PlateLoc Thermal Microplate Sealer

User Guide

Original Instructions

Agilent Technologies

Notices

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Agilent Technologies

Letter to our Customers

Dear Customer,

The Agilent Technologies acquisition of Velocity11 resulted in the following changes:

- Creation of Agilent Technologies Automation Solutions, formerly Velocity11
- Renaming of some Velocity11 products
- New Customer Service and Technical Support contact information
- New website address for product information

Please make a note of the following changes as they impact this user guide.

Velocity11 product name changes

Velocity11 product name	Changes to ...
Access2 Automated Microplate Loader	Automated Centrifuge Loader
Element Automation System	BioCel 900 System
IWorks Device Driver Programming Interface	VWorks DCL Interface
PlatePierce Seal Piercing Station	Microplate Seal Piercer
VCode Barcode Print and Apply Station	Microplate Barcode Labeler
Velocity11 Robot	3-Axis Robot
VHooks Integration Interface	VWorks Hooks Interface
VPrep Pipetting System	Vertical Pipetting Station
VSpin Microplate Centrifuge	Microplate Centrifuge
VStack Labware Stacker	Labware Stacker

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Contents

Preface

This preface introduces the *PlateLoc User Guide*. This preface contains the following topics:

Who should read this guide

Job roles

This user guide is for people with the following job roles:

Job role	Responsibilities
Installer	Someone who unpacks, puts together, and tests the PlateLoc before it is used.
Lab manager, administrator, or technician	Someone who is responsible for: ❑ Solving the more challenging problems that might arise ❑ Developing training materials and standard operating procedures for operators
Operator	Someone who performs the daily production work using the PlateLoc and solves routine problems. Your organization may choose to create its own procedures for operators including the procedures in this guide.

Related topics

For more information about...	See...
What this guide covers	“What this guide covers” on page v
What’s new in this version	“What’s new in this user guide” on page vii
How to access different formats of this user guide	“Accessing Velocity11 user information” on page viii

What this guide covers

What is covered

This guide covers the installation, setup, and operation of the PlateLoc that is used in the following ways:

- ❑ As a single device, controlled from the built-in touch screen interface
- ❑ Integrated with other devices in a Velocity11 lab automation system, controlled from a computer

This guide also provides the ActiveX reference information needed to integrate the PlateLoc in a third-party lab automation system.

What is not covered

This guide does not provide instructions for:

- ❑ Creating protocols and setting task parameters in the Velocity11 lab automation software
- ❑ Operating other devices in Velocity11 lab automation systems
- ❑ Operating the PlateLoc integrated into a third-party lab automation system

Firmware version

This guide documents PlateLoc firmware version 3.7.2.

Software version

This guide documents PlateLoc ActiveX (PlateLoc.ocx) version 7.

Related guides

The *PlateLoc User Guide* should be used in conjunction with the following user documents:

- ❑ Velocity11 lab automation system user guides, such as the *BenchCel User Guide* and the *BioCel User Guide*. These user guides provide the system setup requirements and user operation instructions.
- ❑ Velocity11 lab automation system software user guides, such as the *VWorks User Guide*. These user guides explain how to create protocols and set task parameters for each device in the system.
- ❑ Third-party lab automation system user documents. These documents explain how to set up and use the third-party lab automation system.

Related topics

For more information about...	See...
Who should read this guide	“Who should read this guide” on page iv
What’s new in this version	“What’s new in this user guide” on page vii
How to access different formats of this user guide	“Accessing Velocity11 user information” on page viii

What's new in this user guide

About this topic

This topic lists the new models and features that are described in this revision of the *PlateLoc User Guide*.

New features

This revision of the user guide describes a new PlateLoc model, the Gas-Purging PlateLoc. The Gas-Purging PlateLoc uses argon to displace air (containing moisture and oxygen) from the plate. The effect protects the plate contents from hydration and oxidation.

Related topics

For more information about...	See...
Who should read this guide	"Who should read this guide" on page iv
What this guide covers	"What this guide covers" on page v
How to access different formats of this user guide	"Accessing Velocity11 user information" on page viii

Accessing Velocity11 user information

About this topic

This topic describes the different formats of Velocity11 user information.

Velocity11 user information is provided to you as:

- ❑ Online help
- ❑ A PDF file
- ❑ A printed book

The information in each format is the same but each format has different benefits.

Where to find the user information

Online help

The online help is added to your computer with the software installation.

Velocity11 website

You can download the latest version of any PDF file from our website at www.velocity11.com.

All Velocity11 user information can be searched from the website at www.velocity11.com.

Online help

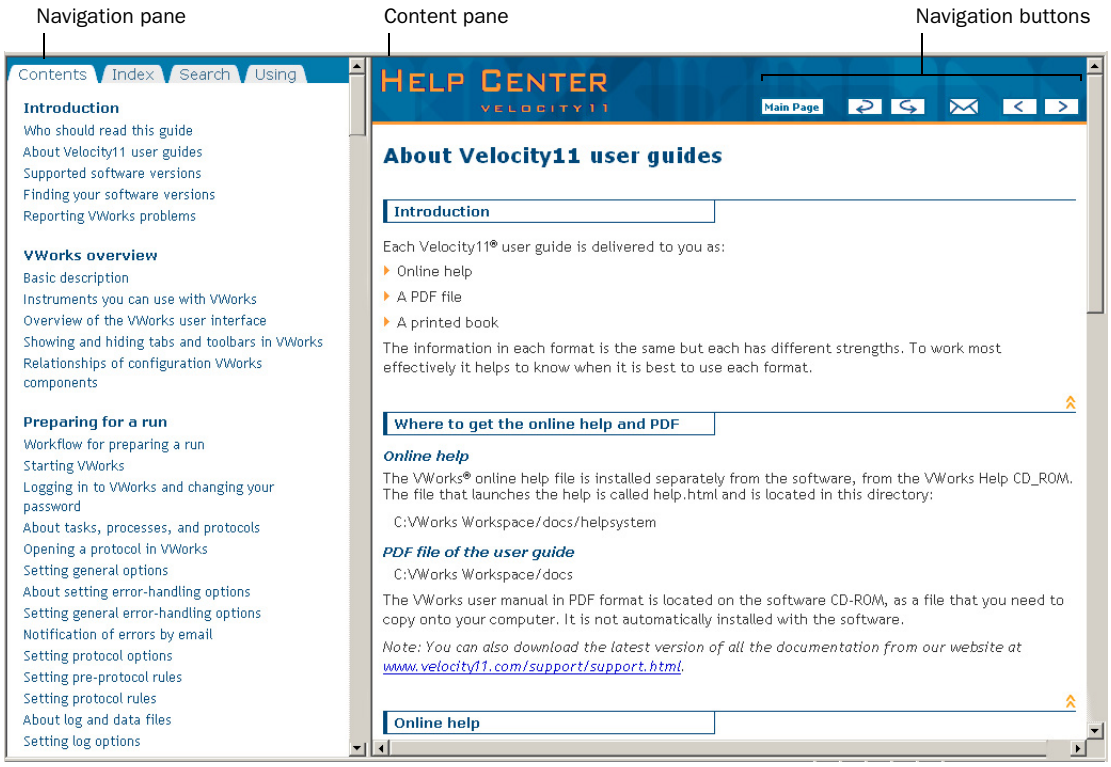
The online help is the best format to use when you are working at the computer and when you want to perform fast or advanced searches for information.

To open the online help:

1. In the Velocity11 lab automation software, press F1.

Main features

The online help includes a navigation pane, content pane, and navigation buttons.



The navigation pane has four tabs. The Contents, Index, and Search tabs provide different ways to locate information. The Using tab contains information about using the help system.

The content pane displays the online help topics.

Navigation buttons in the content pane allow you to navigate through the pages.

PDF user guide

Computer requirements

To open a user guide in PDF format, you need a PDF viewer. You can download a free PDF viewer from the internet.

Printing and searching

We provide user guides in PDF format mainly for printing additional copies. You can use them for simple searches, although these searches are much slower than online help searches.

More information

For more information about using PDF documents, see the user documentation for the PDF viewer.

Related topics

For more information about...	See...
Who should read this guide	“Who should read this guide” on page iv
What this guide covers	“What this guide covers” on page v
What’s new in this revision of the user guide	“What’s new in this user guide” on page vii

PlateLoc introduction

1

This chapter contains the following topics:

Description of the PlateLoc

About this topic

This topic describes the PlateLoc and explains its uses.

Description

The PlateLoc Thermal Plate Sealer is available in two models:

- *PlateLoc*. The PlateLoc is a device that applies seal material on top of microplates (plates) to seal individual wells. Sealing the wells protects the contents from evaporation, condensation, and cross-contamination during transport or storage.
- *Gas-Purging PlateLoc*. In addition to the plate-sealing function of the original PlateLoc, the Gas-Purging PlateLoc uses argon gas to displace air, containing moisture and oxygen, in the plate immediately before the sealing begins. Because argon is inert, it does not react with the plate contents. The plate contents can be protected from hydration and oxidation for up to 24 hours.

  Typically used for compound storage applications, the Gas-Purging PlateLoc is best for plate contents that are sensitive to oxidation and moisture (for example, DMSO).

  Note: For typical polystyrene and polypropylene plates, the gas-purging effects can last up to 24 hours when the plates are stored at room temperature. The effects can last longer if the plates are stored at lower temperatures.

Ways to use the PlateLoc

The PlateLoc can be used in the following ways:

- As a standalone device
- In a Velocity11 lab automation system
- In another company's lab automation system

As a standalone device

You can set up the PlateLoc as a standalone device, operating the PlateLoc from the built-in touch screen. You do not need to connect the device to a computer.

Using the PlateLoc in the standalone mode allows you to manually load and seal one plate at a time (a single seal cycle in one run). The standalone device cannot automatically load and seal multiple plates in one run.

In a Velocity11 lab automation system

You can set up the PlateLoc in a Velocity11 lab automation system such as the BenchCel or the BioCel. To install the PlateLoc in the system, you must connect the device to the controlling computer. You can operate the integrated device using the software supplied with the lab automation system, such as BenchWorks or VWorks. Integrated PlateLoc operation allows you to automate the loading and sealing of multiple plates in one protocol run (multiple seal cycles in one run).

In a third-party lab automation system

You can set up the PlateLoc in a third-party lab automation system. To install the PlateLoc in the system, you must connect the device to the controlling computer. You can operate the integrated PlateLoc using the third-party software. The integrated PlateLoc allows you to automate the loading and sealing of multiple plates in one run.

Note: Communication between the third-party system and the PlateLoc is achieved through the use of ActiveX controls.

Related topics

For more information about...	See...
PlateLoc physical dimensions	"Meeting Lab requirements" on page 23
Installing the PlateLoc	"Unpacking and installation" on page 21
How to use the PlateLoc as a standalone device	"Standalone device workflow" on page 16
Setting up the PlateLoc in a lab automation system	❑ "Lab automation system software" on page 14 ❑ "Integrating the PlateLoc into third-party systems" on page 99
How to use the PlateLoc in a lab automation system	"Lab automation system workflow" on page 17

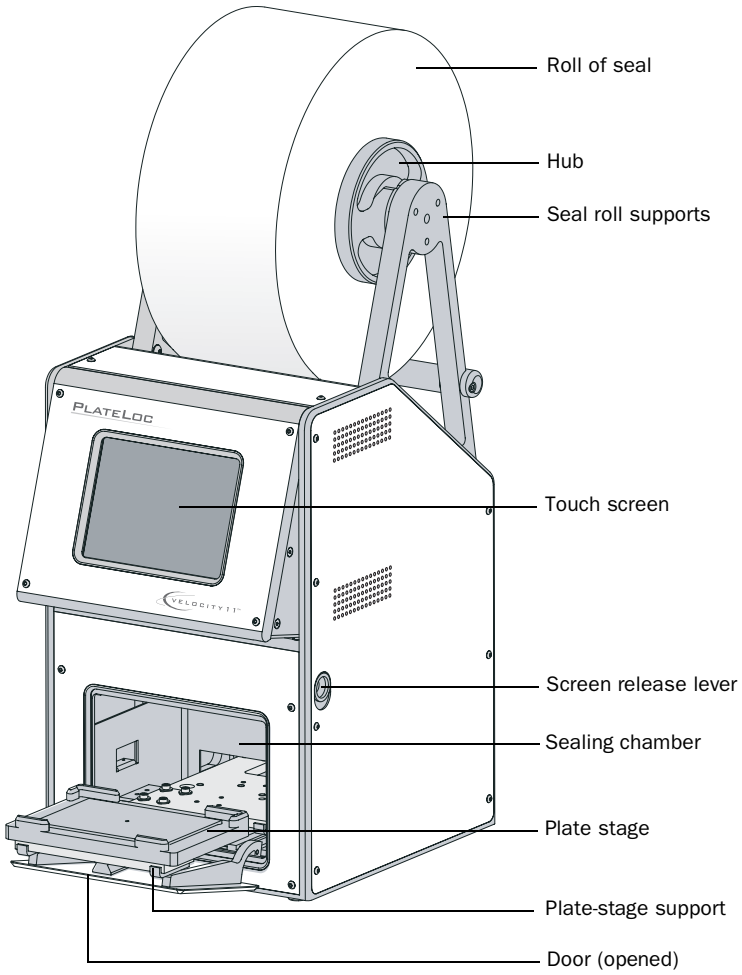
Hardware overview

About this topic

This topic provides an overview of the PlateLoc hardware features.

Front features

The following diagram shows the front of the PlateLoc. The table below describes the features shown in the diagram.

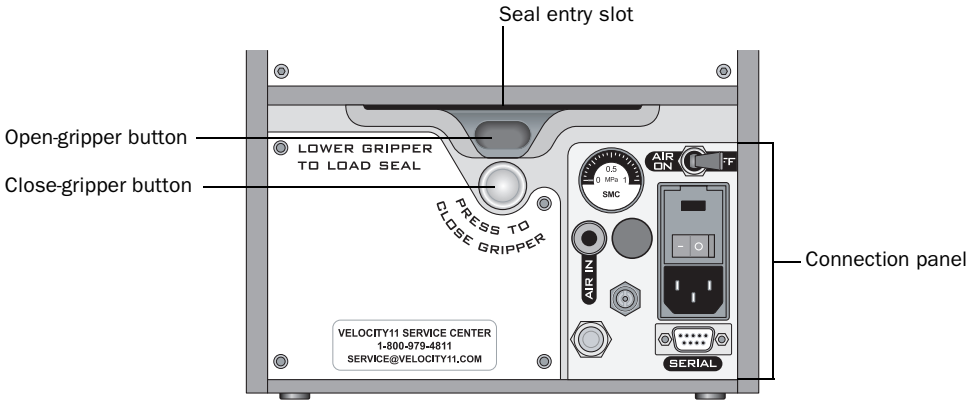


Feature	Description
Roll of seal	The seal material.
Hubs	The structures (together with the axle, not shown) that hold the roll of seal and allow the roll to rotate.
Seal-roll supports	The structure on which you mount the hubs and axle.
Touch screen	The interface that allows you to specify sealing parameters, start and stop the seal cycle, and monitor the seal cycle for standalone operation.

Feature	Description
Sealing chamber	The area inside the device where plates are sealed.
Plate stage	The removable metal platform on which plates are loaded.
Door	The movable structure that opens when the plate stage is extended and closes when the stage enters the chamber.
Plate-stage support	The structure on which you load the plate stage. The plate-stage support extends when the door opens and retracts when the door closes.

Rear features

The following diagram shows the lower back side of the PlateLoc. The table below it describes the features shown in the diagram.



Feature	Description
Seal entry slot	The narrow opening into which you insert the seal.
Open-gripper button	The oval button that you push downward when inserting the seal into the seal entry slot. Pushing the button downward opens the gripping mechanism that holds the seal in position.
Close-gripper button	The silver button that you press to close the seal-gripping mechanism.
Connection panel	The area where you connect the power, air tubing, argon tubing (Gas-Purging PlateLocs only), and computer. The panel also contains a gauge that allows you to verify air flow.

Related topics

For more information about...	See...
The connection panel	“Connection panel” on page 7
The PlateLoc physical dimensions	“Meeting Lab requirements” on page 23
Installing the PlateLoc	“Unpacking and installation” on page 21
Installing and operating the PlateLoc	“PlateLoc workflows” on page 16

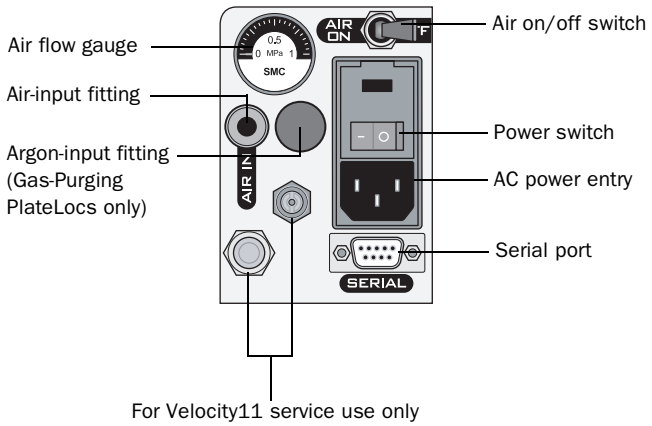
Connection panel

About this topic

This topic describes the connection panel on the back of the PlateLoc.

Description

The following diagram shows the connection panel that is located on the back of the PlateLoc. The table below the diagram describes each component on the panel.



Feature	Description
Air flow gauge	Indicates the presence of air flow inside the PlateLoc. Compressed air is used to move pneumatic components inside the PlateLoc.
Air-input fitting	Connects the air tubing to the PlateLoc.
Argon-input fitting (Gas-Purging PlateLocs only)	Connects the argon tubing to the Gas-Purging PlateLoc. Argon is used to displace air in the plate, thereby removing oxygen and moisture. *Note:* There is no on/off switch for argon. Argon starts to fill the sealing chamber automatically when a seal cycle starts. For safety reasons, the argon stops filling the sealing chamber automatically just before the seal is applied.
Air on/off switch	Turns on or off the air flow into the PlateLoc.
Power switch	Turns on or off the power to the PlateLoc.
AC power entry	Connects the power cord to the PlateLoc.
Serial port	Connects the serial cable from the controlling computer to the PlateLoc. Use this port when installing the PlateLoc in a lab automation system.

Related topics

For more information about...	See...
Installing and operating the PlateLoc	“PlateLoc workflows” on page 16

Plate requirements

About this topic

This topic explains the requirements for the plates you can use in the PlateLoc.

Acceptable plates

The PlateLoc accepts plates made from a variety of materials. For a complete list of the acceptable materials, see the *PlateLoc Thermal Plate Sealer Seal Selection Guide*. You can locate the guide on the Velocity11 website at www.velocity11.com.

Use only plates that meet the standards established by the Society of Biomolecular Sciences (SBS), including deep-well, PCR, and standard plates in the 96-well, 384-well, and 1536-well formats. For the latest plate standards, go to www.sbsonline.org. You can also contact the labware manufacturer to inquire about SBS-standard plates.

Ideal seal conditions can depend on the plate design, such as thickness and geometry. For example, plates with raised chimneys that have flat surfaces at the top can minimize cross-contamination, reduce evaporation, and minimize condensation.

Note: Plates made from the same material but have different designs can require different sealing parameters.

Velocity11 recommends that you run optimization tests to determine the best sealing parameters to use for each plate type. See “Optimizing seal quality” on page 77 for some optimization test guidelines.

Challenging plates

Because of the material or design, the following plates might cause poor seal results when used in the PlateLoc:

- ❑ Plates that have non-binding coatings
- ❑ Flexible plates that tend to bend during sealing
- ❑ Breiner Model 651182, 96-well V-bottom plates (when used with the Velocity11 Peelable Aluminum Seal, 06643.001)

You should run some sealing tests to determine whether optimal sealing is possible with these plates or if you should use different plate types. See “Optimizing seal quality” on page 77 for some optimization test guidelines.

Related topics

For more information about...	See...
Optimizing seal quality	“Optimizing seal quality” on page 77
Inserts (plate supports)	“Inserts” on page 10
Seal material	“Seal material” on page 13

Inserts

About this topic

This topic describes inserts and their uses in the PlateLoc.

What are inserts

Inserts are pads that support the bottoms of plates for uniform seals. You use inserts to support plates that tend to bend during a seal cycle.

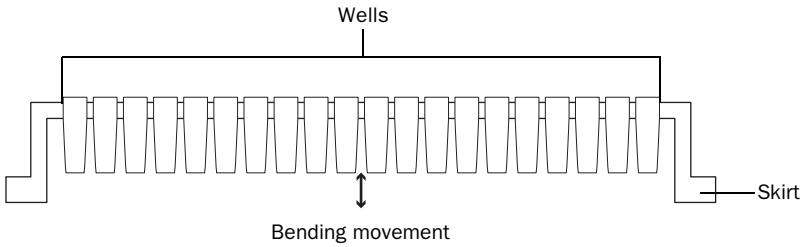
When to use inserts

Causes of non-uniform seals

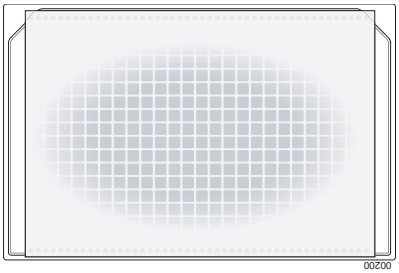
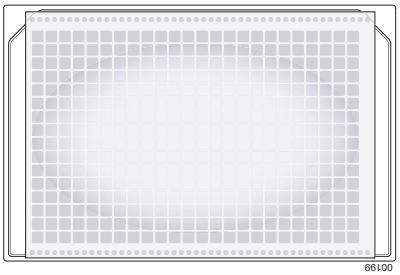
During the seal cycle, a heated metal plate (hot plate) inside the sealing chamber descends and presses the seal onto the plate. In a quality seal, the seal material is applied to the plate uniformly. However, the following factors can cause uneven plate sealing:

- Because of the material used, some plates tend to bend in the high-temperature environment.
- In some plate designs, the plate skirt sits higher or lower than the plate bottom, causing uneven sealing.

The following diagram shows the side profile of a plate. In this example, the plate skirt extends past the bottom of the wells. Depending on the plate material, such plate designs can cause non-uniform sealing. When the hot plate presses down, the wells at the center of the plate might bend upward or downward.

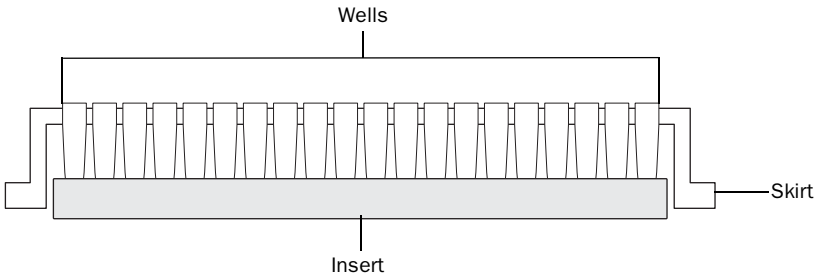


The following diagrams show the top view of sealed plates. Non-uniform seals can result when the center of the plate bends upward (left) and downward (right) during the seal cycle.

Plate center is higher	Plate center is too low
	

Using inserts to support plates

For plates that tend to bend or do not lie flat during the seal cycle, you can place an insert under the plate to provide equal support under every well. The following diagram shows an insert supporting the wells for uniform sealing.



Inserts supplied with the PlateLoc

The following table lists the inserts that are supplied with the PlateLoc.

Insert	Description	Thickness	Height above plate stage support	Use with...
90	Metal pad with rubber foam padding on the plate-facing side	8.65 mm (0.340 in)	4 mm (0.2 in)	Plates that require flexible support
180	Metal pad	4.60 mm (0.180 in)	0 mm (0 in)	Plates that require non-flexible support under the wells
235	Metal pad	6.00 mm (0.235 in)	1.4 mm (0.055 in)	Plates that require non-flexible support under the wells
290	Metal pad	7.37 mm (0.290 in)	2.8 mm (0.11 in)	Plates that require non-flexible support under the wells

Other types of inserts are available. For a complete list of available inserts, see the *PlateLoc Thermal Plate Sealer Seal Selection Guide*. You can locate the guide on the Velocity11 website at www.velocity11.com.

Insert selection

The type of insert you use depends on the plate material and plate design. Velocity11 recommends that you run optimization tests to determine the best insert for the plate you are using. See “Optimizing seal quality” on page 77 for some optimization test guidelines.

For insert selection guidelines and starting parameters to use, see the *PlateLoc Thermal Plate Sealer Seal Selection Guide*. You can locate the guide on the Velocity11 website at www.velocity11.com.

Related topics

For more information about...	See...
Optimizing seal quality	“Optimizing seal quality” on page 77
Plate requirements	“Plate requirements” on page 9
Seal material	“Seal material” on page 13

Seal material

About this topic

This topic explains the types of seal material that are available and the factors that might affect seal quality.

Seal supplied with the PlateLoc

A roll of seal is supplied with the PlateLoc. To ensure optimal seal quality, Velocity11 recommends that you run optimization tests to determine the best sealing parameters to use for each plate type and application.

Selecting other seals

!! DAMAGE HAZARD !! Use only Velocity11 seals with the PlateLoc. Seals from another manufacturer might not seal properly in the PlateLoc and can damage the device.

Velocity11 offers a variety of seals with different properties, including:

- *Clear seals.* Allows you to see the contents of the plate.
- *Aluminum seals.* Protects light-sensitive samples or compounds in the plate.
- *Peelable seals.* Allows you to peel the seal off the plate in a downstream task.
- *Non-pierceable seals.* Protects the plate contents from accidental piercing.

The type of seal you can use depends on a number of factors, including:

- Plate material
- Plate design
- Plate properties (for example, optical and physical properties)
- Plate contents (samples, reagents, and so on)
- Application (for example, PCR, DNA sequencing, compound storage, and so on)
- Storage duration and conditions

For a complete list of seals and selection guidelines, see the *PlateLoc Thermal Plate Sealer Seal Selection Guide*. You can locate the guide on the Velocity11 website at www.velocity11.com.

Velocity11 recommends that you run optimization tests to determine the best seals to use. See “Optimizing seal quality” on page 77 for some test guidelines.

Related topics

For more information about...	See...
Plate requirements	“Plate requirements” on page 9
Inserts (plate supports)	“Inserts” on page 10
Optimizing seal quality	“Optimizing seal quality” on page 77

Lab automation system software

About this topic

This topic describes the software you use to set up and control the PlateLoc in a Velocity11 lab automation system. For information about integrating the PlateLoc in a third-party lab automation system, see "Integrating the PlateLoc into third-party systems" on page 99.

Note: You do not need to read this topic if you are using the PlateLoc as a standalone device.

Lab automation requirements

In a lab automation system, you can use a plate-loading robot to automate the sealing of multiple plates. You use the lab automation system software to set up the communication between the system and the PlateLoc, set up the sealing parameters, and control the automation.

Lab automation system software

Velocity11 provides lab automation platforms, including the BenchCel and the BioCel plate-handling systems. You can install the PlateLoc in these systems to automate the multiple-plate sealing process.

You use the Velocity11 lab automation system software, such as BenchWorks and VWorks, to control the PlateLoc in the system. The software allows you to:

- *Create protocols*. Protocols determine the sequence of tasks you want to automate in a run. For example, you can use a protocol to seal 10 plates in one protocol run.
- *Set PlateLoc task parameters*. The task parameters specify the sealing temperature and duration for a multiple-plate run.
- *Start and stop a run*. You can start and stop the protocol run from the controlling computer.

PlateLoc Diagnostics

PlateLoc Diagnostics is a component of the supplied PlateLoc ActiveX software that enables integration with a lab automation system. Accessed through the Velocity11 lab automation system software, such as BenchWorks and VWorks, PlateLoc Diagnostics allows you to:

- *Create profiles*. Profiles allow you to set up communication with the lab automation system software and set default sealing parameter values.
- *Manually set up and run the PlateLoc*. This is equivalent to setting up and running the device from the touch screen. Use the manual adjustments and controls to run a single plate for diagnostic use only.
- *Check the odometer*. The odometer indicates the number of sealing cycles the device has performed. You can refer to this value for preventive maintenance purposes.

Related topics

For more information about...	See...
Operating the PlateLoc in a lab automation system	“Lab automation system workflow” on page 17
Creating and managing PlateLoc profiles	“Creating and managing profiles (lab automation systems only)” on page 59
Creating and managing protocols	Velocity11 lab automation software user guide, such as the *VWorks User Guide*
Setting PlateLoc task parameters	Velocity11 lab automation software user guide, such as the *VWorks User Guide*
Starting and stopping the protocol run	Velocity11 lab automation software user guide, such as the *VWorks User Guide*
Using ActiveX control to configure third-party lab automation software to interface with the PlateLoc	“Integrating the PlateLoc into third-party systems” on page 99

PlateLoc workflows

About this topic

This topic presents the workflows for operating the PlateLoc as a standalone device and in a Velocity11 lab automation system.

Standalone device workflow

The following table presents the basic steps for operating the PlateLoc as a standalone device. When optimizing the seal quality, repeat steps 6 through 8.

Step	Procedure	See...
1	Turn on the PlateLoc.	"Turning on and turning off the power" on page 42
2	Turn on the air.	"Turning on and turning off the air" on page 44
3	*Gas-Purging PlateLocs only.* Turn on the argon.	"Turning on and turning off the argon (Gas-Purging Platelocs only)" on page 47
4	Adjust the touchscreen.	❑ "Tilting and stowing the touch screen" on page 49 ❑ "Adjusting the touch screen contrast" on page 51
5	Load the seal.	"Loading and unloading a roll of seal" on page 53
6	Set the sealing parameters.	"Setting the sealing parameters" on page 68
7	Load an insert and a plate.	"Loading an insert and a plate" on page 66
8	Start the seal cycle.	"Starting the seal cycle" on page 72

Lab automation system workflow

The following table presents the basic steps for operating the PlateLoc in a Velocity11 lab automation system. When optimizing the seal quality, repeat steps 8 through 9.

Note: The steps for installing and operating the PlateLoc in a third-party lab automation system might differ. For details, refer to the third-party user documentation.

Step	Procedure	See...
1	Turn on the PlateLoc.	"Turning on and turning off the power" on page 42
2	Turn on the air.	"Turning on and turning off the air" on page 44
3	*Gas-Purging PlateLoc only.* Turn on the argon.	"Turning on and turning off the argon (Gas-Purging Platelocs only)" on page 47
4	*Optional.* Adjust the touchscreen.	❑ "Tilting and stowing the touch screen" on page 49 ❑ "Adjusting the touch screen contrast" on page 51
5	Load the seal.	"Loading and unloading a roll of seal" on page 53
6	Create PlateLoc profiles.	"Creating and managing profiles (lab automation systems only)" on page 59
7	Establish communication with the PlateLoc.	"Establishing communications with the PlateLoc (lab automation systems only)" on page 62
8	Create protocols and set task parameters.	Velocity11 lab automation system software user guide, such as the *VWorks User Guide*
9	Start the protocol run (seal cycles).	"Starting the seal cycle" on page 72

Related topics

For more information about...	See...
Workflow for installing and operating the PlateLoc in a third-party automation system	The third-party product documentation
Using ActiveX control to configure third-party lab automation software to interface with the PlateLoc	"Integrating the PlateLoc into third-party systems" on page 99

Safety information

About this topic

This topic provides information for the safe operation of the PlateLoc.

Before using the PlateLoc

Before using the PlateLoc, your organization should make sure that you are properly trained in:

- ❑ General laboratory safety
- ❑ The correct and safe operation of the PlateLoc
- ❑ The correct and safe operation of lab automation systems or components used in combination with the PlateLoc

If you are the person in your organization responsible for training others on the PlateLoc and you have a safety question, contact Velocity11 Technical Support.

Safety standards

The PlateLoc is CE certified and complies with the following CE safety directive: EN 61010-1:1993, safety requirements for electrical equipment for measurement, control, and laboratory use, including amendments 1 and 2.

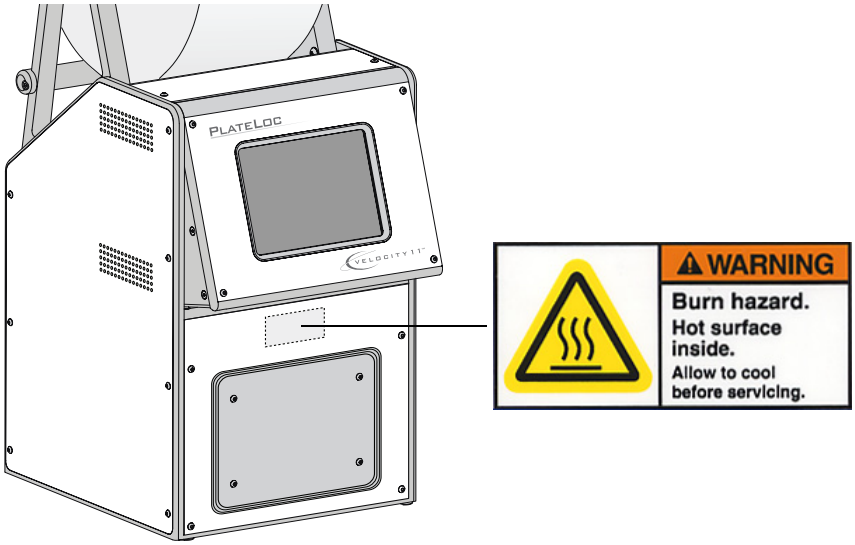
The PlateLoc is designed to meet UL specifications.

For the latest compliance information, contact Velocity11 Technical Support.

Safety labels

Pay attention to safety labels on the PlateLoc. A safety label consists of a warning symbol, a description of the warning, and information that helps you to avoid the safety hazard.

The following diagram shows the safety label that is placed on the front of the PlateLoc to warn you of high-temperature hazards.



General precautions

!! INJURY HAZARD !! Do not attempt to remove the PlateLoc covers and disassemble the device. Doing so can cause injuries and damage the device.

!! INJURY HAZARD !! Using controls, making adjustments, or performing procedures other than those specified in this user guide can expose you to hot surfaces, high pressure gases, and moving parts. Exposure to these hazards can cause severe injury.

The PlateLoc is designed for safe operation. Under normal operating conditions, you are protected from high temperature, high pressure, and moving parts. However, you should be aware of these hazards and understand how to avoid being exposed to them.

Chemical hazards

!! INJURY HAZARD !! Chemicals that have low flash points (such as reagents that are used in radioactive scintillation proximity assays (SPAs) and solvents, including alcohols) must not be used in the PlateLoc.

Some chemicals used when working with the PlateLoc can be hazardous. Make sure you follow your local, state, and federal safety regulations when using and disposing of the chemicals.

Read the recommendations in the MSDS (Material Safety Data Sheet) for every chemical that you plan to use. The manufacturer of the chemical should provide you with the MSDS.

Argon gas (Gas-Purging Platelocs only)

!! INJURY HAZARD !! Argon is an odorless, colorless, and nontoxic gas that can cause rapid suffocation by displacing air. Argon is heavier than air and can flow into low areas.

Always use argon in a well-ventilated area. Always turn off the argon source when the PlateLoc is not in use.

You should set up an oxygen monitor in the lab to prevent accidental suffocation. The oxygen monitor can set off an alarm if the oxygen level falls below the acceptable threshold.

Gas cylinders and pressure regulators

Follow the local, state, and federal safety codes for the placement and mounting of gas cylinders. For example, you might have to attach a standard cylinder bracket to a solid permanent structure to meet or exceed all local seismic and safety requirements.

Always use good lab practices when handling high-pressure cylinders. Make sure you follow any instructions provided with the cylinders.

High-temperature hazards

!! INJURY HAZARD !! Do not touch the PlateLoc or pry open the door while it is in operation. The hot surfaces can cause burn injury.

Use caution when removing a plate after it is sealed. The plate might still be hot from the sealing process.

Do not reach into the PlateLoc when it is at warmed up to a high temperature. When cleaning the metal plate (hot plate) inside the device, make sure the temperature setting does not exceed 40 °C. For details, see “Cleaning the hot plate” on page 84.

Moving-parts hazards

The PlateLoc contains moving parts that can cause injury. Under normal operating conditions, the PlateLoc is designed to protect you from the moving parts. The door sensor is designed so that the seal cycle cannot start unless the door is closed.

!! INJURY HAZARD !! Do not disable the door sensor or attempt to access the interior of the device through any other openings. Exposure to the moving parts, such as the heated metal plate (hot plate) or the seal-cutting blade can cause severe injuries.

In an emergency, turn off the PlateLoc. The on/off switch is located on the lower back side of the device.

Fuses

Contact Velocity11 Customer Service to replace the PlateLoc fuses. Do not attempt to replace the fuses yourself.

Product use

Velocity11’s products must only be used in the manner described in the user guides. Any other use can damage the product or injure you. Velocity11 is not responsible for damages caused, in whole or part, by unauthorized modifications, or by procedures that are not explicitly described in the product user guides. Any modifications or changes to products not expressly described in Velocity11 user guides are not covered under the warranty.

The PlateLoc is not intended or approved for diagnosis of disease in humans or animals.

Related topics

For more information about...	See...
Hardware description	“Hardware overview” on page 4
Connection panel location and description	“Connection panel” on page 7
Turning on and off the PlateLoc	“Turning on and turning off the power” on page 42
Stopping the PlateLoc in an emergency	“Stopping a seal cycle in progress” on page 74
Cleaning the hot plate	“Cleaning the hot plate” on page 84

Unpacking and installation

2

This chapter contains the following topics:

Installation workflow

About this topic

This topic presents the workflow for unpacking and installing the PlateLoc as a standalone device and in a Velocity11 lab automation system.

Workflow

The following table presents the workflow for unpacking and installing the PlateLoc.

Note: If you are using the PlateLoc as a standalone device, skip steps 6 through 8.

Step	Procedure	See...
1	Prepare your lab for the installation.	"Meeting Lab requirements" on page 23
2	Unpack the PlateLoc.	"Unpacking the PlateLoc" on page 27
3	Connect the PlateLoc to the power source.	"Connecting the power source" on page 30
4	Connect the PlateLoc to the air source.	"Connecting and disconnecting the air source" on page 31
5	*Gas-Purging PlateLocs only.* Connect the PlateLoc to the argon source.	"Connecting and disconnecting the argon source (Gas-Purging PlateLocs only)" on page 34
6	*Lab automation systems only.* Connect the PlateLoc to the controlling computer.	"Connecting to the controlling computer (lab automation systems only)" on page 37
7	*Lab automation systems only.* Install the PlateLoc ActiveX software.	"Installing the PlateLoc ActiveX software (lab automation systems only)" on page 38
8	*Lab automation systems only.* In the lab automation software, add the PlateLoc, and set the properties for the device.	Velocity11 lab automation system software user guide, such as the *VWorks User Guide*

Related topics

For more information about...	See...
Workflow for installing and operating the PlateLoc in a third-party automation system	The third-party product documentation
Operating the PlateLoc	"PlateLoc workflows" on page 16

Meeting Lab requirements

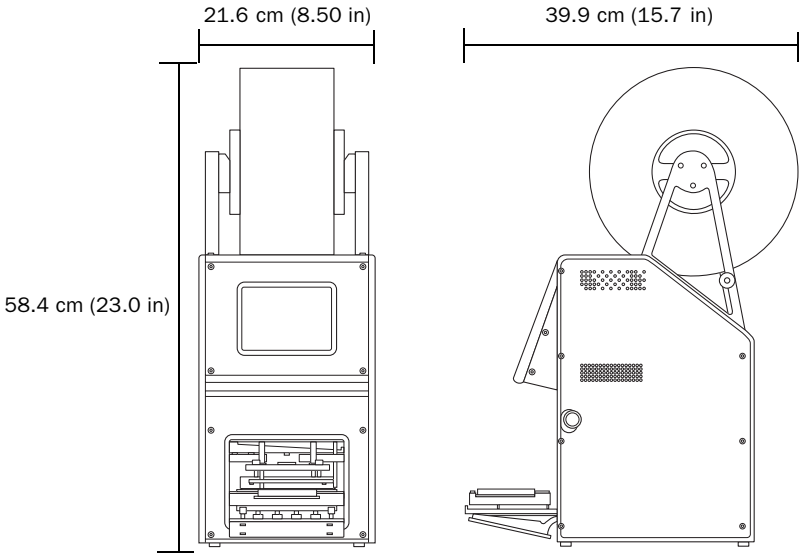
About this topic

This topic describes the requirements for installing the PlateLoc.

Lab space

The weight and dimensions of the PlateLoc are as follows:

Dimension	Value
Weight	20 kg (45 lb)
Width	21.6 cm (8.50 in)
Height (with seal mounted)	58.4 cm (23.0 in)
Depth (with door open and seal mounted)	39.9 cm (15.7 in)



When planning lab space for the PlateLoc, you should consider the following:

- ❑ Make sure the lab bench can support the weight of the PlateLoc, and the surface is level.
- ❑ Provide adequate bench space for the PlateLoc.
- ❑ Make sure there is sufficient clearance around the PlateLoc so that you can reach the back of the device to turn off the power and air in an emergency.
- ❑ Place the PlateLoc within 1.8 m (6 ft) of the electrical outlets.
- ❑ Place the PlateLoc within 4.6 m (15 ft) of the air source.
- ❑ *Gas-Purging PlateLocs only.* Place the PlateLoc within 4.6 m (15 ft) of the argon source.

- ❑ *Gas-Purging PlateLocs only.* Make sure the room is well ventilated and an oxygen monitor is nearby.
- ❑ *Lab automation system installation only.* Check with the lab automation system manufacturer for installation requirements.

Air source

The PlateLoc requires the use of oil-free compressed air to move pneumatic components inside the device. The oil-free compressed air can be from the following sources:

- ❑ Centralized source (house)
- ❑ Compressed-air cylinders
- ❑ Portable pumps

!! DAMAGE HAZARD !! Using oil compressors can cause oil to leak into the PlateLoc and void your warranty.

To maintain the desired air supply in the device, the PlateLoc requires a source of air as follows:

Requirement	Value
Quality	Clean, dry, compressed
Flow rate	70.8 Lpm (2.50 cfm)
Pressure	0.62–0.69 MPa (90–100 psi)

!! DAMAGE HAZARD !! Air pressure greater than 0.69 MPa (100 psi) can damage the PlateLoc.

Environment

The lab must meet the following environmental requirements.

Requirement	Value
Ambient temperature	4–40 °C (39–104 °F)
Humidity condition	10–90% RH, non-condensing

Velocity11 recommends that you do the following:

- ❑ Place the PlateLoc away from heat and air conditioning ducts.
- ❑ Place the PlateLoc away from direct sunlight.

Electrical

The electrical requirements for the PlateLoc are as follows:

Requirement	Model	
	N. America	Europe
Voltage	115~	230~
Frequency	50–60 Hz	50–60 Hz
Current	5 A	5 A

!! DAMAGE HAZARD !! Always connect the PlateLoc to an AC circuit that is properly grounded.

Argon source (Gas-Purging PlateLoc only)

The Gas-Purging PlateLoc typically uses argon to displace air (oxygen and moisture) in the plate. The argon can be from a centralized source (house) or from a cylinder.

To maintain the desired argon supply in the device, make sure the argon meets the following requirements:

Requirement	Value
Quality	99.9% pure, welding grade, containing up to 1 ppb water *Note:* The water content is more important than the gas grade.
Pressure	0.28 MPa (40 psi)

!! INJURY HAZARD !! For safety reasons, you should install an oxygen monitor nearby to prevent accidental suffocation.

Computer

If you are installing the PlateLoc in a lab automation system, you must connect the device to the controlling computer (the computer that has the lab automation system software installed). You must also install the PlateLoc ActiveX software to enable the device to interface with the computer.

The lab automation system computer must meet the following minimum requirements to interface with the PlateLoc:

- ❑ Pentium 3
- ❑ 256 MB RAM
- ❑ Windows 2000 or Windows XP
- ❑ 10 MB free disk space
- ❑ RS-232 DB9 serial port

For lab automation system requirements, see the Velocity11 lab automation system software user guide or the third-party lab automation system software user documentation.

Related topics

For more information about...	See...
How to use the PlateLoc as a standalone device	"Standalone device workflow" on page 16
Setting up the PlateLoc in a lab automation system	❑ "Lab automation system software" on page 14 ❑ "Integrating the PlateLoc into third-party systems" on page 99
How to use the PlateLoc in a lab automation system	"Lab automation system workflow" on page 17

Unpacking the PlateLoc

About this topic

This topic explains how to unpack the PlateLoc.

Unpacking precautions

When unpacking the PlateLoc, be sure to:

- ❑ Note the dimensions of the shipping container before moving it to make sure you have adequate clearance through doorways and passages.
- ❑ Make sure the final location is nearby and easily accessible.
- ❑ Use care when lifting the PlateLoc to prevent personal injury and damage to the device. The PlateLoc weighs 20 kg (45 lb) and might require two people to lift it.

Unpacking the PlateLoc from its shipping container

The PlateLoc and its components are shipped in two shipping containers:

- ❑ *The PlateLoc container.* Contains the main body of the device and all the items you need to install and operate the PlateLoc.
- ❑ *The seal roll container.* Contains a roll of seal.

To unpack the PlateLoc and the roll of seal:

1. Open the top of the PlateLoc container.
2. Remove the thin layer of packing foam.
3. Remove the inner box and set it aside.
4. Carefully lift the PlateLoc out of the shipping container.
5. Remove the packing foams on the left and right sides of the device.
6. Remove the PlateLoc from the plastic bag and set it carefully on the lab bench or final location where you want to install the device.

   Note: A small block of foam pieces is packed inside the PlateLoc. You will remove the packing foam after you install the device and turn on the air.
7. Open the inner box and remove the components from the box.
8. Open the seal roll container, remove the roll of seal, and remove the seal from the plastic bag.

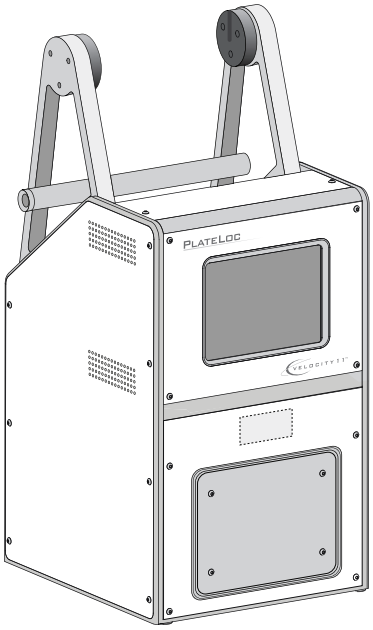
!! IMPORTANT !! Save the packing materials and shipping container in case you need to move or ship the PlateLoc.

!! DAMAGE HAZARD !! The packing materials and shipping container were designed to protect the device. Packing the PlateLoc using other materials and containers can damage the device and void your warranty.

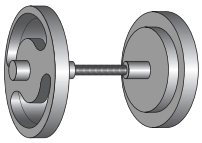
Inspecting the contents

PlateLoc components

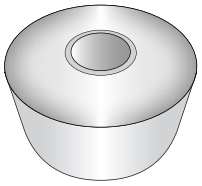
After you unpack the PlateLoc and seal, check that you have the items shown in the following diagram.



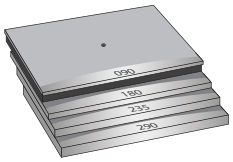
PlateLoc Thermal Plate Sealer



Hubs and axle



Roll of seal



Inserts

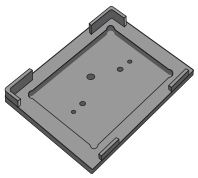
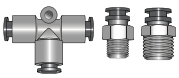
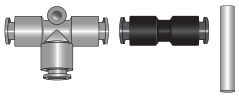


Plate stage



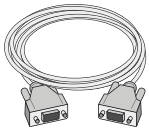
Fitting union tee and NPT fittings



Metric fittings: Union tee, adaptor, tube

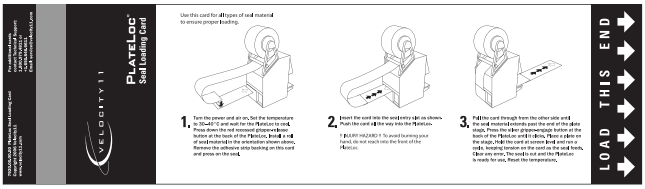
Air tubing

Power cord

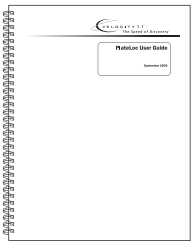


RS-232 DB9 serial cable

ActiveX CD



Seal-loading card



PlateLoc User Guide

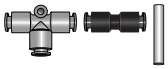
Additional components for the Gas-Purging PlateLoc

If you have the Gas-Purging PlateLoc, check that you have all the items in the previous diagram and the items in the following diagram.

Argon tubing

Fitting union tee and NPT fittings

or



Metric fittings: Union tee, adaptor, tube

Missing or damaged items

Inspect the items to make sure you have everything listed and there is no damage. If any of the items are missing or damaged, contact Velocity11 Technical Support.

Related topics

For more information about...	See...
Removing the packing foam inside the PlateLoc	"Turning on and turning off the air" on page 44
How to use the PlateLoc as a standalone device	"Standalone device workflow" on page 16
Setting up the PlateLoc in a lab automation system	❑ "Lab automation system software" on page 14 ❑ "Integrating the PlateLoc into third-party systems" on page 99
How to use the PlateLoc in a lab automation system	"Lab automation system workflow" on page 17

Connecting the power source

About this topic

This topic explains how to connect the PlateLoc to a grounded power source.

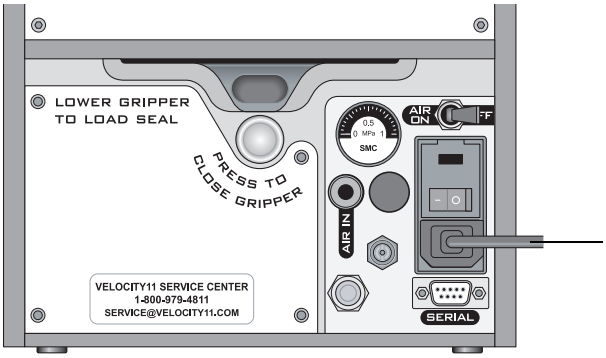
Before you start

Make sure you have the supplied power cord.

Procedure

To connect the power cord:

1. Plug one end of the power cord into the AC power entry located on the back of the PlateLoc.
2. Plug the other end of the cord into an AC outlet with a grounded circuit.



Related topics

For more information about...	See...
Installation and operating requirements	“Meeting Lab requirements” on page 23

Connecting and disconnecting the air source

About this topic

Compressed air is used to move pneumatic components inside the PlateLoc. This topic explains how to connect the PlateLoc to the air source and check the connections for leaks before use.

Before you start

Make sure you have the following:

- ❑ Air tubing (supplied)
- ❑ NPT or metric fitting adaptor (supplied)

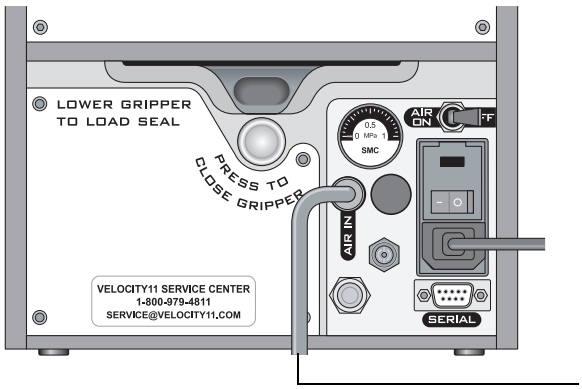
Connecting the air source

To connect the PlateLoc to your air source:

1. Turn off the air at the source (house, cylinder, or pump).
2. Attach the following adaptor fittings to the air source connection if necessary:
   - *NPT fitting*. If your air source uses a threaded connection, attach the supplied 1/4-inch or 1/8-in NPT fitting to the connection. The NPT fitting is threaded on one end and has a quick-release fitting on the other end.
   - *Metric fittings adaptor*. If your lab requires metric fittings at the air source, attach the supplied 1/4-inch metric adaptor fitting to the air source connection. The metric adaptor fitting has a quick-release fitting on one end.
3. Connect one end of the air tubing to the air source (house, cylinder, or pump), and then connect the free end of the tubing to the quick disconnect fitting at the air-input (AIR IN) port.

   To connect the tubing, push the end of the tubing into the quick disconnect fitting at the air source and on the back of the PlateLoc.

   The following diagram shows the air tubing connection on the back of the PlateLoc.



Checking the air connections

To check the air connections:

1. With the air source turned off, gently tug the air tubing at each connection.

   If you feel resistance at the connection, the tubing has been properly installed.

2. Turn on the air source.
3. Listen near each connection for hissing sounds that might indicate a leak.

   If you hear hissing sounds, turn off the air at the source and on the back of the PlateLoc, check and tighten the connections, and then turn on the air again. If the problem persists, contact your facilities department or Velocity11 Technical Support.

Disconnecting the air source

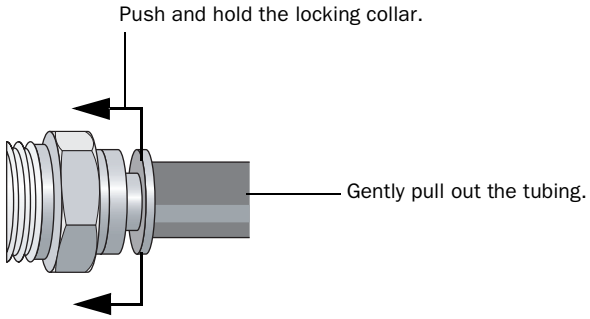
!! DAMAGE HAZARD !! Do not pull the tubing out of the orange quick disconnect fitting. Doing so can damage the fitting.

To disconnect the air tubing from the PlateLoc:

1. Turn off the air at the source (house, cylinder, or pump).
2. Turn off the air on the back of the PlateLoc.
3. Push and hold the locking collar against the fitting, and then gently pull the air tubing out.

   Note: Alternatively, you can use the SMC Pneumatics tool (TG-2) to aid in this task. See the manufacturer's documentation for use instructions. Contact your local SMC parts supplier for ordering details.

   The following diagram shows a close-up view of the quick disconnect fitting.



Related topics

For more information about...	See...
Air source requirements	“Meeting Lab requirements” on page 23
Components for connecting the PlateLoc to the air source	“Inspecting the contents” on page 28
Air-input fitting on the connection panel	“Connection panel” on page 7

Connecting and disconnecting the argon source (Gas-Purging PlateLocs only)

About this topic

This topic explains how to connect the PlateLoc to the argon source. Read this topic only if you have a Gas-Purging PlateLoc.

Before you start

!! INJURY HAZARD !! Make sure the area in which you are working is well ventilated and you have installed an oxygen monitor nearby. Argon can cause rapid suffocation by displacing air. Argon is heavier than air and can flow into low areas.

Make sure you have the following:

- ❑ Argon tubing (supplied)
- ❑ NPT or metric adaptor fitting (supplied)

Connecting the argon source

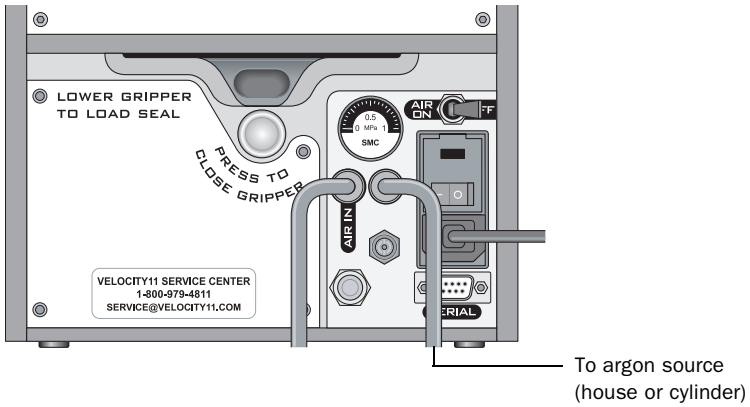
To connect the PlateLoc to your argon source:

1. Turn off the argon source (house or cylinder).
2. Attach the following adaptor fittings to the argon source if necessary:
   - *NPT fitting*. If your argon source uses a threaded connection, attach the supplied 1/4-inch or 1/8-in NPT fitting to the connection. The NPT fitting is threaded on one end and has a quick-release fitting on the other end.
   - *Metric fittings adaptor*. If your lab requires metric fittings at the argon source, attach the supplied 1/4-inch metric adaptor fitting to the argon source connection. The metric adaptor fitting has a quick-release fitting on one end.
3. Connect one end of an argon tubing to the argon source, and then connect the free end of that tubing to the quick disconnect fitting at the argon-input port.

   To connect the tubing, push the end of the tubing into the quick disconnect fitting at the argon source and at the back of the PlateLoc.

   !! DAMAGE HAZARD !! Do not connect the argon tubing to the air-input (AIR IN) fitting. Doing so can cause errors when you operate the PlateLoc.

   The following diagram shows the connection from the back of the PlateLoc to the argon source.



Checking the argon connections

!! INJURY HAZARD !! Argon is an odorless, colorless, and nontoxic gas that can cause rapid suffocation by displacing air. Argon is heavier than air and can flow into low areas. Make sure the oxygen monitor is turned on.

To check the argon connection:

1. With the PlateLoc turned off, gently tug the argon tubing at each connection.

   If you feel resistance at the connection, the tubing has been properly installed.

2. Turn on the argon source.
3. Listen near each connection for hissing sounds that might indicate a leak.

   If you hear hissing sounds, turn off the argon at the source, tighten the connections, and then turn on the argon again. If the problem persists, contact your facilities department or Velocity11 Technical Support.

Disconnecting the argon source

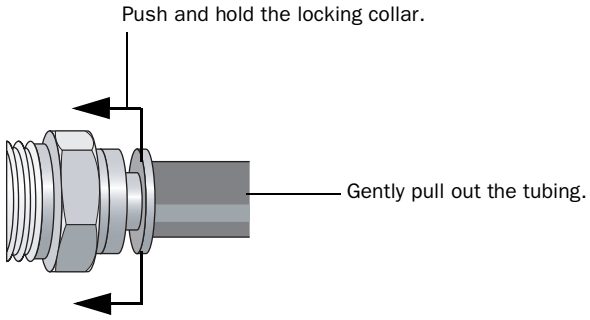
!! DAMAGE HAZARD !! Do not pull the tubing out of the orange quick disconnect fitting. Doing so can damage the fitting.

To disconnect the argon tubing from the PlateLoc:

1. Turn off the argon at the source (house or cylinder).
2. Push and hold the locking collar against the fitting, and then gently pull the argon tubing out.

   Note: Alternatively, you can use the SMC Pneumatics tool (TG-2) to aid in this task. See the manufacturer's documentation for use instructions. Contact your local SMC parts supplier for ordering details.

The following diagram shows a close-up view of the quick disconnect fitting.



Related topics

For more information about...	See...
Gas-Purging PlateLoc description	“Description of the PlateLoc” on page 2
Argon source requirements	“Meeting Lab requirements” on page 23
Components for connecting the PlateLoc to the argon source	“Inspecting the contents” on page 28
Argon-input fitting at the connection panel	“Connection panel” on page 7

Connecting to the controlling computer (lab automation systems only)

About this topic

This topic explains how to connect the PlateLoc to the controlling computer. Read this topic only if you are installing a PlateLoc in a lab automation system.

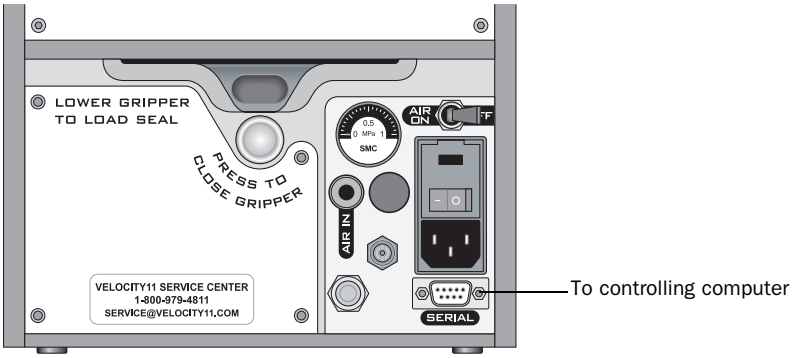
Before you start

Make sure you have the RS-232 DB9 straight-through serial cable.

Connecting the controlling computer

To connect the PlateLoc to the controlling computer:

1. Turn off the controlling computer.
2. Connect one end of the supplied serial cable to the controlling computer.
3. Connect the free end of the serial cable to the back of the PlateLoc.



Related topics

For more information about...	See...
The controlling computer requirements	“Meeting Lab requirements” on page 23
Workflow for installing and operating the PlateLoc in a third-party automation system	The third-party product documentation
Using ActiveX control to configure third-party lab automation software to interface with the PlateLoc	“Integrating the PlateLoc into third-party systems” on page 99

Installing the PlateLoc ActiveX software (lab automation systems only)

About this topic

This topic explains how to install the PlateLoc ActiveX software. You do not need to read this topic if you are using the PlateLoc as a standalone device.

PlateLoc ActiveX description

PlateLoc ActiveX is the supplied software that allows the PlateLoc to interact with the Velocity11 and third-party lab automation system software.

PlateLoc ActiveX includes a component called PlateLoc Diagnostics, the user interface that allows you to create and manage PlateLoc profiles and manually control the device for diagnostic purposes.

Procedure

To install the PlateLoc ActiveX software:

1. Insert the PlateLoc ActiveX CD into the controlling computer CD-ROM drive.
2. In the CD folder, double-click setup.exe.
3. Follow the instructions in the installation wizard window. Be sure to select the **Complete** setup option.

After installation

After you install the PlateLoc ActiveX software, in the Velocity11 lab automation system:

1. Add the PlateLoc device. See the Velocity11 lab automation system software user guide for instructions.
2. Create PlateLoc profiles. See “Creating and managing profiles (lab automation systems only)” on page 59.
3. Create protocols. See the Velocity11 lab automation system software user guide for instructions.

In the third-party lab automation system:

1. Integrate the PlateLoc ActiveX control in the third-party lab automation system software. See “Integrating the PlateLoc into third-party systems” on page 99.

Related topics

For more information about...	See...
The controlling computer requirements	“Meeting Lab requirements” on page 23
Workflow for operating the PlateLoc in a Velocity11 lab automation system	“Lab automation system workflow” on page 17
Workflow for installing and operating the PlateLoc in a third-party lab automation system	The third-party product documentation
Using ActiveX control to configure third-party lab automation software to interface with the PlateLoc	“Integrating the PlateLoc into third-party systems” on page 99

Getting started 3

This chapter contains the following topics:

Turning on and turning off the power

About this topic

This topic explains how to turn on and turn off the power to the PlateLoc.

Before turning on the PlateLoc

Make sure:

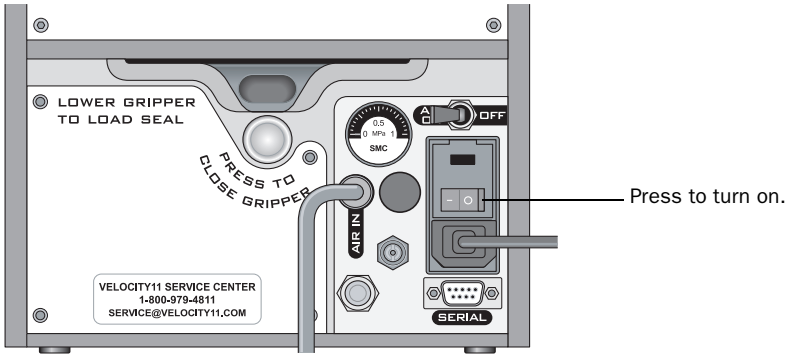
- ❑ The lab requirements are met.
- ❑ You have properly installed the PlateLoc.
- ❑ You are trained in the proper operation of the PlateLoc.

Turning on the PlateLoc

To turn on the PlateLoc:

1. Press the on/off switch on the back of the PlateLoc to the on position (**I**).

   The following diagram shows the location of the on/off switch on the back of the PlateLoc. The on/off switch in the diagram is in the on position.



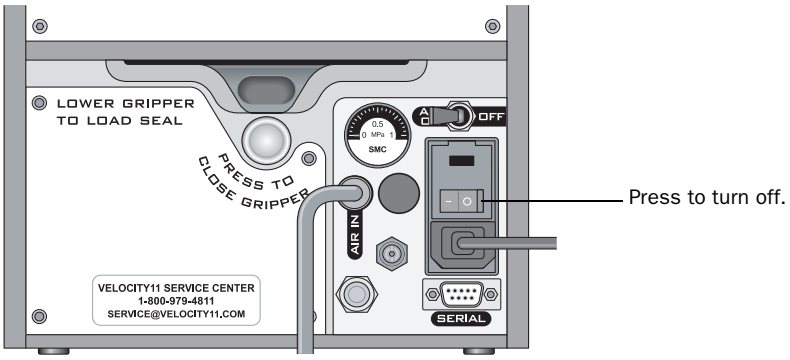
When you turn on the PlateLoc, the touch screen displays the Insufficient Air Pressure error message. This is because you have not yet turned on the air to the PlateLoc. Proceed to “Turning on and turning off the air” on page 44 to turn on the air.

Turning off the PlateLoc

To turn off the PlateLoc:

1. Press the on/off switch on the back of the PlateLoc to the off position (**O**).

   The touch screen turns off.



Related topics

For more information about...	See...
Lab requirements	“Meeting Lab requirements” on page 23
Connecting the PlateLoc to the power source	“Connecting the power source” on page 30

Turning on and turning off the air

About this topic

This topic explains how to turn on and turn off the air to the PlateLoc.

Before turning on the air

Make sure:

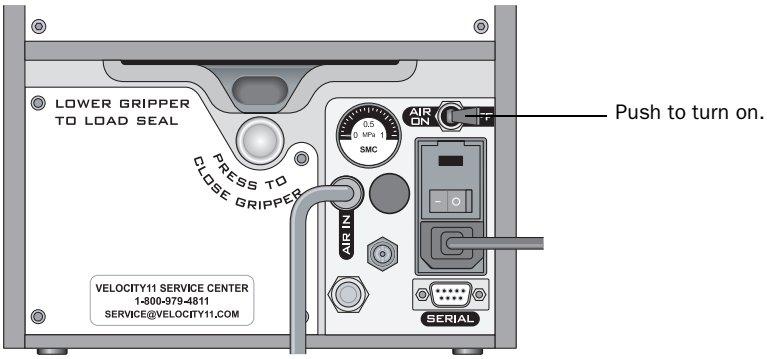
- ❑ You have properly installed the PlateLoc.
- ❑ The air is turned on at the source (house, cylinder, or pump) and the air pressure and flow rate meet the PlateLoc requirements.
- ❑ The PlateLoc is turned on.

Turning on the air

To turn on the air:

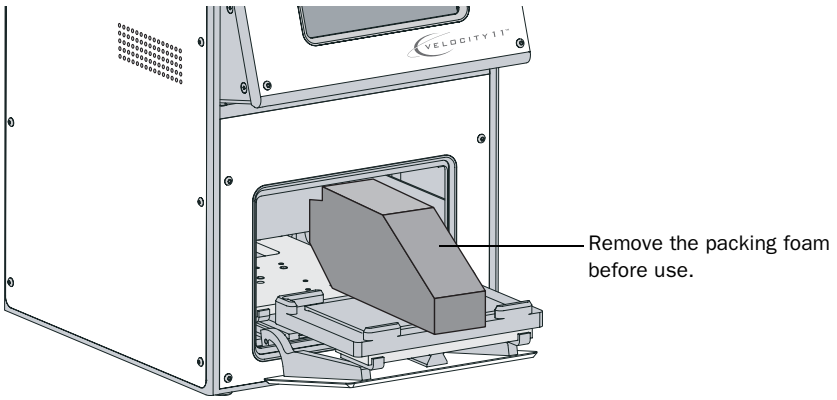
1. Push the AIR ON/OFF switch to the ON position.

   The following diagram shows the location of the air ON/OFF switch on the back of the PlateLoc. The ON/OFF switch in the diagram is in the OFF position.



When you turn on the air, the PlateLoc door opens. If this is the first time you are turning on the air, you must remove the packing foam inside the sealing chamber before you can use the device.

!! IMPORTANT !! Save the packing foam in case you need to move or ship the PlateLoc. The packing foam is designed to protect the device. Packing the PlateLoc using other materials can damage the device and void your warranty.



Checking for air flow

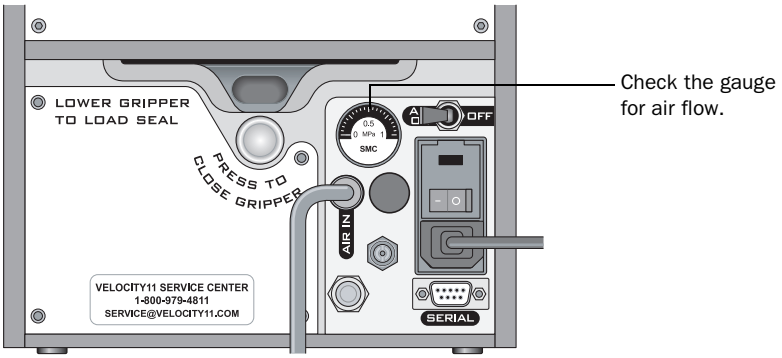
To check that air is flowing into the PlateLoc:

1. Check the pressure gauge on the back of the PlateLoc.

   If air is flowing into the device, the gauge should show a non-zero pressure value.

   If the gauge shows 0 psi, check the air tubing connections and the connections at the source (house, cylinder, or pump).

   !! IMPORTANT !! The pressure reading on the back of the PlateLoc might be different from the value shown on the touch screen. The pressure gauge on the back of the PlateLoc should be used to determine the presence of air flow only. To check the air pressure inside of the device, view the air pressure information displayed on the touch screen.



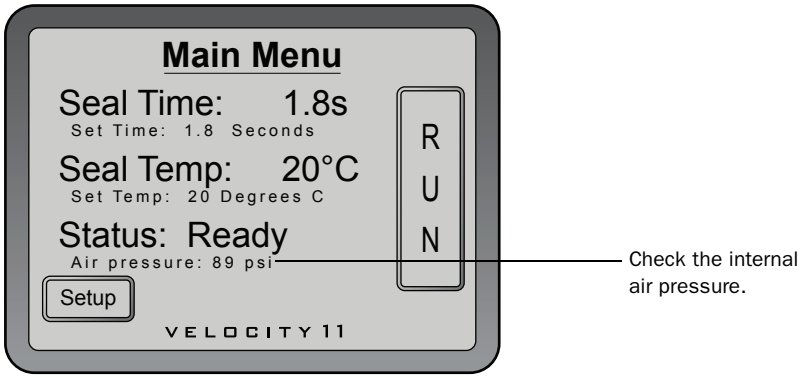
Checking the internal air pressure

Although the required air pressure from your lab is 0.62–0.69 MPa (90–100 psi), the PlateLoc down-regulates the pressure inside the device. For optimum results, the air pressure should be approximately 87–90 psi inside the sealing chamber.

To check the internal air pressure:

1. Check the touch screen **Main Menu.** The air pressure is displayed below the Status and should be 87–90 psi.

   The following diagram shows the Main Menu and the location of the air pressure information.

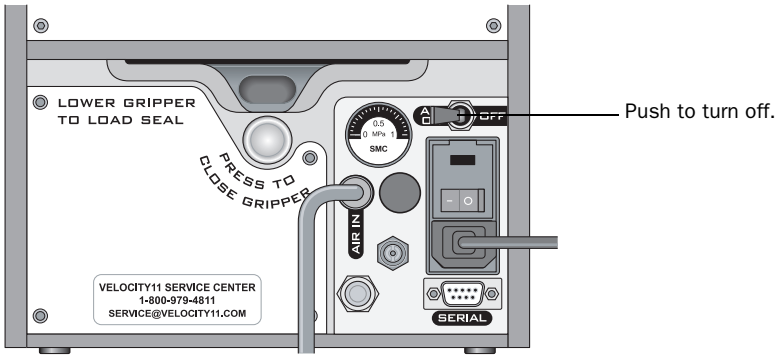


Turning off the air

To turn off the air:

1. Push the AIR ON/OFF switch on the back of the PlateLoc to the OFF position.

   The touch screen Main Menu should display an error message, stating that the air pressure is too low. In addition, the pressure gauge at the back of the PlateLoc should also show 0 psi.



Related topics

For more information about...	See...
Lab requirements	“Meeting Lab requirements” on page 23
Connecting the PlateLoc to the power source	“Connecting the power source” on page 30
Connecting the PlateLoc to the air source	“Connecting and disconnecting the air source” on page 31
Turning on the PlateLoc	“Turning on and turning off the power” on page 42

Turning on and turning off the argon (Gas-Purging Platelocs only)

About this topic

This topic explains how to turn on and turn off the argon to the PlateLoc. Read this topic only if you have the Gas-Purging PlateLoc.

Before turning on the argon

!! INJURY HAZARD !! Argon is an odorless, colorless, and nontoxic gas that can cause rapid suffocation by displacing air. Argon is heavier than air and can flow into low areas. Make sure the Gas-Purging PlateLoc is in a well-ventilated area and an oxygen monitor is installed nearby.

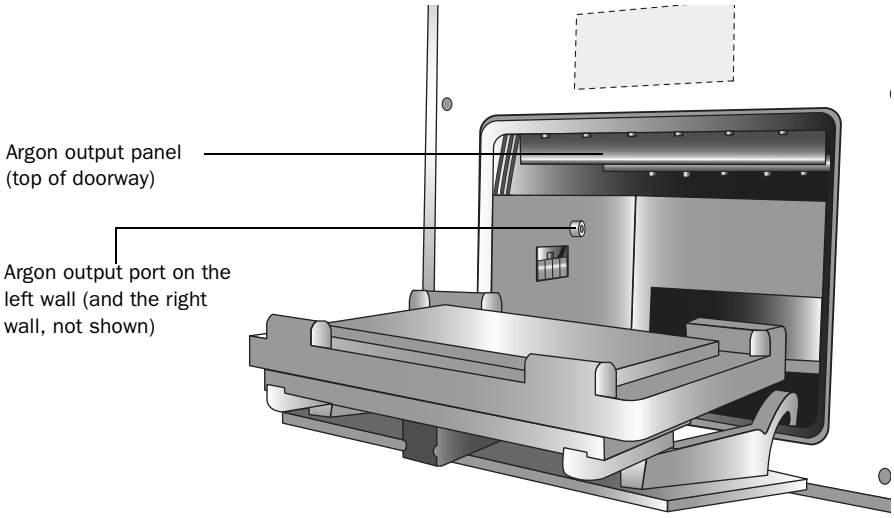
Make sure:

- ❑ You have properly installed the Gas-Purging PlateLoc.
- ❑ The oxygen monitor is turned on.
- ❑ The Gas-Purging PlateLoc is turned on.
- ❑ The argon is turned on at the source (house or cylinder) and the argon pressure meets the Gas-Purging PlateLoc requirements.

Turning on the argon

The Gas-Purging PlateLoc automatically turns on the argon inside the device when you start the seal cycle. The argon flows into the chamber from three areas:

- ❑ *The output panel at the top of the doorway.* Argon flows out from a row of ports across the bottom of this panel, producing a curtain of gas that passes across the plate as it enters the sealing chamber.
- ❑ *The output port on the left wall of the sealing chamber.* Argon flows into the sealing chamber from this port before the seal is applied.
- ❑ *The output port on the right wall of the sealing chamber.* Argon flows into the sealing chamber from this port before the seal is applied.



Checking for argon flow

You can check for argon flow using a test plate, such as the OxoPlate (Innovative Instruments, Inc., www.3i-usa.com/product_oxoplate.html) or equivalent. Test plates can indicate the amount of oxygen displaced. For instructions, see the manufacture's user documentation.

Checking the internal argon pressure

You do not need to check the internal argon pressure. Make sure the argon pressure from your lab is 0.28 MPa (40 psi).

Turning off the argon

For safety reasons, the Gas-Purging PlateLoc automatically turns off the argon inside the device immediately before the seal is applied.

Velocity11 recommends that you turn off the argon at the source (house or cylinder) when the Gas-Purging PlateLoc is not in use.

Related topics

For more information about...	See...
The Gas-Purging PlateLoc	"Description of the PlateLoc" on page 2
Lab requirements	"Meeting Lab requirements" on page 23
Connecting the PlateLoc to the power source	"Connecting the power source" on page 30
Connecting the PlateLoc to the argon source	"Connecting and disconnecting the argon source (Gas-Purging PlateLocs only)" on page 34
Turning on the PlateLoc	"Turning on and turning off the power" on page 42

Tilting and stowing the touch screen

About this topic

This topic explains how to tilt or stow the touch screen on the front of the PlateLoc.

!! DAMAGE HAZARD !! In a lab automation system, the robot might collide with the tilted touch screen.

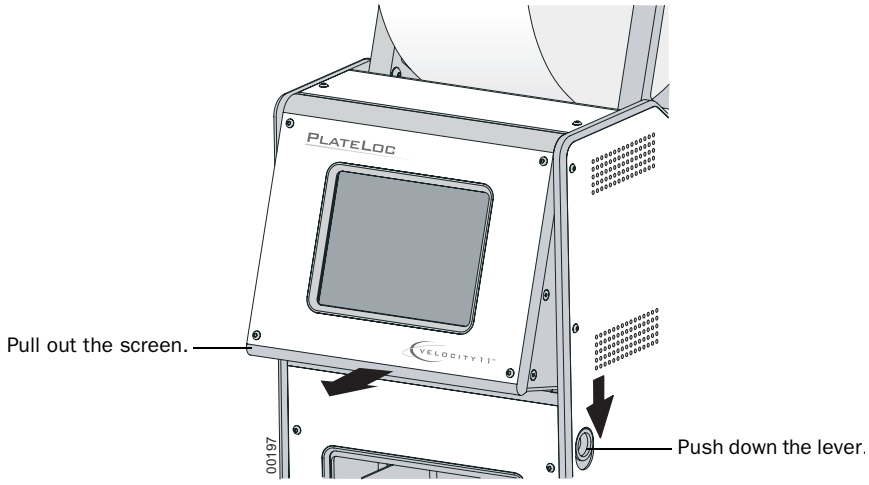
If you installed the PlateLoc in a lab automation system, and you do not anticipate setting parameters or checking status at the touch screen, you should keep the touch screen stowed.

Tilting the touch screen

You can tilt the touch screen to better view the contents on the screen.

To tilt the touch screen:

1. Push down the screen-release lever on the right side of the PlateLoc.
2. Pull out the touch screen from the bottom until the screen release clicks.



Stowing the touch screen

You can stow the screen so that it is flush against the front of the PlateLoc. You might want to stow the screen when the PlateLoc is not in use, to prevent a lab automation robot from colliding into the touch screen, or when moving or shipping the device.

To stow the touch screen:

1. Push down the screen-release lever on the right side of the PlateLoc.
2. Push the bottom of the screen until the screen release clicks. The touch screen is in its stowed position.

Related topics

For more information about...	See...
Lab requirements	“Meeting Lab requirements” on page 23
Connecting the PlateLoc to the power source	“Connecting the power source” on page 30
Turning on the PlateLoc	“Turning on and turning off the power” on page 42

Adjusting the touch screen contrast

About this topic

This topic explains how to adjust the touch screen contrast.

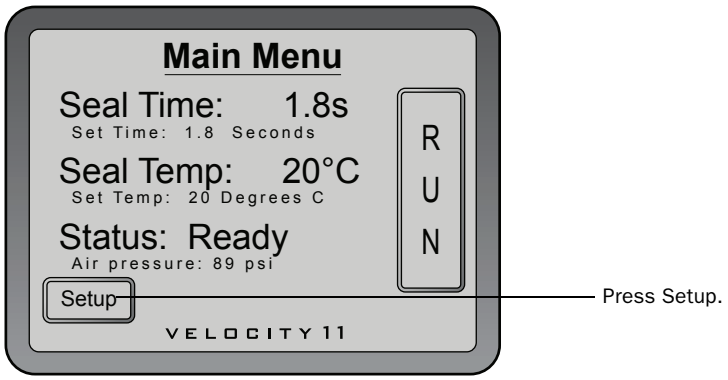
Before you start

Make sure the PlateLoc is turned on.

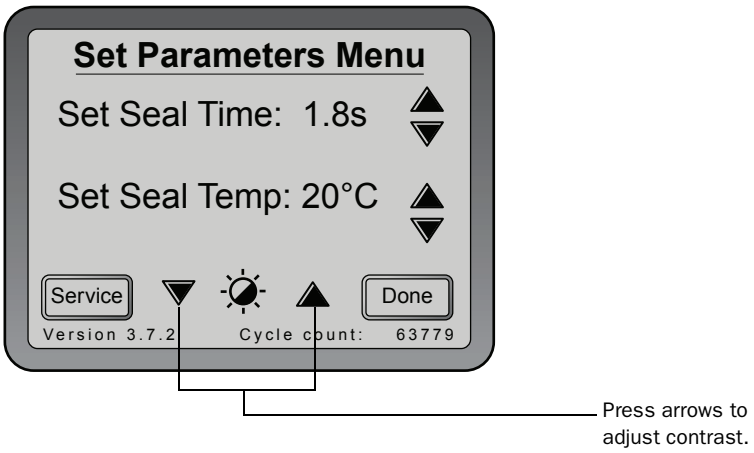
Adjusting the touch screen contrast

To adjust the touch screen contrast:

1. From the touch screen **Main Menu**, press **Setup.**



2. In the **Set Parameters Menu** that appears, press the up or down arrow on either side of the contrast symbol (-☼-) to increase or decrease contrast.



3. Press **Done** to save the new contrast setting and return to the Main Menu.

Related topics

For more information about...	See...
Lab requirements	“Meeting Lab requirements” on page 23
Connecting the PlateLoc to the power source	“Connecting the power source” on page 30
Turning on the PlateLoc	“Turning on and turning off the power” on page 42

Loading and unloading a roll of seal

About this topic

This topic explains how to load and unload a roll of seal on the PlateLoc.

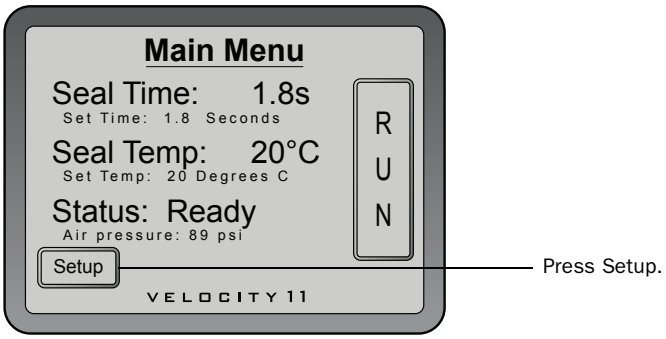
Before you start

Make sure you have the supplied seal-loading card.

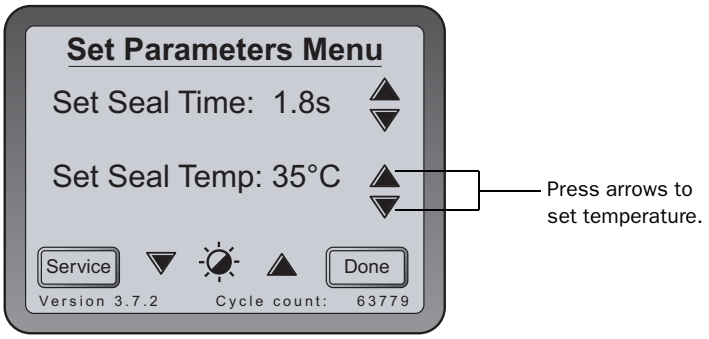
Loading procedure

To warm up or cool down the PlateLoc:

1. Make sure the PlateLoc is turned on.
2. Make sure the air is turned on (the PlateLoc door automatically opens when you turn on the air).
3. From the touch screen **Main Menu**, press **Setup.**



4. In the **Set Parameters Menu** that appears, set the **Seal Temp** at 30–40 °C.

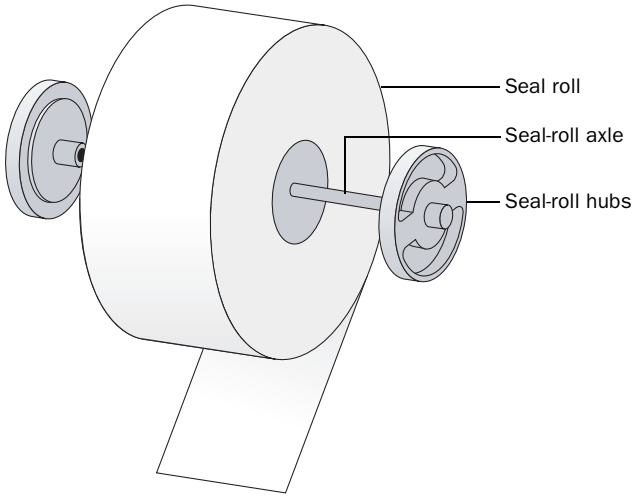


5. Press **Done** to save the new temperature setting and return to the Main Menu.
6. Wait for the PlateLoc to warm up or cool down to 30–40 °C.

To assemble a roll of seal on the axle and hubs:

1. Remove the seal roll, seal-roll hubs, and axle from their packaging.
2. Screw one of the hubs onto the axle.
3. Place the axle through the hole at the center of the seal roll. Make sure the hub fits snugly against the roll.

4. Screw the second hub onto the axle so that the roll is firmly secured between both hubs.

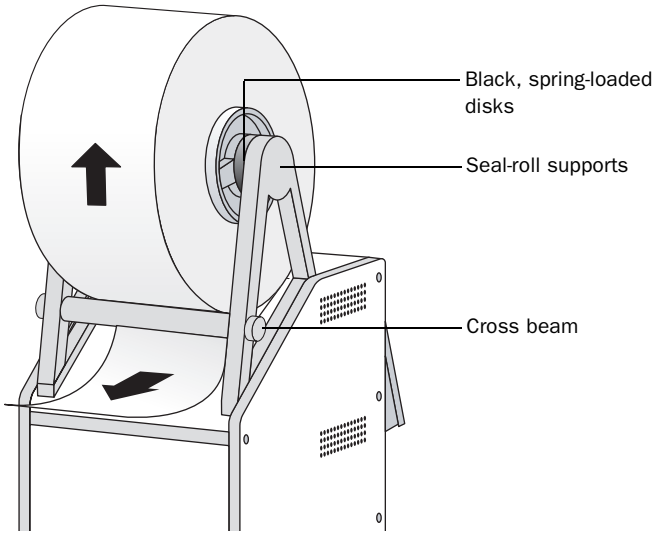


5. With scissors, cut off any wrinkled or torn material from the end of the seal so that the end of the seal has a clean, straight edge.

   !! DAMAGE HAZARD !! The PlateLoc will not seal plates properly if the seal is wrinkled or torn.

To mount the seal roll on the seal-roll supports:

1. Orient the roll and set the assembled seal roll onto the seal-roll supports as shown in the following diagram. Notice that the end of the seal material rolls out from under the roll.
2. Pull the seal from under the cross-beam, as the following diagram shows.

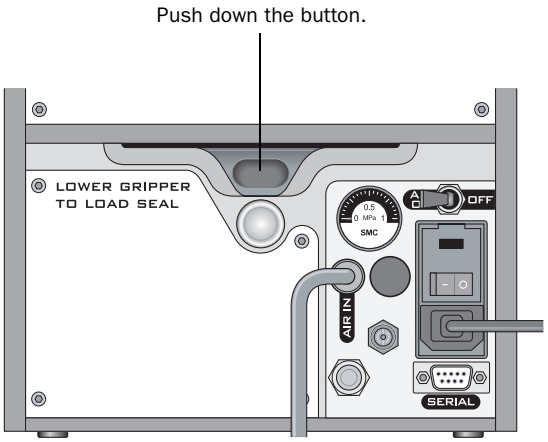


Back view

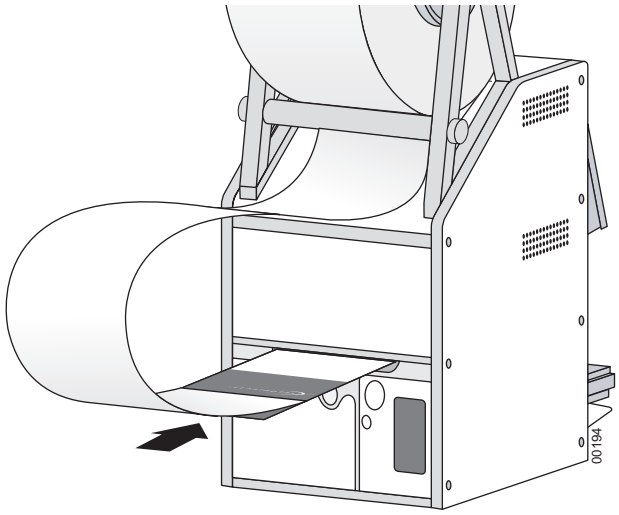
To insert the seal into the PlateLoc:

1. On the back of the PlateLoc, push down the red recessed open-gripper button until it clicks.

   Pressing the button opens the seal gripper inside the device.

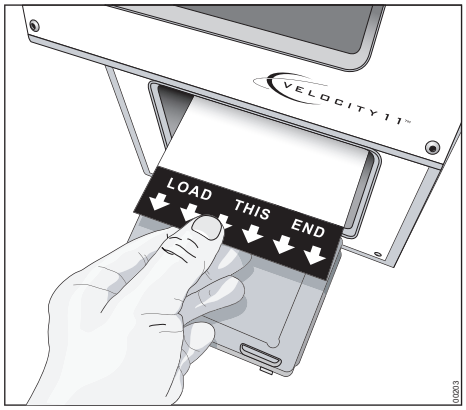


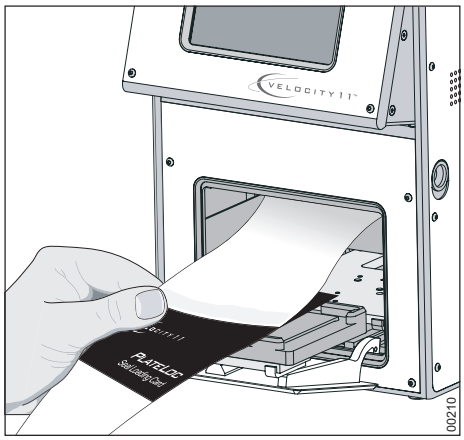
2. Remove the strip of paper that covers the adhesive on the end of the seal-loading card.
3. Follow the instructions on the card to:
   a. Attach the end of the seal to the card.
   b. Insert the card into the seal entry slot on the back of the PlateLoc.
   c. Push the card into the PlateLoc until it protrudes beyond the chamber doorway at the front of the device.



Back view

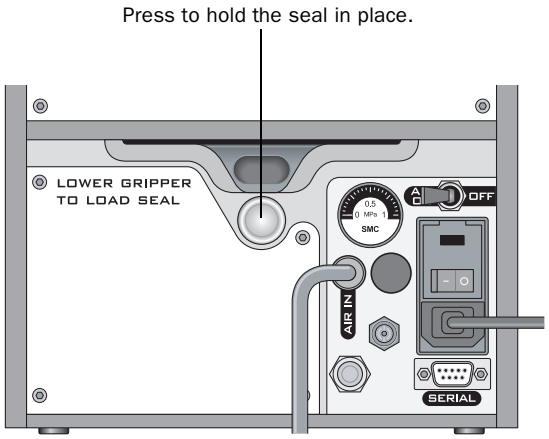
d. Pull the card through the PlateLoc so that the end of the seal is past the plate stage.



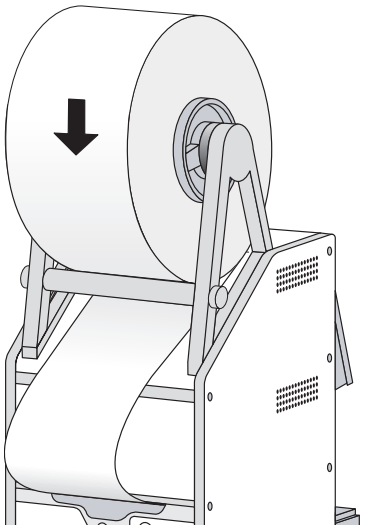


4. Press the silver close-gripper button on the back of the PlateLoc until it clicks. The red open-gripper button pops back up.

   Pressing the silver button closes the gripper and holds the seal in place inside the device.



5. Turn the seal roll to remove excess slack in the seal.



6. Load a plate stage on the plate-stage support.
7. Load a spare plate on the plate stage.
8. Hold the seal-loading card at the touch screen level, keeping the tension on the card.
9. From the touch screen **Main Menu**, press **RUN**. Continue to keep the tension on the card as the seal feeds through the PlateLoc.

   The purpose of this seal cycle is to cut the seal and prepare it for use. The seal is not applied to the spare plate.

   Note: If an error displays on the touch screen, press **Clear** to clear the error before using the device.

Unloading procedure

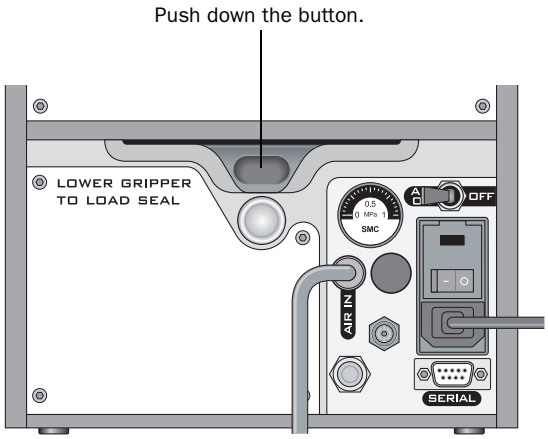
To unload a roll of seal:

1. Power cycle the PlateLoc by turning off and turning on the device.

   Power cycling resets the components inside the device and removes the hold on the seal.

2. On the back of the PlateLoc, push down the red recessed gripper-release button until it clicks.

   Pressing the button opens the seal gripper inside the device.



3. Pull the seal out of the slot.
4. Lift the seal roll off of the seal-roll supports.
5. Unscrew one hub from the axle.
6. Remove the roll from the axle.

Related topics

For more information about...	See...
Optimization tests	“Optimizing seal quality” on page 77
Removing seal that is stuck inside the PlateLoc	“Hardware problems” on page 88

Creating and managing profiles (lab automation systems only)

About this topic

This topic explains how to use PlateLoc Diagnostics (a component of the PlateLoc ActiveX software) to create a profile for the PlateLoc.

You do not need to read this topic if you are using the PlateLoc as a standalone device.

About profiles

!! IMPORTANT !! Each PlateLoc you install in the lab automation system requires a unique profile.

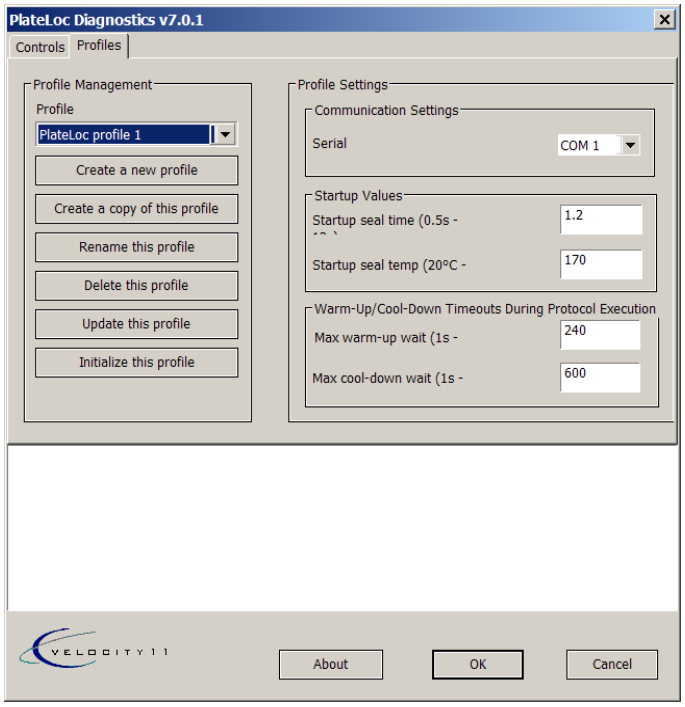
Profiles are used in the Velocity11 lab automation system to:

- ❑ Enable the lab automation system software to communicate with the PlateLoc.
- ❑ Allow you to specify default parameter values.

About PlateLoc Diagnostics

PlateLoc Diagnostics is a component of the PlateLoc ActiveX software. The PlateLoc Diagnostics interface contains two tabs:

- ❑ *Profiles tab.* In the Profiles tab, you can create and manage profiles for the PlateLoc, specify default parameter values, and establish communication between the PlateLoc and the Velocity11 lab automation system.
- ❑ *Controls tab.* In the Controls tab, you can diagnose problems with the PlateLoc.



Before you start

Make sure you install the PlateLoc ActiveX software.

Creating profiles

To create profiles for the PlateLoc:

1. In the Velocity11 lab automation system software, make sure the device file is open.
2. Open **PlateLoc Diagnostics**.
3. Click the **Profiles** tab.
4. In the **Profile Management** area, click **Create New Profile**.
5. In the **Create Profile** dialog box, type a name for the new profile, and then click **OK** to save the new profile and close the dialog box.
6. In the **PlateLoc Diagnostics** dialog box, specify the following:
   a. In the **Communication Settings** area, select the serial port that connects the controlling computer to the PlateLoc.
   b. In the **Startup seal time** box, type the default sealing duration, in seconds.

      The PlateLoc defaults to this sealing time value every time you initialize the device.
   c. In the **Startup Seal temp** box, type the default sealing temperature, in degrees Celsius.

      The PlateLoc defaults to this sealing temperature value every time you initialize the device.
   d. In the **Max warm-up wait** box, type the amount of time, in seconds, the PlateLoc should wait for the warm-up before it times out.

      The wait period starts when the lab automation software commands the PlateLoc to start the seal cycle.
   e. In the **Max cool-down wait** box, type the amount of time, in seconds, the PlateLoc should wait for the cool-down before it times out.

      The wait period starts when the lab automation software commands the PlateLoc to start the seal cycle.
7. Click **Update this profile** to save the current selections and settings.

Managing profiles

You can duplicate, rename, delete, and update existing profiles.

To manage existing profiles for the PlateLoc:

1. In the **PlateLoc Diagnostics** dialog box, select the profile from the **Profile name** list.
2. Click one of the following in the **Profile Management** area:

Button name	Function
Create a copy of this profile	Creates a copy of the selected profile. After you create the copy, click **Rename this profile** to assign a new name to the copied profile.
Rename this profile	Renames the selected profile. Type the new name in the Rename Profile dialog box.
Delete this profile	Deletes a profile. You can confirm the delete action in the dialog box that appears.
Update this profile	Saves changes made to the selected profile.

Related topics

For more information about...	See...
Installing the PlateLoc ActiveX software	“Installing the PlateLoc ActiveX software (lab automation systems only)” on page 38
PlateLoc Diagnostics	“Diagnostic tools” on page 93
Using the Velocity11 lab automation system software	Velocity11 lab automation system software user guide, such as the *BenchWorks User Guide* and the *VWorks User Guide*
Workflow for operating the PlateLoc in a Velocity11 lab automation system	“Lab automation system workflow” on page 17
Workflow for installing and operating the PlateLoc in a third-party lab automation system	The third-party product documentation
Using ActiveX control to configure third-party lab automation software to interface with the PlateLoc	“Integrating the PlateLoc into third-party systems” on page 99

Establishing communications with the PlateLoc (lab automation systems only)

About this topic

This topic describes how to establish communications between the controlling computer and the PlateLoc in a Velocity11 lab automation system. Read this topic only if you are using the PlateLoc in a Velocity11 lab automation system.

Before you start

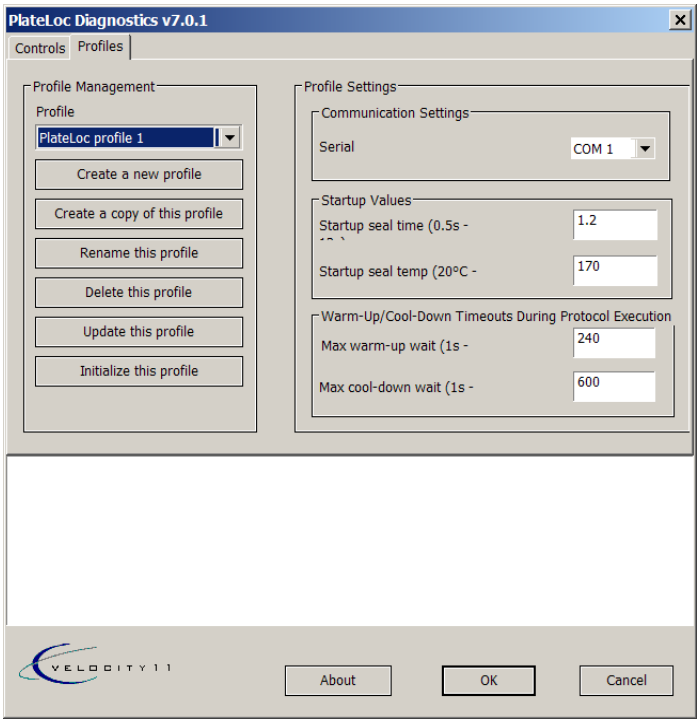
Make sure:

- ❑ The PlateLoc is connected to the controlling computer.
- ❑ The Velocity11 lab automation software is installed.
- ❑ The PlateLoc ActiveX software is installed and added as a device in the Velocity11 lab automation software.

Establish communications

To establish communication with the PlateLoc:

1. In the lab automation software, open **PlateLoc Diagnostics.**



2. Click the **Profiles** tab.
3. In the **Profile** list, select the a PlateLoc profile.
4. Make sure the profile specifies the correct **Serial** port.
5. Click **Initialize this profile** to initiate communication with the PlateLoc using the selected profile.

Related topics

For more information about...	See...
Operating the PlateLoc in a lab automation system	“Lab automation system workflow” on page 17
Creating and managing protocols and PlateLoc profiles	Velocity11 lab automation software user guide, such as the *BenchWorks User Guide* and the *VWorks User Guide*
Setting PlateLoc task parameters	Velocity11 lab automation software user guide, such as the *BenchWorks User Guide* and the *VWorks User Guide*
Starting and stopping the protocol run	Velocity11 lab automation software user guide, such as the *BenchWorks User Guide* and the *VWorks User Guide*
Using ActiveX control to configure third-party lab automation software to interface with the PlateLoc	“Integrating the PlateLoc into third-party systems” on page 99

Sealing plates

4

This chapter contains the following topics:

Loading an insert and a plate

About this topic

This topic explains how to load an insert and a plate in the PlateLoc.

Before you start

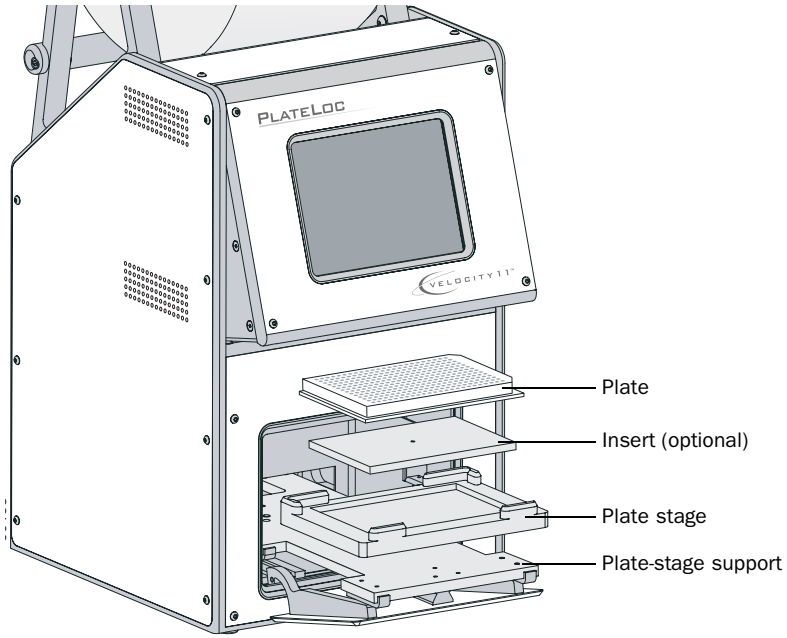
Make sure:

- ❑ The PlateLoc is turned on.
- ❑ The air is turned on and the door is open.
- ❑ *Gas-Purging PlateLocs only.* The oxygen monitor is turned on.
- ❑ *Gas-Purging PlateLocs only.* The argon source (house or cylinder) is turned on.
- ❑ The seal is properly loaded.
- ❑ *Lab automation systems only.* Communication between the controlling computer and the PlateLoc is established.
- ❑ The sealing parameters are set correctly.
- ❑ The PlateLoc is warmed up or cooled down to the sealing temperature.

Standalone device procedure

To load a plate and an insert in the standalone device:

1. Place the removable plate stage on the plate-stage support.
2. *Optional.* Place the insert on the plate stage.
3. Place the plate on the insert or plate stage. Make sure the plate is level and the plate skirt is within the raised tabs on the plate stage.



Lab automation system procedure

If the PlateLoc is installed in a lab automation system, you need to load the insert before you start the protocol run. During the run, the robot loads the plates automatically. You do not need to manually load each plate.

Related topics

For more information about...	See...
Turning on the PlateLoc	“Turning on and turning off the power” on page 42
Turning on the air	“Turning on and turning off the air” on page 44
Loading a roll of seal	“Loading and unloading a roll of seal” on page 53
Plate requirements	“Plate requirements” on page 9
Using inserts	“Inserts” on page 10
Optimizing seal quality	“Optimizing seal quality” on page 77
Operating the PlateLoc in a lab automation system	“Lab automation system workflow” on page 17

Setting the sealing parameters

About this topic

This topic explains how to set the sealing parameters when using the PlateLoc as a standalone device or in a Velocity11 lab automation system.

Before you start

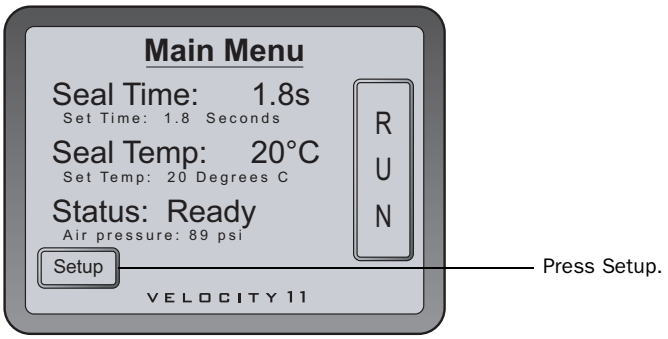
Make sure:

- ❑ The PlateLoc is turned on.
- ❑ The air is turned on.
- ❑ The seal is properly loaded.
- ❑ *Lab automation systems only.* Communication between the controlling computer and the PlateLoc is established.

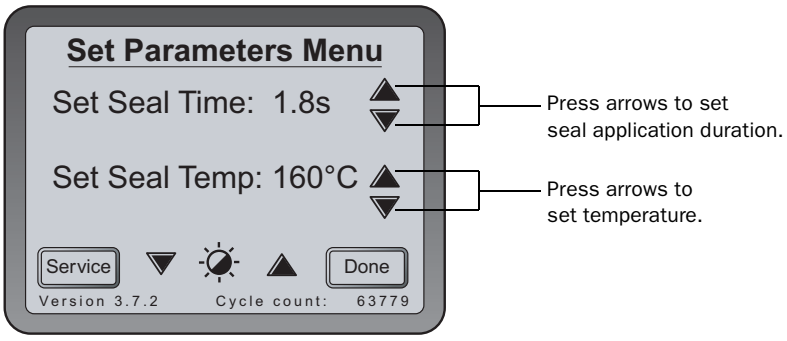
Standalone device procedure

To set the sealing parameters for the standalone device:

1. From the touch screen **Main Menu**, press **Setup.**



2. In the **Set Parameters Menu** that appears, set the following:
   - **Seal Time** (in seconds). Seal Time is the amount of time the hot plate is in contact with the seal material and the plate.
   - **Seal Temp** (in degrees Celsius). Seal Temp is the temperature of the hot plate when the seal cycle starts.

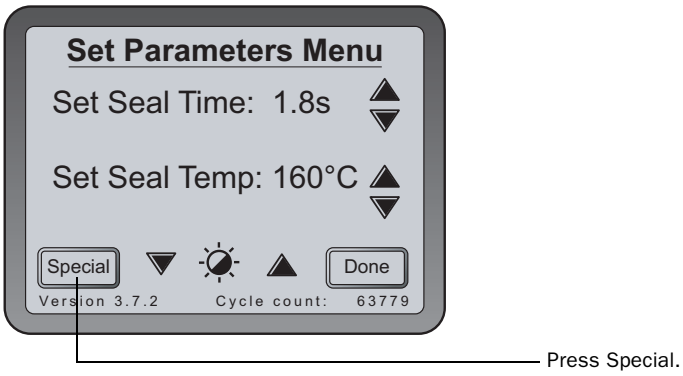


The seal time and temperature you specify depends on the type of plate and the type of seal you are using. The following table shows the settings you can use as a starting point. For the most up-to-date starting point settings, see the *PlateLoc Thermal Plate Sealer Seal Selection Guide*. You can locate the guide on the Velocity11 website at www.velocity11.com.

Velocity11 recommends that you perform seal optimization tests to determine the optimal seal time and temperature. For general optimization guidelines, see "Optimizing seal quality" on page 77.

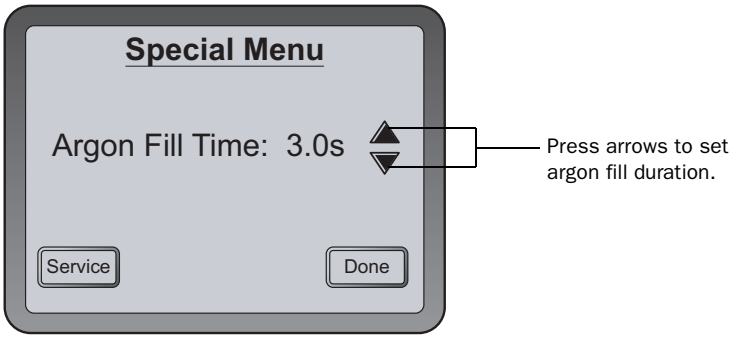
Seal name (part number)	Polycarbonate plate	Polyethylene plate	Polypropylene plate	Polystyrene plate
Clear Seal (11452.001)	160 °C 1.5 s	160 °C 1.5 s	160 °C 1.5 s	160 °C 1.5 s
Clear Pierceable Seal (14414.001)	130 °C 1.5 s	130 °C 1.5 s	130 °C 1.5 s	130 °C 1.5 s
Clear Peelable Seal (16985.001)	—	—	130–150 °C 1.0–1.7 s	—
Clear Pierceable Thin Seal (17318.001)	—	—	130 °C 1.0–1.7 s	—
Peelable Aluminum (6643.001)	170 °C 1.2 s	170 °C 1.2 s	170 °C 1.2 s	170 °C 1.2 s
Pierceable Aluminum (6644.001)	170 °C 1.2 s	170 °C 1.2 s	170 °C 1.2 s	170 °C 1.2 s

3. *Gas-Purging PlateLocs only.* In the **Set Parameters Menu**, press **Special**.



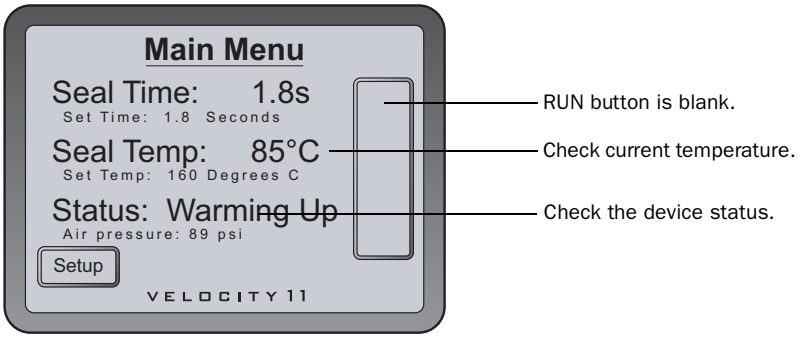
4. *Gas-Purging PlateLocs only.* In the **Special Menu**, set the **Argon Fill Time** (in seconds).

   The Argon Fill Time parameter is the amount of time the plate will be exposed to argon before the plate is sealed.



5. Press **Done** to save the new settings and return to the Main Menu.
6. Wait for the temperature to reach within 2 °C of the specified value. To monitor the current temperature and status, on the **Main Menu**:
   - Check **Seal Temp** for the current temperature.
   - Check **Status** to see if the PlateLoc is warming up or cooling down.

   Note: The RUN button on the touch screen is unavailable until the the hot plate temperature is within 2 °C of the specified value.



Lab automation system procedure

In the Velocity11 lab automation system software, you set the sealing parameters when you are setting the PlateLoc task parameters. For detailed instructions, see the lab automation system software user guide, such as the *VWorks User Guide*.

The seal time and temperature you specify depends on the type of plate and the type of seal you are using. The table in “Standalone device procedure” on page 68 shows the settings you can use as a starting point. For the most up-to-date startup settings, the *PlateLoc Thermal Plate Sealer Seal Selection Guide*. You can locate the guide on the Velocity11 website at www.velocity11.com.

Velocity11 recommends that you perform seal optimization tests to determine the optimal seal time and temperature. For general optimization guidelines, see “Optimizing seal quality” on page 77.

Related topics

For more information about...	See...
Seal optimization guidelines	“Optimizing seal quality” on page 77
Operating the PlateLoc in a lab automation system	“Lab automation system workflow” on page 17
Creating and managing protocols and PlateLoc profiles	Velocity11 lab automation software user guide, such as the *BenchWorks User Guide* and the *VWorks User Guide*
Setting PlateLoc task parameters	Velocity11 lab automation software user guide, such as the *BenchWorks User Guide* and the *VWorks User Guide*
Starting and stopping the protocol run	Velocity11 lab automation software user guide, such as the *BenchWorks User Guide* and the *VWorks User Guide*
Using ActiveX control to configure third-party lab automation software to interface with the PlateLoc	“Integrating the PlateLoc into third-party systems” on page 99

Starting the seal cycle

About this topic

This topic explains how to seal a plate when using the PlateLoc as a standalone device or in a Velocity11 lab automation system.

Before you start

Make sure:

- ❑ The PlateLoc is turned on.
- ❑ The air is turned on and the internal air pressure is 87–90 psi.
- ❑ *Gas-Purging PlateLocs only.* The argon source (house or cylinder) is turned on.
- ❑ The seal is properly loaded.
- ❑ *Lab automation systems only.* Communication between the controlling computer and the PlateLoc is established.
- ❑ You have set the correct sealing parameters.
- ❑ *Standalone PlateLoc only.* The plate is loaded.

Standalone device procedure

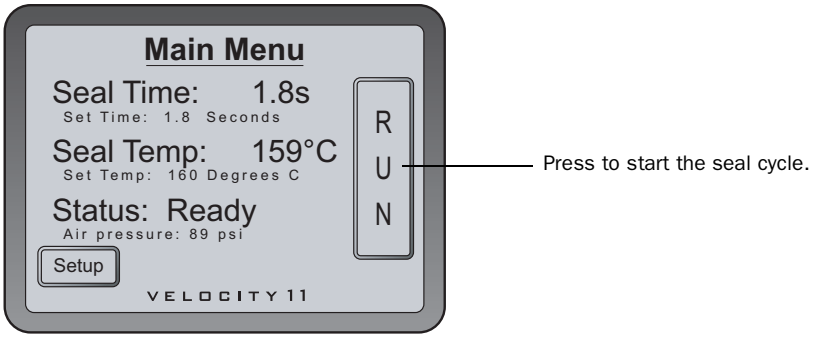
To start the seal cycle:

1. From the touch screen **Main Menu**, press **RUN.**

   The plate moves into the sealing chamber and the door closes. The seal cycle begins.

   In the Gas-Purging PlateLoc, if the Argon Fill Time is greater than 0.0 seconds, the argon fills the sealing chamber for the specified amount of time before the seal is applied. The argon automatically turns off just before the seal is applied.

   Note: If the RUN button is blank, the PlateLoc is warming up or cooling down. You cannot start the seal cycle until the PlateLoc is within 2 °C of specified sealing temperature.



To monitor the seal cycle progress:

1. On the touch screen **Main Menu,** check the **Status** message.

   The following table lists the possible Status messages.

Status	Description
In Progress	The seal cycle is currently in progress.
Warming Up	The PlateLoc is warming up to within 2 °C of specified temperature for sealing. On the Main Menu, check Seal Temp for the current temperature. The PlateLoc does not allow you to start the run until the device has reached the specified temperature.
Cooling Down	The PlateLoc is cooling down to within 2 °C of the specified temperature for sealing. On the Main Menu, check Seal Temp for the current temperature. The PlateLoc does not allow you to start the run until the device has reached the specified temperature.
Error	An error was encountered during the seal cycle. The cycle is aborted.
Ready	The PlateLoc is ready for a seal cycle.

After the seal cycle is finished:

When the seal cycle is finished, the Status message changes to Ready. The door opens. The plate moves out of the sealing chamber.

!! INJURY HAZARD !! Do not handle the plate immediately after the seal cycle is finished. The sealed plate and the insert might be hot.

Wait a few seconds, and then remove the sealed plate and insert from the plate stage.

If you have finished using the PlateLoc:

1. Turn off the PlateLoc.
2. Turn off the air at the back of the PlateLoc or at the source (house, cylinder, or pump).
3. *Gas-Purging PlateLocs only.* Turn off the argon at the source (house or cylinder).

Lab automation system procedure

You can start one or more seal cycles when you start the protocol run in the Velocity11 lab automation system software. For detailed instructions, see the Velocity11 lab automation system software user guide.

Related topics

For more information about...	See...
Setting up the seal cycle duration and temperature parameters	“Setting the sealing parameters” on page 68
Stopping a seal cycle in progress	“Stopping a seal cycle in progress” on page 74
Running optimization tests	“Optimizing seal quality” on page 77

Stopping a seal cycle in progress

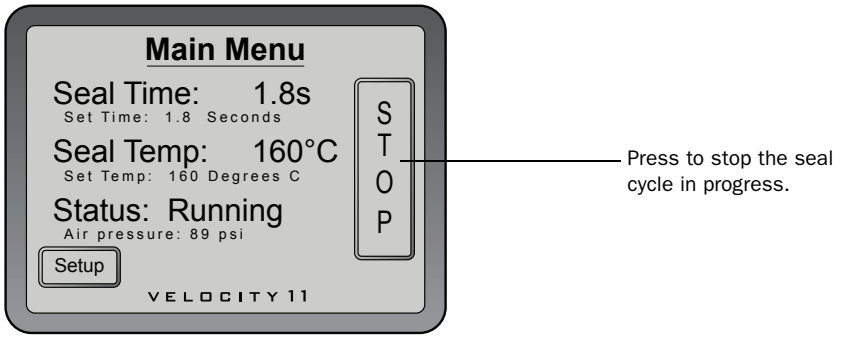
About this topic

This topic explains how to stop the PlateLoc when a seal cycle is in progress. You can use this method to stop the device in an emergency.

Standalone device procedure

To stop a seal cycle that is in progress:

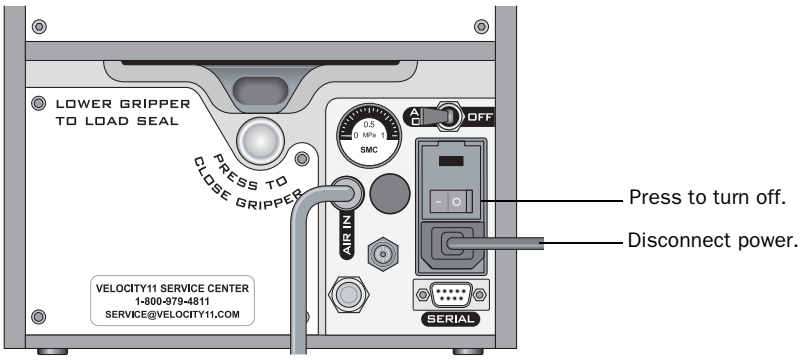
1. On the **Main Menu**, press **STOP.**



To stop a seal cycle in an emergency:

1. In case the STOP button on the touch screen does not work or is not responding fast enough, turn off the PlateLoc. The on/off switch is on the back of the device. Alternatively, you can disconnect the power to the PlateLoc.

   The following diagram shows the location of the on/off switch and the power connection on the back of the PlateLoc.



Lab automation system procedure

You can stop a seal cycle from the Velocity11 lab automation system software. For detailed instructions, see the Velocity11 lab automation system software user guide.

Related topics

For more information about...	See...
Starting the seal cycle	“Starting the seal cycle” on page 72
Hardware components	“Connection panel” on page 7

Optimizing seal quality

5

This chapter contains the following topics:

Reasons for running optimization tests

About this topic

This topic explains the reasons for running optimization tests.

Factors that affect seal quality

The seal quality depends on a number of factors, such as the plate material, plate design, the type of seal you use, the need for support under the plates, the seal temperature, and seal cycle duration.

Before you start to seal plates, make sure you run optimization tests to determine the following:

- ❑ The best seal to use
- ❑ The best insert to use
- ❑ The optimal sealing temperature
- ❑ The optimal seal cycle duration

Related topics

For more information about...	See...
Plate considerations	“Plate requirements” on page 9
Seal types	“Seal material” on page 13
Insert types	“Inserts” on page 10

Optimization test guidelines

About this topic

This topic presents the guidelines to consider when planning seal-quality optimization tests.

Test guidelines

When you plan optimization tests, consider the following:

- ❑ Always run an optimization test for each type of plate material and plate design. Plates made from the same material but with different designs can require different sealing parameters.
- ❑ Always use spare plates in the optimization tests.
- ❑ Use a new plate for each seal cycle. The characteristics of a plate can change through repeated seal cycles, therefore changing the seal results.
- ❑ Consider the plate content and fluid level in the plate.
- ❑ Consider the downstream application. For example, plates used in a thermal cycler will require different sealing parameters than plates placed in the freezer.
- ❑ Consider the downstream uses of the plate. For example, plates that will be sealed one time and discarded can have a more permanent seal than a plate that will be reused and resealed repeatedly before being discarded.
- ❑ Start an optimization test with a low-temperature and short-duration setting. Adjust the parameters in small increments.
- ❑ Check the quality of the seal after each seal cycle to determine which sealing parameters to adjust and whether you need to use an insert.
- ❑ Record the optimal sealing parameters.

For seal selection, insert selection, and other optimization test guidelines, see the *PlateLoc Thermal Plate Sealer Seal Selection Guide*. You can locate the guide on the Velocity11 website at www.velocity11.com.

Related topics

For more information about...	See...
Reasons for running optimization tests	“Reasons for running optimization tests” on page 78
Plate requirements	“Plate requirements” on page 9
Seal types	“Seal material” on page 13
Insert types	“Inserts” on page 10
Adjusting sealing parameters	“Adjusting the sealing parameters” on page 80

Adjusting the sealing parameters

About this topic

This topic explains how to check the seal quality to determine how to adjust the sealing parameters.

Checking the seal quality

!! DAMAGE HAZARD !! Do not handle the plate immediately after the seal cycle is finished. The sealed plate might be hot.

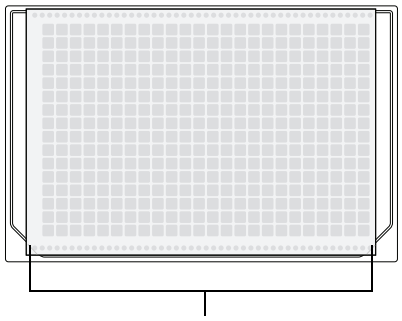
During the optimization test, you should check the seal quality after each seal cycle to determine the adjustments to make. For detailed adjustment guidelines, see the *PlateLoc Thermal Plate Sealer Seal Selection Guide*. You can locate the guide on the Velocity11 website at www.velocity11.com.

To check the seal quality:

1. After the seal cycle is finished, wait for the plate to cool down enough so that it is safe for handling.

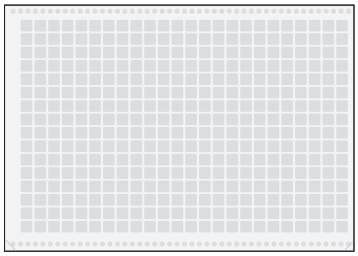
   Note: Some seals cannot be peeled easily if completely cooled.

2. Remove the plate from the PlateLoc.
3. Carefully peel off the seal material by lifting one of the corners of the seal.



Peel the seal from either corner.

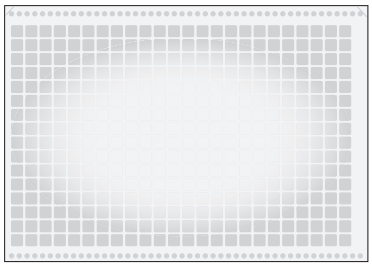
4. Inspect the underside of the removed seal material.
   - *Good seal.* If there are unbroken impressions of each well on the underside of the seal material, then the plate was properly sealed.



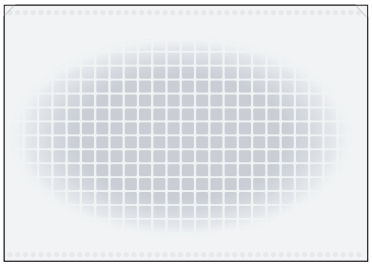
- *Poor seal that requires parameter adjustment.* If there are faint or broken impressions on the seal material, increase either the sealing temperature or duration.

If the well impressions on the seal are extra thick and the plate has melted slightly, decrease the sealing temperature or duration.

- *Insert too thin*. If the wells around the edges of the plate sealed better than those in the center, use a thicker insert.



- *Insert too thick*. If the wells in the center of the plate sealed better than those around the edges, use a thinner insert.



Related topics

For more information about...	See...
Reasons for running optimization tests	“Reasons for running optimization tests” on page 78
Guidelines for optimization tests	“Optimization test guidelines” on page 79
Plate requirements	“Plate requirements” on page 9
Seal types	“Seal material” on page 13
Insert types	“Inserts” on page 10

Routine maintenance 6

This chapter provides instructions for the routine maintenance and care of the PlateLoc. This chapter covers the following topics:

Cleaning the hot plate

About this topic

During the seal cycle, a heated metal plate (hot plate) inside the sealing chamber descends and presses the seal onto the plate. Although the hot plate is coated with non-stick material, residual seal material and dirt can collect on the hot plate over time and reduce seal quality.

To ensure quality seals, you should check the hot plate and clean it if necessary. This topic explains how to clean the hot plate inside the PlateLoc.

Before you start

Make sure you have the following:

- ❑ Ammonia-based cleaner
- ❑ Thick scrub pad that is safe for non-stick cookware
- ❑ Clean cloth

Procedure

!! INJURY HAZARD !! Use care when accessing the PlateLoc interior after the device is warmed up. Do not touch the hot plate with your bare hands.

!! DAMAGE HAZARD !! Do not use an abrasive cleaning tool on the hot plate. Doing so can damage the hot plate surface.

!! DAMAGE HAZARD !! Do not spray the cleaning fluid directly onto the hot plate or any part of the PlateLoc. Excess fluid can react with and damage the hot plate coating.

To clean the hot plate:

1. Turn on the PlateLoc.
2. Turn on the air to open the PlateLoc door.
3. *Gas-Purging PlateLocs only.* Turn off the argon source (house or cylinder).
4. Set the sealing temperature to 30–50 °C to warm up the hot plate.
5. Wait for the temperature to reach 30–50 °C.

   Warming up the hot plate softens the seal material and can facilitate the cleaning process.
6. Dampen the scrub pad with a small amount of the ammonia-based cleaner.
7. Vigorously scrub the bottom of the hot plate with the scrub pad to remove residual seal material and dirt.

   Note: You might have to scrub the back edge of the hot plate to remove debris.
8. Visually inspect the hot plate for remaining seal material or debris.
9. Wipe the hot plate with the clean cloth.

Related topics

For more information about...	See...
Turning on and turning off the PlateLoc	“Turning on and turning off the power” on page 42
Turning on and turning off the air	“Turning on and turning off the air” on page 44
Turning on and turning off the argon	“Turning on and turning off the argon (Gas-Purging Platelocs only)” on page 47
Setting the sealing temperature	“Setting the sealing parameters” on page 68

Cleaning the touch screen

About this topic

This topic explains how to clean the PlateLoc touch screen.

Before you start

Make sure you have a lint-free cloth.

Procedure

!! DAMAGE HAZARD !! Do not use fluid cleaners on the touch screen. Any fluid that gets between the touch screen and the screen frame can damage the device.

To clean the touch screen:

1. Gently wipe the touch screen with the lint-free cloth.
2. Check and remove small particles that might be caught between the screen and the screen frame.

Related topics

For more information about...	See...
Tilting and stowing the touch screen	“Tilting and stowing the touch screen” on page 49

Troubleshooting 7

This chapter contains the following topics:

Hardware problems

About this topic

This topic lists possible hardware problems, the causes of the problems, and ways to resolve the problems. If you are still experiencing problems with the PlateLoc after trying the solutions, contact Velocity11 Technical Support.

Problem	Cause	Solution
The PlateLoc does not turn on. (The touch screen backlight does not turn on.)	Your lab does not meet the electrical requirements.	Make sure your lab meets the electrical requirements. See “Meeting Lab requirements” on page 23.
	The PlateLoc is not connected to the power source.	Connect the PlateLoc to the power source. See “Connecting the power source” on page 30.
	The fuse is blown.	Call Velocity11 Technical Support.
The touch screen does not display text.	The PlateLoc is not connected to the power source.	Connect the PlateLoc to the power source. See “Connecting the power source” on page 30.
	The PlateLoc is not turned on.	Turn on the PlateLoc. See “Turning on and turning off the power” on page 42.
	The touch screen contrast is set too low.	Adjust the touch screen contrast setting. To do this: 1. Turn off and turn on the device to reset the screen to the Main Menu. See “Turning on and turning off the power” on page 42. 2. Press once in the lower left corner of the touch screen (the location of the Setup button). When you hear a beep, you have successfully displayed the Set Parameters Menu. See “Turning on and turning off the power” on page 42. 3. At the bottom of the touch screen, press slightly to the right from the center (the location of the increase-contrast arrow).
A hissing sound can be heard.	A leak is present in the air or argon connections.	❑ Check the air connections at the PlateLoc and the source (house, cylinder, or pump). ❑ Check the argon connections at the PlateLoc and the source (house or cylinder).

Problem	Cause	Solution
The seal cycle does not start and an error message is displayed	The cause of the error is described on the touch screen.	See “Error messages” on page 90 for possible solutions.
The seal does not apply to the plate as well as it used to.	Excess seal material is stuck to the heated metal plate (hot plate) inside the sealing chamber.	Clean the hot plate. For cleaning instructions, see “Cleaning the hot plate” on page 84.
The plate is stuck to the heated metal plate (hot plate) inside the sealing chamber or tends to fall onto the stage after the seal cycle.	Excess seal material is stuck to the heated metal plate (hot plate) inside the sealing chamber.	Clean the hot plate. For cleaning instructions, see “Cleaning the hot plate” on page 84.
The seal cannot be pulled out from the slot on the back of the PlateLoc.	The seal is stuck inside the PlateLoc.	1. Turn off the air and power cycle the PlateLoc. 2. On the back of the PlateLoc, push down the red button to open the seal gripper inside the device. 3. Pull the seal out of the seal-entry slot. 4. Cut off tattered or folded edges. 5. Re-insert the seal. See “Loading and unloading a roll of seal” on page 53 for instructions. If you are unable to pull the seal out, contact Velocity11 Technical Support.
Oil is present in the sealing chamber.	The compressed air is not from an oil-free compressor and oil has leaked into the PlateLoc.	Call Velocity11 Technical Support.

Related topics

For more information about...	See...
Maintaining the PlateLoc	“Routine maintenance” on page 83

Error messages

About this topic

This topic lists possible error messages that are displayed on the touch screen, the causes of the errors, and ways to resolve the errors. If you are still experiencing problems with the PlateLoc after trying the solutions, contact Velocity11 Technical Support.

Error message	Cause	Solution
Actuator Time Out	A sensor or the actuator failed.	Make sure the seal material is properly loaded. Seal a spare plate to make sure the PlateLoc is working properly before continuing. If the error recurs, contact Velocity11 Technical Support.
	The air pressure inside the PlateLoc has dropped below 80 psi.	❑ Make sure the air pressure at the source (house, cylinder, or pump) is 0.62–0.69 MPa (90–100 psi). See “Meeting Lab requirements” on page 23 for other requirements. ❑ Check the air connection for leaks. ❑ In the Gas-Purging PlateLoc, check that the argon is not connected to the AIR IN fitting. If the error recurs, contact Velocity11 Technical Support.
Cutter Not Down	The seal-cutting blade inside the device is out of alignment.	Contact Velocity11 Technical Support.
Cycle Stopped Manually	The operator pressed STOP to terminate the seal cycle in progress.	Remove the plate, make sure the seal is loaded properly, and seal a spare plate to make sure the PlateLoc is still working properly. Continue to seal plates.
Door Close	The door was unable to close after you start the seal cycle or run.	Check for obstacles (for example, under the door hinge) that are preventing the door from closing.
	The door was opened while the seal cycle was in progress.	Remove the plate and restart the seal cycle.
	The door sensor is broken.	Contact Velocity11 Technical Support.

Error message	Cause	Solution
Gripper Plate Vacuum	The gripper inside the PlateLoc was unable to hold the seal material, and the seal material might be jammed.	1. Turn off the air and power cycle the PlateLoc. 2. On the back of the PlateLoc, push down the red button to open the seal gripper inside the device. 3. Pull the seal out of the seal-entry slot. 4. Cut off tattered or folded edges. 5. Re-insert the seal. See "Loading and unloading a roll of seal" on page 53 for instructions. If you are unable to pull the seal out, contact Velocity11 Technical Support.
Hot Plate Vacuum	The hot plate vacuum was unable to hold the seal material. Small pieces of seal material might have fallen to the bottom of the sealing chamber.	❑ Turn off the PlateLoc. Wait for the PlateLoc to cool down to room temperature. Open the door and check for seal material at the bottom of the sealing chamber. ❑ Seal a spare plate. If the same error message is displayed, reload the seal. See "Loading and unloading a roll of seal" on page 53. If the error recurs, contact Velocity11 Technical Support.
	Excess seal material is stuck to the heated metal plate (hot plate) inside the sealing chamber.	Clean the hot plate. For cleaning instructions, see "Cleaning the hot plate" on page 84.
Insufficient Air Pressure	The air pressure inside the PlateLoc is below 80 psi.	❑ Make sure the air pressure at the source (house, cylinder, or pump) is 0.62–0.69 MPa (90–100 psi). See "Meeting Lab requirements" on page 23 for other requirements. ❑ If the air pressure at the source is sufficient, but the air pressure inside the PlateLoc is still too low (as shown on the touch screen), check the air connection for leaks. ❑ In the Gas-Purging PlateLocs, check that the argon is not connected to the AIR IN fitting. ❑ If the air pressure and connections are correct, but the air pressure inside the PlateLoc is still too low, contact Velocity11 Technical Support.

Error message	Cause	Solution
Insufficient Vacuum Pressure	The vacuum pressure generated by the air source is not sufficient to hold down the seal inside the sealing chamber.	Contact Velocity11 Technical Support.
Machine Overheating	The temperature of the hot plate is above acceptable limits.	Monitor the temperature and wait for the hot plate to cool down. If the temperature continues to rise, turn off the PlateLoc. Contact Velocity11 Technical Support.
Memory Access	An error was encountered when accessing the memory.	Restart the PlateLoc. If the error recurs, contact Velocity11 Technical Support.
Memory Initialization	The PlateLoc found a memory error during startup and all parameter settings have been reset to the default values.	Contact Velocity11 Technical Support.
No Plate in Holder	No plate was detected on the plate stage.	Load the plate and start the seal cycle.
Serial Communications	The serial communications buffer has been overloaded.	Contact Velocity11 Technical Support.
Temperature Sensors	The temperature sensors are reading conflicting values.	Restart the PlateLoc. If the error recurs, contact Velocity11 Technical Support.
Temperature Sensor Settings	The temperature sensors are not configured properly. The sensors are not enabled.	Contact Velocity11 Technical Support.
Transfer Plate Vacuum	The seal is not positioned correctly inside the PlateLoc.	Reload the seal. See “Loading and unloading a roll of seal” on page 53 for instructions. If you are unable to pull the seal out, contact Velocity11 Technical Support.

Related topics

For more information about...	See...
Maintaining the PlateLoc	“Routine maintenance” on page 83

Diagnostic tools

About this topic

This topic explains the tools you can use to diagnose problems with the PlateLoc in the standalone mode and in the Velocity11 lab automation system.

Standalone device procedure

When diagnosing problems with the PlateLoc, you can use the existing functions available on the touch screen menu. Always use spare plates when running test seal cycles to diagnose problems.

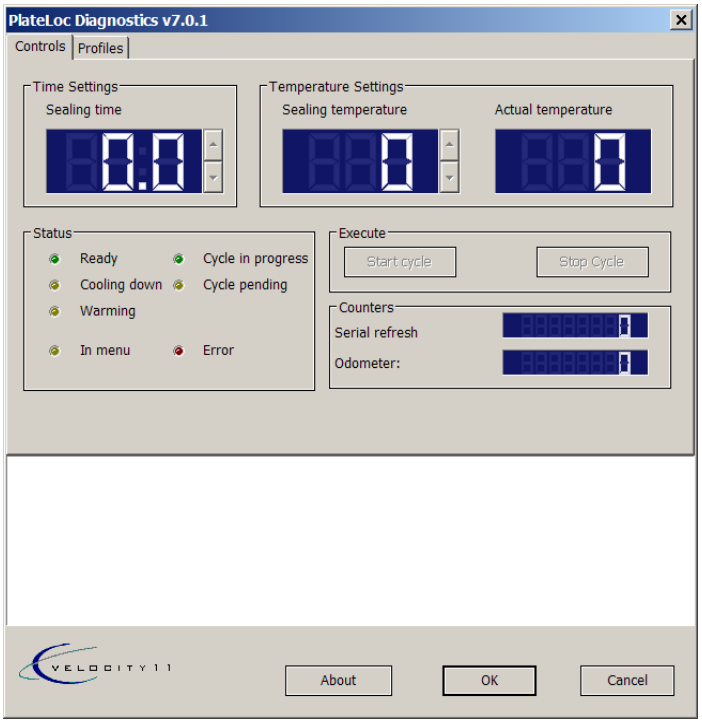
Lab automation system procedure

When the PlateLoc is installed in a lab automation system, the device might be difficult to access when performing diagnostic procedures. Instead, you can use PlateLoc Diagnostics to manually control the PlateLoc.

PlateLoc Diagnostics is a component of the PlateLoc ActiveX software. You can use the functions in the PlateLoc Diagnostics Controls tab to manually set sealing parameters and monitor the seal cycle progress when diagnosing PlateLoc problems. Using controls in this tab is equivalent to using the functions on the touch screen.

To start PlateLoc Diagnostics and access the Controls tab:

1. In the Velocity11 lab automation system software, make sure the device file is open.
2. Open **PlateLoc Diagnostics.**
3. Click the **Controls** tab.



The following table shows the parameters you can set and the conditions you can monitor.

Parameter	Description
Sealing time (sec)	The amount of time, in seconds, the hot plate is in contact with the sealing material and the plate.
Sealing temperature (°C)	The temperature, in Celsius, the temperature of the hot plate when the seal cycle starts.
Actual temperature (°C)	The current temperature of the hot plate.
Ready	The indicator that the hot plate is within 2 °C of the specified sealing temperature and is ready for a run.
Cooling down	The indicator that the PlateLoc is in the process of cooling down to the specified sealing temperature.
Warming up	The indicator that the PlateLoc is in the process of warming up to the specified sealing temperature.
Cycle in progress	The indicator that the PlateLoc is in the process of sealing a plate.
Cycle pending	The indicator that the hot plate is warming up or cooling down after the lab automation software has commanded the PlateLoc to start the seal cycle.
In menu	The indicator that another operator is setting parameters or using controls at the touch screen.
Error	The indicator that one or more errors have occurred.
Start cycle	The command that starts a seal cycle. *Note:* Use the Start cycle command for sealing a single plate.
Stop cycle	The command that stops a seal cycle in progress.
Serial refresh (ms)	The frequency at which the controlling computer reads information from the PlateLoc and updates the status in the Controls tab.
Odometer	The number of seal cycles that the PlateLoc has performed.

Related topics

For more information about...	See...
Maintaining the PlateLoc	“Routine maintenance” on page 83
Profiles	“Creating and managing profiles (lab automation systems only)” on page 59
Establishing communication between the PlateLoc and the Velocity11 lab automation system	“Establishing communications with the PlateLoc (lab automation systems only)” on page 62

Reporting problems

About this topic

If you have a technical problem that you cannot resolve after reading the chapter on maintenance and troubleshooting, read the information in this topic for how to report hardware, software, and user guide problems.

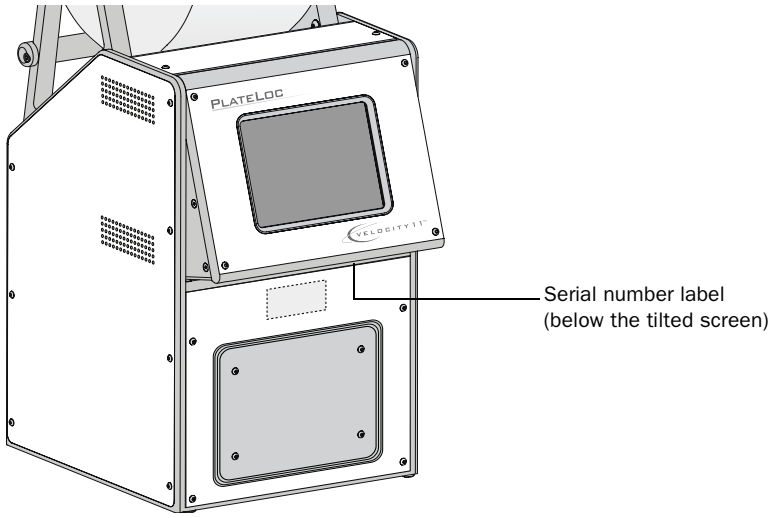
Reporting hardware problems

If you have a problem with a hardware component of the PlateLoc that you cannot resolve, contact Velocity11 by:

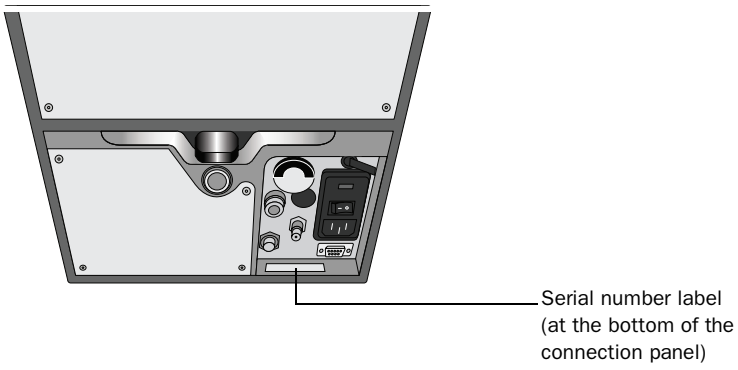
- ❑ Sending an email to service@velocity11.com or euroservice@velocity11.com
- ❑ Calling Velocity11 Technical Support at 1.800.979.4811 or +1.650.846.6611

Make sure you have the serial number of the device ready. You can locate the serial number in two places:

- ❑ On the front of the PlateLoc, below the fully tilted touch screen



- ❑ On the back of the device, at the bottom of the connection panel



Reporting software problems

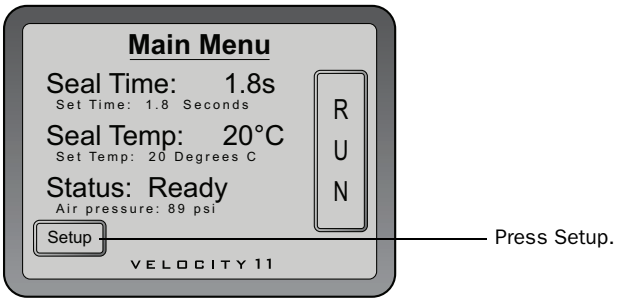
If you find a problem in the lab automation system software, such as BenchWorks or VWorks, contact Velocity11 by:

- ❑ Sending a bug report from within BenchWorks or VWorks
- ❑ Sending an email to service@velocity11.com or euroservice@velocity11.com

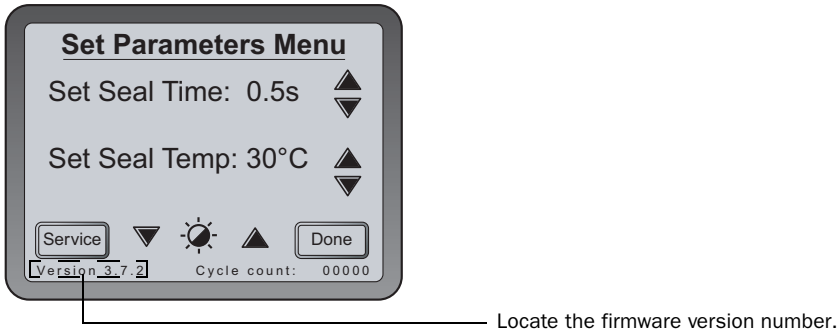
Make sure you have the firmware and software version numbers ready.

To find the firmware version number:

1. Turn on the PlateLoc.
2. On the **Main Menu**, press **Setup**.



3. In the Set Parameters Menu that appears, locate the firmware version number in the lower left corner of the screen.



To find the version number from the CD:

Look on the PlateLoc ActiveX CD label.

To find the version number from either the PlateLoc.ocx file or the PlateLoc ActiveX file:

1. Navigate to C:\Program Files\Velocity11\PlateLoc.
2. Right-click **PlateLoc.ocx** and select **Properties**.
3. Click the **Version** tab.

To find the version number from within PlateLoc Diagnostics:

1. In the Velocity11 lab automation system software, open PlateLoc Diagnostics.
2. Read the version number on the title bar.

Sending files

When resolving software bugs or other problems, Velocity11 might ask you to send the following files:

- ❑ Device files
- ❑ Protocol files
- ❑ Log files
- ❑ Velocity11 registry files from the Windows registry

Reporting user guide problems

If you find a problem with this user guide or have suggestions for improvement, please send your comments using the feedback button in the online help. Your comments will be reviewed promptly and used to write the next version of the guide.

You can also send an email directly to documentation@velocity11.com.

Related topics

For more information about...	See...
Safety information	“Safety information” on page 18
Hardware description	“Hardware overview” on page 4
Troubleshooting information	❑ “Hardware problems” on page 88 ❑ “Error messages” on page 90 ❑ “Diagnostic tools” on page 93
Reporting problems	“Reporting problems” on page 96

Integrating the PlateLoc into third-party systems

A

This chapter contains information for integrating the PlateLoc ActiveX control into your Visual C++ or Visual Basic 6 application.

PlateLoc ActiveX control

About this topic

This topic explains what the PlateLoc ActiveX control is and how it is used in a lab automation system.

What is the PlateLoc ActiveX control

The PlateLoc ActiveX control is the software component that allows the PlateLoc to interact with any Velocity11 or a third-party lab automation system.

How the PlateLoc ActiveX control is used

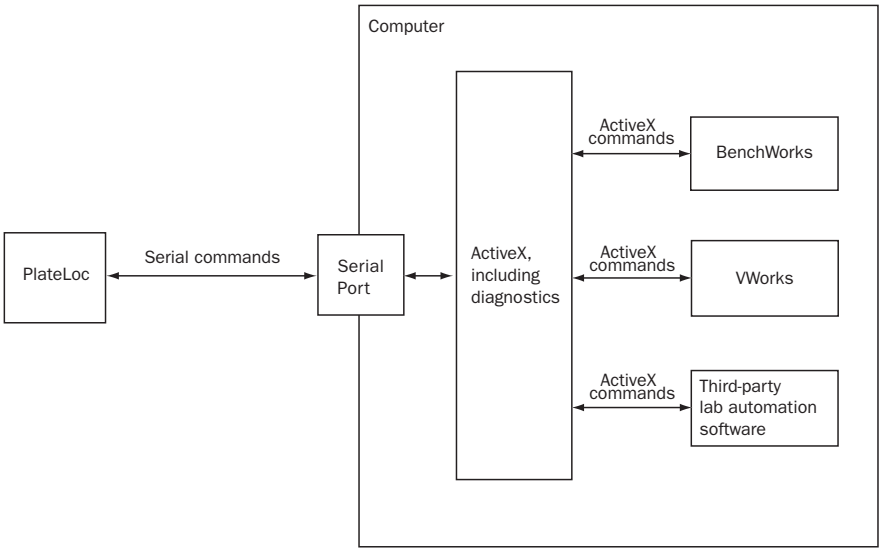
The following diagram illustrates the use of the PlateLoc ActiveX control in a lab automation system environment. Actions you perform and all system responses are translated into or from ActiveX commands.

In a Velocity11 lab automation system, lab automation system software such as BenchWorks and VWorks is already configured to interface with the PlateLoc. The operator can control the device using the software. Direct communication is also possible through the use of ActiveX commands.

In a third-party lab automation system, you need to use ActiveX to configure the third-party software to interface with the PlateLoc. Each ActiveX control consists of a collection of the following:

- *Methods*. Functions that can be called to control individual operations
- *Properties*. Variables that are used in methods (for example, speed = fast)
- *Events*. Notifications that methods are complete or have errors

When integrating the PlateLoc in a lab automation system, you need to know the available methods, properties, and events for the ActiveX control.



Related topics

For more information about...	See...
The PlateLoc ActiveX methods, properties, and events	❑ "Properties" on page 103 ❑ "Methods" on page 105 ❑ "Events" on page 112
Workflow for using PlateLoc in a Velocity11 lab automation system	"Lab automation system software" on page 14
Workflow for using PlateLoc in a Velocity11 lab automation system	Third-party lab automation system user documentation

Integrating the PlateLoc ActiveX control

About this topic

This topic explains how to integrate the PlateLoc ActiveX control in a third-party lab automation system.

Procedure

When integrating the PlateLoc ActiveX control into the third-party lab automation system software:

1. Install the PlateLoc ActiveX control. See “Installing the PlateLoc ActiveX software (lab automation systems only)” on page 38.
2. Refer to the description of the Methods and Properties in this appendix.

Related topics

For more information about...	See...
The PlateLoc ActiveX methods, properties, and events	❑ “Properties” on page 103 ❑ “Methods” on page 105 ❑ “Events” on page 112
Workflow for using PlateLoc in a Velocity11 lab automation system	Third-party lab automation system user documentation

Properties

Blocking

Type

Short

Description

Determines whether methods should block until completion or return immediately for asynchronous operation.

Acceptable values

1 or 0

If set to 1, the ActiveX caller is forced to block or wait until a method method completes before it returns control to the caller.

If set to 0, methods return immediately, and the caller should handle events accordingly.

Default value

0

Blocking affects some methods differently. See each method's description for the effect. Unless otherwise noted:

- In non-blocking mode (Block = 0), a method:
  - Starts another thread of execution to perform the given method, returning control to the application immediately.
  - Returns 0 on launching new thread successfully; Otherwise returns nonzero, and an Error event is fired.
  - If the method is successful, an event indicating completion is fired; if unsuccessful, an Error event is fired.
- In blocking mode (Block = 1), a method:
  - Is executed.
  - Returns 0 if it completes successfully; returns nonzero otherwise
- Error message can be reviewed by calling GetLastError().

Visual C++ Example

```
// set the PlateLoc in blocking mode
sres = m_PlateLoc.SetBlocking( 1);

// set the PlateLoc in non-blocking mode
sres = m_PlateLoc.SetBlocking( 0);

// user should handle events if non-blocking!
```

Visual Basic Example

```
'set PlateLoc in blocking mode
PlateLoc1.Blocking = 1

'set PlateLoc in non-blocking mode
PlateLoc1.Blocking = 0

'user should handle events if non-blocking!
```

ControlPicture

Type

IPictureDisp

Description

A read-only picture of the PlateLoc that can be used in the container's application.

Parameters

None

Visual C++ Example

/* the CPicture class will be imported into your project when the ActiveX is installed */

```
CButton button;
```

// create a button

```
CPicture PlateLocPic;
```

// retrieve the picture

```
PlateLocPic = m_PlateLoc.GetControlPicture();
```

// paint the bitmap onto the button

```
button.SetBitmap( (HBITMAP) PlateLocPic.GetHandle());
```

Visual Basic Example

'assume that there is a button named Command1 on the current form. You must set the Style property of 'Command1 to "Graphical"

```
Command1.Picture = PlateLoc1.ControlPicture
```

Methods

AboutBox

Description

Displays the About Box message box, which includes the ActiveX version and, if initialized, the firmware version of the currently connected PlateLoc.

The blocking mode does not affect the behavior of this method.

Parameters

None

Returns

None

Visual C++ Example

```
m_PlateLoc.AboutBox();
```

Visual Basic Example

```
PlateLoc1.AboutBox
```

Initialize

Description

Initializes the ActiveX and sets up communication with the PlateLoc via the parameters set in the profile. The profile specifies the serial port used to communicate with the PlateLoc. The parameters for each profile can be adjusted in the diagnostics dialog (via a call to ShowDiagsDialog) on the Profiles page. Initialize then sets the initial seal time and temperature for the PlateLoc and, if in the non-blocking mode, will signal its completion.

Parameters

Note: Velocity11 recommends that you assign the PlateLoc serial number to profile_name.

Name	Type
profile_name	BSTR

Returns

LONG

Visual C++ Example

// connect via serial, using the com port specified in the profile

```
lres = m_PlateLoc.Initialize( "plateloc profile");
```

Visual Basic Example

‘connect via serial, using the com port specified in the profile

```
lres = PlateLoc1.Initialize "plateloc profile"
```

Close

Description

Closes the PlateLoc ActiveX.

Parameters

None

Returns

LONG

Visual C++ Example

```
lres = m_PlateLoc.Close();
```

Visual Basic Example

```
lres = PlateLoc1.Close
```

GetActualTemperature

Description

Commands the application to get the current temperature of the hot plate.

Parameters

Name	Type	Range	Description
actual_temperature	SHORT *	0	Contains the temperature value after returning from a call.

Returns

LONG

Visual C++ Example

```
SHORT actual_temp;

lres = m_PlateLoc.GetActualTemperature
(&actual_temp);
```

Visual Basic Example

```
DIM Actual_temp as INTEGER

lres = PlateLoc1.GetActualTemperature Actual_temp
```

GetSealingTemperature

Description

Commands the application to get the current desired sealing temperature entered by the user.

Parameters

Name	Type	Range	Description
sealing_temperature	SHORT *	0	Gets the user-defined sealing temperature

Returns

LONG

Visual C++ Example

```
SHORT sealing_temp;

lres = m_PlateLoc.GetSealingTemperature
(&sealing_temp);
```

Visual Basic Example

```
DIM sealing_temp as INTEGER

lres = PlateLoc1.GetSealingTemperature sealing_temp
```

SetSealingTemperature

Description

Sets the sealing temperature of the hotplate to the desired value entered by the user.

Parameters

Name	Type	Range	Description
sealing_temperature	SHORT *	20–235	Returns the user-defined sealing temperature

Returns

LONG

Visual C++ Example

```
SHORT sealing_temp;

lres = m_PlateLoc.SetSealingTemperature
(&sealing_temp);
```

Visual Basic Example

```
DIM sealing_temp as INTEGER

lres = PlateLoc1.SetSealingTemperature sealing_temp
```

GetSealingTime

Description

Commands the application to get the current desired seal cycle duration entered by the user.

Parameters

Name	Type	Range	Description
sealing_time	DOUBLE *	0	Gets the user-defined seal cycle duration

Returns

LONG

Visual C++ Example

```
DOUBLE sealing_time;
lres = m_PlateLoc.GetSealingTime(&sealing_time);
```

Visual Basic Example

```
DIM sealing_time as DOUBLE
lres = PlateLoc1.GetSealingTime sealing_time
```

SetSealingTime

Description

Sets the seal cycle duration to the desired value entered by the user.

Parameters

Name	Type	Range	Description
sealing_time	DOUBLE *	0.5–12.0	Returns the user-defined seal cycle duration

Returns

LONG

Visual C++ Example

```
DOUBLE sealing_time;
lres = m_PlateLoc.SetSealingTime(&sealing_time);
```

Visual Basic Example

```
DIM sealing_time as DOUBLE
lres = PlateLoc1.SetSealingTime sealing_time
```

StartCycle

Description

Enables the user to start a seal cycle.

Parameters

None

Returns

LONG

Visual C++ Example

```
lres = m_PlateLoc.StartCycle();
```

Visual Basic Example

```
lres = PlateLoc1.StartCycle
```

StopCycle

Description

Enables the user to stop a seal cycle.

Parameters

None

Returns

LONG

Visual C++ Example

```
lres = m_PlateLoc.StopCycle();
```

Visual Basic Example

```
lres = PlateLoc1.StopCycle
```

GetLastError

Description

Returns the last known error condition.

Parameters

None

Returns

BSTR

Visual C++ Example

```
str = m_PlateLoc.GetLastError();
```

Visual Basic Example

```
str = PlateLoc1.GetLastError
```

ShowDiagsDialog

Description

Displays PlateLoc Diagnostics.

Parameters

Name	Type	Range	Description
modal	SHORT	1 / 0	Displays the diagnostics dialog modally (1) or non-modally (0)
security_level	LONG	N/A	For future use; currently not implemented

Returns

LONG

Visual C++ Example

```
lres = m_PlateLoc.ShowDiagsDialog( 1, 0);
```

Visual Basic Example

```
lres = PlateLoc1.ShowDiagsDialog 1,0
```

GetVersion

Description

Commands the application to get the PlateLoc ActiveX Control version number.

Parameters

None

Returns

BSTR

Visual C++ Example

```
str = m_PlateLoc.GetVersion();
```

Visual Basic Example

```
str = PlateLoc1.GetVersion
```

GetFirmwareVersion

Description

Commands the application to get the PlateLoc's firmware version number.

Parameters

None

Returns

BSTR

Visual C++ Example

```
str = m_PlateLoc.GetFirmwareVersion();
```

Visual Basic Example

```
str = PlateLoc1.GetFirmwareVersion
```

GetCycleCount

Description

Commands the application to get the number of seal cycles that have been performed.

Parameters

Name	Type	Range	Description
cycle_count	LONG *	0	Stores the number of seal cycles after returning from the call

Returns

LONG

Visual C++ Example

```
LONG cycle_count;
lres = m_PlateLoc.GetCycleCount(&cycle_count);
```

Visual Basic Example

```
DIM cycle_count as INTEGER
lres = PlateLoc1.GetCycleCount cycle_count
```

Events

InitializeComplete

Description

This event occurs when the PlateLoc successfully completes non-blocking initialization. This is necessary because units without a barcode reader take longer to initialize.

Parameters

None

Returns

None

GetActualTemperatureComplete

Description

This event occurs when the PlateLoc successfully retrieves the current actual temperature of the hot plate. Current actual temperature is returned in the actual_temperature parameter in the non-blocking mode.

Parameters

Name	Type
actual_temperature	SHORT

Returns

None

GetSealingTemperatureComplete

Description

This event occurs when the PlateLoc successfully retrieves the sealing temperature of the hot plate. The sealing temperature is returned in the sealing_temperature parameter in the non-blocking mode.

Parameters

Name	Type
sealing_temperature	SHORT

Returns

None

SetSealingTemperatureComplete

Description

This event occurs when the PlateLoc successfully modifies the desired sealing temperature of the hot plate in the non-blocking mode. The new desired sealing temperature is returned in the sealing_temperature parameter.

Parameters

Name	Type
sealing_temperature	SHORT

Returns

None

GetSealingTimeComplete

Description

This event occurs when the PlateLoc successfully retrieves the sealing time. The sealing time is returned in the sealing_time parameter in the non-blocking mode.

Parameters

Name	Type
sealing_time	DOUBLE

Returns

None

SetSealingTimeComplete

Description

This event occurs when the PlateLoc successfully modifies the desired sealing time in the non-blocking mode. The new desired sealing time is returned in the sealing_time parameter.

Parameters

Name	Type
sealing_time	DOUBLE

Returns

None

CycleComplete

Description

This event occurs when the PlateLoc successfully completes a non-blocking seal cycle.

Parameters

Name	Type
reserved	LONG

Returns

None

GetCycleCountComplete

Description

This event occurs when the PlateLoc successfully retrieves the odometer value. The odometer value is returned in the cycle-count parameter in the non-blocking mode.

Parameters

Name	Type
cycle_count	LONG

Returns

None

Error

Description

This event occurs when an error occurs during any non-blocking method.

Parameters

Name	Type	Range	Description
number	SHORT		not used
description	BSTR*		a description of the error
scode	LONG		not used
source	BSTR		not used
helpfile	BSTR		not used
HelpContext	LONG		not used
CancelDisplay	VARIANT_BOOL*		set to TRUE to disable the stock event handler behavior, which is to display a dialog box with the description in it.

Returns

None

Quick reference

B

This appendix provides a quick reference of the following:

Touch screen menus and commands

Main Menu

Indicator or command	Description
Seal Time (s)	Displays the amount of time, in seconds, that the hot plate will be in contact with the seal material and the plate. *Note:* The seal time counts down when the seal cycle starts.
Seal Temp (°C)	Displays the current temperature, in Celsius, of the hot plate.
Status	Indicates the status of the PlateLoc. Possible values are: ❑ *Ready*. The PlateLoc is within 2 °C of the specified sealing temperature and is ready for a run. ❑ *Warming Up*. The PlateLoc is in the process of warming up to the specified sealing temperature. ❑ *Cooling Down*. The PlateLoc is in the process of cooling down to the specified sealing temperature. ❑ *In progress*. The PlateLoc is in the process of sealing a plate. ❑ *Error*. The PlateLoc has encountered an error during the seal cycle.
Setup	Displays the Set Parameters Menu in the touch screen.
RUN/STOP	Starts the seal cycle or stops the seal cycle in progress. *Note:* When you press RUN, the button changes to STOP.

Set Parameters Menu

Parameter	Description
Set Seal Time (s)	The amount of time, in seconds, the hot plate will be in contact with the sealing material and the plate. To set the time, press the up or down arrow.
Set Seal Temp (°C)	The temperature, in Celsius, the temperature of the hot plate when the seal cycle starts. To set the temperature, press the up or down arrow.
Contrast (-  -)	The touch screen light and dark adjustment. As you reduce the contrast, the text in the touch screen dims. To adjust the contrast, press the up or down arrow on either side of the contrast symbol (-  -).
Service	For Velocity11 service personnel only.

Special Menu (Gas-Purging PlateLocs only)

The Special Menu is only available in Gas-Purging PlateLocs.

Parameter	Description
Argon Fill Time (s)	The amount of time, in seconds, the plate is exposed to argon before the plate is sealed. To set the time, press the up or down arrow.
Service	For Velocity11 service personnel only.

PlateLoc Diagnostics parameters and commands

Controls tab

Time Settings area

Parameter	Description
Sealing time (sec)	The amount of time, in seconds, the hot plate is in contact with the sealing material and the plate.

Temperature Settings area

Parameter	Description
Sealing temperature (°C)	The temperature, in Celsius, of the hot plate when the seal cycle starts.
Actual temperature (°C)	The current temperature of the hot plate.

Status area

Status	Description
Ready	The indicator that the PlateLoc is within 2 °C of the specified sealing temperature and is ready for a run.
Cooling down	The indicator that the PlateLoc is in the process of cooling down to the specified sealing temperature.
Warming up	The indicator that the PlateLoc is in the process of warming up to the specified sealing temperature.
Cycle in progress	The indicator that the PlateLoc is in the process of sealing a plate.
Cycle pending	The indicator that shows the PlateLoc hot plate is warming up or cooling down.
In menu	The indicator that another operator is setting parameters or using controls at the touch screen.
Error	The indicator that one or more errors have occurred.

Execute area

Command	Description
Start cycle	The command that starts a seal cycle. *Note:* Use the Start cycle command for sealing a single plate.
Stop cycle	The command that stops the a seal cycle in progress.

Counters area

Indicator	Description
Serial refresh (ms)	The frequency at which the controlling computer reads information from the PlateLoc and updates the status in the Controls tab.
Odometer	The number of seal cycles that the PlateLoc has performed.

Profiles tab

Profile Management area

Parameter	Description
Serial port	The port that connects the controlling computer to the PlateLoc.

Profile Settings area

Parameter	Description
Startup seal time (0.5s – 12s)	The default sealing duration, in seconds. The PlateLoc defaults to this sealing time value every time you turn on the device or when you initialize the device.
Startup seal temp (20 °C – 235 °C)	The default sealing temperature, in degrees Celsius. The PlateLoc defaults to this sealing temperature value every time you turn on the device or when you initialize the device.
Max warm-up wait (1s – 30000s)	The amount of time, in seconds, the PlateLoc should wait for the warm-up before it times out. The wait period starts when you start the protocol run.

Parameter	Description
Max cool-down wait (1s – 30000s)	The amount of time, in seconds, the PlateLoc should wait for the cool-down before it times out. The wait period starts when you start the protocol run.

Glossary

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Term	Definition
controlling computer	The lab automation system computer that controls the devices in the system.
cycle	See seal cycle.
hot plate	A heated metal plate inside the sealing chamber that descends and presses the seal onto the plate.
insert	A pad placed under the plate to support the bottom of the wells for uniform sealing.
plate stage	The removable metal platform on which you load a plate.
plate-stage support	The structure on which you load a plate stage. The plate-stage support extends when the door opens.
profile	The Windows registry entry that contains the communication settings needed for communication between a device and the Velocity11 lab automation software.
protocol	A sequence of tasks to be performed by the lab automation system.
run	A process in which one or more plates are sealed. In a standalone device, the run consists of one seal cycle. In a lab automation system, a run can consist of multiple seal cycles that are automated.
seal cycle	The process in which a single plate is sealed.
seal entry slot	The narrow entry on the back of the PlateLoc where the seal is inserted into the device.
seal-loading card	A rectangular card that is used to facilitate the seal loading process.
seal-roll support	The triangular structures at the top of the PlateLoc where a roll of seal is mounted.
sealing chamber	The area inside of the device where the seal is applied to a plate.
task parameters	The parameters associated with each task in a protocol. For example, in a PlateLoc task, the parameters include the sealing temperature and duration.
touch screen	The interface on the front of the PlateLoc where sealing parameters are set, the seal cycle can be started or stopped, and the seal cycle can be monitored.

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Note: You can search our technical documentation on our web site at www.velocity11.com.

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