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User Guide

Avigilon Network Video Recorder Series 3

HD-NVR3-STD-24TB and HD-NVR3-STD-36TB

Avigilon Corporation
avigilon.com

PDF-NVR3STD-B

Revision: 3 - EN

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Introduction

The Avigilon Network Video Recorder is preloaded with the Avigilon Control Center software and is configured for maximum performance and reliability. The Network Video Recorder can be easily integrated into any existing Avigilon security system, or act as the base of a new site.

Before You Start

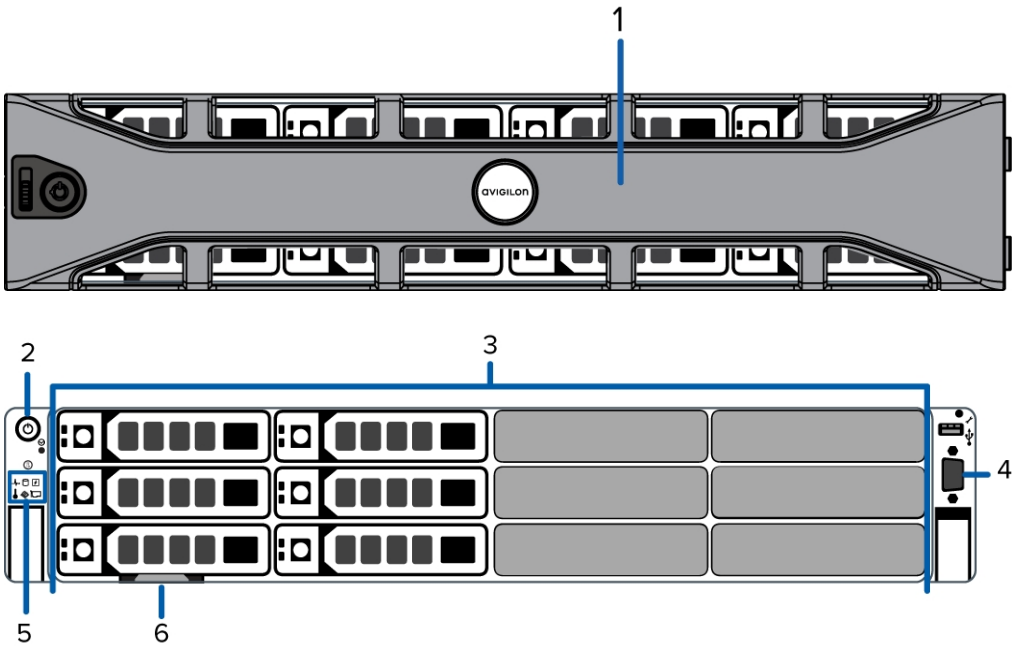
Avigilon recommends the use of an uninterruptible power supply (UPS) system to protect your video surveillance system hardware. A UPS system is used to protect critical equipment from mains supply problems, including spikes, voltage dips, fluctuations and complete power failures using a dedicated battery. It can also be used to power equipment during the time it takes for a standby generator to be started and synchronized.

Any UPS connection must include configuration to shut down the operating system on the appliance when battery power is low or there is 15 minutes of power remaining.

It is recommended that cameras not be connected to the appliance until after the appropriate network configuration has been set up.

Overview

Front View



1. **Bezel**

   Protects against unauthorized physical access to the hard drives. The bezel must be removed to access the front of the recorder.

2. **Power button**

   Controls the power supply to the recorder.

3. **Hard drives**

   Provides access to hot-swappable hard drives. There are LED indicators on each hard drive.

   Some drives may contain an empty hard drive tray.

4. **Video connector**

   Accepts a VGA monitor connection.

5. **Diagnostic indicators**

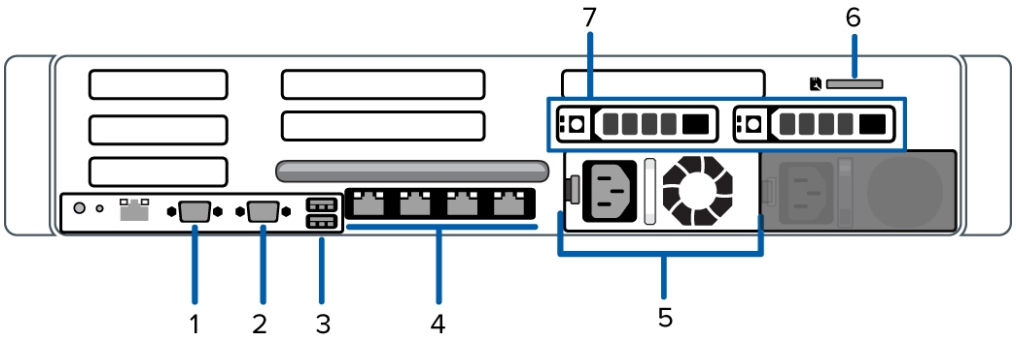
   Provides information about system operations.

   For more information, see *LED Indicators* on page 11.

6. **Information tag**

   Provides the product service details, MAC addresses and a copy of the Windows license key.

Back View



1. **Serial connector**

   Accepts connections to serial devices.

2. **Video connector**

   Accepts a VGA monitor connection.

3. **USB connectors**

   Accepts USB connections to external devices.

4. **1 Gigabit Ethernet ports**

   Accepts an Ethernet connection to multiple networks.

5. **Power supply**

   Redundant power supply. Optional secondary power supply is available (HD-NVR3-STD-2NDPS).

6. **SD card slot**

   Accepts an SD card.

7. **Operating system hard drives**

   Two hot-swappable 2.5 inch hard drives that are loaded with the operating system.

Installation

Package Contents

Ensure the package contains the following:

- Avigilon Network Video Recorder
- Rack sliding rail assembly kit
- Cable management arm assembly kit
- Bezel and key
- Power cable

Installing the Rack Rails and Cable Management Arm

If the recorder will be kept in a server rack, install the Rack Sliding Rails and the Cable Management Arm provided in the recorder package. Follow the procedures outlined in the *Rack Installation Instructions* and the *CMA Installation Instructions* provided in the assembly kits.

> **Note:** The supplied Rack Sliding Rails are compatible with square and round hole racks.

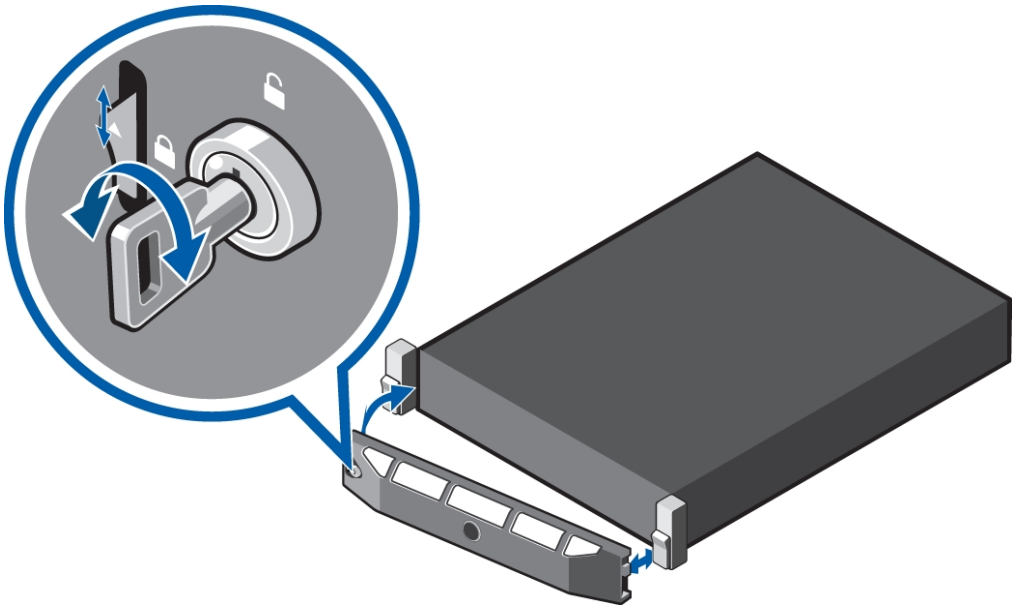
Connecting Cables

Refer to the diagrams in the Overview section for the location of the different connectors. Make the following connections as required:

1. Connect a KVM switch or separate keyboard, mouse and monitor to the recorder.
    - The keyboard and mouse can be connected to any USB port on the recorder.
    - The monitor can be connected to any video connector at the front or back of the recorder.
2. Connect the recorder to your network using an Ethernet cable.
3. Connect a power cable to the power supply at the back of the recorder.
4. Press the power button on the front of the recorder. Check that the recorder LED indicators display the correct status.

Installing the Bezel

The bezel can be installed on the front of the recorder to help protect the power button and hard drives against unauthorized access.



1. Slide the right end of the bezel against the right hinge of the recorder.
2. Push the left end of the bezel against the recorder until it clicks into place.
3. Use the provided key to lock the bezel.

Configuring Windows 10

After the recorder starts, you will need to configure the Windows operating system for the first time.

1. On the first screen, the MICROSOFT SOFTWARE LICENSE TERMS and AVIGILON CONTROL CENTER™ SOFTWARE END USER LICENSE AGREEMENT are displayed. Review the terms and click **Accept**.
2. Select **Join a local Active Directory domain**.

   > **Note:** This prompt appears only if an Active Directory is present on the network. See the *Windows Help and Support* files for more information.

3. Enter a user name for accessing the Windows software.
4. Enter a password and password hint for the user name and click **Next**.
5. After a minute, choose the ACC version in use at your site.

   You are logged in to the Windows environment. The Avigilon Control Center Admin Tool automatically starts up.

Note: If you are performing operating system recovery, the Avigilon Control Center Admin Tool does not automatically start up. For more information about running the local ACC installer, see *Troubleshooting* below.

Proceed to activate the license for the Avigilon Control Center software on your Video Appliance.

Proceed to activate the license for the AvigilonControl Center software on your Network Video Recorder.

Activating and Configuring ACC Software

- **Initial ACC™ System Setup and Workflow Guide**
- **ACC 7 Help Center**

For information about cloud-connecting your ACC server, see **Avigilon Cloud Services Support**.

Printable versions of these guides are available on the Avigilon website: **https://www.avigilon.com/support/software/**.

Troubleshooting

Network Configuration

By default, the Network Video Recorder acquires an IP address on the network through DHCP. If you need to set up the recorder to use a static IP address or any specific network configuration, see the *Windows Help and Support* files for more information.

Checking System Health

You can check on the health of the system components in the Site Health in the ACC Client software. See the *Windows Help and Support* files for more information.

Advanced Features

Checking System Health

The Server Administrator software is pre-installed on the recorder. The software provides information about the recorder's system operation status, and gives you remote access to the recorder for recovery operations.

If one of the LED indicators on the recorder is flashing an error warning, the Server Administrator will display details about the problem. For more information about the LED indicators, see *LED Indicators* on page 11.

1. Open the Server Administrator.
   - To open the Server Administrator locally, double-click the **Server Administrator** shortcut icon on the desktop.
   - To open the Server Administrator remotely, open a web browser and enter this address: `https://<recorder IP Address>:1311/`.

     For example: `https://192.168.1.32:1311/` or `https://localhost:1311/`.

   If you are using an intranet connection, your browser may display an error message. Allow the browser to ignore the certificate warnings.
2. If asked to log in, enter the Windows software administrator username and password that was configured for the recorder.
3. On the Server Administrator home page, the health of the system components are displayed in the workspace on the right.
   - To see the health of other system components, expand and select a different component from the System Tree on the left.
   - The table displayed in the workspace lists system components and their status:

	The system component is running normally.
	The system component has a non-critical warning.
	The system component has a critical failure.
	The system component status is unknown.

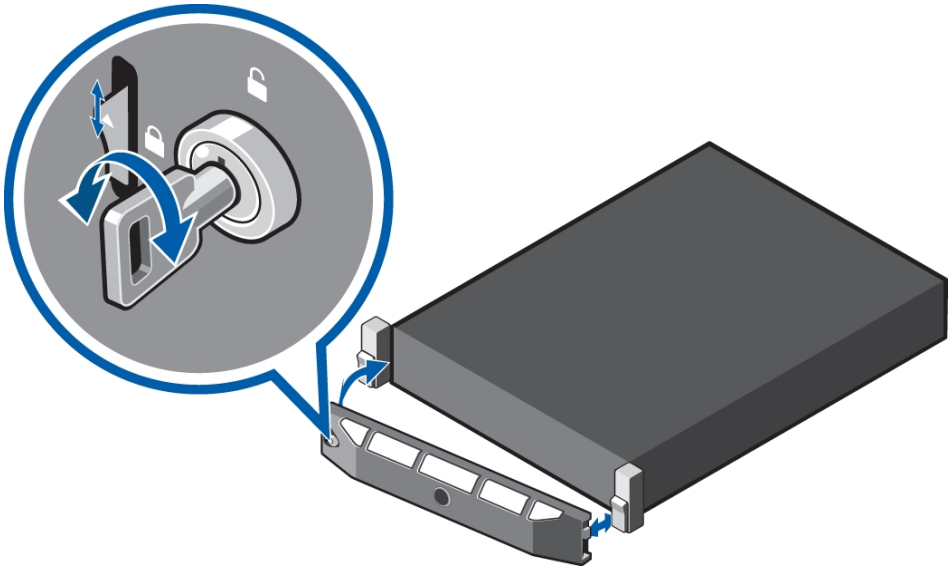
   - To see the details of a system component, select the system component from the workspace.

The Server Administrator is also used to customize the Redundant Array of Independent Disks (RAID) settings, assign a hot spare and remotely monitor the system health. For more information about the features in the Server Administrator, see the Help system provided in the software.

Replacing a Hard Drive Blank

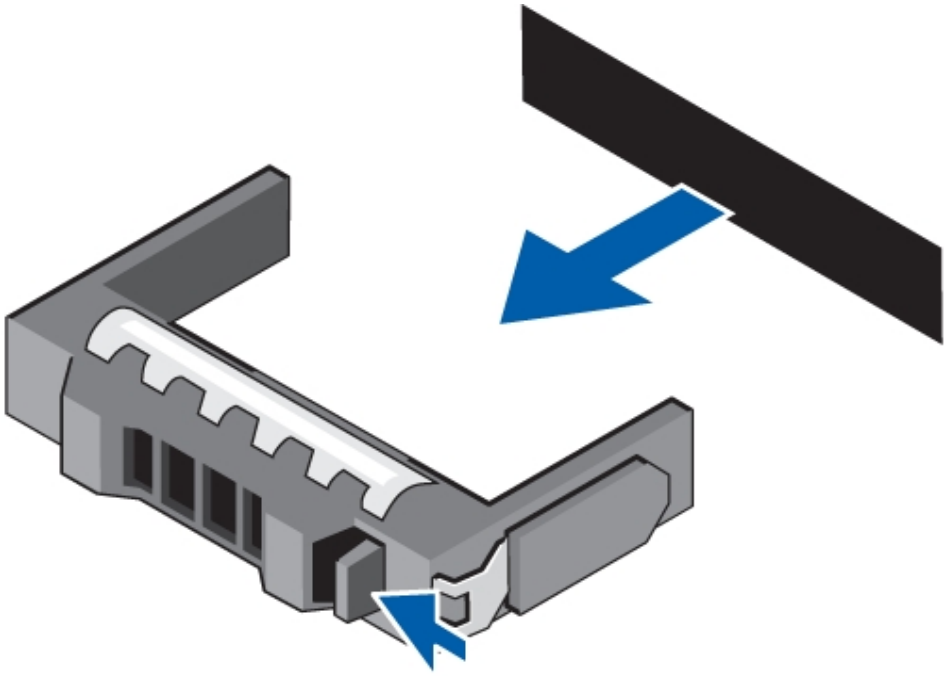
Depending on the recorder model, there may be hard drive blanks at the front of the recorder. You can replace the blanks with hard drives as required.

1. Remove the bezel.



   a. Unlock the bezel.
   b. Lift the release latch next to the lock.
   c. Pull the left end of the bezel then unhook the right end to remove the bezel.

2. Press the release button and slide the blank out of the hard drive slot.



3. Insert the hard drive all the way into the recorder then push the handle against the hard drive to lock it into place.
4. Open the Server Administrator application and expand the System Tree.

   The new hard drive should be automatically added to the Physical Disks list. The list is typically available here: **System > Storage > PERC H730 Adapter > Connector 0 > Enclosure > Physical Disks**.

5. Assign a task to the new hard drive or allow it to exist as an extra storage drive.

   It is recommended that individual new hard drives be used as hot spares. Hot spares are hard drives that are available on standby in the event of a hard drive failure in the RAID. If that occurs, you can configure the system to automatically redirect recording to the unused hard drive.

   To assign the new hard drive as a hot spare, select **Assign and Unassign Global Hot Spare** from the Task list then click **Execute**.

If the new hard drive is not displayed in the Server Administrator, try one of the following:

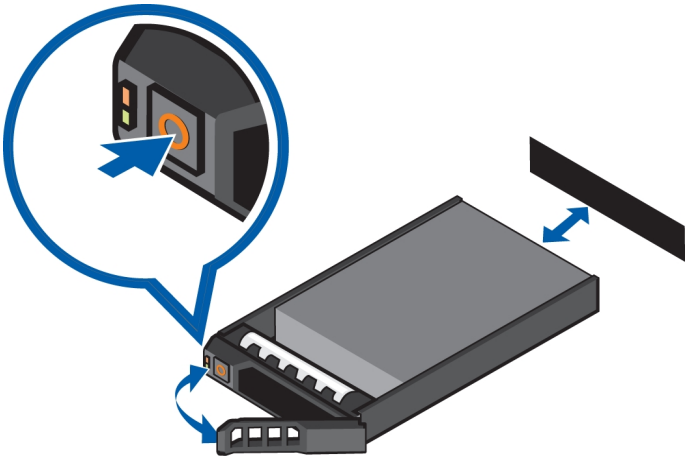
- Refresh the browser.
- Reboot the recorder.
- In the System Administrator, select **PERC H730 Adapter** in the System Tree then click **Information/Configuration** in the right workspace. Next, select **Rescan** from the Controller Tasks list then click **Execute**.

Replacing Front or Back Hard Drives

The LED indicator flashes green, then orange and then off if it is about to fail. After it has failed, the status indicator flashes orange four times a second. For more information about all the LED status indicators see *Hard Drive RAID Status Indicators* on page 13.

To replace a failed hard drive:

1. Locate the failed hard drive at the front or back of the recorder.



2. Press the release button on the front left of the hard drive.
3. When the handle is released, pull the hard drive out of the recorder.
4. Remove the four screws from the side of the hard drive carrier.
5. Lift the failed hard drive out of the carrier.
6. Insert a new hard drive into the carrier then screw it into place. The hard drive connectors should face the back.
7. When the hard drive is secured in the carrier, insert the hard drive back into the recorder.
8. Once the hard drive is inserted all the way in, push the handle against the hard drive to lock it into place.

The hard drive status indicator slowly flashes green, indicating the recorder has started rebuilding the hard drive. Rebuilding the RAID hard disk array may take several hours. You can verify that the rebuilding has started and monitor progress using the Server Administrator tool. Contact Technical Support if the rebuilding process does not start.

LED Indicators

The following tables describe what the LEDs on the recorder indicate.

Diagnostic Indicators

The diagnostic indicators on the front of the recorder highlight system issues during system startup.

> **Note:** The diagnostic indicators only light-up when the recorder is powered.

LED Indicator	Description
 **Health**	• Blue — the recorder is powered and is in good health. • Blinks orange — the recorder is powered but an error exists. Errors include: a failed fan or hard drive.
 **Hard drive**	• Blinks orange — the hard drive is experiencing an error.
 **Electrical**	• Blinks orange — the recorder experiences an electrical error. Errors include: voltage out of range, or failed power supply or voltage regulator. Check the power status indicator to confirm if it is an issue with the power supply.
Temperature	• Blinks orange — the recorder experiences a thermal error. Errors include: temperature out of range or fan failure. Check that the recorder fan is functioning correctly and the air vents are not blocked.
 **Memory**	• Blinks orange — the recorder experiences a memory error.
 **PCIe**	• Blinks orange — the recorder experiences a PCIe card error. Restart the recorder then update the drivers for the PCIe card.

Power Status Indicators

The power button on the front of the recorder lights up when power is on.

Additional information about the power supply is provided by the power status indicator on the back of the recorder. The following table describes what the LEDs indicate:

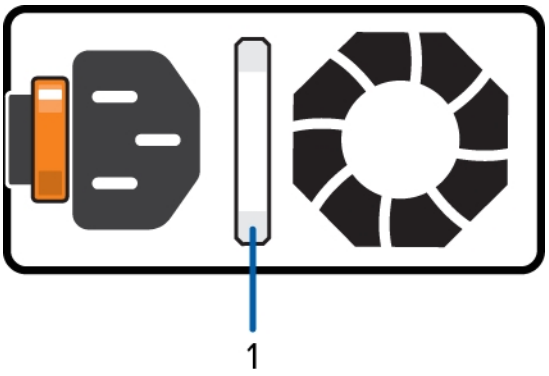


Figure 1: (1) The power status indicator.

LED Indicator	Description
Off	Power is not connected.
Green	Power is supplied to the recorder.
Flashing green	Firmware update is being applied to the power supply unit.
Flashing green then turns off	The redundant power supply is mismatched. This only occurs if you have a secondary redundant power supply installed.
Flashing orange	There is a problem with the power supply.

Network Link Status Indicators

When the recorder is connected to the network, the recorder's connection status LEDs above the Ethernet port display the recorder's connection status to the network. The following table describes what the LEDs indicate:

Figure 2: (1) Link LED. (2) Connection Status LED.

LED Indicator	Description
Off	The recorder is not connected to a network.
Link LED is green	The recorder is connected to a network at the maximum port speed (1 Gbps or 10 Gbps).
Link LED is orange	The recorder is connected to a network at less than the maximum port speed.
Connection Status LED is blinking green	The recorder is working with other parts of the Avigilon Control Center software.

Hard Drive RAID Status Indicators

Each hard drive has its own set of LED indicators to show its activity and status.

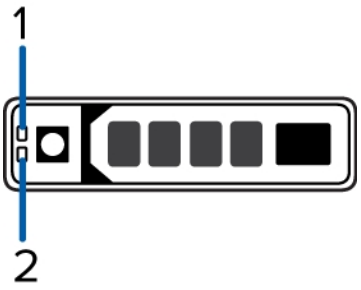


Figure 3: (1) Status LED. (2) Activity LED.

The Activity LED flashes green when the hard drives are working. The following table describes what the Status LEDs indicate:

LED Indicator	Description
Green	The hard drive is online.
Off	The hard drive is disconnected from the recorder.
Two short green flashes every second	The system is identifying a new hard drive, or preparing a hard drive for removal.
Flashes green, orange then off	The hard drive is predicted to fail.
Four short orange flashes per second	The hard drive has failed.
Flashes green slowly	The hard drive is rebuilding.
Blinks green for three seconds, orange for three seconds and off for six seconds	The hard drive rebuild has been aborted.

Specifications

System	
Avigilon Control Center Software	Enterprise, Standard and Core
Operating System	Windows 10 Enterprise 2016 LTSB
Hard Disk Drive Configuration	Near-line SAS, hot swappable, RAID 6
Mechanical	
Dimensions (H x W x D)	87.3 mm x 482.4 mm x 716 mm (3.44 in. x 18.99 in. x 28.19 in.)
Weight	22.3 kg (49.20 lb)
Form Factor	2U rack
Electrical	
Power Input	100 to 240 VAC, 50/60 Hz, auto-switching
Power Consumption	750 W (2891 BTU/hr)
Power Supply	Redundant, hot swappable
Environmental	
Operating Temperature	10° C to 35° C (50° F to 95° F)
Storage Temperature	–40°C to 65°C (–40°F to 149°F)
Humidity	5% to 95% relative humidity with 33°C (91°F) maximum dew point (non-condensing)
Operating Vibration	0.26 Grms at 5 Hz to 350 Hz (all operation orientations).
Storage Vibration	1.88 Grms at 10 Hz to 500 Hz for 15 min (all six sides tested).
Operating Shock	Six consecutively executed shock pulses in the positive and negative x, y, and z axes of 40 G for up to 2.3 ms.
Storage Shock	Six consecutively executed shock pulses in the positive and negative x, y, and z axes (one pulse on each side of the system) of 71 G for up to 2 ms.
Operating Altitutde	3048 m (10,000 ft).
Storage Altitutde	12,000 m (39,370 ft)
Certifications	
Safety	EN 60950-1:2006 / A11:2009 / A1:2010 / A12:2011 / A2:2013 UL/CSA/IEC 60950-1, 2 Ed + Am 1: 2009 + Am 2: 2013

	EN 62311:2008
Power Efficiency	80 PLUS Titanium ENERGY STAR 2.0
Electromagnetic Emissions	US CFR Title 47, FCC Part 2, 15 Canadian ICES-003(A) Issue 5 EN 55032:2012/CISPR 22:2010 EN 61000-3-2:2006 +A1:2009 +A2:2009/IEC 61000-3-2:2005 +A1:2008 +A2:2009 (Class D) EN 61000-3-3:2008/ IEC 61000-3-3:2008
Electromagnetic Immunity	EN 55024:2010/CISPR 24:2010
Directives	RoHS, Reach (SVHC), WEEE

Limited Warranty and Technical Support

Avigilon warranty terms for this product are provided at **avigilon.com/warranty**.

Warranty service and technical support can be obtained by contacting Avigilon Technical Support: **avigilon.com/contact-us/**.