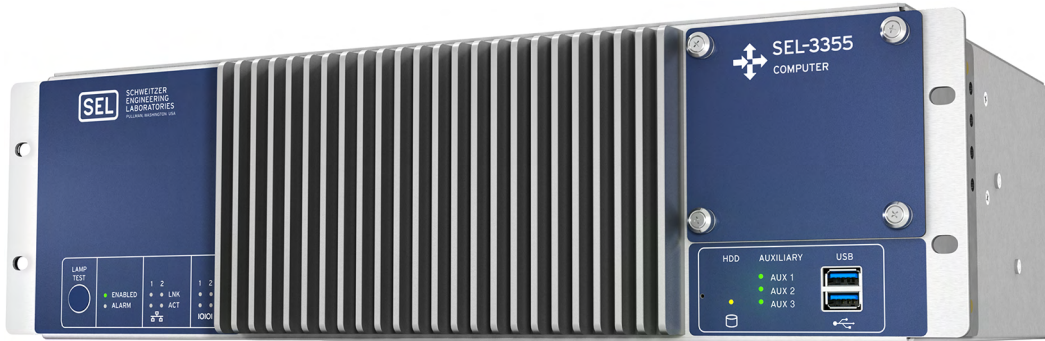# Getting Started With the SEL-3355-2

What You Will Need

Required Items:

➤ SEL-3355-2 Computer
➤ Power cable(s)
➤ Monitor with DisplayPort or DVI cable
➤ USB keyboard
➤ USB mouse
➤ Phillips® screwdriver
➤ 1/8-inch slotted screwdriver

Optional Items:

➤ Ethernet cable
➤ USB storage device
➤ SEL Computing Products Literature and Software DVD
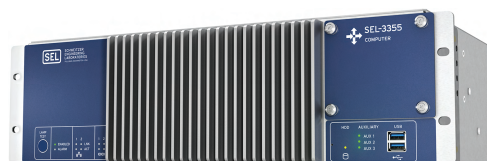➤ USB CD/DVD Drive

What Is Included

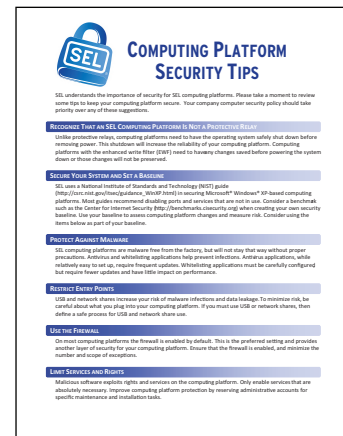Verify that the following items are included:

Operating System DVD
(if ordered with
Windows Server)

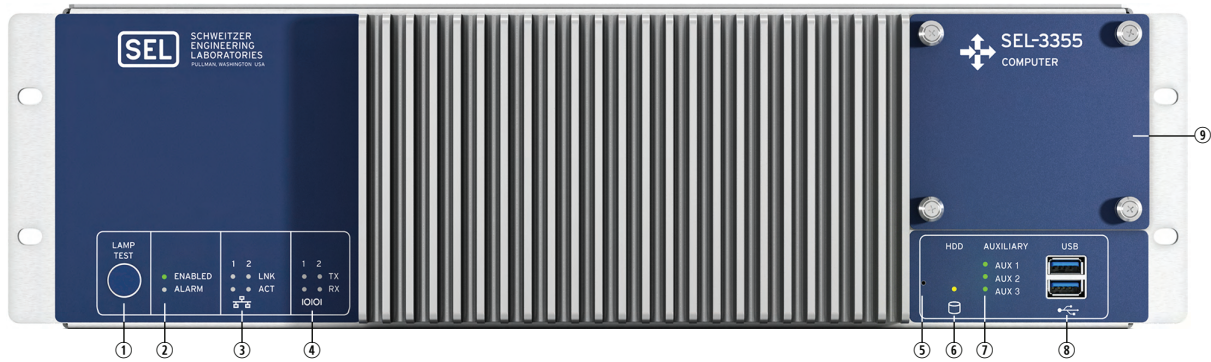SEL Computing Products
Literature and Software DVD

SEL-3355-2

Computing Platform
Security Tips

Product Overview

① **LAMP TEST** Button. Press and hold to test front-panel LEDs. Can be programmed to be an on/off or reset button.

② **ENABLED** and **ALARM** LEDs provide operational status. A green **ENABLED** LED indicates normal operation. The **ALARM** LED illuminates red when a nonoptimal system condition exists.

③ **ETHERNET** Status Indicators. Link (**LNK**) indicates that the port is connected, and activity (**ACT**) indicates when data are being transmitted and received.

④ **SERIAL** Status Indicators. Transmit (**TX**) and receive (**RX**) LEDs indicate activity on serial ports.

⑤ **PINHOLE** Button. Provides reset and power functions; requires a pushpin to prevent accidental use.

⑥ **HDD** Activity Indicator. Illuminates when SATA drives are accessed.

⑦ **AUXILIARY** Status Indicators. Three programmable, bicolor LEDs for your custom application.

⑧ **USB** Ports. Two easily accessible ports to connect USB 3.1 peripherals.

⑨ **SATA** Drive Bay. Removable cover plate enables easy access to SATA drives from the front panel.
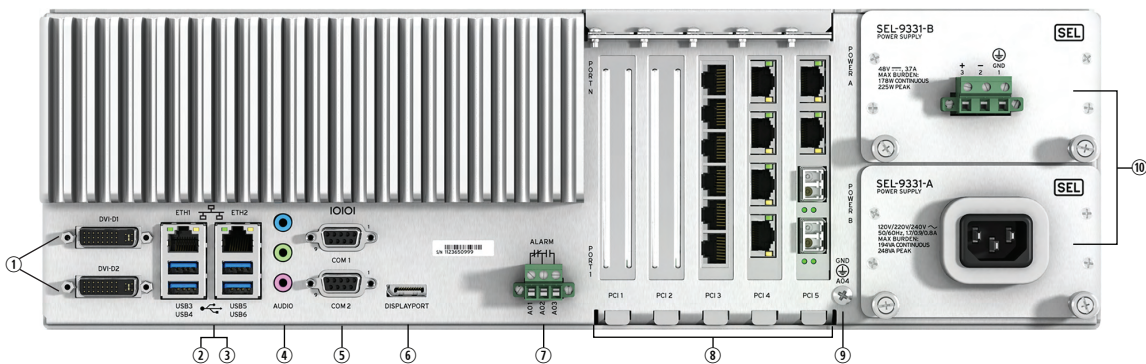
① **DVI-D.** Connect digital monitors by using native DVI or an HDMI adapter.

② **ETH1** and **ETH2.** Onboard independent Gigabit Ethernet interfaces.

③ **USB** Ports. Connect as many as four USB 3.1 peripherals at the rear panel.

④ **AUDIO** Ports. Line Input (blue), Line Output (green), and Microphone Input (pink).

⑤ **COM1** and **COM2.** Standard EIA-232 serial ports with configurable +5 Vdc power on Pin 1.

⑥ **DISPLAYPORT.** Connect new digital monitors supporting the DisplayPort interface.

⑦ **ALARM.** The Form C alarm contact output can be wired either normally closed or normally open.

⑧ **PCI** Expansion Slots. Install SEL or third-party PCI or PCI Express expansion cards for additional network, serial, or other application-specific I/O.

⑨ **Earth Ground** Terminal Screw. The earth ground connection for the SEL-3355-2.

⑩ **POWER** Supply Modules. The rated input voltage is clearly marked on the chassis near the terminals.

Introduction

The SEL-3355-2 is a rack-mountable rugged computer. It is designed to operate in extreme environments and carries the Schweitzer Engineering Laboratories ten-year worldwide warranty. The SEL-3355-2 has the following features:

➤ Intel® Xeon E3 processor

➤ Four 2.5" SATA drive bay with hot-swap and RAID capabilities

➤ Six USB 3.1 ports

➤ Five PCI expansion card slots

➤ Two Gigabit Ethernet interfaces

➤ Dual, redundant power supplies with hot-swap

➤ Watchdog timer for automatic recovery from system lockup

➤ Three display interfaces supporting three simultaneous independent displays

➤ HD Audio inputs and output

Procedure Overview

The following is a list of the primary tasks described in this guide:

➤ *Unpack and Setup on page 3*

➤ *First Boot on page 8*

➤ *Install Expansion Cards on page 12*

➤ *Install Operating System on page 13*

➤ *Install Applications on page 14*

➤ *Create a Backup With SEL BaRT on page 14*

➤ *Long-Term Storage on page 15*

Unpack and Setup

Verify that the correct number and type of power supplies are installed (see *Figure 1* and *Figure 2*).

Figure 1   Single Power Supply

Figure 2   Dual Power Supplies

Step 1. Connect the keyboard and mouse to any of the USB ports as shown in *Figure 3*.

Figure 3   USB Connection

Step 2. Connect the monitor(s) to the video ports.

The SEL-3355-2 will support as many as three monitors. *Figure 4–Figure 5* show single monitor connections.

Figure 4   Single DVI Connector to DVI-D

Figure 5   Single DisplayPort Connection

Figure 6 and *Figure 7* show dual monitor connections.

Figure 6   Dual DVI Connections

Figure 7   DVI-D With DisplayPort

Step 3.   If you need network access, connect an Ethernet cable from a switch or router to either **ETH1** or **ETH2** as shown in *Figure 8*. Each port has two status indicator LEDs. The right LED illuminates yellow to indicate a link or connection is present. The left LED flashes green during data transfer.

Figure 8   Ethernet Network Connection

Advanced features like Preboot eXecution Environment (PXE), Wake-on-LAN (WOL), or Intel® Active Management Technology (AMT) use **ETH1**. See the *SEL-3355-2 Instruction Manual* for more details.

Step 4.   If you need a serial port connection, the SEL-3355-2 has two onboard serial ports with the following specifications:

➤   Data rates: 300 to 115200

➤   Data bits: 5, 6, 7, and 8

> ➤ Parity: None, Even, Odd, Mark, and Space
> ➤ Stop Bits: 1 or 2

You can connect to serial ports **COM 1** or **COM 2** as shown in *Figure 9*.


Figure 9   Serial Port Connections

If more serial ports are needed, you can use the SEL-3390S8 expansion card to expand the serial capabilities of the SEL-3355-2.

Step 5.   If you connect the Alarm contact, connect wires to the compression terminal block by using a 1/8-inch slotted screwdriver as shown in *Figure 10*.

The Alarm contact can be wired to accommodate normally closed or normally open protection schemes as shown in *Figure 11* and *Figure 12*.
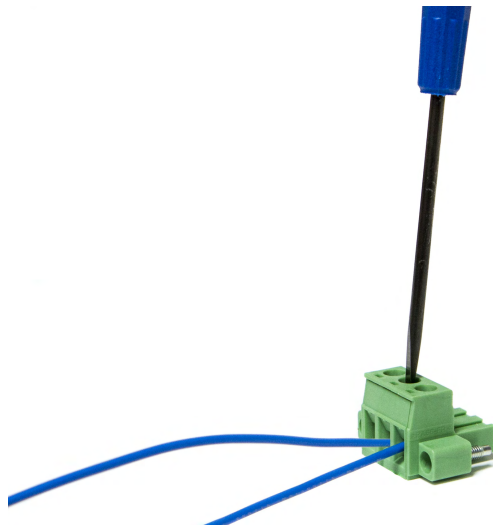
Figure 10   Wiring Compression Terminal Block

Figure 11   Normally Closed

Figure 12   Normally Open

Step 6.   The SEL-3355-2 can be powered by a single power supply, and has the option of being powered by two redundant power supplies. Look at the labeling on the rear panel of each power supply to determine the rated input voltage (see *Figure 13*).
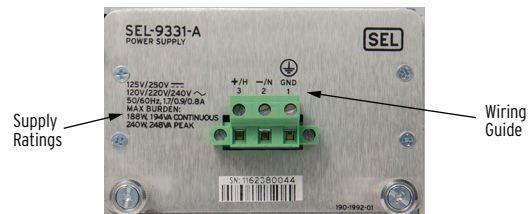

Figure 13   Wiring Guide and Supply Ratings

Use a 1/8-inch slotted screwdriver to wire the power cable to the supplied compression terminal block, as indicated by the wiring guide on the back of the power supply (see *Figure 13*).

Step 7.   Attach the compression terminal block to the power supply as shown in *Figure 14*.

Note: Removing the compression terminal block from the back of the computer will disconnect power from it. Do not remove it unless you intend to turn off the device.
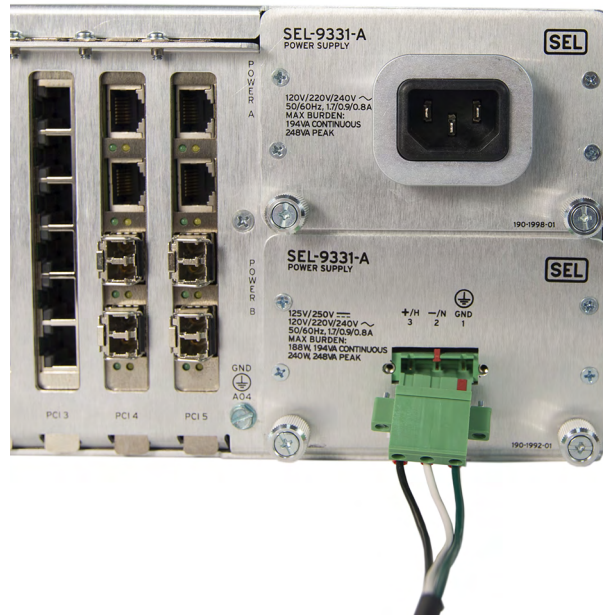
Figure 14   Attach Compression Terminal Block to Power Supply

Step 8.   If you ordered dual power supplies, connect the second power supply the same way as the first.

Note: The second power supply can have different input requirements than the first (see *Figure 13* for location of supply ratings).

First Boot

For SEL-3355-2 With Microsoft Windows

Upon initial startup, the SEL-3355-2 may require you to perform some initial steps to configure Microsoft® Windows® operating system, such as creating a user account and password. After completing the Windows configuration, you should check the system to verify that all SATA drives are installed and correctly configured, and all hardware and software packages are installed.

Hard Drive(s)

Perform the following steps to verify that the correct number of SATA drives is installed:

Step 1.   Click the **Start** button, type **partition** in the box, and then select **Create and format hard disk partitions**.
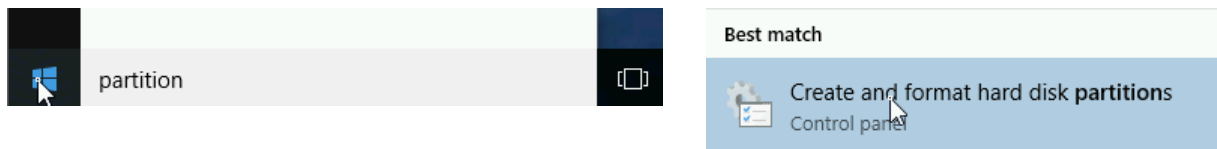
Step 2.   The User Account Control may ask for confirmation that you understand the program being launched can be used to make changes to the computer. Click **Yes**, or provide your account credentials, to indicate that it is acceptable to proceed.

Step 3.   In the lower pane of the **Disk Management** window, verify that there is a disk listed (e.g., Disk 0, Disk 1, etc.) for each SATA drive ordered with the system.
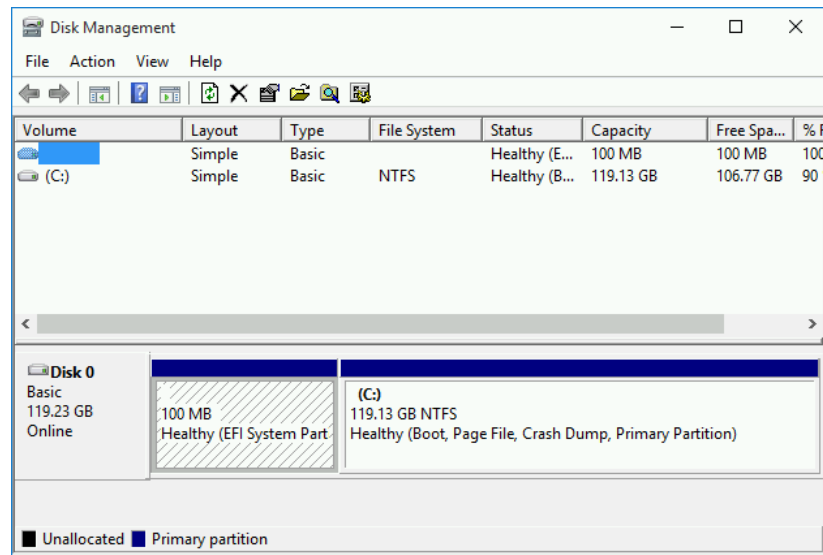
Step 4. If any of the SATA drives that were ordered with the computer are not displayed, open the SATA drive bay on the front panel of the SEL-3355-2 and verify that they are installed.

Step 5. If all drives are installed, turn off the SEL-3355-2. Then pull out and reinstall each drive one at a time, ensuring that they are firmly inserted.

Step 6. Restore power to the SEL-3355-2 and verify that all drives are now present in the **Disk Management** application.

If any of the drives are not present after performing this step, contact your customer service representative for further assistance.

Hardware

Perform the following steps to verify that all the hardware is correctly installed in the SEL-3355-2:

Step 1. Click the **Start** button, type **device** in the box, and then select **Device Manager**.
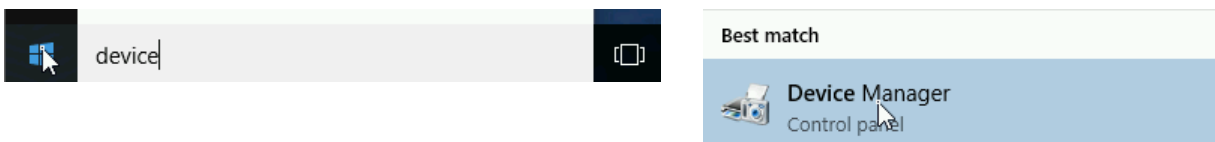
Step 2. The User Account Control may ask for confirmation that you understand the program being launched can be used to make changes to the computer. Click Yes, or provide your account credentials, to indicate that it is acceptable to proceed.

Step 3. In the **Device Manager** window, verify that there are no missing device drivers by opening **Other devices**, if it is present, and ensuring that there are no **Unknown device** listings. If there are unknown devices listed, then there are device drivers that are not installed. All drivers that are nondefault Microsoft drivers are included on the Literature and Software DVD. For assistance in identifying which driver to install, contact your SEL customer service representative.
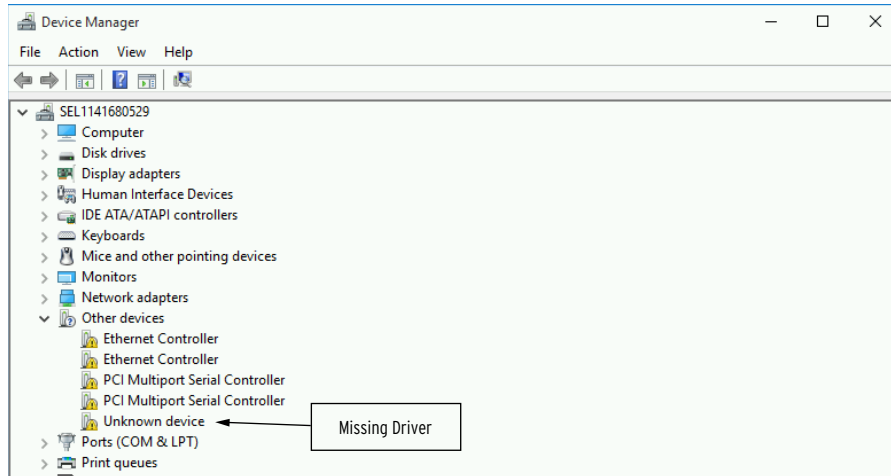
Step 4. Click on **Network adapters** and **Ports (COM & LPT)** to verify that the correct number of serial and Ethernet ports are listed.

Note: The number of ports will depend on ordering options.

Software

Perform the following steps to verify that all the software packages ordered with the SEL-3355-2 have been installed:

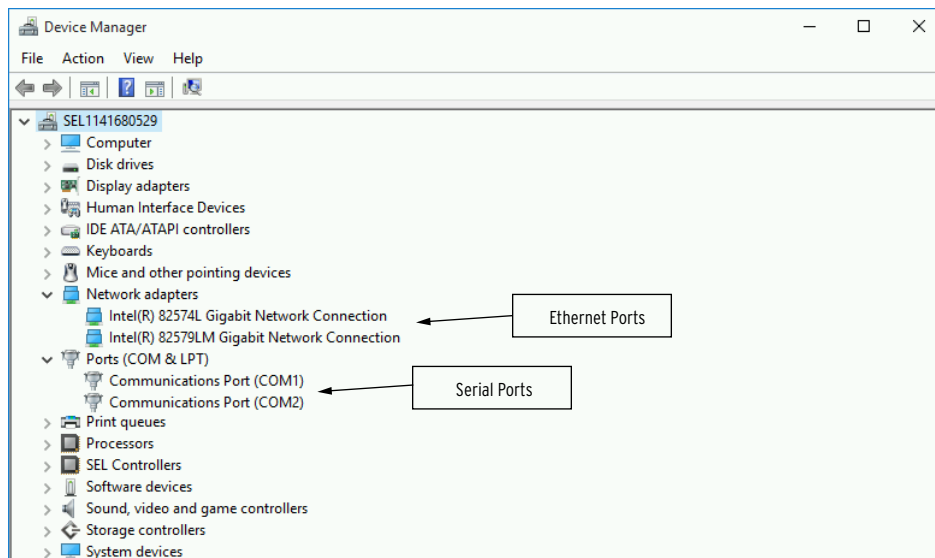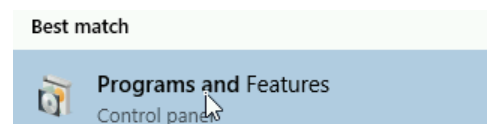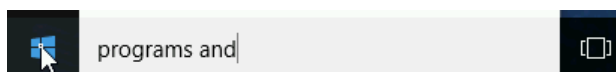Step 1. Click the **Start** button, type **programs and features** in the box, then select **Programs and Features**.

Step 2. The User Account Control may ask for confirmation that you understand the program being launched can be used to make changes to the computer. Click Yes, or provide your account credentials, to indicate that it is acceptable to proceed.

Step 3. Verify that all the software packages ordered with the computer are listed.

For an SEL-3355-2 With No Operating System

If the SEL-3355-2 does not have a bootable operating system installed, it will boot to an EFI Shell similar to the following figure.

```
UEFI Interactive Shell v2.2
Schweitzer Engineering Laboratories, Inc.
UEFI v2.40 (American Megatrends, 0x0005000B)
Mapping table
     FS0: Alias(s):HD0b::BLK1:
          PciRoot(0x0)/Pci(0x17,0x0)/VenHw(CF31FAC5-C24E-11D2-85F3-00A0C93EC93B,80)/HD(1,GPT,9A39377
1-6C5B-4285-A686-B497971BD260,0x800,0x32000)
     BLK0: Alias(s):
          PciRoot(0x0)/Pci(0x17,0x0)/VenHw(CF31FAC5-C24E-11D2-85F3-00A0C93EC93B,80)
     BLK2: Alias(s):
          PciRoot(0x0)/Pci(0x17,0x0)/VenHw(CF31FAC5-C24E-11D2-85F3-00A0C93EC93B,80)/HD(2,GPT,F5E30DD
3-BDD7-4C51-9014-B92EEE10FE3B,0x32800,0x8000)
     BLK3: Alias(s):
          PciRoot(0x0)/Pci(0x17,0x0)/VenHw(CF31FAC5-C24E-11D2-85F3-00A0C93EC93B,80)/HD(3,GPT,A95B208
2-CF27-491B-978B-4BCF9F1B60DA,0x3A800,0xEE73A680)
Press ESC in 1 seconds to skip startup.nsh or any other key to continue.
Shell> _
```

Perform the following steps to verify that all the SATA drives are installed:

Step 1. Restart the SEL-3355-2 and press **<F2>** to enter BIOS setup.

Step 2. In the **System Configuration** menu, select **SATA Configuration** and then verify that the expected SATA drives are listed in Slots 1–4.

```
              Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
        System Configuration

   SATA Configuration                                     Enable or disable the Serial
                                                          ATA (SATA) ports on the device.
   SATA Controller              [Enabled]
   SATA Mode Selection          [RAID]

   Slot 1                       StorFly VSFA25 (64.2GB)
   Slot 2                       Empty
   Slot 3                       Empty
   Slot 4                       Empty




                                                          ++: Select Screen
                                                          ↑↓: Select Item
                                                          Enter: Select
                                                          +/-: Change Option Value
                                                          F1: General Help
                                                          F9: Setup Defaults
                                                          F10: Save & Exit
                                                          ESC: Exit


              Version 2.18.1263. Copyright (C) 2017 American Megatrends, Inc.
```

Step 3. Perform *Step 4 on page 9* through *Step 6 on page 9* if any of the expected SATA drives are not listed.

Install Expansion Cards

Note: Perform the steps in this section if you have an expansion card to install in the SEL-3355-2.

The SEL-3355-2 has expansion card slots to accommodate PCI Express (PCIe) and legacy PCI cards. To install additional PCIe/PCI devices, perform the following steps:

Step 1. Remove power to the SEL-3355-2 and remove the top cover.

Step 2. Remove the cover plate from the slot where the expansion card is to be installed.

Note: Expansion cards can be installed in any slot large enough to accommodate them.

⚠CAUTION

Equipment components are sensitive to electrostatic discharge (ESD). Undetectable permanent damage can result if you do not use proper ESD procedures. Ground yourself, your work surface, and this equipment before removing any cover from this equipment. If your facility is not equipped to work with these components, contact SEL about returning this device and related SEL equipment for service.

Step 3. Ensure that the expansion card is completely inserted into the slot before securing it to the case of the SEL-3355-2 with the retaining screw.

Step 4.   Replace the SEL-3355-2 top cover.

Refer to the documentation included with the expansion card for any additional instructions, such as software or driver installation.

Install Operating System

Note: Perform the steps in this section if you want to install an operating system on the SEL-3355-2.

Before you can install the operating system, you must disable the watchdog timer. Perform the following steps to disable the watchdog timer:
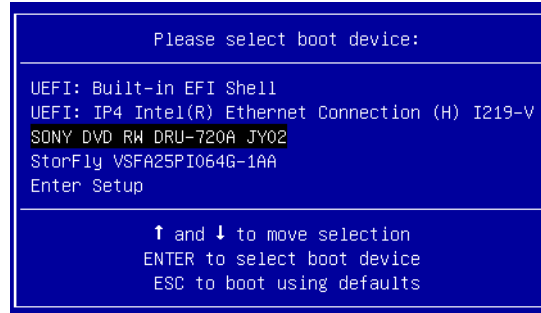
Step 1.   Enter the BIOS setup utility by pressing **F2** immediately after applying power to the system.

Step 2.   Navigate to the **Boot Features** subform on the **Main** tab.

Step 3.   Select **System Watchdog** and press **<Enter>**.

Step 4.   Select **Disabled**, press **F10** to save settings, and then select **Yes**.
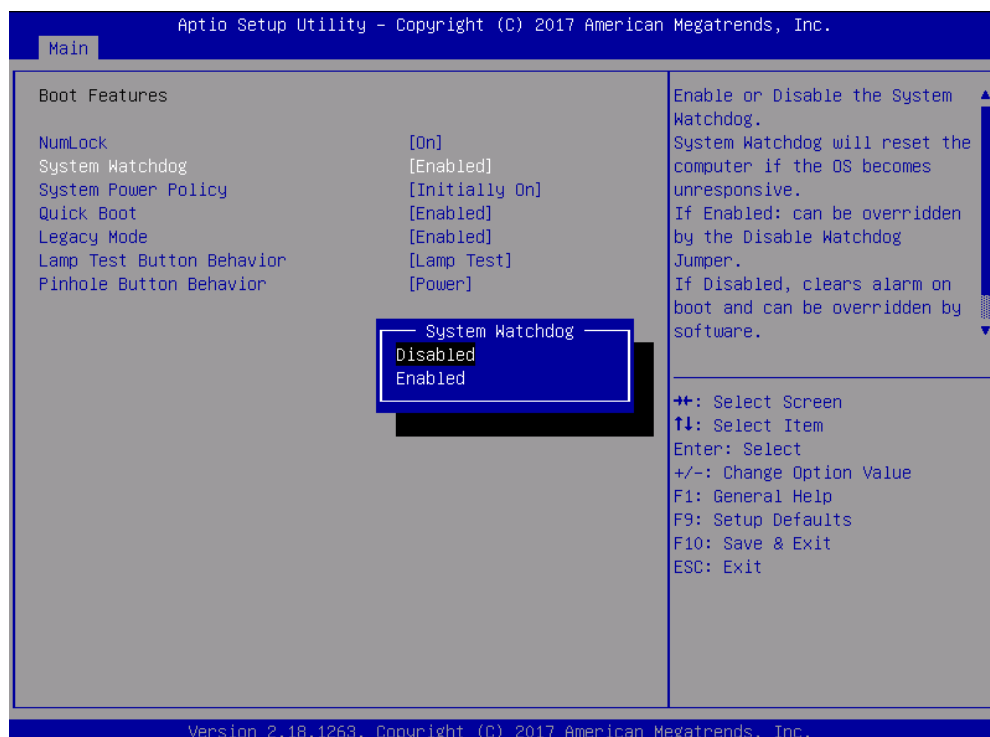
Most operating systems are distributed on DVD media. To install the operating system from a DVD, perform the following steps:

Step 1. Attach the external DVD-ROM drive to the USB port on the SEL-3355-2.

Step 2. Insert the installation DVD into the DVD-ROM drive and start/restart the SEL-3355-2. The SEL-3355-2 should start from the DVD automatically.

If the SEL-3355-2 fails to start from the DVD, restart the system and immediately press **<F5>** to load the **Boot Menu**. Verify that the DVD-ROM drive is listed as a boot option. If it is present, select it using the up and down keys and press **<Enter>**.

```
                Please select boot device:
     _____
     UEFI: Built-in EFI Shell
     UEFI: IP4 Intel(R) Ethernet Connection (H) I219-V
     SONY DVD RW DRU-720A JY02
     StorFly VSFA25PI064G-1AA
     Enter Setup
     _____

                ↑ and ↓ to move selection
                ENTER to select boot device
                ESC to boot using defaults
```

Note: If the DVD-ROM drive fails to boot when selected, then the DVD is not bootable. If the DVD reader is not listed among the boot devices, then the reader is not compatible with the SEL-3355-2 firmware.

When the operating system installation is complete, install any SEL System Monitor (SysMon) and SEL drivers that are available for the installed operating system. Refer to the Literature and Software DVD for more information about which operating systems have SysMon and driver packages.

Install Applications

Note: Perform the steps in this section if you have additional applications to install in the SEL-3355-2.

If the application is distributed on CD or DVD, you will need an external USB DVD-ROM drive.

If the installer is a file or set of files, the simplest method of transferring these files to the SEL-3355-2 is to use a USB drive. Take precautions to ensure that the SEL-3355-2 is not infected with malware during the process of transferring files. Scanning the USB drive with an up-to-date antivirus package prior to plugging the drive into the SEL-3355-2 is highly recommended.

Create a Backup With SEL BaRT

It is highly recommended to create a backup of the SEL-3355-2 once the system is fully configured. A copy of the SEL Backup and Recovery Tool (SEL BaRT) is included on the SEL Computing Products Literature and Software DVD. SEL BaRT provides an easy method of making a backup of an entire disk and storing it in a single file on a USB storage device.

For further information, please refer to the SEL BaRT application guide on the SEL Computing Products Literature and Software DVD.

Long-Term Storage

The SEL-3355-2 has a battery to maintain its internal real-time clock. If the unit is not plugged in for a long period of time (e.g., in excess of a year) this battery may become depleted. It is recommended that the battery be replaced if the SEL-3355-2 has been in storage for longer than one year.

Technical Support

We appreciate your interest in SEL products and services. If you have questions or comments, please contact us at:

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PLS3355-04