Intelligent Visualization (IVIS) User's Guide
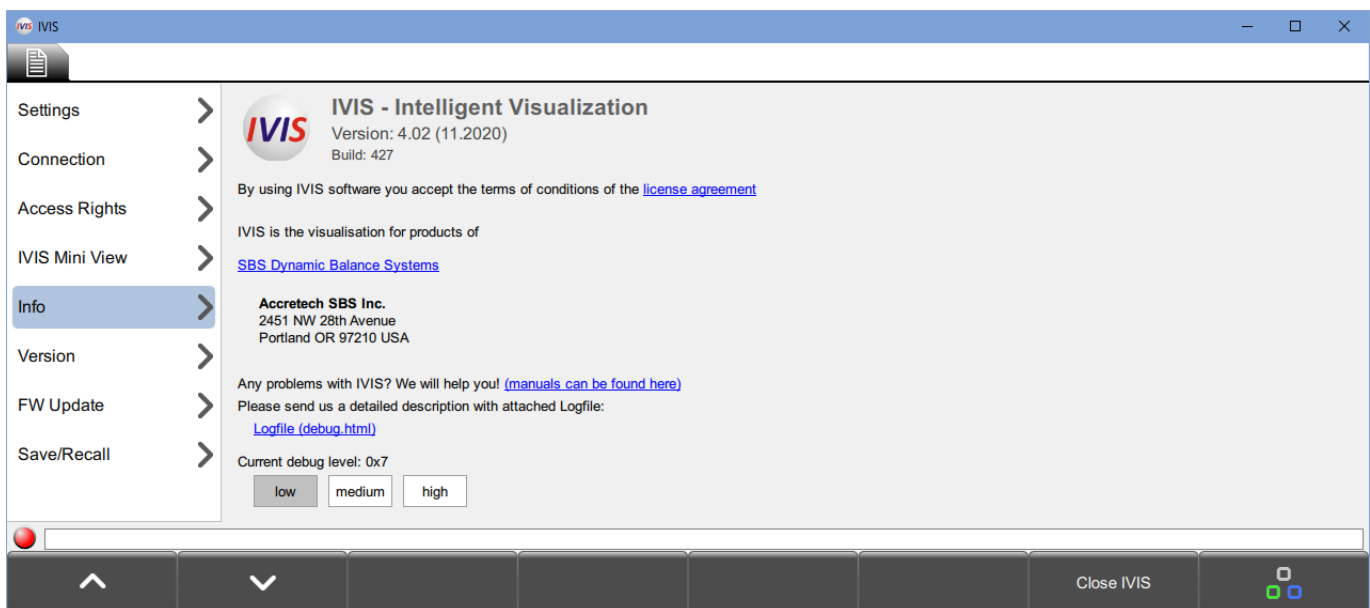
with SB-5500 Series Controls

LL-5700 Rev 1.5c

IVIS

Productivity through Precision™

SBS
DYNAMIC BALANCE SYSTEM

IVIS IVIS   — ☐ ✕

IVIS - Intelligent Visualization
Version: 4.02 (11.2020)
Build: 427

Settings	>
Connection	>
Access Rights	>
IVIS Mini View	>
Info	>
Version	>
FW Update	>
Save/Recall	>

By using IVIS software you accept the terms of conditions of the license agreement

IVIS is the visualisation for products of

SBS Dynamic Balance Systems

Accretech SBS Inc.
2451 NW 28th Avenue
Portland OR 97210 USA

Any problems with IVIS? We will help you! (manuals can be found here)
Please send us a detailed description with attached Logfile:
Logfile (debug.html)

Current debug level: 0x7

| low | medium | high |

●

∧   ∨   Close IVIS

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User's Guide and Specifications

for the

Intelligent Visualization Information System (IVIS)

For Use with Model SB-5500 Series Control Units

LL-5700

Revision 1.5c
For use with IVIS version 4.02 or later

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Benefits of IVIS

- Increases throughput by saving setup time.
- All-digital electronic design increases operating life and reliability.
- Easy to install and operate.
- Works with existing SBS installations.
- International adaptability and display language.
- Backed by world-class SBS customer service.

Table of Contents

Introduction

The Intelligent Visualization Information System (IVIS) is a display and user-interface program for the various functions of the SBS SB-5500 control (process control and balancing). Use this convenient and flexible PC software program to operate these products. IVIS provides:

- User-friendly operation of the system.
- Simple and clear parameter settings.
- Clear display of process data, including saved data for process control products.
- A uniform user interface for all devices.

IVIS provides the user interface for all installed SB5500 functions, including ExactControl, AEMS, and balancing. The SB5500 hardware continues to function autonomously and independently of the IVIS operating software. IVIS supports multiple instances of IVIS on separate PCs configured to interface with any SB5500 control or a single instance of IVIS connected to several SB5500 controls.

Operator Safety Summary

Important!	Before using IVIS, read and understand the product safety information in all hardware product guides.

System Requirements

- Windows XP SP3, Windows 7, Windows 10. (Windows Embedded Compact is not supported.)
- One free Ethernet interface: communication with the SB-5500 system is by Ethernet.
- Integration into Siemens machine control systems for the start of IVIS of Sinumerik Operate. For more information, see "Integration on Siemens Machine Control."
- A USB memory stick or other appropriate storage device with the current IVIS program.
- IVIS.exe requires read and write access to all files in the IVIS folder.

Installation

1. Contact our sales department to ensure that your company email address is setup to use the Secure File Download website.
2. Go to the Accretech SBS, Inc. company website at **https://accretechsbs.com/**.
3. Under Support, follow the IVIS Software link, and click the Secure File Download link.
4. Unzip the software from the download file.
5. Copy the entire IVIS folder and all its contents to any folder on the PC or Windows-based CNC system.

 | | |
   |---|---|
   | **Note** | IVIS does not need to be installed under Windows. Since it is not installed under Windows, it will not appear in the Windows program list. |

6. Right-click the **IVIS.exe** file and create a desktop shortcut.
7. Double-click the **IVIS.exe** shortcut.

8. Connect an Ethernet cable from the SB5500 control to the PC to establish a link between the PC.

9. IVIS assists in the configuration process by searching for any connected devices. For more information about configuration, see the installation guide that comes with IVIS.

High-Resolution Displays

When using a high-resolution display with Windows 8/10 and font scaling set >100%, you should adjust the Windows system scaling setting for IVIS for better display results:

1. With IVIS running, right click the IVIS logo in the Windows task bar

2. Right click IVIS.exe and choose "**Properties**".

3. Select the "**Compatibility**" tab

4. Choose the button "**Change high DPI settings**" and select the checkbox for "**Override high-DPI scaling**"

5. Set the selection for that setting to "**System**".

6. Quit and save settings using the "Ok" button.

7. Restart IVIS and the screen scaling will better match your display setting.
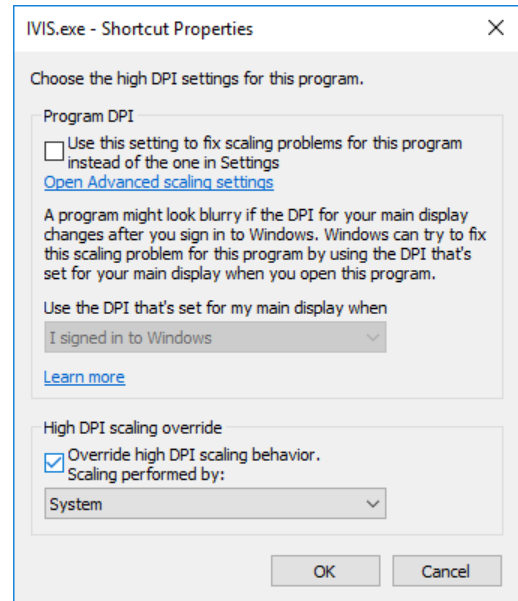
Start IVIS

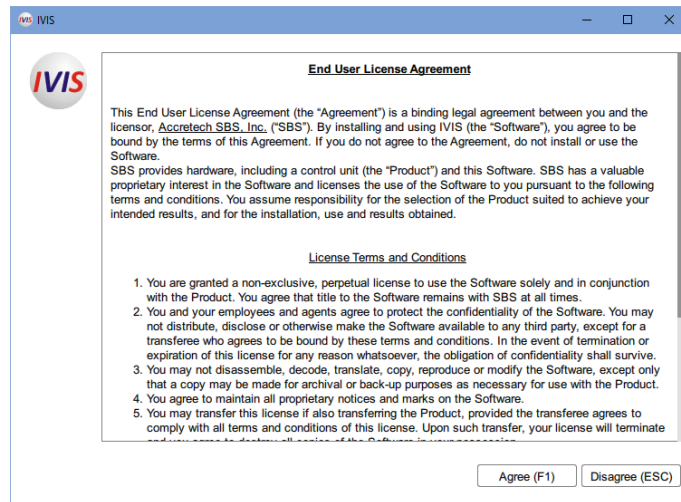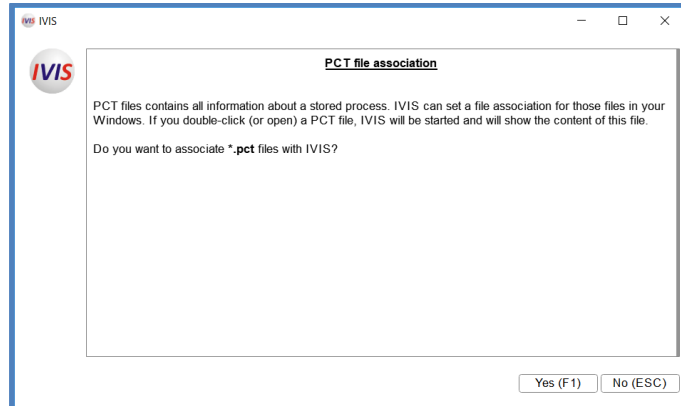| Note	This guide uses English language setup screens. Your setup screens may vary in layout and language.

First-Run Start

Figure 1

License Agreement, PCT Files and Language

1. On initial start, press **F1** on the End User License Agreement window to agree with the terms of the license agreement.

Note	To consult the license agreement at any time, click **Rotate** to switch to **General Settings**, the **Info** tab, and then the **license agreement** link.

Figure 2

2. Press **F1** on the PCT File Association window to associate PCT files with IVIS. PCT files contain information about stored processes. Associating the files allows the viewing of the content of these files in Windows.
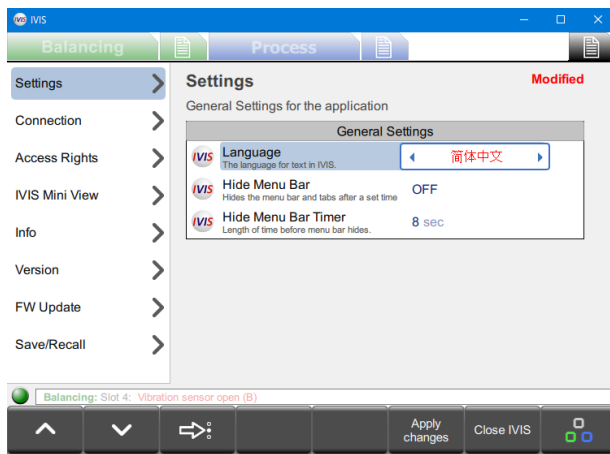
Figure 3

Figure 4

3. If a Windows security message appears asking whether to install this program from an unknown publisher, click **Yes**. Or with an alternate warning message click **More info** and then **Run anyway**.

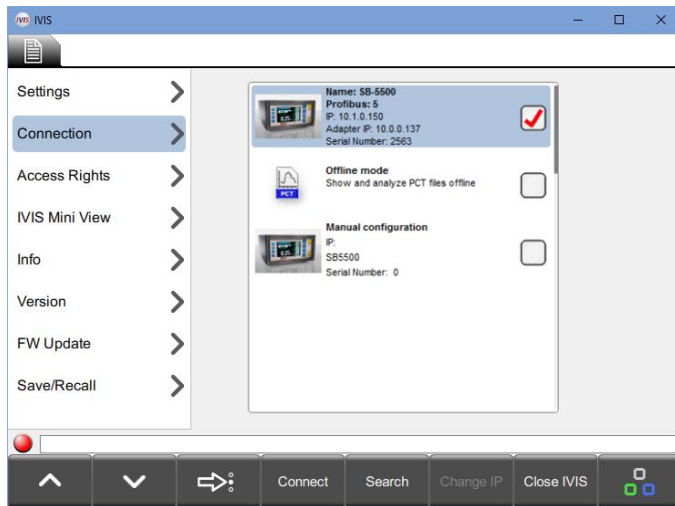| Note	To change the language at any time, click **Rotate** ▢ to switch to **General Settings** and then the **Settings** tab. Then click ⇨ **Next** to select Language. Then use arrow keys to select the desired language. The new selection will highlight in red and "Modified" will display in the corner. To apply the settings, click **Apply Changes**.

Connection to the Device

IVIS searches the network for devices automatically.

1. If IVIS does not find a device, do the following:

   a. Verify that the DHCP or static setting is correct.

   b. Check the wiring.

   c. Ensure that a security system is not blocking the IVIS program.

   d. Click **Search** to restart the device search.

2. On the **Connection** window in **General Settings**, IVIS displays all devices found in a device list.

3. Select the Profibus device option.

Notes	• To select and connect a device, the device IP address must be compatible with the PC IP address.
	• In addition to found devices, IVIS lists two items last on the device list. **Offline mode** is for an IVIS only connection that is used for viewing saved PCT files on the local computer. For more information about **Manual configuration**, see "Manual Configuration."

4. Click **Connect** to connect IVIS to the selected device.

5. (Optional) Connect up to four IVIS program instances to a single device.
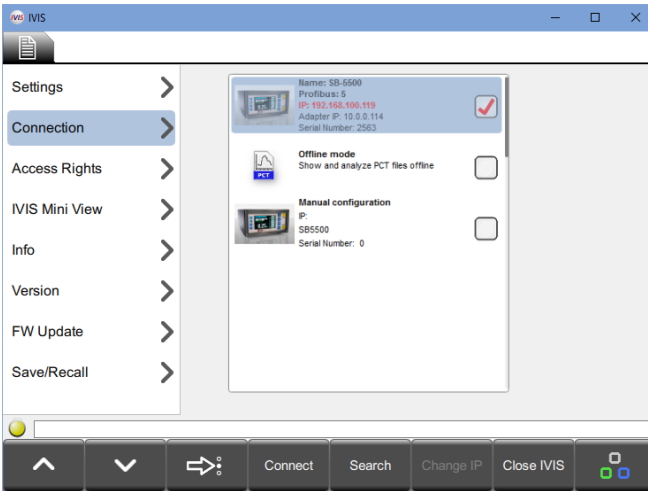
Figure 5

6. Verify that the IP address for the selected device is compatible with the local adapter (PC) address and available for connection.

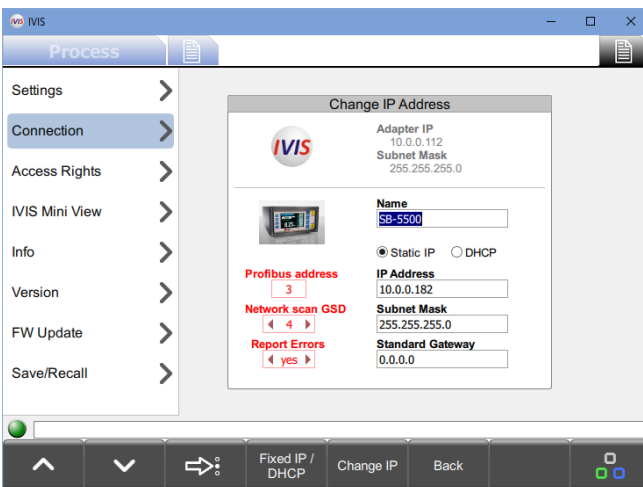| Note | If the device is incompatible with the PC address and unavailable for connection, the device address appears in red and the device option appears shaded. |

Figure 6

Profibus settings (displayed in red) can be altered as needed. Refer to the Profibus/Profinet manual for details about the settings.

Change IP Address

1. To resolve an IP address compatibility issue, do the following:

    a. Select the device.

    b. Click **Change IP** to open the window for communication settings.

2. Refer to the **Adapter IP** and **Subnet Mask** next to the **IVIS** icon as a configuration aid.

3. (Optional) Change the assigned device **Name** and the **Profibus** ID.

4. If a DHCP server is in use on the network, select **DHCP**. Toggle the selection using the **Fixed IP/DHCP** button.

5. Otherwise, select **Static IP**.

6. Type the **IP Address**, **Subnet Mask**, and **Standard Gateway** settings that are compatible with the PC adapter.

7. Click **Change IP** to save settings. The network searches for devices again.

| Note | Changes to the settings may take some time to complete, depending on the device type and the complexity of the network. |

8. If the new settings for the device do not appear after 15 seconds, click **Search**.

9. Once the device settings are compatible, repeat steps 3 and 4.

Figure 7

Manual Configuration

Use the **Manual configuration** option at the end of the device list in cases where IVIS is connected by a router.

1. Select **SB5500** as the type of device.

2. In **IP**, type a compatible fixed IP address.

3. In **Serial Number**, type the serial number of the SB5500.

4. Verify that there is a VPN connection to ensure connection across routers, or take steps to ensure that ports and IP address assignments are compatible.
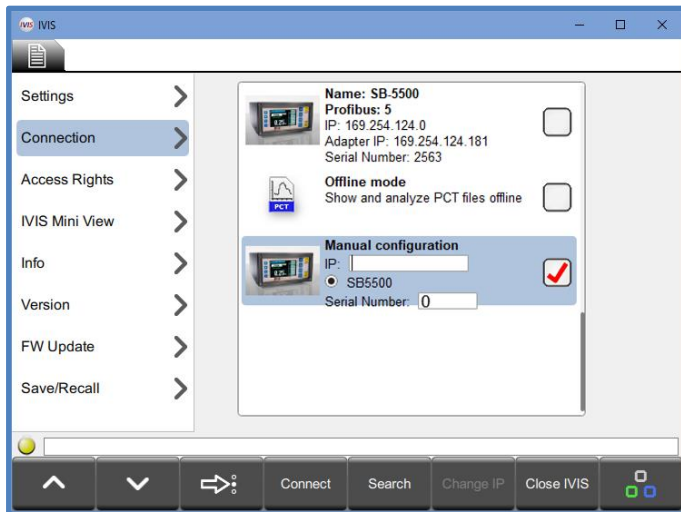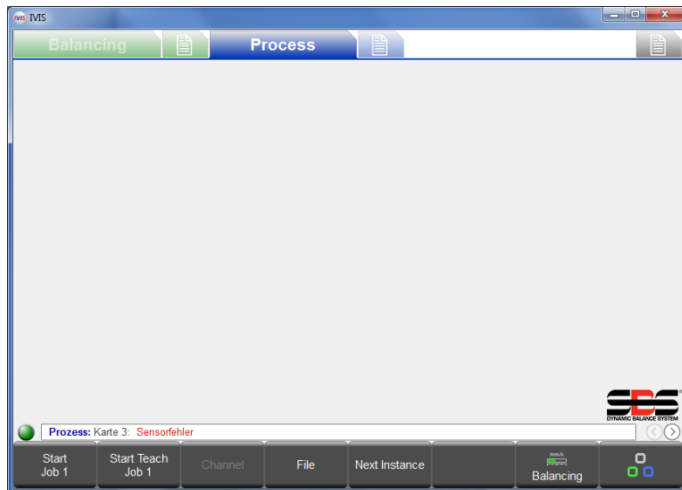
5. Restart IVIS. The system automatically saves and sets all parameters changes for use when the program is restarted.

Start After First Run

Figure 8

When starting IVIS after the first run, the **Balancing** or **Process** tab, or both, appear for the installed products.

Connection Indicator

The connection indicator circle at the bottom left of the window above the menu bar indicates whether the IVIS program has connected successfully with SB-5500.

- A green circle indicates a successful connection.

- A yellow circle indicates that IVIS is attempting a connection.

- A red circle indicates a failed connection attempt.

When SB-5500 is restarted, it takes about 10 seconds for the control unit to reboot and re-establish connection to IVIS.

IVIS is persistent. That is, it saves connection information, the last screen position, and window size automatically. It restores theses settings when the program is restarted.

Whenever a process card is installed in SB-5500, the default IVIS view is the most recently selected **Process** view. If that view is the **Job**, **Instance**, or **Channel** view of the ExactControl card, then the display is empty of data until a process is setup or started.
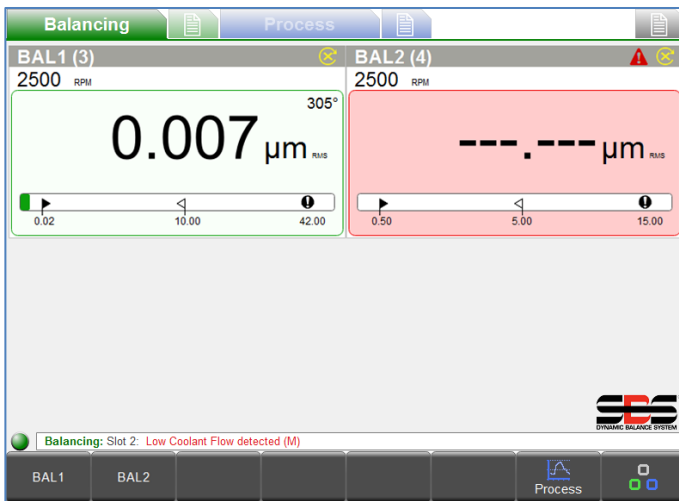
Figure 9

Integration on Siemens Machine Control

When integrated with machine controls, use the following command line options to start IVIS without a window frame and header.

IVIS.exe -noFrame

Use the following command to start IVIS without a window frame and header, as with **-noFrame**, and to start IVIS in full-screen mode. On small screens, this uses the space optimally.

IVIS.exe -fullscreen

Sinumerik 840Dsl with Sinumerik Operate

For information about Sinumerik 840Dsl with Sinumerik Operate, see the IVIS user's guide provided with IVIS software, which is in the **IVIS\manuals** directory.

FANUC, Bosch Rexroth, and Heidenhain CNC

When using the PC-based version of the control with Windows, IVIS can run on FANUC, Bosch Rexroth, and Heidenhain CNC controls. The software framework of these CNC controls provides a mechanism, such as **...start an external application...**. In this case, we recommend using the command line **-fullscreen** option.

IVIS Command Line Interface

To control the position and appearance of the IVIS program, use the following command line interface:

d:\\IVIS\\Ivis.exe –<command>

Options for <command>:

-help
  displays an English language Help window with a summary of the commands

-pos <x> <y>
  sets the location of the upper left corner of the IVIS window

-size <width> <height>
  sets the width and height of the IVIS window

-noframe
  starts IVIS without a window border

-fullScreen
  starts IVIS maximized without a window border

-closeMiniViewOnly
  terminates a running Mini View application

The coordinate value parameters are measured in display pixels. The origin is the upper left corner. If there is more than one display, it will depend on the settings in Windows (the primary screen has 0,0 at the left upper corner).
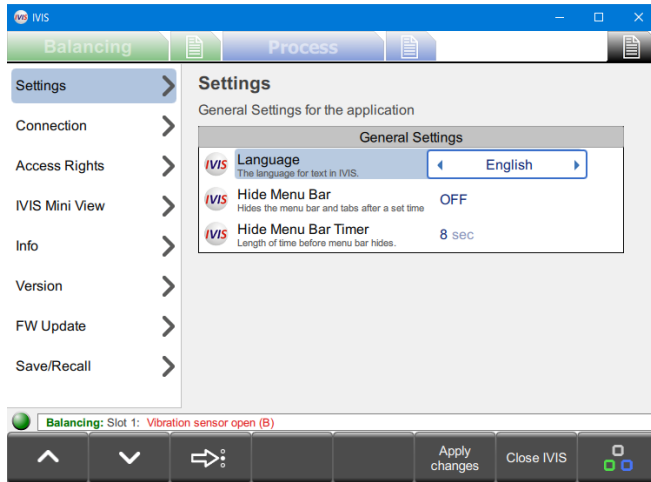
IVIS Overview

Figure 10

When IVIS connects to a device, the display automatically adjusts to the hardware configuration. The operating areas are divided into tabs. The **Balancing** tab shows balancing functions. The **Process** tab shows process monitoring functions (ExactControl and AEMS).

For each view (**Balancing** or **Process**), use the associated parameters tab to find and set the related parameters:

- **Balancing Parameters** 📄
- **Process Parameters** 📄
- **General Settings** 📄

IVIS Operation

Operate IVIS primarily with the eight buttons in the menu bar. These buttons have different functions based on the operational context. They provide the operator with the functional choices for product operation, based on the operation. Operate the buttons with the keys on the machine control panel, by using the PC keyboard (**F1**-**F8**), or by using the cursor.

Process and Balancing

When both types of products are installed in SB-5500, use **Process** and **Balancing** to switch between the **Process** view and the **Balance** view.

Rotate

Use **Rotate** to switch between the following tabs:

- **Balancing View**
- **Balancing Parameters**
- **Process View**
- **Process Parameters**
- **General Settings**

Editing Parameters

To select which item to view, click **Up** and **Down** or press the **Up** and **Down** arrows on the PC. Many menus can scroll up and down with the mouse wheel or touch gestures.

To move through the options in a list, click **Next** or use the cursor to select an option.

To select the parameter options menu for the selected parameter, click **Forward**. When **Forward** appears next to a parameter, it indicates that an options menu exists for the parameter.

To enter parameter settings, use the PC keyboard or click **Keyboard** for a virtual keyboard, which is accessible for all parameters that require input. To save changes and exit the virtual keyboard, click **Enter**. To select from an available list of parameters, click **Left** and **Right**.

The system saves all changes to parameters immediately, except when editing ExactControl process control job parameters. When changing these parameters, the word *Modified* appears in red in the top right corner of the parameters window and **Undo** ![Undo icon] is available on the menu bar. Click **Undo** to revert changed settings on the window to the last saved state and to undo any erroneous changes. This functionality depends on the context. When in a submenu (for example, a Strategy submenu), **Undo** only affects the submenu items. When editing a job, click **Undo** to revert the entire job.
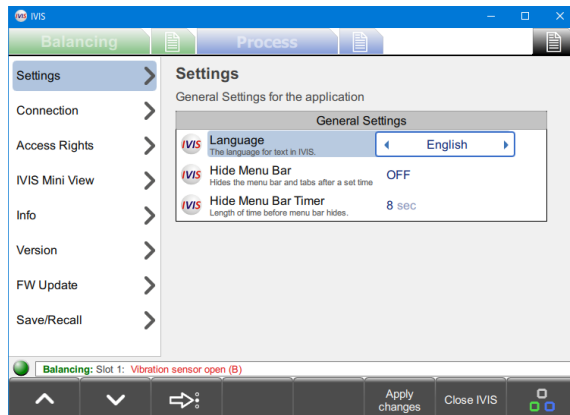
IVIS General Settings

Figure 11

Language

At the first run, the English language is set by default. For another option, go to **General Settings** ![icon], select the **Settings** tab. Then click ![Next icon] **Next** to select the Language area. Then use arrow keys to select the desired language. The new selection will highlight in red and "Modified" will display in the corner. To apply the settings, click the **Apply Changes** menu button.

Figure 12

Hide Menu Bar

Use ![Next icon] **Next** to select a parameter. To Automatically hide the menu bar and tabs on the Process and Balancer screens, turn the **Hide Menu Bar** setting to **ON**. To vary the time from interacting with the screen until it hides, change the **Hide Menu Bar Time** setting. The new selections will highlight in red and "Modified" will display in the corner. To apply the settings, click the **Apply Changes** menu button.

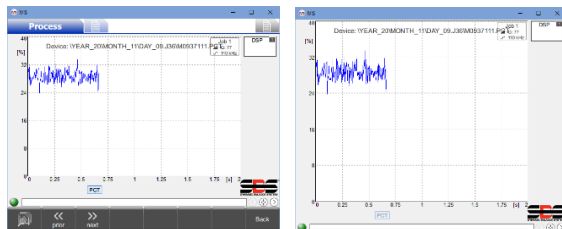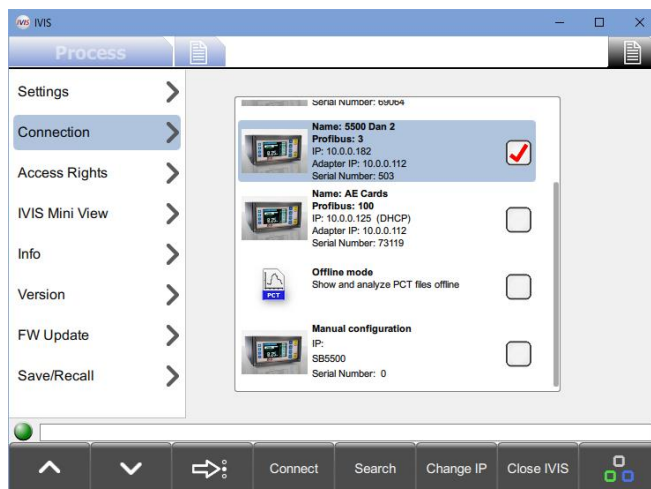

Figure 13

Connection

IVIS automatically scans the network for devices and displays all found devices.

The red checkmark indicates which device is connected.

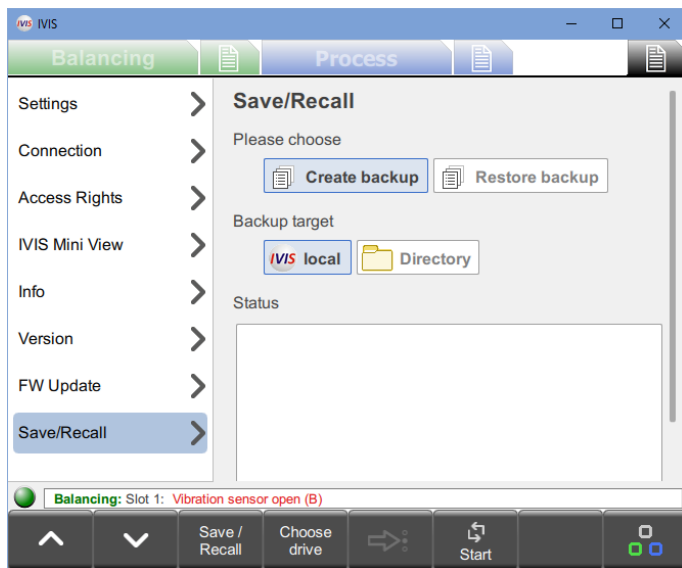For more information about setting the connection, see "First-Run Start."

Figure 14

Save

1. To open the Save/Recall window, click the **General Settings** tab and then the **Save/Recall** tab.

2. To toggle between the save and recall functions, click **Save/Recall**.

3. To save user settings for each installed device card in the SB-5500 control to individual files, click **Create backup.**

4. To use a USB drive as the storage location, attach the USB drive, so that the system will list it as a backup target.

5. To select the storage location for the files, click **Choose drive** or toggle between the available drive locations. The default location is the IVIS program directory.

6. To transfer the settings files in supported cards in a connected SB-5500 series controller to IVIS, click **Start**.

7. When creating a backup, the system creates a **Backup** sub-directory automatically and uses it as the file location.
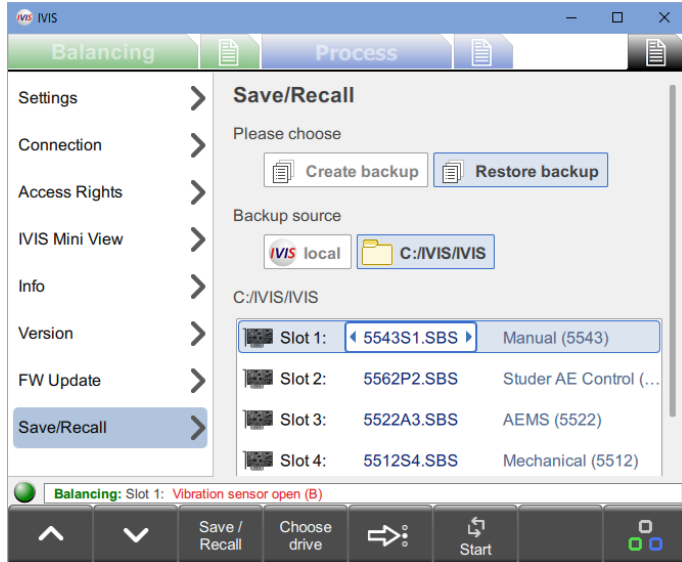

Figure 15

Recall

When creating a backup, the system saves the Main PCB settings. The Main settings are limited to connection settings (Ethernet and Profibus) and language selection. For this reason, we recommend excluding the Main file when using **Restore backup** to setup a new control unit, allowing for differences in connection settings.

Restore backup only transfers settings to device cards in the target SB-5500 that match both the card type and the slot number (1-4) of the saved configuration. When the system does not find a matching file at the target location, it skips the slot in the restore process.

1. To open the Save/Recall window, click the **General Settings** tab and then the **Save/Recall** tab.

2. To toggle between the save and recall functions, click **Save/Recall**.

3. To send (recall) saved settings to the same or another connected SB-5500, click **Restore backup**. The status area displays the message **Valid backup found, Press Start to recall settings**, if the default IVIS program directory contains settings files.

4. To select the storage location for the files, click **Choose drive** or toggle between the available drive locations.

5. To transfer the settings files from IVIS to a connected SB-5500 series controller to IVIS, click **Start**.

During the transfer of settings, a transfer status bar for each card appears along with the overall status of all transfers. If an installed card does not support the **Save/Recall** function or if a data transfer error occurs, the status area will indicate a failure in red for that card.

In addition to an .SBS file, when a .NET framework is installed on the PC, the system simultaneously converts the .SBS files to a human-readable text (.txt) file in the same folder as the .SBS file. A **Converted** message appears in the status area of the window for each created text file.

Note	If the PC does not have .NET installed, the system cannot create a text file.

The system names the settings files using the card type and the slot number, which it formats as 55**nnyx**.SBS. The naming convention is as follows.

- **55**: SB-5500 series controller.

- **nn**: Indicates where the product number of the card appears.

- **y**: Indicates where a letter for sub-models of the card appears. **D** indicates dual plane, **S** indicates single plane, **A** indicates AEMS, **P** indicates process, **M** indicates main, and an underscore (_) indicates that there is no extra information. The system reserves **R** for firmware update files.

- **x**: Indicates where the slot number from 1 to 4 appears. Main will always have 0 for the slot number.

- **.SBS**: Proprietary Dynamic Balance System file type.

When settings recall is complete, the controller waits a few seconds and then disconnects automatically from all current IVIS instances. The IVIS instances reconnect automatically and update with the new settings. As with any Ethernet connection, this reconnection may take a few minutes. While this process is pending, IVIS displays a window indicating that it needs to reconnect.

Access Rights

To control access to certain functions, such as making settings changes, IVIS includes an access rights system. It provides the following access levels:

- **User**: Access for the machine operator.

- **Expert**: Access for the process manager.

- **Manufacturer**: Full access to all functions for machine setup.

- **Service**: SBS service staff access only.

The **Current access level** appears in the status bar at the top of the menu list.
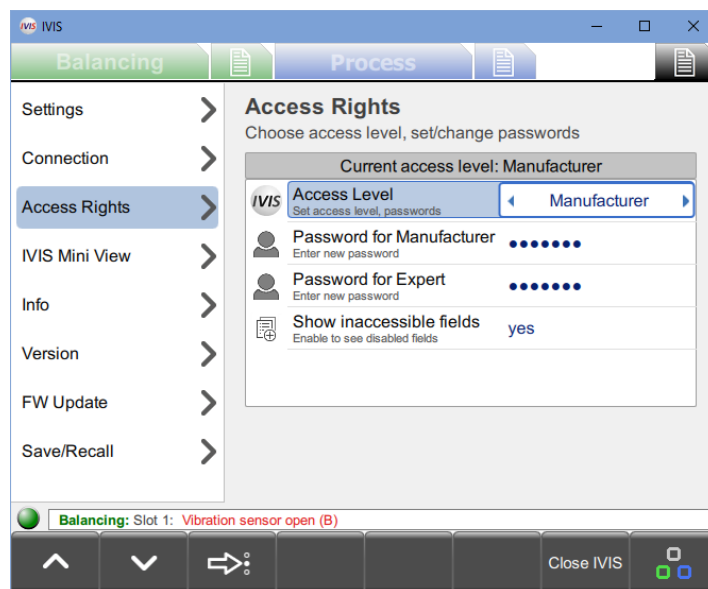

Figure 16

Parameters are either hidden or dimmed to show they are not accessible at the current access level (see below). The machine builder may customize each parameter to match IVIS capabilities to each access level of the machine.

Setting Access Level passwords

Note	By default, the password for each of the user levels is empty when IVIS is installed, so IVIS permits full access. (User level does not require a password.)

To enable protected use of one of the Access Rights levels or to change an existing password, enter a password for that access level.

1. Select the **General Settings** tab.
2. Click **Access Rights** to open the Access Rights window.
3. In a **Password for**... field for the current access level or a lower access level, type a password.
4. Press **Enter**.

Deleting Access Level passwords

To reset a password to empty, delete the existing password.

1. Select the **General Settings** tab.
2. Click **Access Rights** to open the Access Rights window.
3. In a **Password for**... field for the current access level or a lower access level, delete the password.
4. Press **Enter**.

Selecting different access levels

Use **Access Level** to select another access level option.

1. Select the **General Settings** tab.
2. Click **Access Rights** to open the Access Rights window.
3. From **Access Level**, select an access level option.
4. If selecting a higher access level with a set password, type the password for that level.

Note	When the system requires a password to change the access level, the **Lock** 🔒 icon appears next to the **Password** field.

5. Press **Enter**.
6. Verify that the access level changed by checking the **Current access level** status bar.
7. After using or configuring a higher access level, follow steps 1 to 6 to reset the access level to its previous level. The next time the IVIS program is restarted, it will open with the last-selected access level.

Showing and hiding inaccessible fields

The **Show inaccessible fields** option is a global setting for all access levels. It allows control over the view of parameters that are not accessible for the active access level.

1. Select the **General Settings** tab.
2.   Click **Access Rights** to open the Access Rights window.
3. From **Show inaccessible fields**, do one of the following (This may require a higher access level):

    a. Select **yes** to show all parameters. The inaccessible parameters appear dimmed.

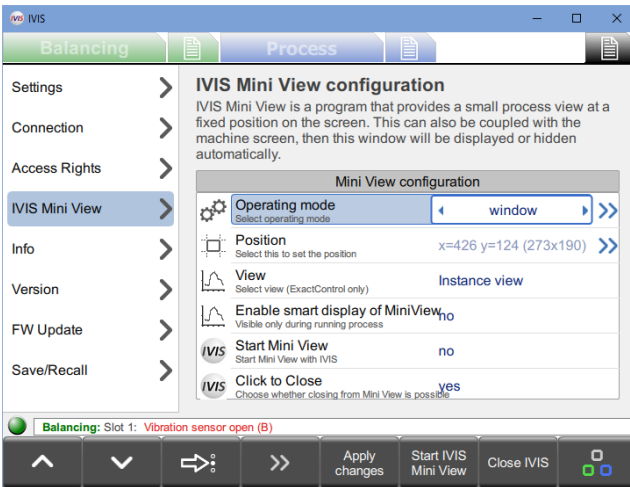   b. Select **no** to remove the inaccessible parameters from display.

Figure 17

IVIS Mini View

IVIS Mini View is a separate program that can run on a PC to provide a small view of the essential status information from IVIS. It runs independently of IVIS and can be set to appear at a fixed position and size on the screen. To allow this view to appear or hide automatically, place IVIS Mini View on the machine screen. Some parameters are available to set up how and when IVIS Mini View appears.

After making changes to the IVIS Mini View parameters, click **Apply changes** to save them.

To start the program, click **Start IVIS Mini View**.

When IVIS Mini View is running, click **Stop IVIS Mini View** to stop it.

Operating mode

The Operating Mode window configures IVIS Mini View to run correctly on the machine screen of different CNC platforms. The **Automatic** setting detects the CNC type and is recommended for most installations. If this setting is not working, select the CNC device type from the list: **HMI Advanced**, **Sinumerik Operate**, or **Bosch Rexroth**.
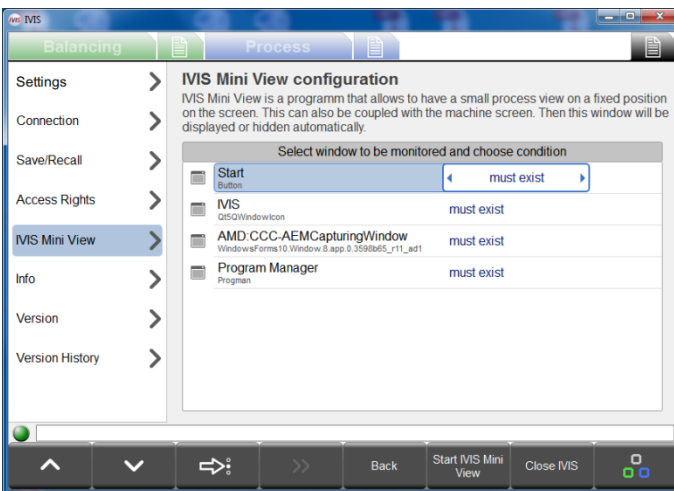

Figure 18

Use the **Window** setting to attach the IVIS Mini View display to the state of a specific window in the operating system. The options list the program windows that are running. The user can select a window and associate the Mini View display, when it is running, with this window.

The association options include:

Must exist: Mini View appears when the selected window is running.

Isn't minimized: Mini View appears when this window is running and not minimized.

Has focus: Mini View appears when this window is selected.

Use the **Process** setting to attach the IVIS Mini View display to a running process in Windows, so that Mini View is active when the selected process is running.
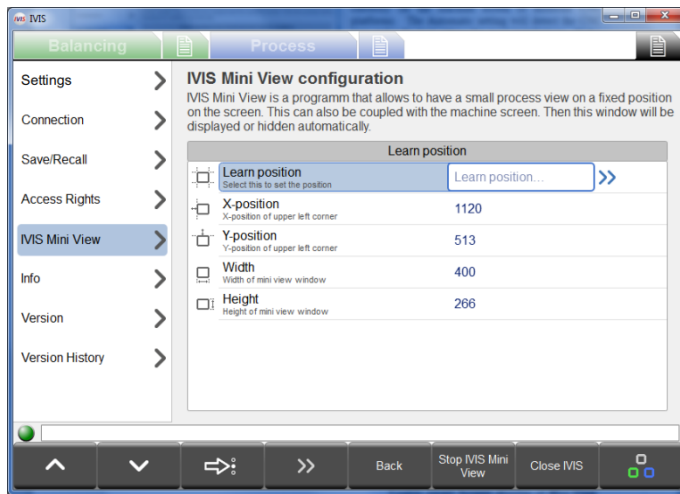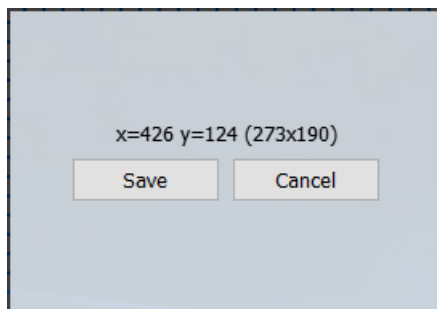
Figure 19

Position

Use the **Position** setting to set IVIS Mini View to appear at a fixed position and size on the Windows desktop. When Mini View appears, it is on top of other windows or programs.

Set the position and size of the Mini View window by using the manual settings or by using the **Learn position** option.

Figure 20

Learn position

To use the **Learn position** option, do the following:

1. Click the **Forward** arrow next to the **Learn position** option to show an outline of the window on the desktop.
1. Move or resize the outline.
2. Click **Save**.

View

When using ExactControl, use the **View** option to configure the content of IVIS Mini View, which can display either **Instance view** or **Channel view**. **Instance view** splits the Mini View display area to show all instances of the current job. **Channel view** has an option menu to show the configuration of the two channels.

Enable smart display of Mini View

To allow IVIS Mini View to appear only during a running process, select **Yes** next to the **Enable smart display of Mini View** option. Then Mini View appears only when Process Start is activated until three seconds after the Process Stop signal is activated.

Start Mini View

To start IVIS Mini View whenever IVIS starts, select **Yes** next to **Start Mini View**.

Mini View automatic start

IVIS Mini View can be configured to start automatically when a Siemens CNC control starts. The supplied configuration file at **IVIS\Siemens\Sinumerik Operate\cfg\systemconfiguration.ini** contains the following line. Implement this line on the CNC. Remove the comment from the line and edit the file location path as needed:

;PROC601= image:="d:\\IVIS\\IvisMiniView.exe", process:=IVIS_MINI, background:=true

Mini View command line interface

To control the position and function of the Mini View, use the following command line interface:

d:\\IVIS\\IvisMiniView.exe –<setting>

Options for <command>:

-help	displays an English language Help window with a summary of the commands
-pos <x> <y>	sets the location of the upper left corner of the Mini View window
-size <width> <height>	sets the width and height of the Mini View window
-close	terminates a running Mini View application
-enableSmartDisplay	enables SmartDisplay (Mini View window is only visible if a process is running)
-disableSmartDisplay	diables SmartDisplay (Mini View window is always visible)
-show	shows the window for a running Mini View application (disables the SmartDisplay mode)
-hide	hides the window for a running Mini View application (disables the SmartDisplay mode)
-resetOperatingMode	re-enables SmartDisplay mode (cancels show and hide)
-view <type>	sets the desired view according to type:

      -view 0   displays the instance view
      -view 10   displays the AEMS view
      -view 50   displays the balancing view
      -view 201 <upperChannel> <lowerChannel>   displays the channel view for two channels, upper and lower:

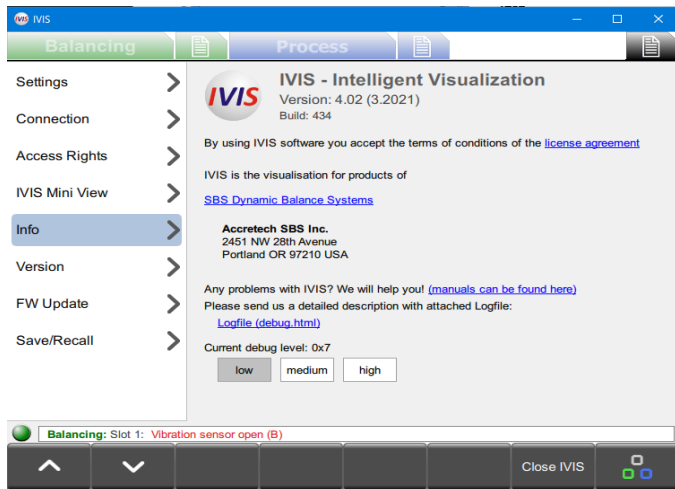|	
0	digital channel 1
1	Profibus channel 1
2	Profibus channel 2
3	Profibus channel 3
4	Profibus channel 4
5	digital channel 2
6	manual channel
100	automatic channel selection

Figure 21

Info

The **Info** tab summarizes general information about IVIS:

- IVIS software version and date.

- Link to the license agreement.

- Link to the SBS Dynamic Balance Systems website.

- Manufacturer contact information for customer service.

- Link to the log file, which is stored in HTML format.

- Debug level options. By default, the debug level is set to **low**.

If experiencing issues with IVIS or product operation, do the following:

1. Change the debug level to **high** to capture maximum information regarding the system status.

2. Click the **Logfile** link to open the **debug.html** file in the installed browser program.

3. Provide the **debug.html** file to IVIS support to address technical support questions or issues.
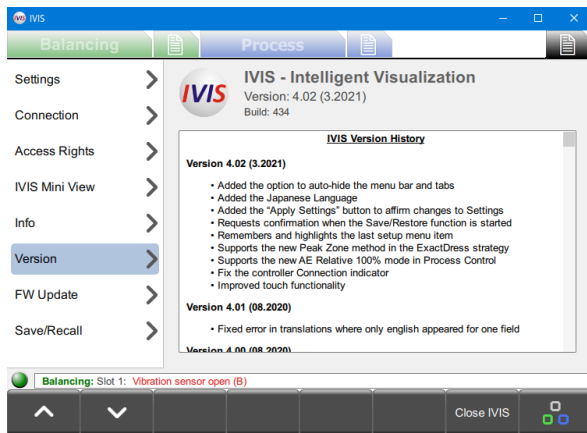

Figure 22

Version

The **Version** tab summarizes general information about the IVIS version:

- IVIS software version and date.

- Log of all changes to the IVIS software.

Close Program

To close IVIS, click **Close IVIS**, press **Alt+F4**, or click the **Close** icon at top right of the program window.
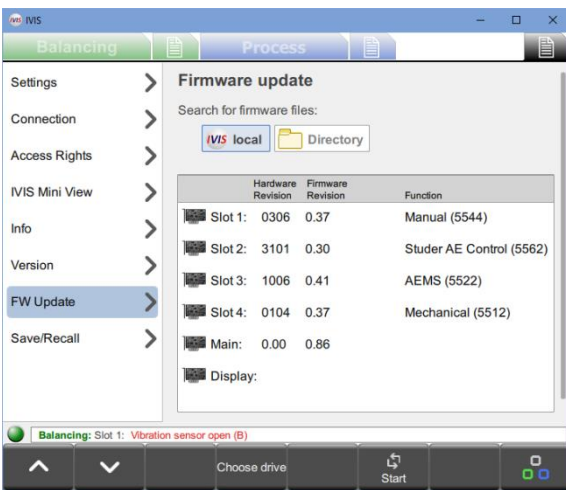
Figure 23

The **FW Update** tab can be used to update the controller's firmware.

Click the **Directory** button and point to a folder containing the unzipped SB files downloaded from **https://accretechsbs.com/**.

Click **Start** and wait for the updates to finish.

See the Maintenance and Support section if this screen is not active.

Balancing View

The Balancer cards also have interfaces through the Profibus/Profinet interface if it is installed.
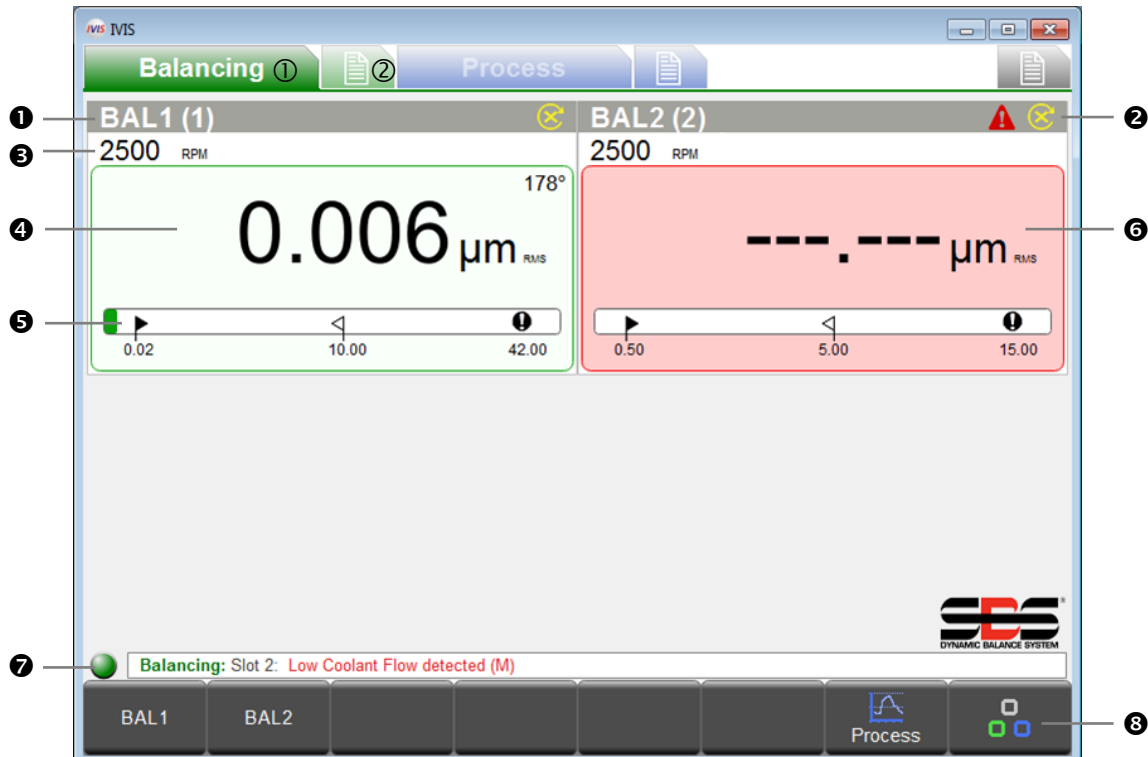
Balancing Overview

Figure 24

① **Balancing View** tab.
② **Balancing Parameters** tab.

❶ **Balance Card Name**: Five-digit assigned name of the balance card. The default names are SLOT1 through SLOT4. The user can define a name for the slot on the Parameters window, appears with the slot number followed by *x*.

❷ **Status Indicators**: Status indication for error messages For more information, see "Status Line."

❸ **Speed**: Spindle speed, if available.

❹ **Balance or Vibration Value**: Displays the display units and the measurement type (amplitude, RMS, or peak-to-peak measurement). Select the value on the Balance Parameters window.

❺ **Graphical Display of Unbalance**
   ⚑ **Target Limit**: Target balance level
   ◁ **Tolerance Limit**: Maximum imbalance
   ⓘ **Critical Limit**: Safety warning

❻ **Background Color**
   Green: Balance is OK and is in the acceptance range.
   Yellow: Unbalance is above the acceptable balance tolerance, so a rebalance operation is required.
   Red: Unbalance has exceeded the critical safety limit.

❼ **Status Line**: Displays the connection between IVIS and equipment as well as any status messages.
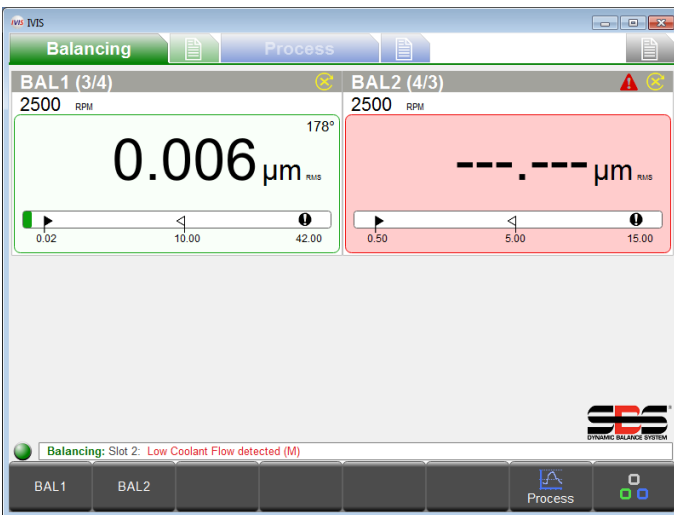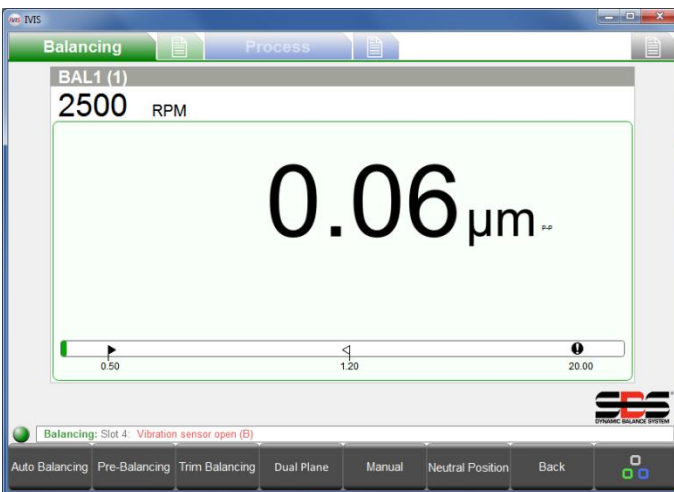
❽ **Menu Bar** with function buttons.

Figure 25

Balance Operations

If more than one balance card is present, click a balance card button to select that option. The assigned name for each card appears in the menu bar (for example, BAL1 or BAL2).

To change the name of the balance card, select the **Balancing Parameters** tab.

Figure 26

Note	All menu keys shown in the figure at left will not appear at the same time.

The available functions appear based on the type of balance card installed (automatic, two-plane, manual balance, etc.) as well as the current function.

For more information about functions, see the instruction guide supplied with SB-5500 control.

Auto Balancing

Click **Auto Balancing** to start the balancing process for all balance cards that support automatic balancers.

The **Auto Balancing** icon appears during the balancing cycle, along with the status of the process.

Figure 27

Pre-Balancing

Use **Pre-Balancing** to compensate for any basic imbalance (for example, imbalance caused by a grinding wheel change).
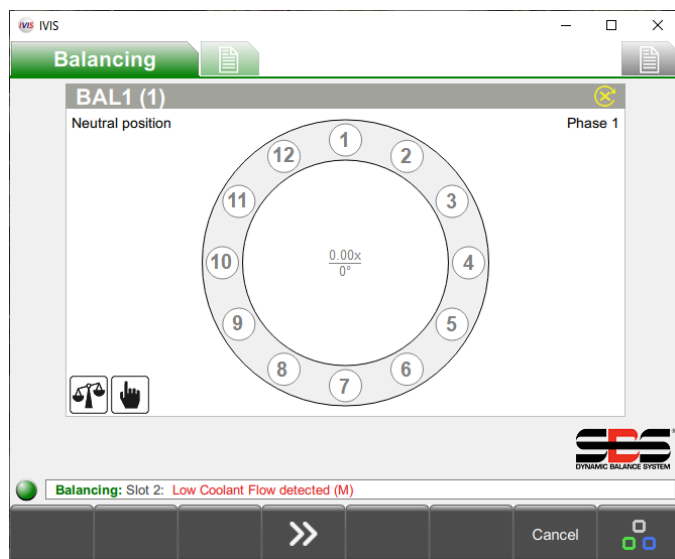
This process allows for the manual placement of weights to balance the new wheel, so the automatic balancer achieves balance with less compensation.

There are five different balancing strategies available. (The figure at left shows the fixed location strategy.)

Figure 28

Trim Balancing

If required, perform the simpler rebalance cycle at any time after a successful pre-balance of a wheel. Performing a new initial run is unnecessary.

Single Plane and Dual Plane

If dual-plane balance cards are installed in SB-5500 (pair -D type cards in slot 1-slot 2 or in slot 3-slot 4), then the one-plane operation and two-plane operation options are available. This mode affects the automatic balancing and pre-balancing cycles. When two dual plane balancing cards are installed in the control, they are displayed together in IVIS on the balancing parameters screen to provide a better overview of the job configuration of the two cards.

Balance Jobs

The ability to set and select balancing jobs was added in IVIS version 3.80. Select "**Enable Jobs**" on the Balance Parameters screen, and then select from available job sets (1-8). Using Balance Jobs allows different Balance parameters to be configured for different uses or operations.
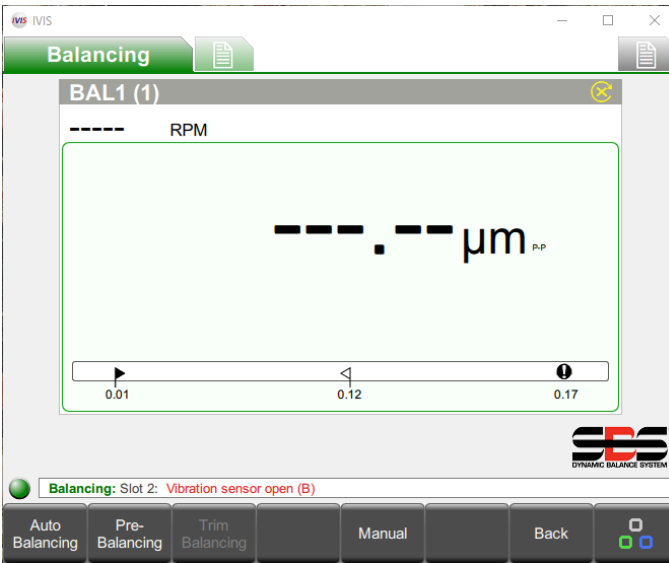
Figure 29

Activate manual RPM

In configurations with automatic balancing, move the balance weights manually using **M1+**, **M1-**, **M2+**, and **M2-**.

When no RPM signal is present, click **Manual** to set the RPM filter to the setting determined by the manual RPM parameter.

Neutral Position

Click **Neutral Position** to move the weights in the balancer to neutral (opposite) positions. This function operates only with non-contact type balancers that are configured with optional zero weight position sensors.

Back

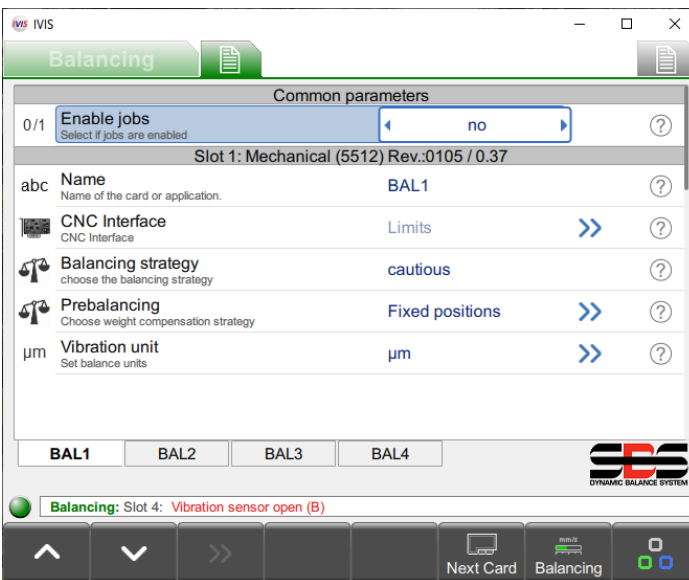Click **Back** to exit the **Balancing Parameters** menu and to return to the overview of all balance cards.

Figure 30

Balancing Parameters Overview

In the **Balancing Settings** menu, all the parameters for each existing balance card appear by topic. The tabs below the parameter list show the card names. Click a tab to select that balance card. Click **Next Card** to move from one card to the next.

To move from one parameter to the next, click the **Up** and **Down** arrows or select the parameter option.

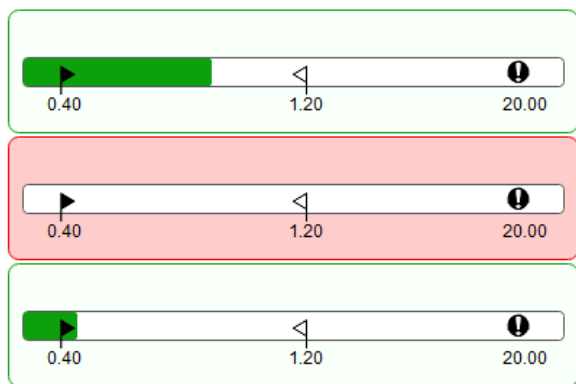After making a change, the system save all parameters immediately.

For more information about balancing functions and parameters, see the user's guide for the SB5500 control from **https://accretechsbs.com/**.

Figure 31

Balancer Mini View

Balancer Mini View appears when the SB-5500 control does not have process cards installed. Each balancer card appears in order by slot number and is indicated by a bar graph that shows the current balance condition. The bar graphs scales to fit all installed balance cards to the assigned mini view area.

If a process control card is installed, then this view does not appear. Instead, configure the balance bar graphs to appear as part of the selected **Process** view.

ExactControl and Studer AE Control Process Views

See the **ExactControl** manual for details on using the ExactControl card and its views.
See the **Studer AE Control** manual for details on using the Studer AE Control card and its views.
These cards also have interfaces through the Profibus/Profinet interface if it is installed.
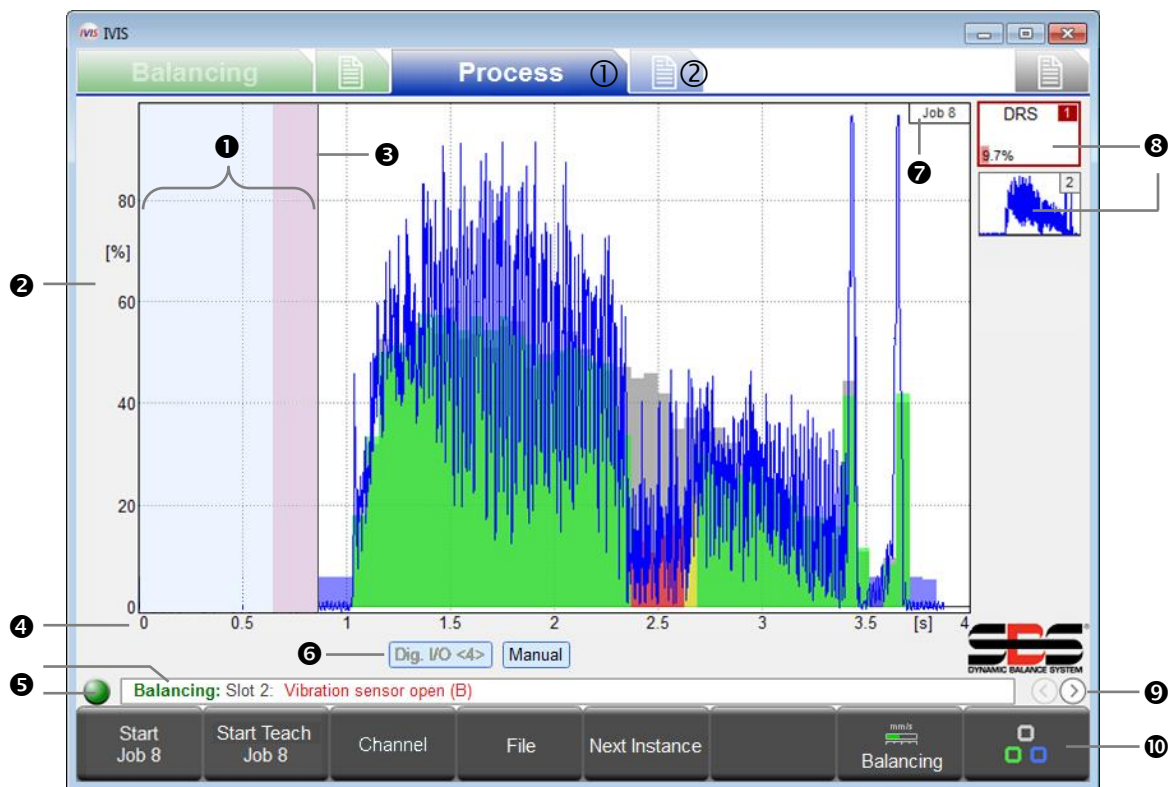
ExactControl Process Overview

Figure 32

① **Process View** tab
② **Process Parameters** tab

❶ **Idling Time**: Shows the measurement signal for one second before the start. The pink region is the idling time used for acquiring the average signal level in the relative measurement method.
❷ **Y Axis**: Amplitude of the measurement signal in percentage (%) of the full input range.
❸ **Start Time**: Processing starts at the CNC/PLC Start signal, the Profibus Start signal, or the IVIS **Start Job** button.
❹ **X Axis**: Process timeline from cycle start and continuing to cycle stop—for several hours, if appropriate.
❺ **Connection Indicator**: The connection indicator circle shows connection status between IVIS and the SB-5500. A green circle indicates a successful connection. A yellow circle indicates that IVIS is attempting a connection. A red circle indicates a failed connection attempt. Scrolling SB-5500 error messages appear to the right of the status indicator.
❻ **Channel Label**: The active label indicates which channel is displayed. For Digital and Profibus channels the start number appears in <angle brackets>.
❼ **Job** that was selected and started.
❽ **Symbol Instance**: Shows the surveillance strategy and the result of monitoring (here: 9.7% error). Add up to a four job instances.
❾ **Select Process View**: Job, Instance, Channel, or AEMS.
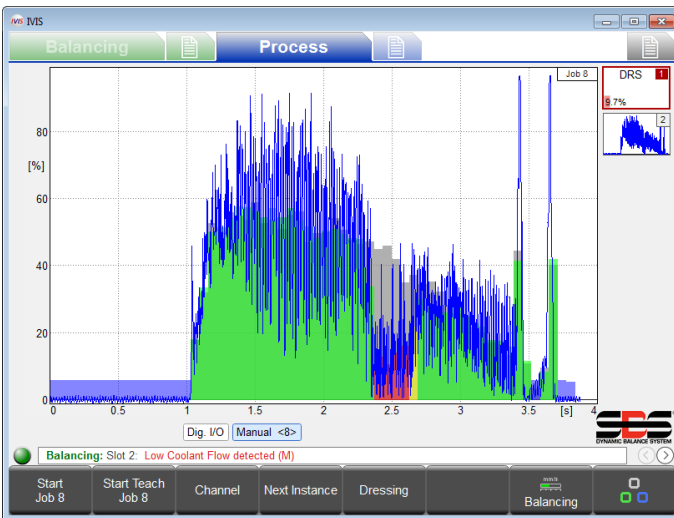❿ **Menu Bar** with function buttons.

Important	The Process windows show the results of the most recently run process. The windows are blank when IVIS or SB-5500 starts, since no process results are available.

Figure 33

The graphics area displays the measurement data and scales the data automatically, so that the entire measurement signal appears in the window. The figure at left displays the beginning of data recording at zero seconds, while the **Start** process is active. The monitoring and recording ends with the **Stop** process.

Process Data Display

The IVIS display automatically adapts to the hardware and parameters configuration.

On Process windows, press the keyboard arrows to change how the signal is appears in the window for the current job. To change the gain or scaling of the displayed data for either the Y or X axis, press the arrow keys separately. To change the signal offset or view window of the screen, press the arrow keys and **Shift** simultaneously.

When the display is changed using the arrow keys, the system turns off automatic scaling for the current job. When another job is selected, IVIS is restarted, or the spacebar is pressed, automatic display scaling reactivates.

ExactControl Instance Monitoring Results

The icons for each instance in the Job view indicate important status information for the process. The system continually updates the information. The monitoring gives the operator a quick overview of the current result.
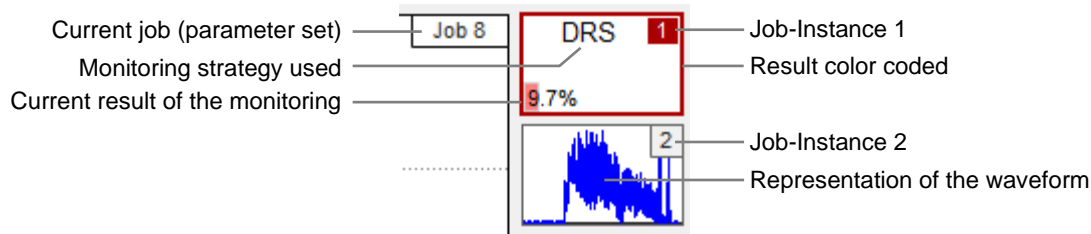

Current job (parameter set) — Job 8

Monitoring strategy used

Current result of the monitoring

DRS — Job-Instance 1

Result color coded

9.7%

Job-Instance 2

Representation of the waveform

Figure 34

ExactControl Process View Selection

To switch between process views, click the **Previous** and **Next** arrows at the bottom right of the window above the menu bar.

IVIS in conjunction with an ExactControl card offers the following possible views of the process.
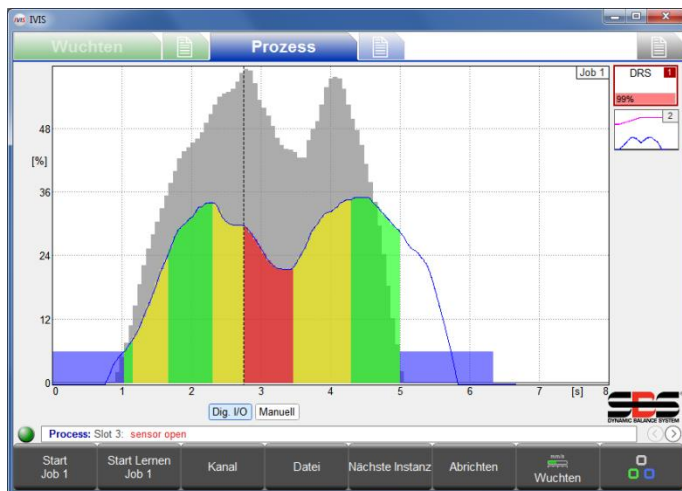

Figure 35

Job view

The **Job** view displays all instances associated with a job as icons on the right side of the window. Displays the details of the selected instance in full-screen mode.

An instance is a specific monitoring strategy (along with the required parameters for evaluation) that is applied to an assigned input signal. The job (all associated instances) is evaluated during a defined process time: between the **Start** and **Stop** processes.

The channel is the digital, Profibus, or manual channel that is used to initiate the **Start** and **Stop** processes.

Figure 36

Instance view

The **Instance** view is divided to show full displays of all instances (for a maximum of four instances) associated with the active job.

Figure 37

Channel view

The **Channel** view is divided to show full displays of all instances run by multiple jobs initiated by two separate channels. The top half of the window displays one channel and bottom half of the window displays the second channel.

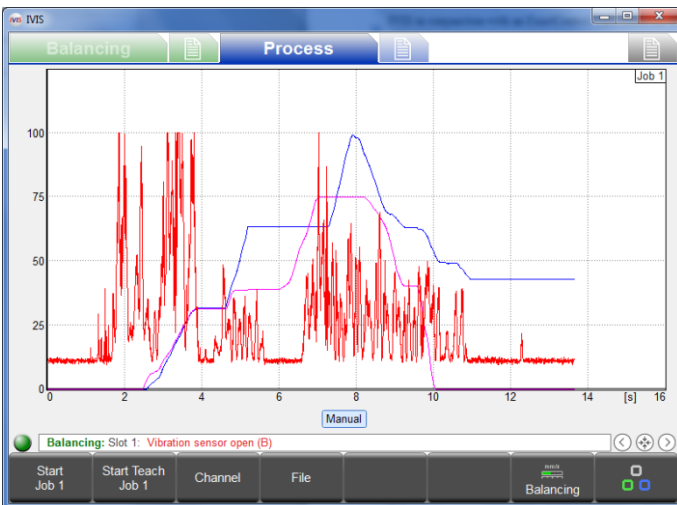For more information about instances, jobs, and channels, see the ExactControl user's guide.

Figure 38

Overlay view

The **Overlay** view allows comparison of different signal sources in one plot, which helps with signal evaluation and diagnosis (for example, testing two AE sensors at different positions). This window shows one view with an overlay of all signals for all instances within the current job. It only displays the process signals without any process evaluation result indications. The presented signals are color coded as follows:

- Instance 1: blue
- Instance 2: purple
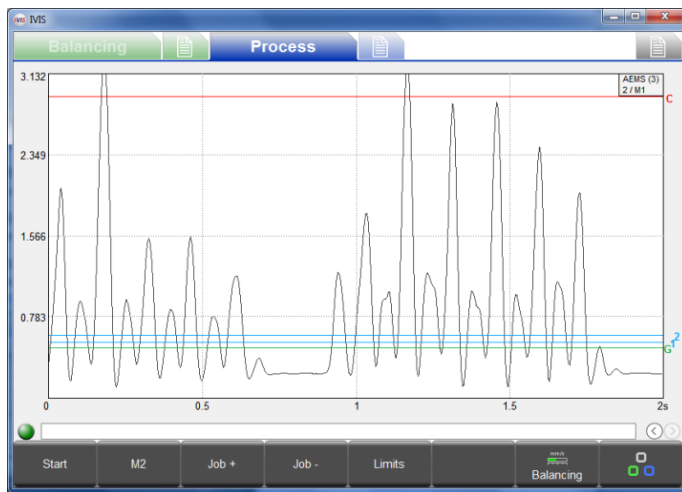- Instance 3: red
- Instance 4: black

Figure 39

AEMS view

The **AEMS** view is available only when an AEMS card is installed. It uses a different set of buttons for operating the AEMS card. For more information, see the "AEMS View" main section.

Start Job

From the **Process Parameters** menu, click **Start Job** to start the selected job by the manual channel. Use this for the setup and evaluation of jobs and for recording process data for offline evaluation.

The manual channel produces PCT data files named **M*.PCT**. For more information about PCT file locations and names, see the ExactControl user's guide.

When the IVIS program ends, data recording does not stop. If the job continues to run, data can continue to be stored on the local SD memory of the ExactControl card. Data can be recorded over long periods of time, even weeks or months. To stop recording, click **Stop** or turn off the power to SB-5500.

Start Teach Job

Click **Start Teach Job** to start a Teach process by the manual channel for all instances associated with the current job that require Teach process data. When the job or instance numbers flash light blue, this indicates that a teaching is in process.

Stop Teach Job

Click **Stop Teach Job** to stop the Teach process and to save resulting Teach data.

Channel

Click **Channel** to open the channel selection menu, and then select a channel to view. Only channels that have data from a current process can be selected; other channel buttons are unavailable. If no channel has current process data, then this button is unavailable.

File

Click **File** to open the File menu and to access and display saved PCT files with recorded process data. Files accessible are for the connected device. When connected to SB-5500, files stored on the ExactControl card are available as well as files stored on the local PC. Files can be copied from SB-5500 to the PC.

From the General Settings Connection window, select **Offline mode** to access files stored on the local PC when not connected to any device. For more information about the File functions, see the ExactControl user's guide.
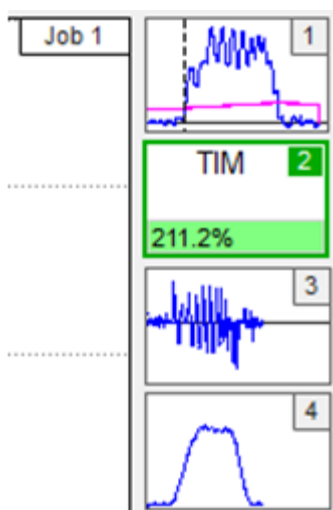
Figure 40

Next Instance

On the **Job** view, click **Next Instance** to switch the display focus to the next instance associated with the current job. The process results for that instance appear in full-screen mode.

ExactControl Process Parameters Overview

Assign a number of independent jobs (sets of monitoring instances). Run a job (start or stop) by the manual channel (**Start** and **Stop** on the menu bar) with a digital signal or a Profibus signal.

The tabs at the bottom of the parameter list show the user-assigned names of the installed cards. (The default names are SLOT1, SLOT2, etc.) Click a tab to select a card or click **Next Card** key to move from one card to the next.
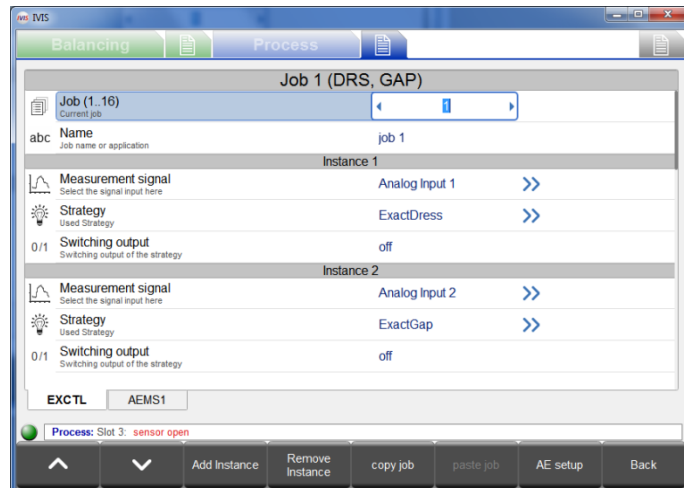

Figure 41

Edit Job: Job and Instance

1. Select a job to edit. For ease of reference, each job may be named.

2. Add, remove, or edit existing instances associated with the selected job.

3. After editing the parameters for an existing job, the word *Modified* appears in red in the upper right corner to indicate that parameters on the window have been changed will be saved when the menu is exited.

4. Click **Undo** to return all modified settings to the saved settings. Use **Undo** to prevent making changes to jobs in error.

Add Instance

Click **Add Instance** to add a new instance job (up to four instances maximum). Set or edit parameters to configure the instance.

Remove Instance

Position the cursor on the instance and click **Remove Instance** to delete it.

Copy Job

Click **Copy Job** to copy all settings of a job and then paste it into another job number. Use this function to save time and to ensures error-free transmission of the parameter settings.

Use the clipboard in the operating system to copy and paste a job between two IVIS program instances and device boundaries.

For a more information about ExactControl operation and settings, see the hardware user's guide for the ExactControl card from **https://accretechsbs.com/**.

AEMS View

The AEMS card also has and interface through the Profibus/Profinet interface if it is installed.

AEMS Process Overview

In cases where the AEMS card is the only installed process card in SB-5500, the AEMS view is the only Process view. In cases where both AEMS and ExactControl cards are installed, the AEMS view is available as one of the process views (in addition to Job view, Instance view, and Channel view).
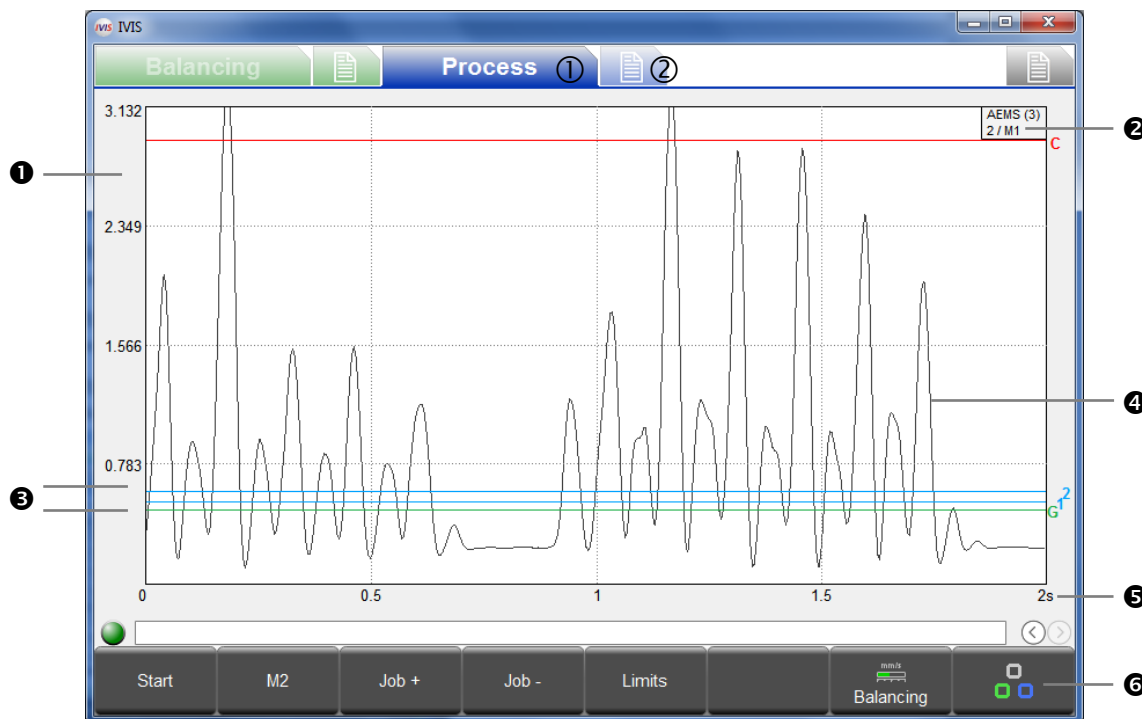

Figure 42

① **Process View** tab
② **AEMS Parameters** tab

❶ **Y Axis**: Signal level of the measurement signal.
❷ **Name** assigned to AEMS card and slot number (x) in the SB-5500 control.
   Second line indicates the current Job (1-16) or the set mode (M1/M2).
❸ **Four Limits**
   Green: gap (contact)

Blue: limit 1 and limit 2
Red: crash (safety limit).
❹ **Measuring signal** of the acoustic sensor.
❺ **X Axis**: Time in seconds. Real-time scrolling display of the acoustic signal level with adjustable time scale.
❻ **Menu Bar** with function buttons.

Stop and Start

Click **Stop** and **Start** to stop and start the real-time display of the signal level in the graphics area.

M2 and M1

Click **M1** or **M2** to switch to that parameter set (M1 or M2).

Job + and Job -

Click **Job +** to go to the next job or click **Job -** to go to the previous job.

Limits

Click **Limits** to open the Limits menu and adjust the limits for gap, limit 1, limit 2, and crash.

Figure 43

AEMS Parameters Overview

For each AEMS card installed, AEMS Parameters lists the parameters by topic.

The tabs show the installed card names. Click a tab to select a card or click **Next Card** to move from one card to the next.

After editing parameters, the system saves the changes immediately.

AE Setup

To set system gains for the acoustic signal, use a learning cycle. The system separately records **Air** (no contact) signal level and the **Work** signal generated by normal grinding or the dressing process. It compares the signal levels for Air and Work across all frequency ranges. Then it proposes the frequency with the best signal ratio as the monitored frequency. A learn cycle helps select the best frequency range for monitoring for best process results. However, the proposed frequency may not be the best for a specific application. Red bars indicate results with insufficient quality to recommend (low ratio or insufficient measurement time).

For more information about AEMS Learn cycle, parameters, and operation, see the hardware user's guide for the AEMS card from **https://accretechsbs.com/**.
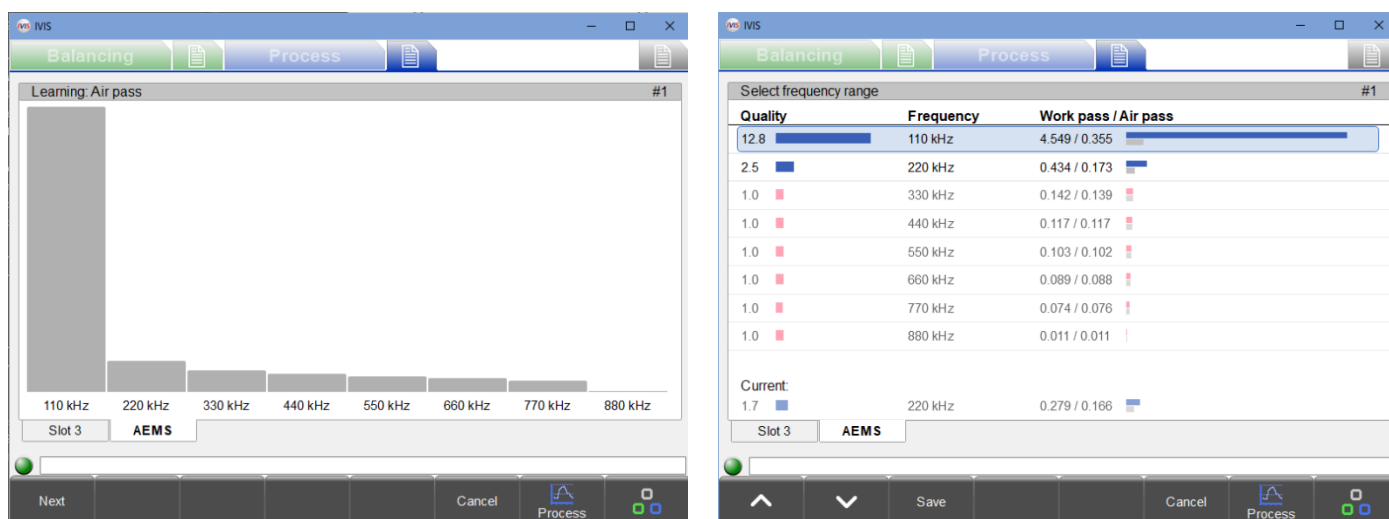
Figure 44

Maintenance and Support

Software Update

1. Before updating IVIS, create a backup copy of the existing IVIS directory, so that the software can be rolled back to the previous version at any time.

2. Before updating IVIS that is integrated with Sinumerik Operate, do the following:

    a. Go to the **oemframe.ini** file.

    b. Under **<hmisl>/compat/user**, delete the following section:

    ```
    [IVIS]
    hOEMFrameWnd=A01AC
    hOEMFrameTask=0D10
    hOEMAppWnd=50188
    hOEMAppTask=0
    hOEMAppWndRelatedOEMAppTask=0D00
    hOEMAppThread=0001
    ```

    This ensures that Sinumerik Operate can launch and display the new IVIS program version correctly.

3. To update the IVIS software, copy a new version of the IVIS program into the existing IVIS directory on the PC and replace the existing files.

Note	IVIS saves all IVIS configuration settings in the **config.xml** in the **IVIS\config** directory. The config.xml file and the log file are not included in the new version of IVIS, so the system does not replace those files. The system stores all device settings (Balance and Process parameters) on the device, so device settings are not affected by an IVIS update.

Software Uninstall

The IVIS program is not installed in Windows; it is copied to a directory on the PC and is started from there. Therefore, the program does not appear in the list of installed programs in Windows.

To remove IVIS, delete the IVIS directory from the PC. A typical Windows uninstall is unnecessary, because the log files are stored only in the IVIS directory.

SB-5500 Firmware Update with IVIS

IVIS displays the steps for updating the SB-5500 control firmware using its USB interface. The following messages appear in IVIS during firmware updates.
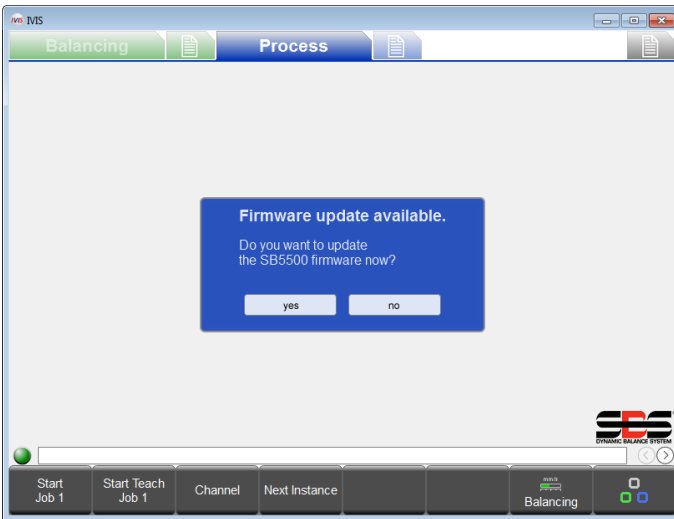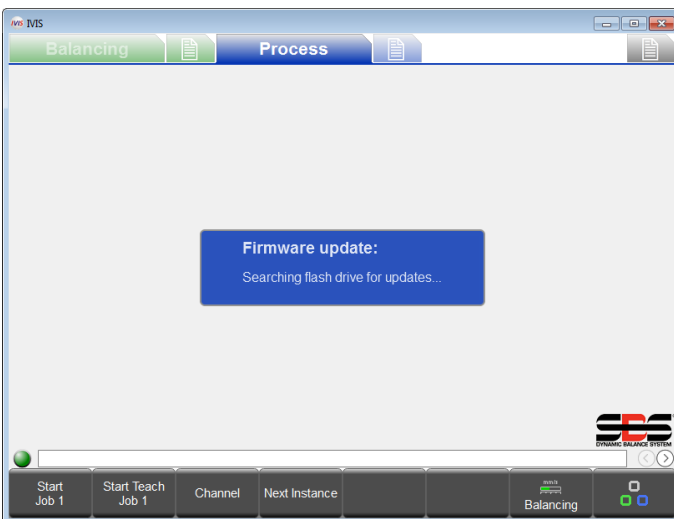

Figure 45

1. IVIS recognizes a USB flash drive.

    a. Download firmware update zip file from the SBS website at: **https://accretechsbs.com/**

    b. Unzip the device firmware files onto the root of a USB flash drive.

    c. Insert the USB flash drive in the SB-5500.

    d. When the **Firmware update available** message appears, click **Yes** to start the update.

Figure 46

2. IVIS begins the firmware update.

    a. IVIS searches the USB flash drive for the latest version.

    b. IVIS copies the files to the system automatically.
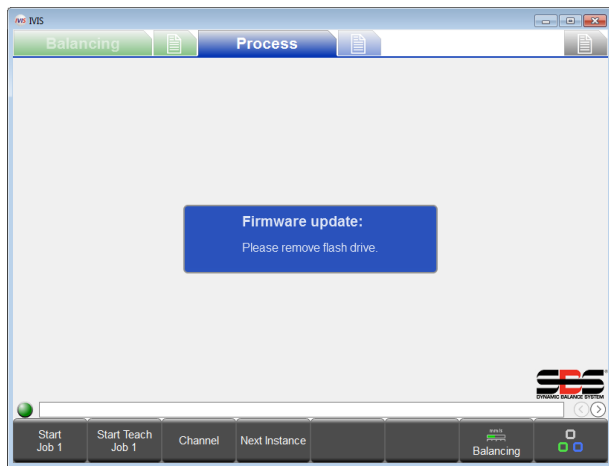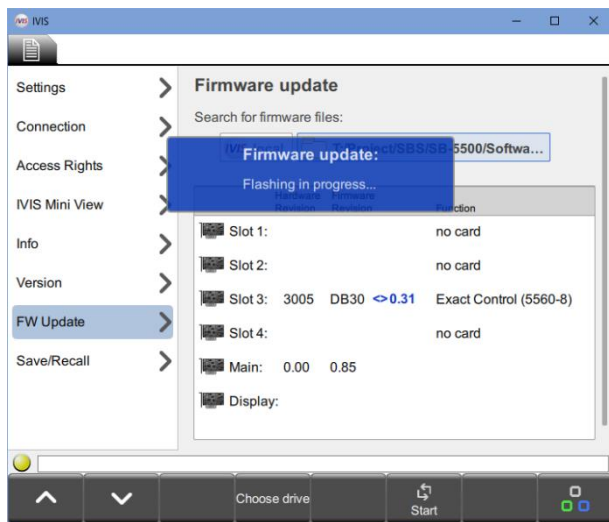
Figure 47

3. Remove the USB flash drive.

    a. When IVIS finishes copying the files, it displays a **Please remove flash drive** message.

    b. For the upgrade to proceed, remove the flash drive.

Figure 48

4. IVIS updates the firmware.

    a. During the update, the system disconnects IVIS.

    b. The SBS-5500 controller runs the update automatically. This process may take a while, up to two minutes if the control has a display.

    c. After the update, the system reconnects to IVIS.

    d. When the status indicator circle turns green, the updated system is ready for use.

Log File

The IVIS programs logs its operation status to an HTML file. If an issue occurs, send this file to the IVIS support staff. For more information, see the **Info** window.

Support

For support, contact the machine builder or SBS at:

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2451 NW 28th Avenue
Portland, Oregon 97210 USA

Tel.: +1 503.227.7908
Fax: +1 503.223.1258
TechSupport@accretechSBS.com
https://accretechsbs.com/

Return and Repair Policy

Accretech SBS, Inc. policy is to give highest priority to the service needs of our customers. We recognize the cost of machine downtime, and we strive to deliver same day repair of items arriving by overnight delivery at our facility. Because of the complication and delays involved with international shipments, customers outside the continental U.S. should contact their local SBS Balance System source for service support. Before returning any equipment for repair, you must contact Accretech SBS, Inc. for a Return Materials Authorization (RMA) number. Without this tracking number, Accretech SBS, Inc. cannot ensure prompt and accurate completion of your repair needs. Failure to obtain an RMA number may result in substantial delay.