

# SONY

## HAW-S Series

Network Video Recorder – Standard Edition



### Overview

Ready-to-run, easy-to-use, network video recorder for monitoring systems with up to 288 cameras

Scalable from 16 to 40 channels, this simple, easy-to-use network video recorder supports monitoring systems with up to 288 cameras, which is ideal for common applications such as retails and banks.

The HAW-S Series is the first 4K-ready NVR appliance from Sony with 4K recording and playback capability. It's ideal for use with Sony 4K cameras, supporting unique image output functions like Intelligent Cropping. Recording 4K image data with four times the resolution of Full HD, the HAW-S Series supports more effective, efficient video monitoring by providing excellent situational awareness plus the ability to recognise fine details in a scene and quick, accurate searches.

Multiple users can simultaneously and securely access live or recorded video via their smartphone or tablet from any location. In addition remote PC clients can securely access system functions via a web browser, with no need to install application software.

Multi-vendor support allows easy expansion through the addition of a growing choice of third party cameras and other devices to create a powerful, versatile monitoring system. Regular software updates give monitoring professionals the reassurance of top-flight performance and the addition of new features to expand system capabilities even further.

Monitoring workflow is enhanced with support for a wide range of smart analytical and automation functions. Supplied with all server functions pre-installed, the all-in-one HAW-S Series is ready to use 'out of the box' without requiring any additional application software installing. The hardware-based appliance gives integrators and installers the reassurance of guaranteed operational performance and stability, simplifying system design. A redundant disk array (RAID) further assures reliable operation and integrity of recorded data.

#### Note

The SOW-S and SOW-E Series network video management software and HAW-S and HAW-E Series network video recorders are not compatible with each other and cannot be used in the same system.

## Features

- **Compatible with Sony 4K cameras**

Sony 4K cameras provide powerful new ways to get the whole picture, allowing detailed analysis of specific areas in a scene, together with a wide-area situational overview. They offer a range of video output functions, including Intelligent Cropping and Multi Tracking, plus Evidence Shot, high resolution still image capture that's ideal for evidence.

The HAW-S Series supports the video output functions unique to Sony 4K cameras, including a single real-time 4K/30 fps video stream and Intelligent Cropping that provides a Full HD overview video plus up to four VGA close-up video streams at the same time.

- **Multi-client access via smartphone or PC**

Multiple users can simultaneously and securely access live or recorded video via their smartphone or tablet from any location. In addition remote PC clients can securely access system functions via a web browser\*, with no need to install application software.

Live images captured with a smartphone or tablet by on-site staff can be transferred to the system, shared among users in the operations room and recorded to the central server. This supports timely monitoring of events, even in extreme environments where installing cameras is difficult.

\* Web browser supports limited functions, while client application software installed on a PC supports full system functions.

- **See the complete picture**

Multiple monitors can be easily controlled by a single operator. The monitors are allocated to different tasks - such as viewing cameras images, a site map or alarm list - giving a single operator a complete overview and status of the entire system.

- **All-round awareness**

Interactive, multi-layered maps offer a situational overview plus control of cameras and other integrated systems. Icons are displayed in a map image showing the location of each camera: operators can instantly view live video by clicking on an icon. When an alarm event occurs, the associated camera icon is displayed prominently, helping the operator understand the situation and take appropriate action.

- **Highly reliable, redundant RAID HDD system**

The HAW-S Series employs a highly resilient RAID disk array, providing excellent system reliability and redundancy.

## Technical Specifications

| System components (software modules)  |     |
|---|-----|
| ● Recording Server  | Yes |
| ● Number of connected cameras per system  | 288 |
| ● Maximum number of cameras per recording server                                | 32  |
| ● Recording Server manager  | Yes |
| ● Management Application (local management)                                     | Yes |
| ● Event Server (for handling of events and alarms)                              | Yes |
| ● NVMS Mobile Client  | Yes |
| ● Network Video Management System Smart Client                                  | Yes |
| ● Network Video Management System Web Client                                    | Yes |
| ● Network Video Management System Smart Client - Player (local playback/export) | Yes |

  

| Device support  |      |
|---|------|
| ● Support for ONVIF™ compliant devices                                  | Yes  |
| ● Generic device support via universal driver                           | Yes  |
| ● Number of IP device brands supported via dedicated device integration | 149  |
| ● Number of supported IP camera models                                  | 4738 |
| ● Number of supported video encoder models                              | 319  |
| ● Number of dedicated IP input/output models                            | 14   |
| ● Number of supported DVRs  | 74   |
| ● Number of supported IP audio devices                                  | 8    |
| ● Number of supported perimeter detectors                               | 18   |
| ● Secure HTTPS camera connectivity (on supported devices)               | Yes  |

  

| Video processing  |     |
|---|-----|
| ● MJPEG, MPEG-4, MPEG-4 ASP and MxPEG support                             | Yes |
| ● H.264 support   | Yes |
| ● Dual stream (live and recording) per camera                             | Yes |
| ● Client video stream down sampling (resolution and FPS) option           | Yes |
| ● Send camera pre-alarm images (pre-recording buffer) to recording server | Yes |
| ● Video recording speed up on motion, event or time schedule              | Yes |
| ● Built-in Video Motion Detection (VMD)                                   | Yes |
| ● Auto adjustable VMD sensitivity   | Yes |
| ● Motion metadata generated during VMD analysis                           | Yes |

|                                      |                       |
|--------------------------------------|-----------------------|
| ● VMD exclusion zones                | Yes                   |
| ● Video motion detections per server | All connected cameras |

| Audio  |     |
|--|-----|
| ● One-way audio support                      | Yes |
| ● Two-way audio support                      | Yes |
| ● One-way audio recording                    | Yes |
| ● Maximum number of supported audio channels | 32  |

| Pan-tilt-zoom (PTZ)   |     |
|---|-----|
| ● Preset positions per camera                               | 25  |
| ● Go-to preset on event                                     | Yes |
| ● Preset patrolling   | Yes |
| ● Combine patrolling and go-to preset on event              | Yes |
| ● Number of PTZ priority levels for prioritized PTZ control | 1   |

| I/O and events  |     |
|---|-----|
| ● Hardware configurable events (such as I/O input, motion, tampering, temperature, communication failure) | Yes |
| ● Motion detection events (VMD in Recording Server)   | Yes |
| ● System error events (for example disk full)   | Yes |
| ● Manual / User defined events  | Yes |
| ● Event-based notification  | Yes |
| ● Event-based output control  | Yes |
| ● Event-based device start/stop   | Yes |

| Alarm Manager                             |       |
|---|-------|
| ● View triggered alarms                   | Yes   |
| ● Number of alarm priority levels         | 32000 |
| ● Customizable alarm priority levels      | Yes   |
| ● Customizable alarm categories           | Yes   |
| ● Alarm handling reporting                | Yes   |
| ● Alarm logging                           | Yes   |
| ● Redundancy option for high availability | Yes   |

| Storage and archiving               |           |
|-------------------------------------|-----------|
| ● Video retention time              | Unlimited |
| ● Recording capacity per device/day | >1 TB     |
| ● Archiving of recordings           | Yes       |

|   |        |
|---|--------|
| ● Archiving to network drives   | Yes    |
| ● Dynamic archiving (disk spanning)                                       | Yes    |
| ● Online access to archives   | Yes    |
| ● Archiving schedules   | Hourly |
| ● Automatic storage distribution  | Yes    |
| ● Storage definition and retention time per device                        | Yes    |
| ● Storage overview (used vs. available space) of available storage drives | Yes    |

#### Support for Add-on products

|                            |     |
|----------------------------|-----|
| ● Supports Screen Recorder | Yes |
|----------------------------|-----|

#### Management

|  |     |
|--|-----|
| ● Automatic initial configuration wizard       | Yes |
| ● Configuration wizards for aided system setup | Yes |
| ● Automatic camera discovery                   | Yes |
| ● Device scanning with device model detection  | Yes |
| ● On-the-fly configuration changes             | Yes |
| ● Run servers as Windows Services              | Yes |
| ● Scheduled start/stop of devices              | Yes |
| ● System configuration restore points          | Yes |
| ● Export and import of configuration data      | Yes |
| ● Offline license activation                   | Yes |

#### Viewing clients

|  |     |
|--|-----|
| ● Maximum number of clients  | 20  |
| ● Customizable access port with NAT support                          | Yes |
| ● Basic User (Network Video Management System application accounts)  | Yes |
| ● Windows User (local Windows accounts)                              | Yes |
| ● Single step installer (installs Smart Client together with server) | Yes |

#### Alarms and notification

|                      |     |
|----------------------|-----|
| ● Email notification | Yes |
| ● SMS notification   | Yes |

#### Logging

|                  |     |
|------------------|-----|
| ● System logging | Yes |
| ● Event logging  | Yes |
| ● Audit logging  | Yes |

| Languages (Management Interface) |     |
|----------------------------------|-----|
| ● English                        | Yes |
| ● French                         | Yes |
| ● German                         | Yes |
| ● Japanese                       | Yes |
| ● Spanish                        | Yes |

| General view handling (Client)   |  |
|--|--|
| ● Number of view layouts   | 2 (Mobile/Web Client), 41 (Smart Client) |
| ● Maximum view Items per view  | 100 (Smart/Web/Mobile Client)            |
| ● Optimized view layouts for 4:3 and 16:9 display ratios                   | Yes (Smart Client)                       |
| ● Corridor optimized view layouts  | Yes (Smart Client)                       |
| ● Optimized view layouts for landscape and portrait displays               | Yes (Smart/Mobile Client)                |
| ● Cameras from multiple servers  | Yes (Smart/Web/Mobile Client)            |
| ● Support for Shared Views and Private Views                               | Yes (Smart/Web/Mobile Client)            |
| ● Images in views  | Yes (Smart Client)                       |
| ● Active HTML pages in views   | Yes (Smart Client)                       |
| ● Hotspot in views   | Yes (Smart Client)                       |
| ● Carousel in views (controllable)   | Yes (Smart Client)                       |
| ● Virtual Matrix in views  | Yes (Smart Client)                       |
| ● Full screen mode   | Yes (Smart/Web/Mobile Client)            |
| ● Display views as floating window   | Yes (Smart Client)                       |
| ● Display views on multiple monitors                                       | Yes (Smart Client)                       |
| ● Advanced multi window support with synchronized or independent operation | Yes (Smart Client)                       |
| ● Switch to view by number   | Yes (Smart Client)                       |
| ● Initial default view   | Yes (Smart/Web/Mobile Client)            |
| ● Camera search  | Yes (Smart/Web/Mobile Client)            |
| ● Automatic restore views and windows at login                             | Yes (Smart/Web/Mobile Client)            |

| Live view (Client)                                    |                           |
|---|---------------------------|
| ● Update on motion only                               | Yes (Smart Client)        |
| ● One-way audio support                               | Yes (Smart Client)        |
| ● Start recording in view                             | Yes (Smart Client)        |
| ● Independent playback in live mode                   | Yes (Smart Client)        |
| ● Replace cameras in view without changing view setup | Yes (Smart Client)        |
| ● Share video image                                   | Yes (Smart/Mobile Client) |

|  |  |
|--|--|
| ● Switch to camera by number                                 | Yes (Smart Client)   |
| <b>PTZ support (Client)</b>                                  |  |
| ● Define presets in the client application                   | Yes (Smart Client)   |
| ● View who have PTZ control and time to automatic release    | Yes (Smart/Web/Mobile Client)                                |
| ● Go to preset position                                      | Yes (Smart/Web/Mobile Client)                                |
| ● Pause patrolling at manual operation                       | Yes (Smart/Web/Mobile Client)                                |
| ● Grandeye 360° Quad View                                    | Yes (Smart Client)   |
| ● Immervision Enables® panomorph lens support                | Yes (Smart Client)   |
| ● Joystick support   | Yes (Smart Client)   |
| ● Assign commands to keyboard shortcuts and joystick buttons | Yes (Smart Client)   |
| ● Auxiliary commands (wash and wipe)                         | Yes (Smart Client)   |
| <b>I/O and events control (Client)</b>                       |  |
| ● Camera overlay buttons                                     | Yes (Smart Client)   |
| ● Manually activate events and trigger outputs               | Yes (Smart/Web/Mobile Client)                                |
| <b>Playback (Client)</b>                                     |  |
| ● Maximum view items per view                                | 1 (Mobile/Web Client), 100 (Smart Client)                    |
| ● Playback mode  | Multi Camera(Smart/Web Client), Single Camera(Mobile Client) |
| ● Recording search   | Yes (Smart/Web/Mobile Client)                                |
| ● Recent history of recording sequences per camera           | Yes (Mobile Client)  |
| ● Time/date search   | Yes (Smart/Web/Mobile Client)                                |
| ● Independent playback in playback mode                      | Yes (Smart Client)   |
| ● Event/alert list in recording                              | Yes (Smart Client)   |
| ● Graphical timeline   | Yes (Smart Client)   |
| ● Adjust playback speed                                      | Yes (Smart/Web/Mobile Client)                                |
| ● Single frame step (forward/backward)                       | Yes (Smart/Web/Mobile Client)                                |
| ● One-way audio support                                      | Yes (Smart Client)   |
| ● Digital zoom   | Yes (Smart/Web/Mobile Client)                                |
| ● Share video image  | Yes (Smart/Web/Mobile Client)                                |
| ● Print report with comments                                 | Yes (Smart Client)   |
| ● Privacy masking  | Yes (Smart/Web/Mobile Client)                                |
| <b>Smart Search (Client)</b>                                 |  |
| ● Smart Search based on VMD analysis                         | Yes (Smart Client)   |
| <b>Sequence Explorer (Client)</b>                            |  |
|  |  |



|  |                    |
|--|--------------------|
| ● Listing of sequences   | Yes (Smart Client) |
| ● Listing of time intervals  | Yes (Smart Client) |
| ● Dedicated Sequence Explorer tab that can be displayed as floating window | Yes (Smart Client) |

| Alarm Manager (Client)   |                    |
|--|--------------------|
| ● Alarm list and alarm preview view items in normal camera views | Yes (Smart Client) |
| ● Sort and filtering functions                                   | Yes (Smart Client) |
| ● Instant preview of primary and related cameras                 | Yes (Smart Client) |

| Map function (Client)  |                    |
|--|--------------------|
| ● Standard graphical file formats supported for maps           | Yes (Smart Client) |
| ● Number of linked map layers supported                        | 64 (Smart Client)  |
| ● Video preview  | Yes (Smart Client) |
| ● Drag-and-drop and point-and-click definition of map elements | Yes (Smart Client) |
| ● Integrated PTZ control                                       | Yes (Smart Client) |

| Export (Client)   |                               |
|---|-------------------------------|
| ● Export in still image format (JPEG)                               | Yes (Smart/Web/Mobile Client) |
| ● Export in media player format (AVI)                               | Yes (Smart/Web/Mobile Client) |
| ● Export with audio in media player format (AVI)                    | Yes (Smart Client)            |
| ● Export with audio in media player format (MKV)                    | Yes (Smart Client)            |
| ● Export in Network Video Management System format                  | Yes (Smart Client)            |
| ● Server side export  | Yes (Smart/Web Client)        |
| ● Encrypted export with password                                    | Yes (Smart Client)            |
| ● Digital signing of exported video                                 | Yes (Smart Client)            |
| ● Re-export prevention  | Yes (Smart Client)            |
| ● Auto-export of Smart Client – Player                              | Yes (Smart Client)            |
| ● Preserve system defined privacy masks                             | Yes (Smart/Web/Mobile Client) |
| ● Additional export specific privacy masks                          | Yes (Smart Client)            |
| ● Direct export to optical media                                    | Yes (Smart Client)            |
| ● Flexible camera selection for export                              | Yes (Smart Client)            |
| ● Bulk export to multiple media formats                             | Yes (Smart Client)            |
| ● General and camera specific export comments                       | Yes (Smart Client)            |
| ● Pre/post comment slides (media player format only)                | Yes (Smart Client)            |
| ● Verification of digital video signatures in Smart Client – Player | Yes (Smart Client)            |

| Video Push (Client) |  |
|---------------------|--|
|                     |  |

|   |                               |
|---|-------------------------------|
| ● Video Push  | Yes (Mobile Client)           |
| <b>Installation (Client)</b>  |                               |
| ● Run without installation  | Yes (Web Client)              |
| ● Optional browser plug-ins for enhance viewing performance                                       | Yes (Web Client)              |
| ● Single step installer (installs client together with server)                                    | Yes (Smart Client)            |
| ● Initial and update installations from Management Server   | Yes (Smart Client)            |
| <b>System access (Client)</b>   |                               |
| ● Auto-login  | Yes (Smart/Mobile Client)     |
| ● Secure (HTTPS) client-server connection   | Yes (Mobile/Web Client)       |
| ● Dynamic bandwidth adaptation  | Yes (Mobile/Web Client)       |
| ● Bandwidth threshold   | Yes (Mobile/Web Client)       |
| <b>Authorization (Client)</b>   |                               |
| ● Restrict user access by devices (cameras, microphones, I/O devices, etc.)                       | Yes (Smart/Web/Mobile Client) |
| ● Restrict access to live view  | Yes (Smart/Web/Mobile Client) |
| ● Restrict access to PTZ  | Yes (Smart/Web/Mobile Client) |
| ● Restrict access to playback   | Yes (Smart/Web/Mobile Client) |
| ● Restrict access to export   | Yes (Smart/Web/Mobile Client) |
| ● Restrict access to setup  | Yes (Smart Client)            |
| <b>Personalization (Client)</b>   |                               |
| ● Application options   | Yes (Smart/Mobile Client)     |
| ● Centralized management of application options   | Yes (Smart/Web Client)        |
| ● Application theme support   | Yes (Smart Client)            |
| ● Task oriented tabs  | Yes (Smart Client)            |
| ● Toggle between Advanced mode and Simplified mode.<br>Default mode: A – Advanced, S - Simplified | Yes (Smart Client)            |
| <b>System (Client)</b>  |                               |
| ● Hardware accelerated video decoding (Intel Quick Sync video)                                    | Yes (Smart Client)            |
| <b>Languages (Installation, UI and help function) (Client)</b>                                    |                               |
| ● Arabic  | Yes (Smart/Web/Mobile Client) |
| ● English   | Yes (Smart/Web/Mobile Client) |
| ● French  | Yes (Smart/Web/Mobile Client) |
| ● German  | Yes (Smart/Web/Mobile Client) |
| ● Japanese  | Yes (Smart/Web/Mobile Client) |
| ● Spanish   | Yes (Smart/Web/Mobile Client) |

|           |                               |
|-----------|-------------------------------|
| ● Turkish | Yes (Smart/Web/Mobile Client) |
|-----------|-------------------------------|

| System (Hardware)      |   |
|------------------------|---|
| ● Form Factor          | 2U  |
| ● Dimension (HxWxD)    | 88.2 x 440 x 391.2 mm   |
| ● RAID                 | RAID0, RAID1, RAID3, RAID5, RAID10, RAID1E, RAID30, RAID50, RAID6 |
| ● Number of HDD Drives | 6 Drives (3.5")   |
| ● PSU                  | 250W (Single)   |
| ● Drive Type           | SATA (6G/s), Hot Swappable  |
| ● AC input             | 100-240V, 50-60Hz   |

| Interface (Hardware) |   |
|----------------------|---|
| ● Ethernets          | 2x Gigabit Ethernet (RJ45) 10Base-T/100Base-Tx/1000Base-T, Auto negotiation |
| ● Audio              | Line-out  |
| ● USB2               | 2x USB2.0 (2x Rear)   |
| ● USB3               | 4x USB3.0 (2x Front, 2x Rear)   |
| ● HDMI               | 1x HDMI (max. resolution: 1920x1200)  |
| ● VGA                | 1x HD15 (max. resolution: 1920x1200)  |
| ● Display Port       | N/A   |

| Software (System Requirements) |  |
|--------------------------------|--|
| ● Support OS                   | Windows Embedded Standard 7 Runtime (WS7P) |

| Computer running Mobile Server (System Requirements) |  |
|--|--|
| ● CPU  | Intel® Pentium® 4, 2.4 GHz   |
| ● RAM  | Minimum 4 GB   |
| ● Network  | Ethernet 100 Mbit  |
| ● Graphics Adapter                                   | Onboard GFX, AGP, or PCI-Express, minimum 1024 x 768, 16-bit color   |
| ● Hard Disk Space                                    | Minimum 10 GB free hard disk space available (When using server-side export additional storage space is needed)  |
| ● Operating system                                   | Microsoft® Windows® 10 Pro (64 bit)*<br>Microsoft Windows 10 Enterprise (64 bit)*<br>Microsoft Windows 8 Pro (64 bit)<br>Microsoft Windows 8.1 Enterprise (64 bit)<br>Microsoft Windows 8.1 Pro (64 bit)<br>Microsoft Windows 7 Ultimate (64 bit)<br>Microsoft Windows 7 Enterprise (64 bit)<br>Microsoft Windows 7 Professional (64 bit)<br>Microsoft Windows Server 2012 (64 bit): Standard and Datacenter<br>Microsoft Windows Server 2012 R2 (64 bit): Standard and Datacenter<br>Microsoft Windows Server 2008 R2 (64 bit): Standard, Web, High Performance Computing (HPC), Enterprise, and Datacenter |
| ● Software   | Microsoft® .NET 4.5.1 Framework  |

| Computer running Smart Client, Smart Client - Player and Smart Wall - Using Software Decoding (System Requirements) |                   |
|---|-------------------|
| ● CPU   | Intel® Core™2 Duo |
| ● RAM   | Minimum 1 GB      |

|                            |  |
|----------------------------|--|
| ● Network                  | Ethernet 100 Mbit  |
| ● Graphics Adapter         | Onboard GFX, AGP or PCI-Express, minimum 1280 x 1024, 16-bit colors, DirectX 9.0 or newer  |
| ● Hard Disk Space          | 1 GB free  |
| ● Operating system         | Microsoft® Windows® 7 Professional SP1 (32-bit or 64-bit) *<br>Microsoft® Windows® 7 Enterprise SP1 (32-bit or 64-bit) *<br>Microsoft® Windows® 7 Ultimate SP1 (32-bit or 64-bit) *<br>Microsoft® Windows® 8 Pro (32-bit or 64-bit)<br>Microsoft® Windows® 8 Enterprise (32-bit or 64-bit)<br>Microsoft® Windows® 8.1 Pro (32-bit or 64-bit)<br>Microsoft® Windows® 8.1 Enterprise (32-bit or 64-bit)<br>Microsoft® Windows® 10 Pro (32-bit or 64-bit)<br>Microsoft® Windows® 10 Enterprise (32-bit or 64-bit) |
| ● Operating system (contd) | Microsoft® Windows® Server 2008 R2 (32-bit or 64-bit): Standard, Web, High Performance Computing (HPC), Enterprise, and Datacenter<br>Microsoft® Windows® Server 2012 (32-bit or 64-bit): Standard and Datacenter<br>Microsoft® Windows® Server 2012 R2 (32-bit or 64-bit): Standard and Datacenter<br>Microsoft® Windows® 7 and Server 2008 R2 are only supported on physical PC's not on virtual machines  |
| ● Software                 | Microsoft® .Net 4.5.1 Framework<br>Requires Operating System and Graphic Adaptor support for DirectX 9.0 or newer  |

| Computer running Smart Client, Smart Client - Player and Smart Wall - Using Hardware (System Requirements) |   |
|--|---|
| ● CPU  | Intel CPU supporting Intel QuickSync, Intel GPU enabled in BIOS   |
| ● RAM  | Minimum 1 GB  |
| ● Network  | Ethernet 100 Mbit   |
| ● Graphics Adapter   | AGP or PCI-Express, minimum 1280 x 1024, 32-bit colors, DirectX 11.0 or newer   |
| ● Hard Disk Space  | 1 GB free   |
| ● Operating system   | Microsoft® Windows® 8.1 Pro (32-bit or 64-bit)<br>Microsoft® Windows® 8.1 Enterprise (32-bit or 64-bit)<br>Microsoft® Windows® 10 Pro (32-bit or 64-bit)<br>Microsoft® Windows® 10 Enterprise (32-bit or 64-bit)<br>Microsoft® Windows® Server 2012 (32-bit or 64-bit): Standard and Datacenter<br>Microsoft® Windows® Server 2012 R2 (32-bit or 64-bit): Standard and Datacenter |
| ● Software   | Microsoft® .Net 4.5.1 Framework<br>Requires Operating System and Graphic Adaptor support for DirectX 11.0 or newer  |

| Computer running Web Client (System Requirements) |   |
|---|---|
| ● CPU   | Intel Core2 Duo, 2.0 GHz<br>Intel Core i3-5010U 2.1 Ghz*  |
| ● RAM   | 1 GB<br>4 GB*   |
| ● Network   | Ethernet 100Mbit / WiFi 2Mbit   |
| ● Graphics Adapter                                | AGP or PCI-Express, minimum 1280 x 1024, 16 bit colors  |
| ● Hard Disk Space                                 | 500 MB free   |
| ● Operating System                                | Any capable of running the below browsers   |
| ● Browser   | Microsoft Internet Explorer® 9 or later**<br>Safari® 5 or later**<br>Google Chrome™ 16 or later<br>Google Chrome™ 48 or later (recommended)*<br>Mozilla® Firefox® 11 or later<br>Mozilla® Firefox® 43 or later (recommended)* |

| Device running Mobile Client (System Requirements) |  |
|--|--|
| ● RAM  | 2GB*                                       |
| ● Operating System                                 | Android 4.0 or higher<br>iOS 9.2 or higher |
| ● Network  | 2G/3G<br>(4G or WiFi)*                     |

| Notes |   |
|-------|---|
| ● *   | Required for using Direct Streaming       |
| ● **  | Not supported when using Direct Streaming |