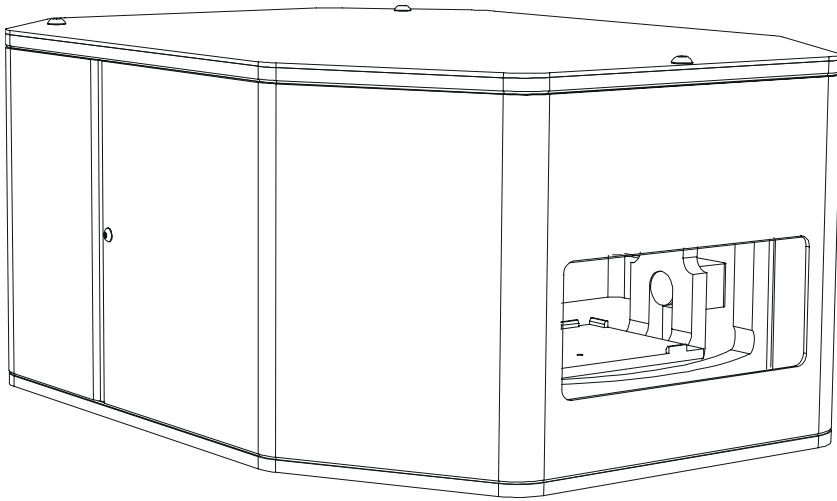


VSpin™

Integrated Microplate Centrifuge



User Manual





VSpin™ User Manual

version 2.0

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Chapter 1: General Information

Introduction

Thank you for purchasing a Velocity11 VSpin integrated centrifuge.

The purpose of this manual is to provide the basic information necessary to achieve optimal efficiency from your VSpin. This manual will walk you through the required steps to get your VSpin working to its fullest capacity and provide maintenance and safety tips to keep it running smoothly.

Velocity11 strives to produce the highest throughput and highest quality products available on the biotechnology market. To help us better serve your future needs, please contact our Service Center with any feedback on this manual or our product.

Velocity11 strives to produce the highest throughput and highest quality products available for the laboratory automation market. Technical information on the VSpin and other exciting Velocity11 products is available from Velocity11. With questions or comments, please contact our Service Center at (650) 846-6500 or visit our website at: <http://www.velocity11.com>.

System Requirements

Computer Platform

- Pentium 166 based or better PC
- Windows NT 4.0, Windows 2000
- 32 MB RAM
- Serial I/O RS-232 9 pin connector supporting 57,600 baud communication speed

Lab Requirements

- 14" x 18.25" benchspace
- 1/4" compressed air line capable of supplying 80 psi
- 120 VAC, 50-60 Hz, 6 amps grounded power cable
- For speeds above 1500 rpm: Dedicated permanent mounting surface (table of aluminum at least 1/2" thick and at least 100 pound weight)
- For speeds below 1500 rpm: 14" x 19" non-skid stable surface for free standing operation

Warranty Information and Service Contracts

All Velocity11 products are covered under warranty for parts and labor for the first year of service (see table 1).

Table 1: Velocity11 Standard Service Warranty

	Standard Service
Shippable Items	The damaged unit will be shipped to Velocity11 for repair. Upon repair, the unit will be shipped back to you.
Non-Shippable Items	A technician will be dispatched to your site the next business day, not including holidays.

For the product warranty for this VSpin, please see “Velocity11’s Product Warranty” on page 37.

Chapter 2: Warnings and Advisories

General Information

Your safety while utilizing the VSpin is of **paramount importance**. Carefully read and follow all warnings and cautions that are outlined in this manual. *The VSpin must only be used in the manner in which it was intended by Velocity11.* Any other use of the VSpin may cause damage to the product or harm to the user.

Take note of the following signs. They are found throughout the manual and call attention to a procedure or practice that if not correctly performed, could result in a hazardous condition or damage part or all of the product. Do not proceed beyond a warning label until the indicated conditions are fully understood and met.



WARNING

Warning signs signal procedures that will potentially cause bodily harm or death if not performed correctly.



CAUTION

Caution signs signal procedures that will potentially cause damage to the instrument if not performed correctly.



NOTE

Note signs indicate points that are important in order to correctly setup or use the VSpin. No danger is involved.

The VSpin has been designed to meet the state-of-the-art UL requirements for laboratory centrifuges guarding against improper operation, including door interlock, imbalance detection, and automatic shutdown. Should any difficulties with start up arise, the VSpin module may be protecting itself from improper operation. Consult Velocity11 for assistance in resolving this problem.

Velocity11 is not responsible for damages caused in whole or part by unauthorized modifications or maintenance procedures not explicitly expressed in this user manual. Any modifications or changes to the VSpin not expressly approved in this manual could void your warranty and authority to operate this equipment.

Specific Warnings & Cautions

Please read the following warnings before proceeding with VSpin installation and use. The VSpin is not designed for casual manual use and such use is not recommended. The VSpin is designed and optimized for robotic access.



WARNING

Do not run the VSpin if any VSpin components or accessories are damaged or if any components or accessories have received rough handling or have been modified in any manner unauthorized by Velocity11. Discontinue use if the VSpin vibrates or emits noise above normal levels.



WARNING

Do not operate the VSpin if foreign objects or liquids are trapped within the chamber.

**WARNING**

Do not operate the VSpin above spindle speeds of 1500 rpm unless securely mounted to a structure approved by Velocity11. Consult Velocity11 for review and approval of mounting surface.

**WARNING**

Disconnect power, air, and COMM before performing any service to the VSpin.

**WARNING**

Do not exceed maximum single bucket load of 250 grams (.55 lb.) for each bucket.

**CAUTION**

Do not use harsh abrasives, corrosive cleaning agents, or metal brushes to clean any VSpin components or accessories. Do not use bleach or any concentration of sodium hypochlorite. Do not allow cleaning agents to contact any electronic, electrical, or sensitive mechanical components (central motor, support springs, etc.).

**CAUTION**

Do not tamper with or adjust the VSpin rotor mounting screw. Consult Velocity11 for maintenance procedure.

**NOTE**

Do not interchange buckets from other VSpins. Buckets should be balanced within one gram.

**NOTE**

Keep hands clear of door during closing.

**NOTE**

Ensure proper orientation of VSpin buckets before operation, especially after performing maintenance. Buckets must swing freely and be oriented such that two tabs are facing outward and four tabs are facing inward.

**NOTE**

Read and follow all unpacking information before use.

Chapter 3: Installation

Unpacking the VSpin

Your VSpin has come shipped to you direct from Velocity11. The following is a list of the contents of the Velocity11 VSpin package.

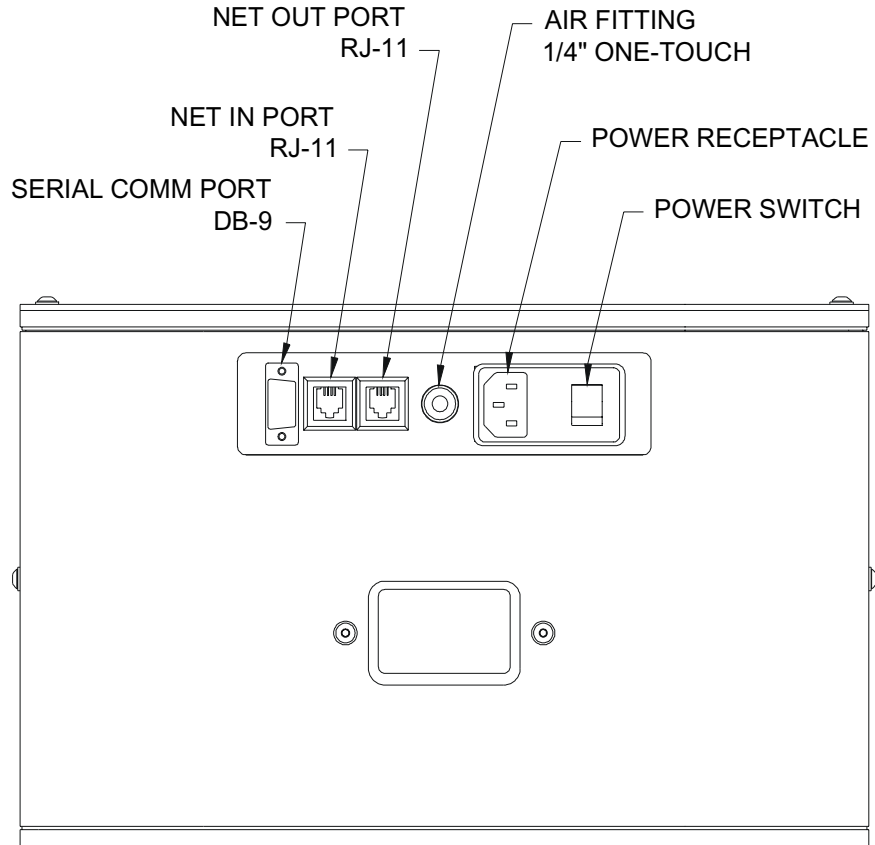
- VSpin centrifuge module
- Power cable
- Serial communications cable
- 15 feet of 1/4" tubing for air supply
- Hose fitting: 1/4" NPT-1/4" one touch hose
- Hose fitting: 1/8" NPT-1/4" one touch hose
- One-touch T hose fitting (*optional depending on your air supply*)
- VSpin ActiveX CD
- *VSpin User Manual*

Inspection

Inspect all the items for possible shipping damage before continuing the setup process. If anything is missing or appears damaged, contact a Velocity11 service representative as soon as possible. Save the carton and packing materials in case you ever need to ship the VSpin.

Install the VSpin

Figure 1: VSpin Connector Panel



Install Compressed Air Line

**WARNING**

Switch off the house air before installing the VSpin.

Working with open, charged air lines can result in injury. Proper technique should be used to bring an air line to the system. If you have questions regarding this, be sure to contact your facilities department or a Velocity11 service representative.

**CAUTION**

Ensure that the air line coming into the VSpin is properly filtered from moisture. Significant moisture in the air can adversely affect the life of the unit. If there is any question about the quality of your air line, contact Velocity11.

- 1) Take the supplied ¼" tubing and cut it to the length you need for the air line.
- 2) Plug one end into your lab's air supply.
- 3) If your house air uses a threaded nozzle, attach the ¼"NPT fitting to the nozzle. Attach the ¼" one touch hose fitting into the ¼" tubing.
- 4) Plug the other end of the ¼" tubing into the quick release air supply port on the back of the VSpin (see figure 1).
- 5) After installation, tug gently on the line. If you feel resistance, then the line has been properly installed.

**NOTE**

You may have another machine in your laboratory hooked up to the house air supply. In this case, use the one touch ¼" T hose connector to attach both the VSpin and your other machine to the house air.

Install Serial Communications Cable

- 1) Plug one end of the serial communications cable into the serial communications port on the back of the VSpin (see figure 1).
- 2) Plug the other end of the serial communications cable into the available serial communications port on the PC you will use to control the VSpin.

Install Power Cable

**CAUTION**

Operating the VSpin at the wrong voltage could seriously damage the instrument.

Before turning on the system, be sure that the voltage supplied to the VSpin is 120 VAC, 50-60 Hz, and the line is rated to supply a minimum of 6 amps.

- 1) Ensure that the VSpin is turned off.
- 2) Plug one end of the power cable into the power entry receptacle at the rear of the VSpin (see figure 1).
- 3) Plug the other end of the power cable into an appropriate grounded electrical socket.

**WARNING**

Keep clothing, hair, and jewelry away from the VSpin at all times.

The VSpin is an automated piece of equipment with moving parts. Ensure that hair, clothing, and jewelry do not become caught in the machine.

Install ActiveX

Install VSpin Software

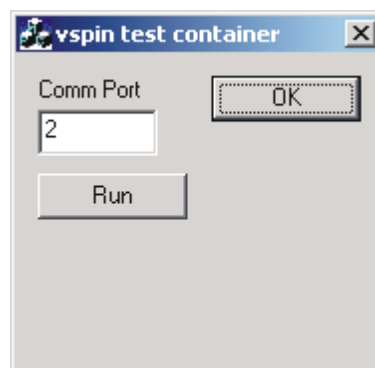
- 1) Take the compact disc marked *VSpin ActiveX* from the plastic sleeve.
- 2) Place it in the CD drive of your PC. For the highest performance from your VSpin, we recommend a Pentium 166 or better based PC running Windows NT 4.0 or Windows 2000.
- 3) Open the CD drive on your computer.
- 4) Click **Setup.exe**. InstallShield Wizard will appear.
- 5) Click **Next**. Choose Destination Location will appear.
- 6) The installation program will install the program on your C: drive unless you otherwise specify a location. To specify a location, click **Browse** and choose the desired destination folder.
- 7) When the folder has been specified, click **Next**. Select Program Folder will appear.
- 8) Click **Next** if you want the folder shown. If not, select a new folder and then click **Next**.
- 9) Setup Status Screen will appear and InstallShield Wizard Complete will appear. Click **Finish**.
- 10) The VSpin ActiveX has been installed in the folder you specified. You are now ready to run the VSpin ActiveX from your computer.

Running the VSpin ActiveX

To run the VSpin ActiveX and to access the control screen diagnostics dialog:

- 1) Go to Start\Programs\Velocity11\VSpin\VSpin Test Container (see figure 2).

Figure 2: VSpin Test Container



- 2) You will be asked to set the communication port to communicate with the VSpin. Choose the port of your choice.
- 3) Click **Run**.
- 4) The VSpin control screen will appear.

Chapter 4: ActiveX

ActiveX Interface

The VSpin's ActiveX control makes it easy to integrate the VSpin into Velocity11's BioCel™ Series automated system or a custom laboratory system. This document provides information on how to use the VSpin's ActiveX control with your Visual C++ or Visual Basic application. This manual covers version 1.0 of the VSpin ActiveX control only. **In all of the Visual Basic examples, assume that there is a VSpin control named VSpin1 on the current form. In all of the C++ examples, assume that there is a VSpin control named m_VSpin in the current class.**

Properties

Properties can be thought of as variables whose value can be set or retrieved by the container application.

ControlPicture

Description: Retrieves a picture of the VSpin bitmap that can be used in the container's application.

Example: In this example, we will paint the VSpin bitmap over a button.

Visual Basic	Visual C++
<pre> ` Assume that there is a button named ` Command1 on the current form. You ` must set the Style property of ` Command1 to "Graphical" Command1.Picture = VSpin1.ControlPicture </pre>	<pre> /* The CPicture class will be imported into your project when the ActiveX is installed */ CButton button; // Create a button CPicture VSpinPic; VSpinPic = m_VSpin.GetControlPicture(); // Retrieve the picture button.SetBitmap((HBITMAP) VSpinPic.GetHandle()); // Paint the //bitmap onto the button </pre>

Methods

Methods are essentially functions that can be called by the container application.

Initialize(short, CommPort_short, short_init)

Description: Initializes the ActiveX and sets the VSpin up to work on communications port `CommPort`. `Initialize()` should typically be the first method called in a procedure, and only needs to be called one time. After successful homing the `InitComplete` event is fired.

Parameters:

Type	Name	Range	Description
short	CommPort	1— #comm ports on the system	COM port number that VSpins are attached to
short	short_init	0,1	Whether to rehome the rotors

Returns: None

Example:

Visual Basic	Visual C++
<pre>'Initialize to use COM1 rehome rotors VSpin1.Initialize 1 1</pre>	<pre>// Initialize to use COM1; rehome rotors m_VSpin.Initialize(1,1);</pre>

Close

Description: Closes the serial port used by the VSpin. `Close` should always be called before exiting an application.

Parameters: None

Returns: None

Example:

Visual Basic	Visual C++
<pre>VSpin1.Initialize 1 1 'Open gui dialog VSpin1.ShowGuiDialog VSpin1.Close</pre>	<pre>// Initialize to use COM1 m_VSpin.Initialize(1,1); // Show the main user dialog m_VSpin.ShowGuiDialog(); m_VSpin.Close();// Shut down the COM port</pre>

ShowGuiDialog()

Description: Displays the main screen that allows the user to interact with the VSpin.

Parameters: None

Returns: None

Example:

Visual Basic	Visual C++
<pre>VSpin1.Initialize 1 1 `Open gui dialog VSpin1.ShowGuiDialog VSpin1.Close</pre>	<pre>// Initialize to use COM1 m_VSpin.Initialize(1,1); // Show the main user dialog m_VSpin.ShowGuiDialog(); m_VSpin.Close();// Shut down the COM port</pre>

ShowDiagsDialog()

Description: Displays the Diagnostics dialog.

Parameters: None

Returns: None

Example:

Visual Basic	Visual C++
<pre>VSpin1.Initialize 1 1 ` Open diagnostics dialog VSpin1.ShowDiagsDialog VSpin1.Close</pre>	<pre>// Initialize to use COM1 m_VSpin.Initialize(1,1); // Open diagnostics dialog m_VSpin.ShowDiagsDialog(); m_VSpin.Close();// Shut down the COM port</pre>

SpinCycle(short VSpin_num, double vel_percent, double accel_percent, double decel_percent, short timer_mode, long time, short bucket_num)

Description: Commands the VSpin to perform a spin cycle.

Parameters:

Type	Name	Range	Description
short	VSpin_num	1-#VSpins on network	which rotor will spin
double	vel_percent	0-100.0	what % of max velocity to run
double	accel_percent	0-100.0	what % of max accel to run
double	deccel_percent	0-100.0	what % of max decel to run
short	timer_mode	0-1	TIMER_MODE_TIME_TOTAL=0— The entire VSpin cycle will take <i>time</i> seconds TIMER_MODE_TIME_AT_SPEED=1 — The VSpin will spend <i>time</i> seconds at full speed.
long	time	1-2147483648	# of seconds to spin

Type	Name	Range	Description
short	bucket_num	1-2	which bucket to present after spin cycle finishes

Returns: None

Example:

Visual Basic	Visual C++
<pre>VSpin1.Initialize 1 1 ` Open diagnostics dialog VSpin1.SpinCycle 1 55.0 60.0 90.0 1 10 1</pre>	<pre>// Initialize to use COM1 m_VSpin.Initialize(1,1); // *Spin rotor #1 at 55% velocity, 60% //accel, 90% braking, in mode 1 for 10 //seconds total. Present bucket 1 upon //completion m_VSpin.SpinCycle(1,55.0,60.0,90.0,1,10,1);</pre>

SetErrorLevel (short error_level)

Description: Sets up the level of error reporting. Default is full error reporting or ERROR_HIGH

Parameters:

Type	Name	Range	Description
short	error_level	0-2	ERROR_HIGH=0 ERROR_MED=1 ERROR_LOW=2

Returns: None

Example:

Visual Basic	Visual C++
<pre>VSpin1.Initialize 1 1 `Set high level error reporting VSpin1.SetErrorLevel 0 VSpin1.Close</pre>	<pre>m_VSpin.Initialize(1,1); //Set high level error reporting m_VSpin.SetErrorLevel(0); m_VSpin.Close();</pre>

OpenDoor(short VSpin_num, short bucket_num, boolean block)

Description: Opens the door to the VSpin#VSpin_num. Bucket #bucket_num will be presented. If the parameter block is TRUE, then this function will not return until the door has successfully opened, or a timeout of 60 seconds has passed. Otherwise, the function will return immediately.

Parameters:

Type	Name	Range	Description
short	VSpin_num	1-#VSpins on network	which VSpin to open door
short	bucket_num	1-2	which bucket will be presented
boolean	block	true, false	whether function blocks

Returns: None

Example:

Visual Basic	Visual C++
<pre>VSpin1.Initialize 1 1 `Open door to rotor 1 and present `bucket 1 VSpin1.OpenDoor 1 1 TRUE VSpin1.Close</pre>	<pre>// Initialize to use COM1 m_VSpin.Initialize(1,1); // block here until bucket 1 of VSpin 1 is // ready m_VSpin.OpenDoor(1,1,TRUE); m_VSpin.Close();// Shut down the COM port</pre>

Events

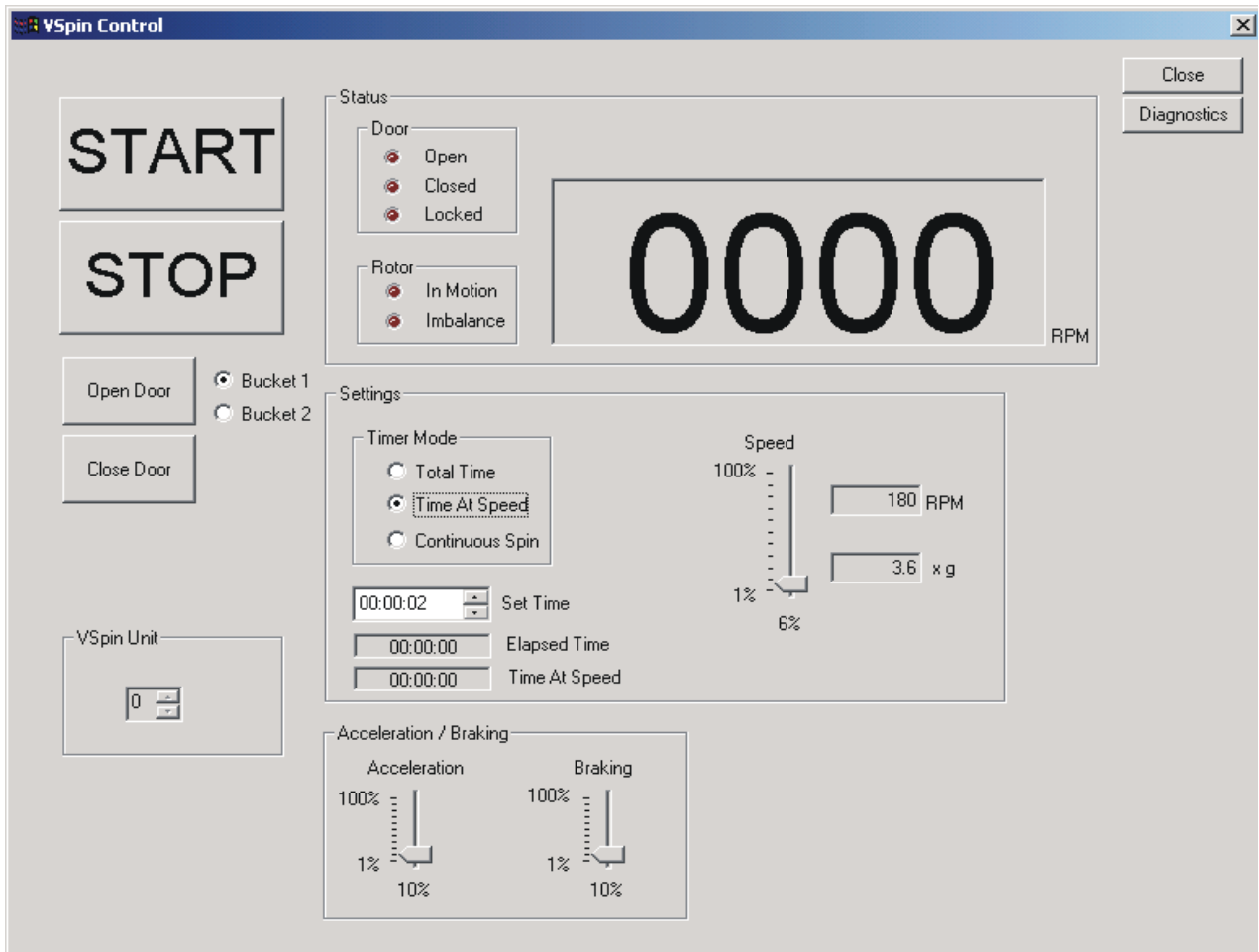
Events are fired asynchronously by ActiveX to notify the container that a procedure has finished or an error has occurred. Consult Microsoft's ActiveX documentation on how to handle events in your Visual C++ or Visual Basic code.

- Error (short Number, BSTR FAR* Description, SCODE Scode, LPCTSTR Source, LPCTSTR HelpFile, long HelpContext, BOOL FAR* CancelDisplay)—The stock Error event. See Microsoft documentation for explanation of function arguments.
- SpinComplete (short VSpin_num)—Called when VSpin VSpin_num is done with its spin cycle
- InitComplete (short VSpin_num)—Called when VSpin VSpin_num is done with its initialization sequence.

Chapter 5: Control Screen & Diagnostics

Control Screen

Figure 3: Control screen



When the software is run, the VSpin control screen appears (see figure 3). Please note the following controls:

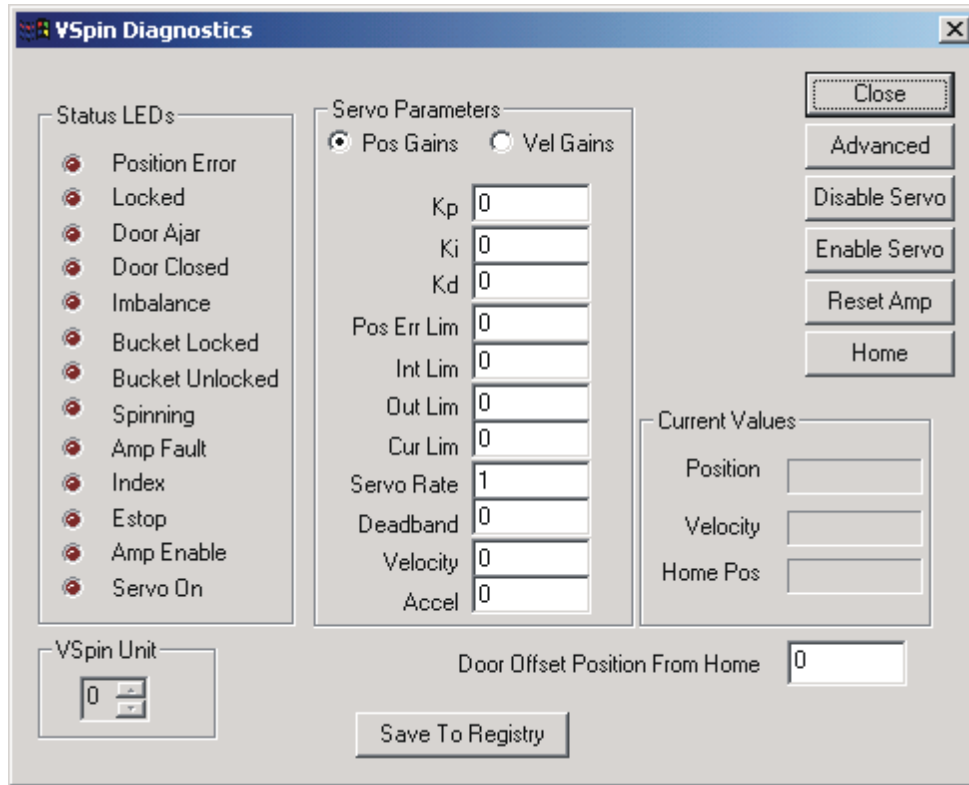
Control	Definition
START	Starts the rotor spinning.
STOP	Stops rotor.
Open door	Presents either bucket one or bucket two and opens the door.
Close door	Closes the door.

Control	Definition
VSpin unit	Selects which VSpin to perform the operation on. <i>(Note: There can be multiple VSpins on the same network. In the case of only one VSpin, this number will always be one.)</i>
Status Indicator: Door	Indicates if the door is open, closed, or locked.
Status Indicator: Rotor	Indicates if the rotor is in motion or imbalanced.
Bucket 1, Bucket 2	Radio buttons indicate which bucket will present itself.
Set Time	Number in seconds to set the spin time.
Total Time	Spin time (set in “Set Time” above) will include acceleration and deceleration.
Time at Speed	Spin time (set in “Set Time” above) will be at full speed (accel and decel times not included).
Continuous Speed	Rotor will spin until stopped with the STOP button.
Speed	User specifies percentage of maximum speed.
Acceleration	User specifies percentage of maximum acceleration.
Braking	User specifies percentage of maximum braking.
RPM	Number reflects the real time rpm of the rotor.
Diagnostics	Takes the user to the VSpin diagnostics screen.
Close	Closes the VSpin control screen and takes the user back to the VSpin Test Container.

Diagnostics Screen

Click on “Diagnostics” in the main control menu to take you to the Diagnostics screen (see figure 4).

Figure 4: Diagnostics screen




Status LEDs

Refer to these status LEDs to determine the current status of the VSpin.

Servo Parameters

Servo Parameters set the control values for the servo motor. These values must not be changed by the end user.



CAUTION

Do not change the servo parameters.

Parameters may only be changed by a Velocity11 field technician.

Current Values

Value	Definition
Position	Current position of the motor.
Velocity	Current velocity of the motor.
Home Pos	Current set home position for the motor.

Door Offset Position from Home

Indicates the position of “bucket 1 at door” in the number of encoder ticks from the home sensor. Use this number to teach the bucket positions.

VSpin Unit

Selects which VSpin to perform the operation on

**NOTE**

Note: There can be multiple VSpins on the same network. In the case of only one VSpin, this number will always be one.

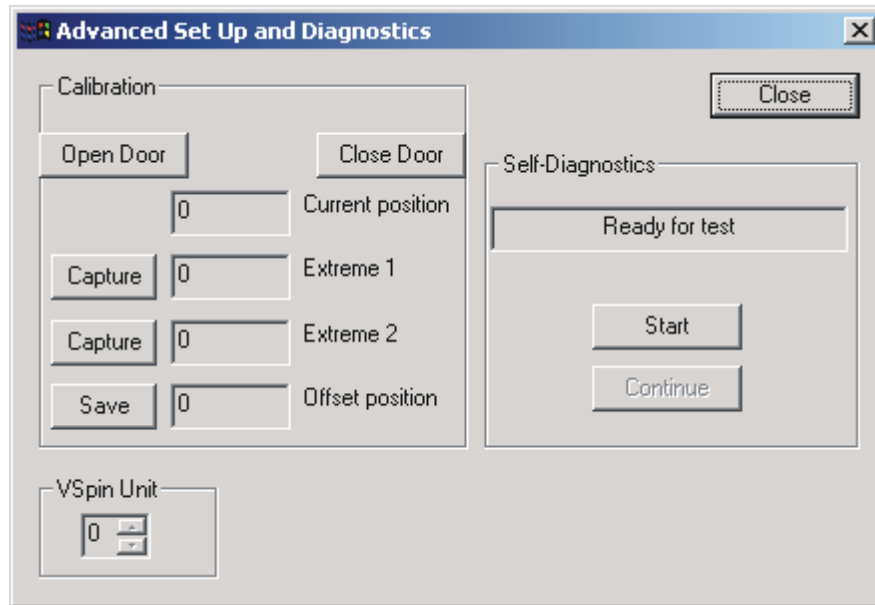
Command Buttons

User has full control over these buttons.

Button	Description
Close	Closes diagnostic screen and takes the user back to the VSpin control screen.
Advanced	Takes the user to the Advanced Diagnostics screen.
Disable Servo	Disables the servo motor.
Enable Servo	Enables the servo motor.
Reset Amp	Clears an amplifier fault condition.
Home	Rehomes the rotor.

Advanced Diagnostics & Set up Screen

Figure 5: Advanced Set up and Diagnostics



Calibration

Control	Description
Open Door	Opens the VSpin door.
Close Door	Closes the VSpin door.
Current Position	Indicates the current position of the rotor in encoder ticks.
Capture & Save	Used when teaching bucket positions. See below.

Teaching Bucket Positions

- 1) Install and run VSpin ActiveX. The VSpin Control screen will appear (see figure 3).
- 2) Click on Diagnostics. The Diagnostics screen will appear (see figure 4).
- 3) Click on Advanced. The Advanced Diagnostics screen will appear (see figure 5).
- 4) Under Calibration, click Open Door button.
- 5) Turn off the air pressure to release the bucket stop.
- 6) Manually rotate the rotor so the bucket faces the door.
- 7) Insert robot end effector into the VSpin so that the end effector is centered within the VSpin's door. The end effector must be inserted far enough that when the rotor is rotated, the buckets contact the end effector. Robot must be centered in the theta direction.
- 8) Manually rotate the rotor slightly so that the left side of the bucket lightly touches the end effector.
- 9) Under Calibration, click Capture on Extreme 1.
- 10) Rotate the rotor slightly so that the right side of the bucket lightly touches the end effector.
- 11) Under Calibration, click Capture on Extreme 2.
- 12) A new Offset number will be automatically calculated.
- 13) Click Save.
- 14) The bucket teachpoint is now saved in the registry.

VSpin Unit

Selects which VSpin to perform the operation on.



NOTE

Note: There can be multiple VSpins on the same network. In the case of only one VSpin, this number will always be one.

Close

Closes the Advanced Diagnostics screen and takes the user back to the Diagnostics screen.

Start Self Diagnostics

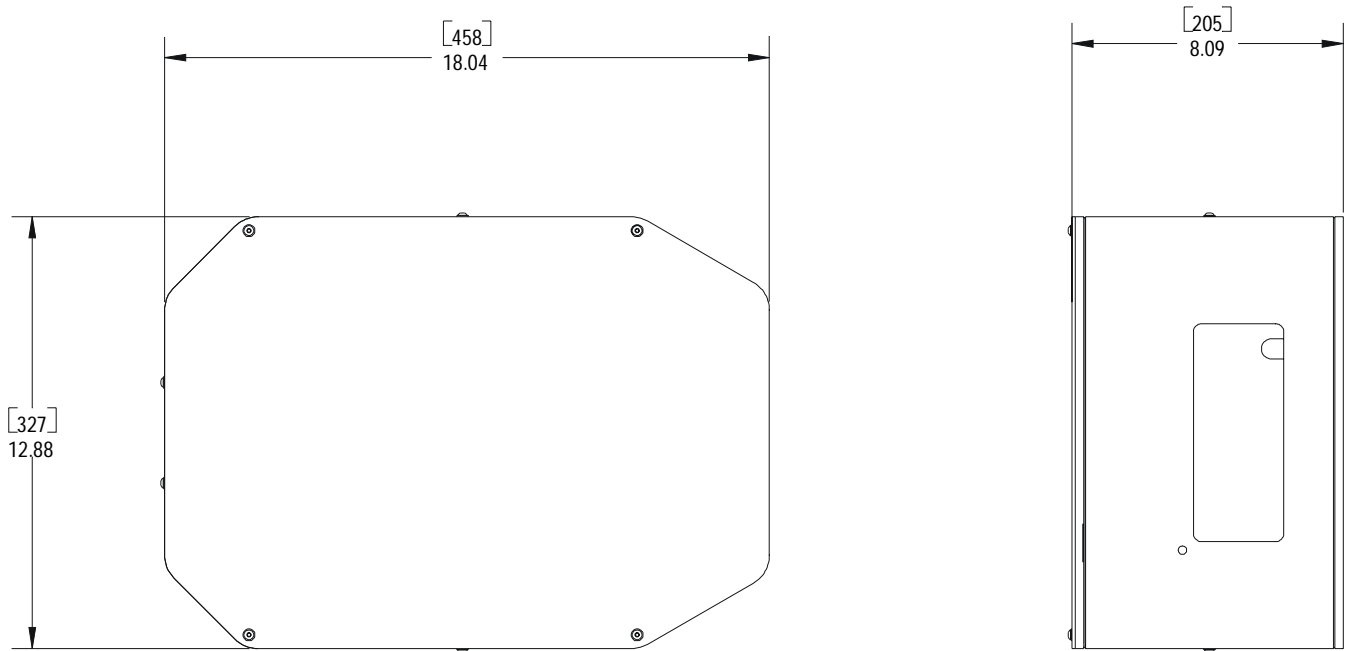
Runs self tests on the VSpin.

Chapter 6: Mechanical Interface

Figures

In integrating the VSpin with your robot, please refer to the figures below for physical dimensions of the VSpin.

Figure 6: VSpin Overall Dimensions



NOTES:

- 1. OVERALL WEIGHT: 57.5 LBS
- 2. SHOWN WITH DOOR CLOSED.

Figure 7: VSpin Door Dimensions

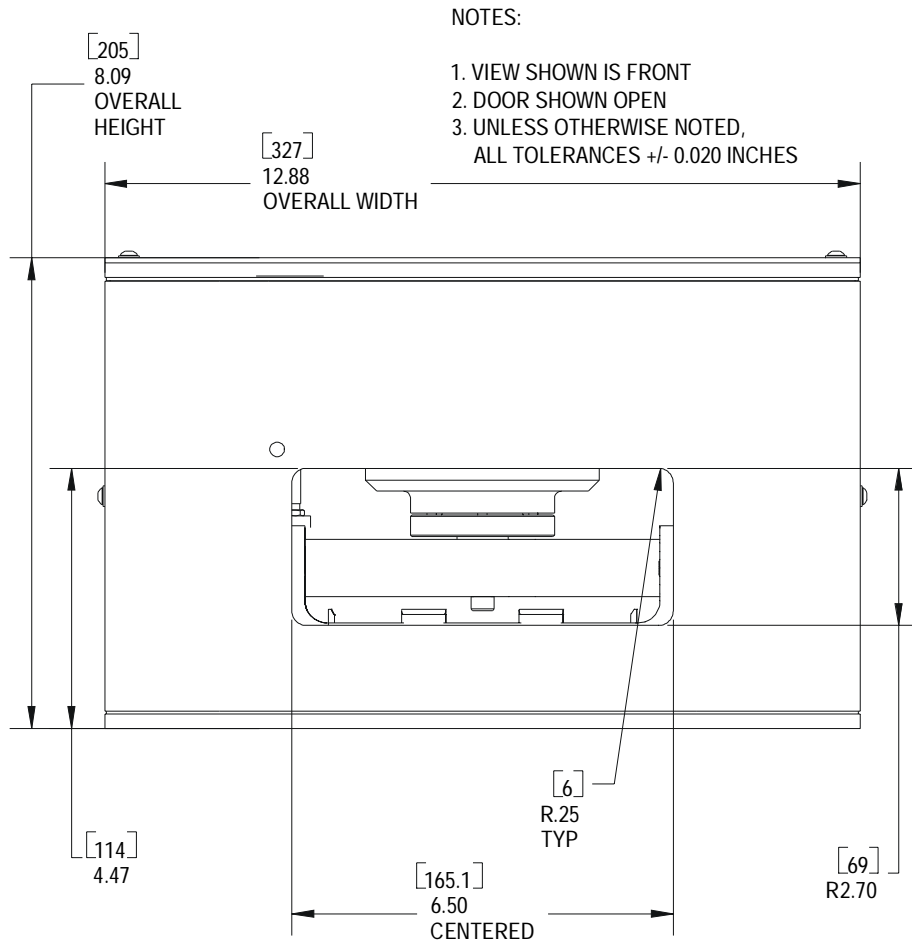
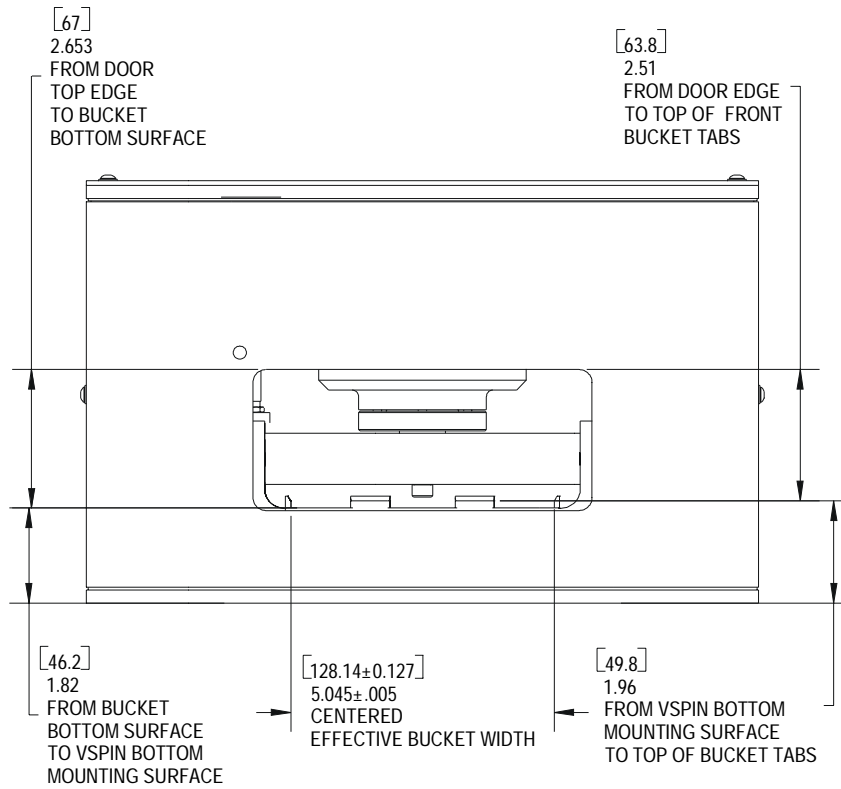


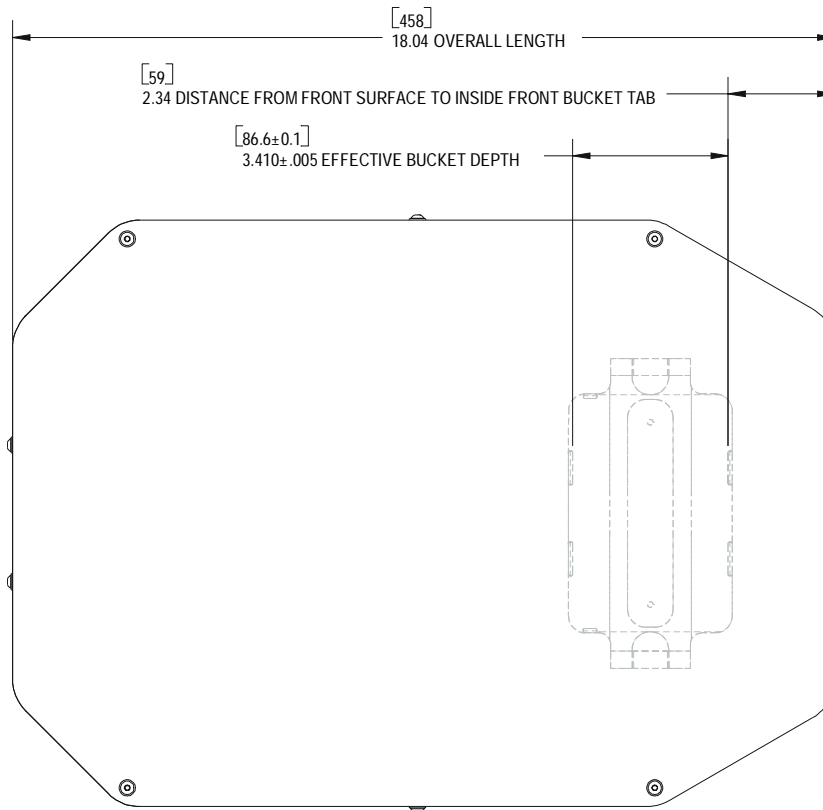
Figure 8: VSpin Plate Entry Dimensions



NOTES:

1. VIEW SHOWN IS FRONT
2. DOOR SHOWN OPEN
3. UNLESS OTHERWISE NOTED,
ALL TOLERANCES +/- 0.020 INCHES

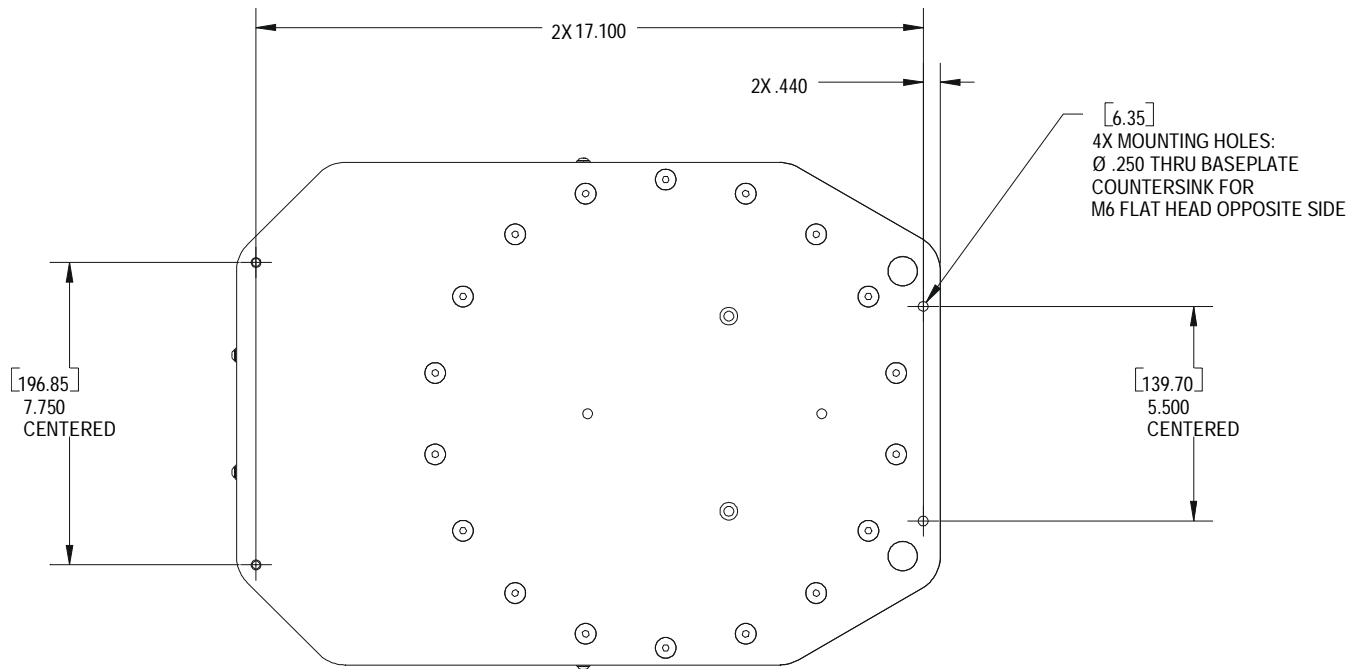
Figure 9: VSpin Bucket Position (Plan View)



NOTES:

1. VIEW SHOWN IS TOP
2. UNLESS OTHERWISE NOTED, ALL TOLERANCE +/- 0.020 INCHES
3. VIEW SHOWN WITH BUCKET IN LOAD/UNLOAD POSITION

Figure 10: VSpin Bottom Mounting Pattern




Chapter 7: Maintenance

Cleaning

The figures in this chapter outline how to open the VSpin for cleaning, inspection, and non-regular maintenance (see figure 11), and how to unlock the VSpin’s door (see figure 12).

For cleaning the VSpin, use soap, a mild detergent, or organic solvents. Velocity11 recommends using a damp cloth to wipe off inner shield surfaces, rotor, and buckets. Buckets may be removed for thorough cleaning and inspection, but relubrication will be necessary upon reinstallation.

Do not let liquids contact the electronic or electrical components. Avoid liquids contacting mechanical components inside the motor assembly and spindle support assembly as trapped liquids may cause corrosion.

	CAUTION	<p>Do not use harsh abrasives, corrosive cleaning agents, or metal brushes to clean any VSpin components or accessories. Do not use bleach or any concentration of sodium hypochlorite. Do not allow cleaning agents to contact any electronic, electrical, or sensitive mechanical components (central motor, support springs, etc.).</p>
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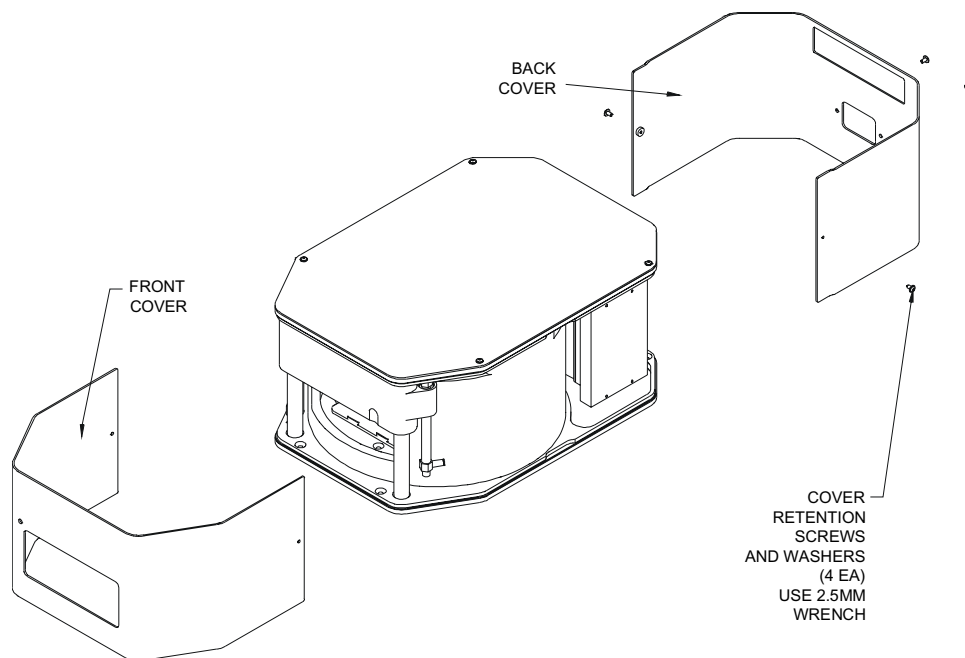
	WARNING	<p>Disconnect power, air, and COMM before performing any service to the VSpin.</p>
---	----------------	---

Figure 11: Removing the Shroud



Opening the VSpin's Door

The VSpin's door can be manually unlocked while the air supply is disconnected from the Vspin (see figure 12). To open the door:

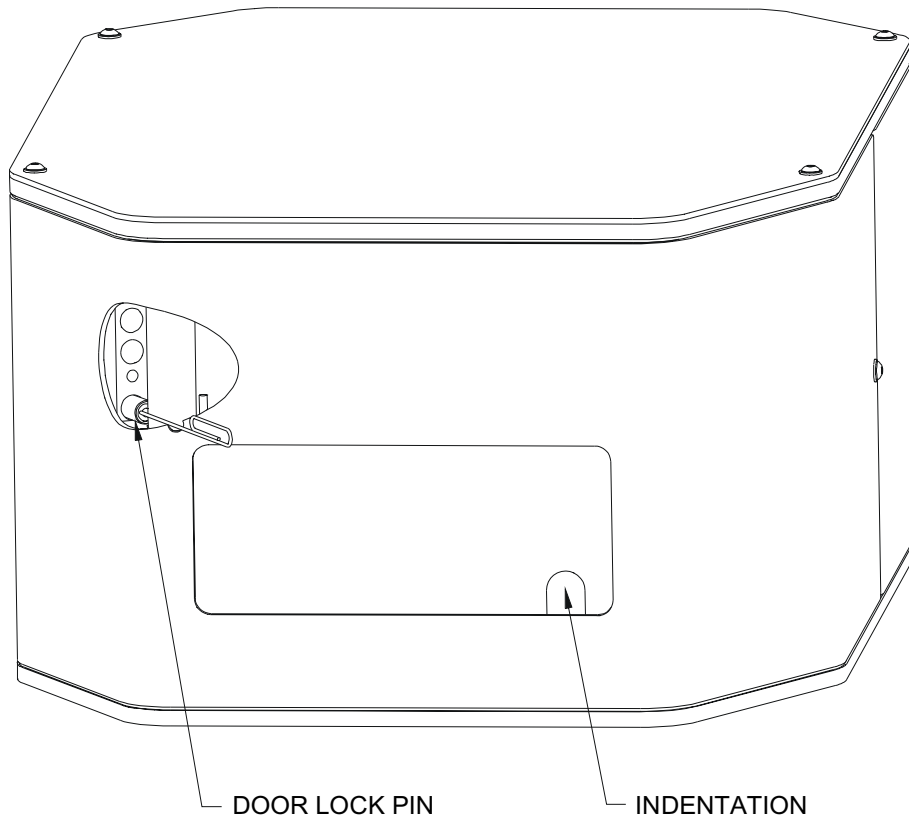
- 1) Use a small, thin tool to push against and fully retract the lock pin (an unfolded large paperclip is shown in the figure) while pushing upward in the indentation in the door.
- 2) Once the door begins to open, the tool must be removed to continue opening the door.



WARNING

Do not attempt to manually unlock the door while the VSpin rotor is in motion. Doing so will disable the amplifier and cause the rotor to coast which may result in a dangerous condition should the door be opened.

Figure 12: Unlocking the VSpin Door



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Appendix B

Velocity11's Product Warranty

Velocity11, a California corporation with its principal place of business at 435 Acacia Avenue, Palo Alto, California 94306 ("Velocity11") is the obligor of this service contract ("Contract").

This Contract sets forth the terms and conditions under which Velocity11 will provide Support Services (as defined below) for its Products covered under the Product Warranty guidelines.

1. DEFINITIONS

- 1.1 "Support Services" means the support and/or services that are available from Velocity11, as further described in Exhibit A, may be amended from time to time.

2. COVERAGE

Velocity11 will provide the Support Services set forth in Exhibit A and pursuant to the terms and conditions of this Contract for one year after the purchase date of the product.

Within 30 days prior to the expiration date of the Product Warranty or Support Services contract, Velocity11 will offer the Customer the option of purchasing additional coverage based on the current Support Services rates at that time.

3. SUPPORT SERVICES

- 3.1 In order for Customer to receive the Support Services described in Exhibit A, Customer must:

- (a) Initiate a service request by contacting Velocity 11 at (650) 846-6500.
 - (b) Provide the serial number of the Product, a description of the problem and the current version of the control software.
 - (c) Provide a detailed description of the type of error, a description the specific error message and when it occurs, the activity or use of the Product when the error occurred and remedial measures taken by the Customer to correct the error.
 - (d) Follow procedures and recommendations provided by the Velocity11 technician in an effort to correct problems via telephone. (VELOCITY11 WILL NOT DISPATCH A SERVICE TECHNICIAN TO PERFORM ON-SITE REPAIRS UNTIL THE TELEPHONE-BASED TROUBLESHOOTING PROCESS HAS BEEN EXHAUSTED)
 - (e) Subject to Customer's applicable security requirements, provide Velocity11 with access to and use of all information and Product facilities, including working space, electricity and a local telephone line, necessary for Velocity11 to provide timely Support Services pursuant to this Contract.
 - (f) To the best of its abilities, read, comprehend and follow operating instructions and procedures as specified in, but not limited to, Velocity11 documentation and other correspondence related to the products.
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- 3.2 Velocity11 shall have no obligation to support:
- (a) altered or damaged Products;
 - (b) any version of the Products other than the current version of the product, unless otherwise covered under an existing service contract or agreement;
 - (c) any Product with software that has been modified or is out-of-date, without the written approval and authorization of Velocity11;
 - (d) Product problems caused by Customer's negligence; Customer abuse or misapplication, including but not limited to use of incorrect voltages, use of incorrect fuses, use of incompatible devices or accessories and improper or insufficient ventilation; use of inadequate air or vacuum supplies; use of Product other than as specified in the user manual; or other causes beyond the reasonable control of Velocity11, including but not limited to an act of God such as lightning, floods, tornado or earthquake;
 - (e) Products installed on any hardware, operating Product version or network environment that is not supported by Velocity11;
 - (f) Products sold or transferred by the Customer to another entity.

4. FEE SCHEDULE

Customer shall pay the annual fees for Support Services for the initial term of this Contract within thirty (30) days of the Effective Date. Thereafter, (unless Support Services are not renewed) Customer shall pay annual Support Services within 30 days of the commencement of the then-current term for such Support Services.

5. TERM AND TERMINATION

- 5.1 The initial term of this Contract is one (1) year from the Effective Date of this Contract unless earlier terminated in accordance with this Contract. The Customer will be notified within thirty (30) days prior to the expiration date of the Product Warranty or Support Services contract and will have the option of purchasing additional coverage based on the current Support Services rates at that time.
- 5.2 Velocity11 may suspend or terminate Support Services if Customer fails to timely pay Support Service fees as provided in this Contract. Velocity11 may also terminate Support Services if Customer breaches any provision of this Contract and such breach is not remedied within thirty (30) days after Customer receives written notice of the breach. Velocity11 shall also have the right not to renew this Contract with respect to any Product by providing written notice of such election at least ninety (90) days prior to the termination of Support Services for such Product, provided that Velocity11 no longer generally provides Support Services for such Licensed Product, or no longer provides the specific Support Services previously offered.
- 5.3 Customer may terminate this Contract if Velocity11 materially breaches its obligations under this Contract. If Customer terminates this Contract due to a material breach on the part of Velocity11, Velocity11 will refund the support fees for the then current term paid by Customer under the Contract, from the date of termination prorated to the end of the then current term.

6. REINSTATEMENT OR RENEWAL OF SUPPORT SERVICES

In the event Customer fails to timely renew Support Services under this Contract, Support Services shall be discontinued at the end of the then-current term. If Support Services are terminated for any reason, at Velocity11's sole option, Customer may be permitted to reinstate or renew Support Services by paying Velocity11 applicable Support Services fees.

7. LIMITED WARRANTY

Velocity11 warrants that Support Services will be performed with the same degree of skill and professionalism as is demonstrated by like professionals performing services of a similar nature.

8. LIMITATION OF LIABILITY

8.1 Direct Damages. VELOCITY11'S SOLE LIABILITY AND CUSTOMER'S EXCLUSIVE REMEDY FOR DAMAGES WITH RESPECT TO THE SUPPORT SERVICES UNDER ANY CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHER THEORY, SHALL BE LIMITED TO THE AMOUNT PAID BY CUSTOMER FOR THE SUPPORT SERVICES.

8.2 Consequential Damages. UNDER NO CIRCUMSTANCES, INCLUDING NEGLIGENCE, SHALL VELOCITY11 BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOST PROFITS, LOSS OF DATA, OR COSTS OF PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES, ARISING IN ANY WAY OUT OF THIS CONTRACT OR THE USE OF THE LICENSED PRODUCT, DESIGN TECHNIQUES AND DOCUMENTATION.

9. ENTIRE CONTRACT

This Contract and the attached Exhibit constitute the entire Contract between the parties regarding Support Services and supersede all previous Contracts or representations, oral or written, regarding the subject matter. This Contract may not be modified or amended except in a writing signed by a duly authorized representative of each party. Both parties acknowledge having read the terms and conditions set forth in this Contract and Exhibits attached hereto, understand all terms and conditions, and agree to be bound thereby.

EXHIBIT A**SUPPORT SERVICES
VELOCITY11'S STANDARD WARRANTY**

The Standard Warranty, effective for one full year upon purchase date, covers all parts and labor costs necessary to repair your covered product due to all functional part failures as reasonably considered under this contract. If the technician cannot correct the Product problem over the telephone at the initiation of a service request, then the technician will follow the procedures outlined for the Support Services, described in this Agreement.

Non-shippable Products: a service technician will be dispatched the next business day, excluding holidays, to repair the Product(s). Regular holidays shall include New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the day after Thanksgiving, and Christmas Day, unless Velocity11 determines otherwise and notifies Customer with 30-day advance notice.

Shippable Products: Product(s) must be shipped directly to Velocity11 to be repaired. A replacement unit may be shipped to the Customer until the Product is repaired.

On-Site Service. On-site service is available for Customer Products within the United States. The technician will need to have the full address of Customer Products' location. A service technician will be dispatched to Customer's location to service Customer's Product. The Services provided under this Agreement are repair services that are necessary because of any defect that exists or occurs in materials or workmanship in the Products or in any Product component covered by this Agreement. The Standard Warranty does **not** include preventive maintenance, installation, deinstallation, relocation services or operating supplies. If Customer or Customer's authorized representative are not at the location when the service technician arrives, Velocity11 will no longer be obligated to provide services under this Agreement for the Product that requires service on such visit. The service technician will leave a notice with the time of arrival as proof of arrival. Consequently, you may be charged an additional fee for a second service call to repair your instruments.

Service Area. This Agreement applies only to Products located in the United States. In addition, Velocity11 may invoice Customer an additional charge for service in certain remote areas of the United States. Velocity11 will notify Customer if Customer Products are in an area where Velocity11 cannot offer on-site service. If Customer relocates its Product(s) to a geographic location in which the Standard Warranty service is not available, Customer may incur an additional charge to maintain the same categories of service coverage at the new location. If Customer chooses not to pay such additional charge, Customer service may be automatically changed to categories of service that are available in such new location with no refund available.

For purposes of the Standard Service, all references to time will mean the Customer's local time. References to the United States include the continental United States, Alaska, Hawaii and Puerto Rico.

Whole Unit Replacement. If the telephone technician determines that the defective unit is one that is easily disconnected and reconnected, or if the technician determines that Customer Product is one that should be replaced as a whole unit, Velocity11 reserves the right to request that the defective unit be shipped to Velocity11 for repairs. Under the Standard Warranty, Velocity11 will repair the unit, and ship it back to Customer.

Parts Ownership. All service parts removed from Customer Product(s) become Velocity11 property. Customer must pay the current retail price(s) for any service parts removed from Customer Product(s) and retained by Customer.