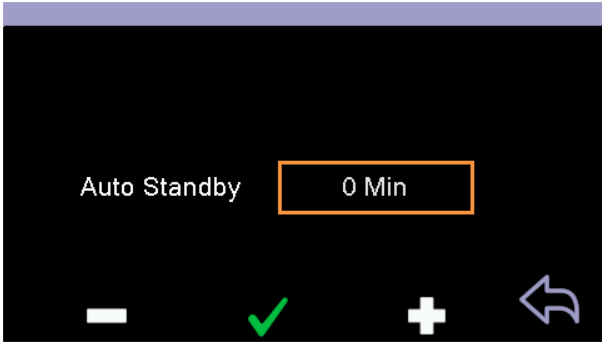
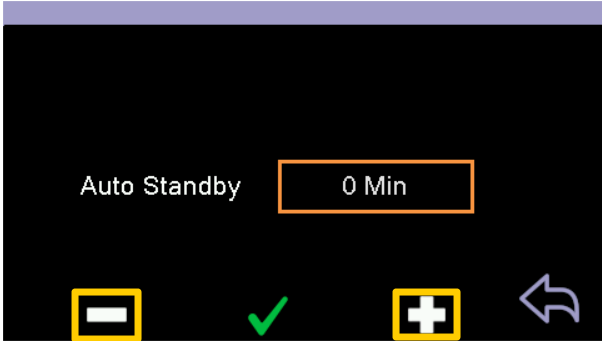
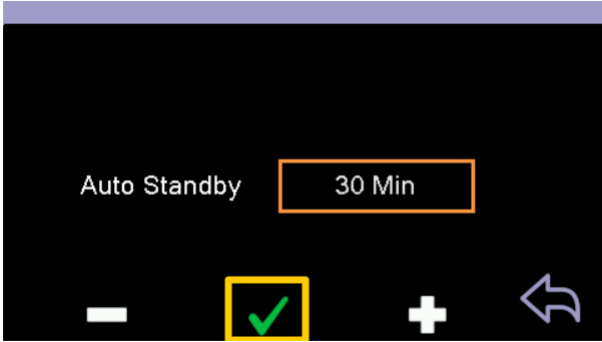
Manually Enter Standby Mode

To enter standby mode, press the **Standby** (moon) button on the *Home* screen.



Configure Automatic Standby Mode Entry after Inactivity

Step	Action
1.	<p>Press the Settings button on the <i>Home</i> screen.</p>  <p>The screenshot shows the Home screen with a status bar at the top displaying 'Cartridge 7' and 'Height 33264'. The main area contains a large green play button in the center, a moon icon in the bottom left, an information icon in the top right, and a settings icon (two interlocking gears) in the bottom right. The settings icon is highlighted with a yellow rectangular box.</p>
2.	<p>Press the Auto Standby button.</p>  <p>The screenshot shows a settings menu with a status bar at the top displaying 'Cartridge 7' and 'No Caps on pins'. The menu contains five buttons: 'Cartridge Change', 'Setpoints', 'Safety Door', 'Auto Standby', and 'System Test'. The 'Auto Standby' button is highlighted with a yellow rectangular box. A back arrow is visible in the bottom right corner.</p> <p>The Auto Standby screen is displayed.</p>  <p>The screenshot shows the Auto Standby screen with a status bar at the top. The main area displays 'Auto Standby' on the left and a timer '0 Min' in a box on the right. A back arrow is visible in the bottom right corner.</p>

Step	Action
3.	<p>Press in the field to display the buttons at the bottom of the screen.</p> 
4.	<p>Press the – and + buttons to change the amount of time of inactivity before the machine enters standby mode. NOTE: You can press and hold each button to speed up the process.</p> 
5.	<p>Press the tick button to confirm.</p> 

Exit Standby Mode

To exit standby mode, press anywhere on the screen.



6. Preventative Maintenance

This section provides the schedule and procedures for routine preventative maintenance (PM) of the IntelliXcap Acoustic to reduce unscheduled downtime. The IntelliXcap Acoustic is designed to require very little routine maintenance. However, it is recommended that the preventative maintenance procedures and schedule provided in this section be followed to extend the operating life of the IntelliXcap Acoustic. If additional procedures are required, they will be supplied along with their maintenance schedules by Azenta Life Sciences.

All preventative maintenance procedures and schedules provided here assume that the IntelliXcap Acoustic is operating in a clean, dry, inert environment. Any deviation from this basic environment will affect the scheduling of PM and may also require additional PM procedures be performed. The user should adjust the preventative maintenance schedule as appropriate to account for any deviations from this environment.





DANGER

Read the Safety Chapter

Failure to review the Safety chapter and follow the safety warnings can result in death or serious injury.

- All personnel involved with the operation or maintenance of this product must read and understand the information in this safety chapter.
- Follow all applicable safety codes of the facility as well as national and international safety codes.
- Know the facility safety procedures, safety equipment, and contact information.
- Read and understand each procedure before performing it.



 CAUTION Unauthorized Service	
<p>Personal injury or damage to equipment may result if this product is operated or serviced by unauthorized personnel.</p> <ul style="list-style-type: none"> • Only qualified personnel are allowed to transport, assemble, operate, or maintain the Product. • Properly qualified personnel are those who have received certified training and have the proper qualifications for their jobs. 	

Maintenance Schedule

Servicing the machine must only be carried out by qualified personnel. Tasks may require skills and training. These instructions are a minimum requirement and must be carried out according to the plan below.

Keep a logbook, or similar, to document the maintenance and cleaning schedules.

Table 6-1: Preventative Maintenance Schedule

Task	Recommended Service Interval	
	Cap-Driver Cartridge	IntelliXcap Acoustic
General Visual Inspection	2,500 cycles	N/A
Preventative Maintenance Visit	N/A	20,000 cycles or 12 months, whichever comes sooner
Exchange	5,000 cycles	At 40,000 cycles, it is recommended that the cap drive motors are replaced

Cleaning

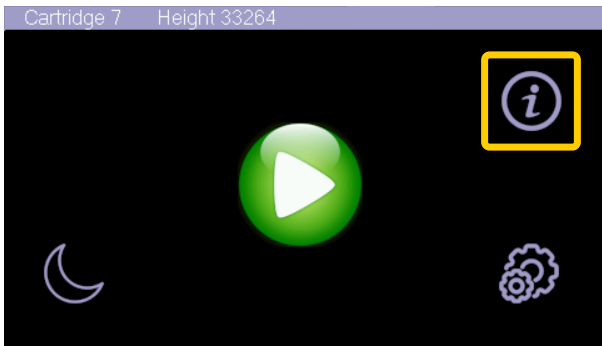
For cleaning tasks, follow safe work practices. This includes the use of personal protective equipment, that machinery and components are put in a safe condition before the task is initiated, and that the manufacturer instructions are complied with.

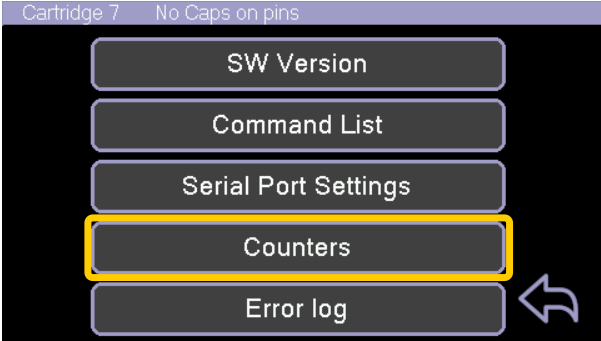
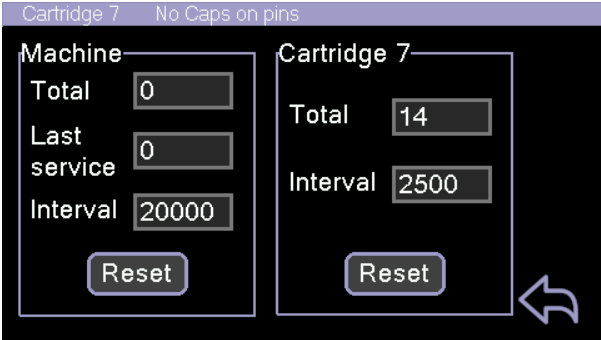
- Before the task is initiated, ensure that the power supply to the machine is safely disconnected.
- Obtain permission from the person responsible for the IntelliXcap Acoustic before performing any repair work.
- Shield and/or keep the work area in a moist condition to prevent dust from flying around or smoldering.
- The operator, or specially trained cleaning staff, should tidy up and clean the IntelliXcap Acoustic and its surroundings daily. During this work, the same requirements for the use of tools and personal protective equipment apply as for the operational work.
- Read and understand this instruction manual before the maintenance and cleaning of the machine is initiated.
- The machine requires no user maintenance other than cleaning with any 70% alcohol solution.

- Keep a logbook, or similar, to document the maintenance and cleaning schedules. If regular maintenance and cleaning of the machine cannot be shown, the manufacturer’s warranty may lapse.
- Maintenance and cleaning must comply with 1.6 of Annex I of 2006/42/EC.

Step	Action
1.	Switch off the IntelliXcap Acoustic to remove any risk of personal injury. Wipe the IntelliXcap Acoustic externally with a microfiber or lint free cloth.
2.	Wipe the machine drawer for plastic dust debris from the cap driver/tubes. A new cartridge can produce minor plastic dust when first used.
3.	Wipe the Light curtain, front and back. It is important that the orange filter on the light source is always free of dust so it can always effectively identify the rack and cap carriage.
4.	If necessary, use isopropyl alcohol to disinfect and further clean surfaces.

Viewing Machine Servicing and Cartridge Replacement Intervals

Step	Action
1.	<p>Press the Info button on the <i>Home</i> screen.</p> 

Step	Action
2.	<p>Press the Counters button.</p>  <p>The screenshot shows a menu titled 'Cartridge 7 No Caps on pins'. It contains five buttons: 'SW Version', 'Command List', 'Serial Port Settings', 'Counters', and 'Error log'. The 'Counters' button is highlighted with a yellow border. A white arrow points to the right from the 'Error log' button.</p> <p>The Counters screen is displayed.</p>  <p>The screenshot shows the 'Cartridge 7' counters screen. It is divided into two columns. The left column is titled 'Machine' and contains three input fields: 'Total' with value '0', 'Last service' with value '0', and 'Interval' with value '20000'. Below these is a 'Reset' button. The right column is titled 'Cartridge 7' and contains two input fields: 'Total' with value '14' and 'Interval' with value '2500'. Below these is a 'Reset' button. A white arrow points to the right from the bottom right corner.</p>

Section	Field/Button	Description
Machine	Total	The total number of cycles completed by the machine in its lifetime.
	Last service	The number of cycles completed by the machine since the last service.
	Interval	The recommended number of cycles between services. Every 20,000 cycles, a service warning is displayed to prompt the user to arrange a service visit for the entire machine. If the machine needs servicing, contact Azenta service. Refer to " For Technical Support: " on page 3.
	Reset	Resets the <i>Last service</i> counter to 0. This is reset as part of a service visit.
Cartridge	Total	The total number of cycles completed by the inserted cartridge. NOTE: If the user operates the IntelliXcap with two different kinds of cartridges, it counts and records the cycles separately for each type.
	Interval	The recommended number of cycles between inspecting the cartridge. Every 2,500 cycles, a warning is displayed to prompt the user to replace the cartridge. Cartridges are expected to last around 5,000 cycles. If the cartridge requires cleaning, gently wipe it over with a lint free cloth and isopropyl alcohol to remove any dust. If the cartridge needs replacing, refer to " Change Cartridge " on page 55.
	Reset	Resets the <i>Total</i> counter to 0. Press this button after replacing the cartridge.

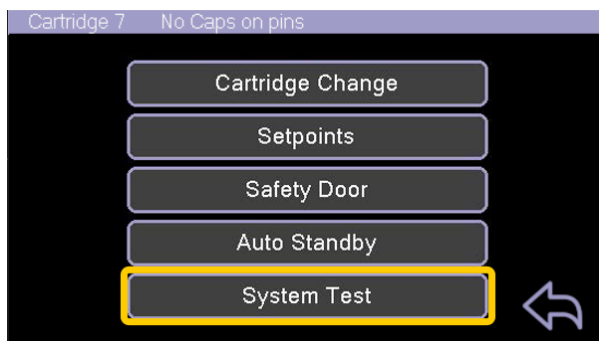
Waste Disposal

Switchboards, motors, cables and other electronics must be demounted and treated separately according to local law.



Metal parts are disposed of as scrap metal.

System Test

The System Test functionality is to be used by Azenta service personnel only.



7. Troubleshooting

 CAUTION Unauthorized Service	
<p>Personal injury or damage to equipment may result if this product is operated or serviced by unauthorized personnel.</p> <ul style="list-style-type: none">• Only qualified personnel are allowed to transport, assemble, operate, or maintain the Product.• Properly qualified personnel are those who have received certified training and have the proper qualifications for their jobs.	

Error Messages

The error codes are recorded in the Error Log screen, accessed from the system information menu. They are ordered in reverse chronological order (i.e. the most recent error is displayed first).

Offset	Code	1 - 3 of 3
1	113	
2	114	
3	114	

Clear Errors

↑

↓

↶

Error Code	Meaning
100	M1 top switch not detected during homing sequence. Could get overwritten by other error codes within higher level sequencing logic, therefore is most likely to be seen during startup sequence.
101	M2 initial homing failure. Likely to overwrite the other M1 homing error codes.
102	M1 top switch stuck closed during homing sequence.
103	M1 top switch 2nd trigger not detected during homing sequence
104	M4 homing error - top switch not detected
105	M3 topswitch not detected during homing sequence.Could get overwritten by other error codes within higher level sequencing logic, therefore is most likely to be seen during startup sequence.
106	M3 stop switch stuck closed during homing sequence
107	M3 top switch 2nd trigger not detected during homing sequence
108	M3 initial homing failure. Likely to overwrite other M3 homing error codes
109	M2 top switch not detected during homing sequence. Could get overwritten by other error codes within higher level sequencing logic, therefore is most likely to be seen during startup sequence.
110	M2 top switch stuck closed during homing sequence
111	M2 top switch 2nd trigger not detected during homing sequence
112	Door close failure
113	M1 moved to M1_SAFETY_LOW_POS (S33) . This basically means there was no light curtain trigger when scanning for caps
114	Invalid tube height detected
115	Door open failure
116	Door close failure - start of sequence
117	M1 moved to M1_SAFETY_LOW_POS (S33). This basically means there was no light curtain trigger when scanning for caps
118	Invalid tube height detected
119	Open door failure
120	Open door failure on entry to manual mode
121	Door close failure
122	M3 limit switch timeout on cartridge eject
123	Door open failure at end of cartridge eject sequence
124	Door close failure at end of cartridge eject sequence
125	M1 failed to reach waste position within S4, during auto-waste sequence. Not sure this will ever occur
133	M1 homing error

Error Code	Meaning
134	Open door failure
135	Cap detected at valid height. Not sure if this actually is an error, or is it used to communicate with display?
135	Maximum decap attempts exceeded (S46)
136	Maximum recap attempts exceeded (S45)
137	M3 bottom switch closed and motor is still moving. Protects against extended stage lead screws.
138	Open tray failure
139	No cartridge detected after initial homing
139	Not an error, used to tell display that cartridge is ejected
140	Door is supposed to be up but top switch not detected, applies in all operating modes
141	Door is supposed to be down but bottom switch not detected. Applies in all operating modes
142	Unexpected object on tray during cartridge eject
143	Cartridge not detected during cartridge load sequence
144	Cartridge detection height incorrect during cartridge load sequence. Specifically, detected height < (S73 - S59)
145	Light curtain calibration max retries exceeded
146	Light curtain calibration max retries exceeded
147	Light curtain calibration max retries exceeded
148	Light curtain calibration max retries exceeded
149	Tray open failure
150	M3 homing error during autowaste sequence
151	Tray close failure
152	Tube detected after decap retry (caps screwed back on)
153	Close tray failure
153	M3 homing error
154	Close tray failure
155	Open door failure
156	M1 homing error
157	M2 homing error
158	M3 homing error
159	M2 homing error
160	Door close failure -end of sequence

Error Code	Meaning
160	Tray open failure
161	M4 homing error
164	Tray open failure
165	Not sure this can ever occur as the same logic sequence sets error 167
166	M2 homing error during tray decap-quit
167	Logic looks broken, but is trying to detect whether there has been a door open or tray close failure during decap-quit
200	Light curtain communications failure (no modbus data received)
201	Light curtain signal failure (check wiring between controller and light curtain)
202	Limit switches fail i.e. top and bottom switches both showing as closed. Usually power supply failure or faulty switch (input reads closed when switch fails)
238	Emergency stop, low motor voltage

Error Recovery

Table 7-1: Typical Errors

Error	Symptom	Resolution
CAP ERROR	<p>Tube is not de-capped properly, the IntelliXcap Acoustic will automatically make a second attempt.</p> <p>If the IntelliXcap Acoustic fails on the second attempt, an error message is shown on the screen, and the IntelliXcap Acoustic stops.</p>	<p>Manually add a new cap to the tubes and perform a new decapping cycle.</p>
RECAP ERROR (Error Code: 136)	<p>Cap is improperly placed onto the corresponding tubes during the recapping process.</p>	<p>Select the Initialization (Restart) button and start the IntelliXcap Acoustic.</p>

Manual Recovery

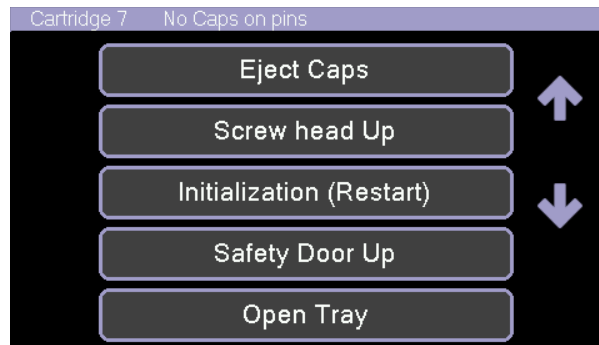


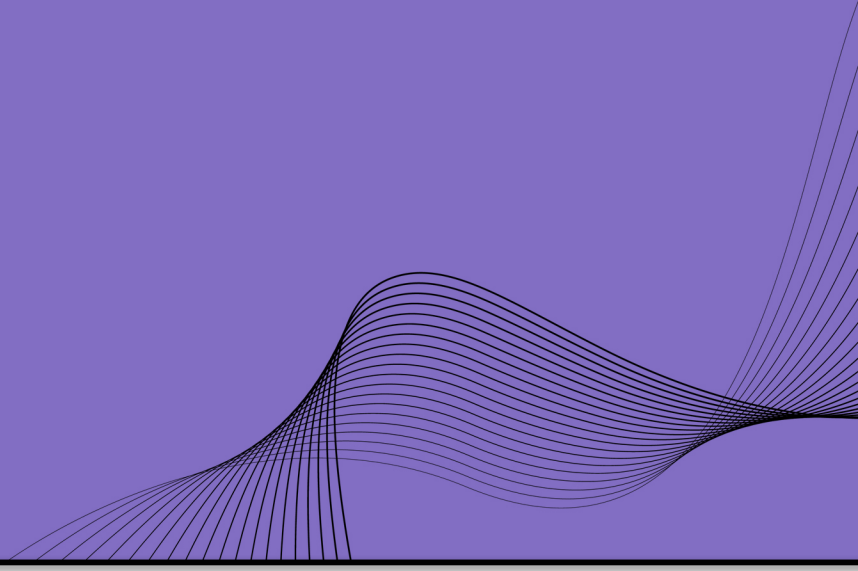
Figure 7-1: Manual Recovery Screen

In any error situation, you have the option to cancel the process, after which, you are prompted to start a manual recovery process. Press the most relevant case available on the screen.

NOTE: Select the **Up** and **Down** arrows to access additional options.

Button	Description
Attempt recap	Attempts a recap if there are caps on the pins. This is used if the IntelliXcap Acoustic has powered down, entered standby, or the E-stop has been pressed after decapping but before recapping.
Close Tray	Closes the tray
Eject Caps	If there are still caps attached to the ejecting pins, position a bowl to collect the falling caps, then press this button.
Initialization (Restart)	Restarts the system.
Open Tray	Once the caps have been ejected and collected, press this button.
Safety Door Up	Raises the access door.
Screwing head Up	Moves the screwing head up.
System Test	This is for use by Azenta service personnel only.

8. Appendices


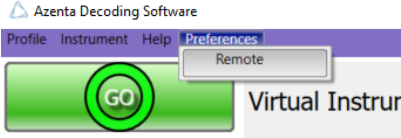



The following chapter contains the appendices for this manual.

Appendix A: Integrating the IntelliXcap Acoustic

The IntelliXcap Acoustic can be integrated into an automated environment as well as robotic systems. A serial communication set RS 232 can fully control the entire system and eliminates the use of the touch-screen while operating. Commands for the IntelliXcap Acoustic vary depending on the version of Firmware being used – to obtain the relevant command set, or for additional support please contact Azenta Life Sciences technical support using the contact information [on page 3](#).

Appendix B: Controlling Azenta Decoding Software Remotely

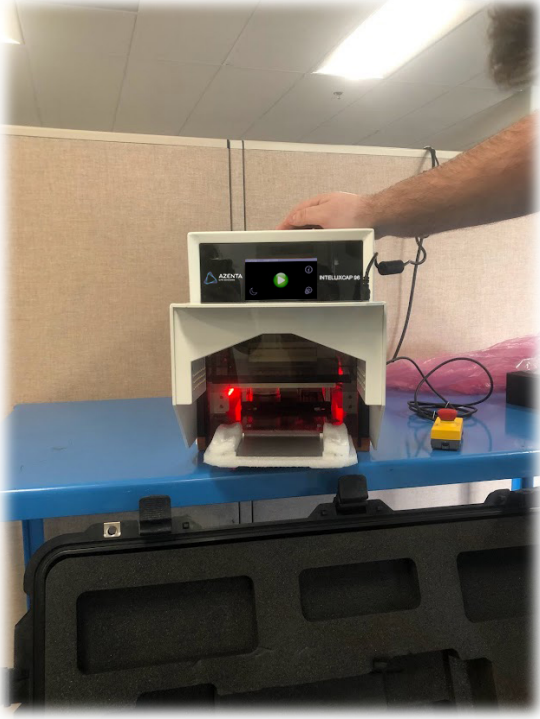
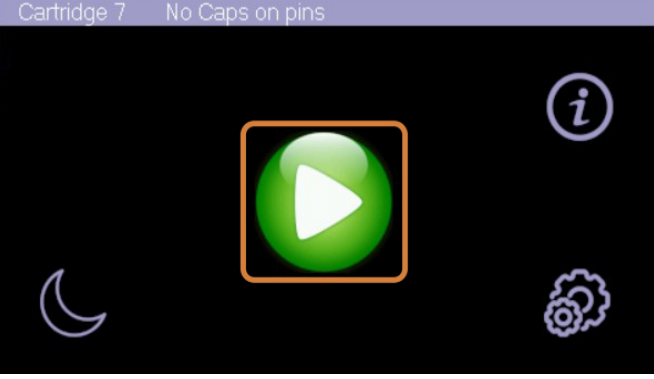
Step	Action
1.	<p>Double-click the Azenta Decoding Software icon available on your desktop.</p>  <p>The image shows a desktop icon for Azenta Decoding Software. It features a stylized blue and purple geometric logo above the text 'Azenta Decoding Software' in white on a black background.</p>
2.	<p>Click Preferences, then click Remote.</p>  <p>The image shows the 'Azenta Decoding Software' application window with the 'Preferences' menu open. A 'Remote' option is highlighted, and a 'GO' button is visible on the 'Virtual Instrur' panel.</p> <p>The following window is displayed:</p>  <p>The image shows a 'Remote' configuration dialog box. It includes fields for 'Connection Type' (Winsock), 'Port' (8,001), 'Host Name', and 'IP Address' (Ethernet 4, 10.27.8.15). There is a 'Remote On Boot' checkbox and a 'GO' button.</p>
3.	<p>Define your preferences, then click GO.</p>



Connection Type	Winsock Legacy: This type supports a subset of the xtr96 interface for backwards compatibility.
	Winsock: This type supports Azenta Decoding Software features.
Port	Azenta Decoding Software listens on this port for connections.
Host Name	This is the host name of the Azenta Decoding Software machine.
IP Address	In the situation where multiple network interfaces are available, the drop-down is populated with each interface. Select the interface to use.
Instrument	The current instrument (IntelliXcheck) in use.
Profile	Current profile in use.
Remote on boot	When checked, Azenta Decoding Software boots and uses remote access immediately.
CRLF, Datacount	Used for backwards compatibility with xtr96.



Refer to the *Azenta Decoding Software User Manual (281945)* for further information on remote communications with the Azenta Decoding Software.


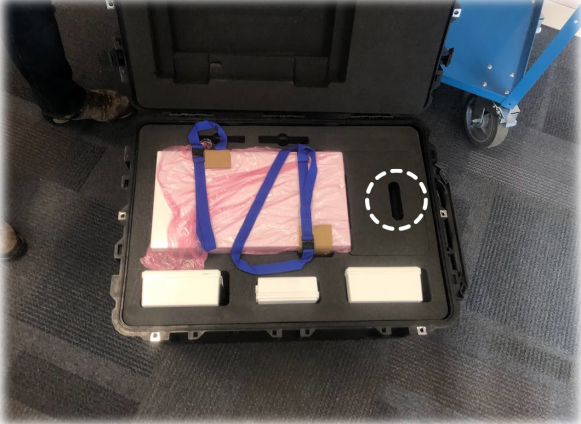
Appendix C: Repacking


Checklist Items	Description
Case	The sturdy, black case used to transport and protect the IntelliXcap Acoustic.
Documents	Important manuals and references included with the product.
Foam handle	A protective layer to cover the unit.
Straps	To help the user lift and carry the unit.
Cardboard Pieces for Straps	To protect the unit from any damage caused by the straps.
Plastic Electrostatic Covering	To protect the unit from minor surface damages.
Box #1	One of the whites boxes that comes with the unit and contains: <ul style="list-style-type: none">• USA power cord• UK power cord• EU/China power cord• Australia power cord• USB A Male to USB A Male cord• DB-9 (9 pin; D-Sub) Male cable
Box #2	One of the whites boxes that comes with the unit and contains: <ul style="list-style-type: none">• E-Stop button• USB• Power Cord #1• Power Cord #2• Camera Cord

Step	Action
1.	<p>Place the protective foam covering over the rack slide.</p> 
2.	<p>Press the green Start button on the IntelliXcap Acoustic's display screen.</p> 

Step	Action
3.	<p>Watch the rack closely as the capper/decapper instrument descends. Press the E-Stop button as the instrument clamps the foam. This will hold the protective foam layer in place.</p> 
4.	Flip the power switch into the <i>OFF</i> position.
5.	Unplug all power cords and place them in their respective white boxes.
6.	<p>Re-tape the device's sliding doors.</p> 

Step	Action
7.	<p>Cover the unit with the plastic electrostatic covering.</p> 
8.	<p>Slide the straps around the instrument. Place the protective cardboard pieces under the clamps to keep the straps from damaging the unit.</p>  <p>Pull the straps tight to the unit.</p>

Step	Action
9.	<p data-bbox="316 258 714 310">Grab the strap handles and lift the unit. Place the unit in its case.</p> 
10.	<p data-bbox="316 1003 925 1035">Place the protective foam handle back in its original position.</p> 
11.	<p data-bbox="316 1556 1218 1608">Place all of the IntelliXcap Acoustic's cords and contents in the correct white boxes. Ensure that all manuals and documents that arrived with the unit are included in the case.</p>

Step	Action
12.	<p data-bbox="316 262 1047 294">Close and re-clip the seven pelican clips to ensure the lid is tightly closed.</p> 

Appendix D: WEEE Statement (European Union)



The symbol above indicates that Waste Electrical and Electronic Equipment (WEEE) is not to be disposed of as unsorted municipal waste. Equipment marked with this symbol is to be collected separately.

The objectives of this program are to preserve, protect and improve the quality of the environment, protect human health and utilize natural resources prudently and rationally. Specific treatment of WEEE is indispensable in order to avoid the dispersion of pollutants into the recycled material or waste stream. Such treatment is the most effective means of protecting the customer's environment.

The waste collection, reuse, recycling, and recovery programs available to Azenta Life Sciences customers vary by customer location. Please contact the responsible body (e.g., your laboratory manager) for information about local requirements.